LEIGH DESIGN	Leigh Design Pty Ltd ABN 37 139 522 437 PO Box 2599 Mt Waverley VIC 3149 P +61 3 9888 3943 M +61 0410 456 510 E info@leighdesign.com.au I www.leighdesign.com.au
waste management plans for all urban developments	

WASTE MANAGEMENT PLAN

Proposed Development:
46-70 Stanley Street, Collingwood, Victoria

Prepared for:
Urban Inc

Document Control	
Report Date:	18 July 2011
Prepared By:	Carlos Leigh, GradIEAust

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WASTE MANAGEMENT SUMMARY

- The operator shall be responsible for on-going management of the waste system, and for developing and implementing adequate safe operating procedures.
- Waste shall be stored within the development (hidden from external view).
- Users and staff shall sort their waste and dispose garbage and recyclables via dedicated chutes (or directly into collection bins).
- Waste shall be collected on Stanley and Napoleon Streets (site's frontage). The operator shall transfer council bins between the building and kerbside (private bins shall be transferred by the collection contractor).
- Council shall collect residential waste.
- A private contractor shall collect commercial waste.

GLOSSARY

Operator: refers to the Owners Corporation, who shall manage site operations via staff and contractors.

User: refers to residents and commercial tenants, who shall utilise the waste system.

1 SPACE AND SYSTEM FOR WASTE MANAGEMENT

1.1 Development Description and Use

This development shall consist of residential apartments and commercial tenancies. The number of residences and tenancy floor-areas are stated in Table 1 (below).

The following table summarises the waste estimate (m^3/week):

Table 1: Waste Estimate

Waste Source	Base Qty (est.)		Garbage	Commingled Recycling
Café	NLA (m^2) =	44	1.29	0.35
Stg 1: 1-bed Apts	No. of units =	60	2.70	3.90
Stg 1: 2-bed Apts	No. of units =	29	1.74	2.32
Stg 2: 1-bed Apts	No. of units =	69	3.11	4.49
Stg 2: 2-bed Apts	No. of units =	33	1.98	2.64
Stg 3: 1-bed Apts	No. of units =	58	2.61	3.77
Stg 3: 2-bed Apts	No. of units =	26	1.56	2.08
Stg 4: 1-bed Apts	No. of units =	64	2.88	4.16
TOTAL (m^3/wk)			**17.87**	**23.71**

Notes:

- Residential waste figures are based on council's volumetric requirements.
- Commercial waste figures are based on adjusted Sustainability Victoria Guidelines.

1.2 Collection Services

Residential Waste: Council shall provide waste services for the residential component of the development.

Commercial Waste: Municipal services would be insufficient as these are limited to a pair of weekly wheelie bins. Therefore, a private contractor shall be engaged to collect waste. The operator shall choose a waste collection provider, negotiate a service agreement, and pay for these services.

Note: Every rateable tenement is liable to pay for municipal charges irrespective of the level of collection services provided by council.

1.3 Location, Equipment, and System Used for Managing Waste

The waste management system is summarised as follows:

- Apartment receptacles (under-bench kitchen bins for garbage and recycling).
- Tenancy receptacles (internal, for work/amenity areas).
- Four Garbage Chutes and four Recycling Chutes (with residential level intakes and Basement discharge).
- Four Residential Bin Stores (located at Basement Level).
- Commercial Bin Store (located within the cafe).
- Collection bins (kept within the Bin Stores - refer to Table 2).

The various collection waste-streams are summarised as follows:

Garbage: For collection purposes, garbage shall be stored within collection bins.

Recycling: All recyclables shall be commingled into a single type of collection bin (for paper, cardboard, PET, glass, aluminum, steel, and HDPE containers).

Garden Waste: Garden organics shall be collected and disposed by the future landscape maintenance contractor (alternatively, council offers at call services for bundled prunings and boxed clippings).

Compost: At this development, composting is considered impractical, as there would be minimal onsite demand for compost.

Other Waste Streams: The disposal of hard/electronic/liquid waste, and home detox (paint/chemicals), etc shall be organised with the assistance of the operator, council, and the appropriate contractor.

Also, the café tenant shall arrange the storage of used cooking oil and its collection by a recycler. The operator shall organise Grease Interceptor Trap servicing.

The following table summarises bin quantity/capacity, collection frequency, and area requirements (based on Table 1):

Table 2: Bin Schedule and Collection Frequency

Waste Source	Waste Stream	Bin Qty	Bin Litres	Collections per Week	Bin Area m^2
Cafe (dedicated private bins)	Garbage	1	660	2	1.2
	Recycling	1	240	2	0.5
Residential Stg 1 (shared council bins)	Garbage	7	660	1	8.4
	Recycling	10	660	1	12.0
	Hard Waste	-	-	at call	2.0
Residential Stg 2 (shared council bins)	Garbage	8	660	1	9.6
	Recycling	11	660	1	13.2
	Hard Waste	-	-	at call	2.0
Residential Stg 3 (shared council bins)	Garbage	7	660	1	8.4
	Recycling	10	660	1	12.0
	Hard Waste	-	-	at call	2.0
Residential Stg 4 (shared council bins)	Garbage	5	660	1	6.0
	Recycling	7	660	1	8.4
	Hard Waste	-	-	at call	2.0
Net Bin Storage Area (excludes circulation), m^2:					**87.7**

Notes:

- Council shall provide all residential bins (supply cost applies).
- Private bins shall be sourced by the operator (purchased from a supplier or leased from the collection contractor).
- Subject to stakeholders' preference/capability (and as built constraints), bin sizes and quantities can be changed. Also, recyclables can be either commingled or split into bins for separate recycling streams.

1.4 Town Planning Drawings and Management of the Waste System

The plans illustrate that sufficient space shall be provided for onsite bin storage, as required by the above schedule. Notwithstanding the above, the operator shall stipulate procedures for effective management of the available space.

1.5 Collection Bin Information

Plastic (HDPE) bins shall be utilised (include labels and colours), as follows:

Table 3: Bin Details

Capacity (litres)	Height (mm)	Width (across front, mm)	Depth (side on, mm)	Empty Weight (kg)	Average* Gross Weight (kg)
240	1060	585	730	13	45
660	1250	1240	780	43	130

Notes:

- * = Average Gross Weight is based on domestic waste studies (which vary subject to locality and waste-type). Expect greater weight for wet or compacted waste.
- Use the above details as a guide only – variations will occur.
- Bins that receive waste under the chute shall be protected to withstand loads from waste falling at high speed.

Table 4: Yarra Colour Coding

Bin	Garbage	Commingled Recycling
Lid	Green	Yellow
Body	Green	Green

Note: Alternative bin colours can be utilised for private bins, such as the Australian New Zealand Environment Conservation Council colour code. Also, private bins shall be labeled to identify the waste generator and site address.

2 ACCESS FOR USERS, COLLECTORS, AND COLLECTION VEHICLES

2.1 User Access to Waste Facilities

Residents shall dispose sorted garbage and recyclables via dedicated chutes (available at each apartment level), in accordance with instructions from the chute supplier.

Commercial tenants shall dispose their waste into collection bins located within their Bin Store (if required, use a suitable trolley).

Note: The operator shall ensure the orderly-filling of bins to avoid a higher number of partially-filled ones, rotating the bins so that users are able to reach them and changing the bin under the chutes. Also, the operator shall ensure that bins are not overloaded.

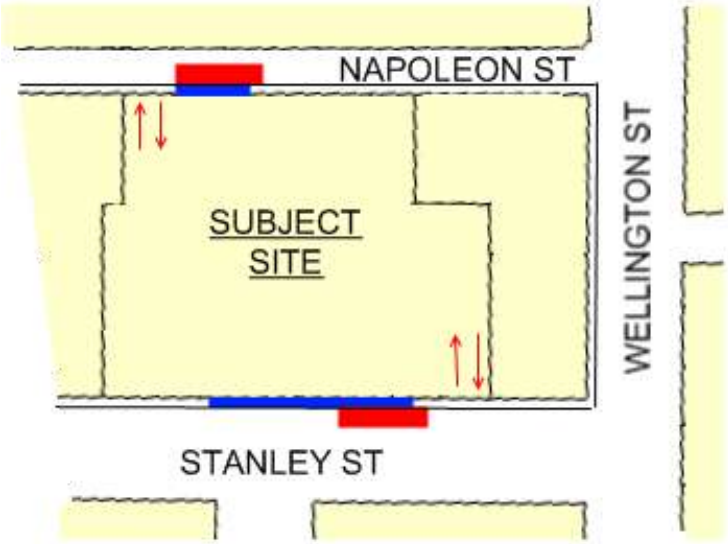
2.2 Collection Arrangements and Access to Waste Facilities

- Waste shall be collected on Stanley and Napoleon Streets (site's frontage).
- Prior to the collection, the operator shall transfer council bins from the Bin Store to kerbside (returning the bins once the collection has taken place). Council's instructions for kerbside bin-placement must be followed. Cafe bins shall be transferred by the collector.
- Given the max. 1:5 ramp gradients, bin weight, and transfer distance (potentially creating OH&S incidents during bin transfers), mechanical assistance via a suitable tug is recommended (operator to assess and specify, see Sect 5 and 8).
- The waste collection shall be carried-out by rear-lift vehicles (nom. 10.24m long and 4m operational height).

The collection points are illustrated as follows (indicative only, not to scale). Council may alter the proposed collection point subject to operational needs:

Bins shown in blue (temporarily awaiting collection on the front footpaths of the development).

Collection truck shown in red.



3 AMENITY, LOCAL ENVIRONMENT, AND FACILITY DESIGN

3.1 Compliance with City of Yarra's Environmental Local Law

The purpose of this local law is to promote order, peace, health, and safety throughout the municipality. In terms of on-going waste management, sections of interest include: vermin destruction (Part B, Sect. 10), and waste disposal (Part C, Sect. 17-29). The complete law can be found at:

http://www.yarracity.vic.gov.au/council/local%20laws/pdf/env_law.pdf

The Owners Corporation shall promote the observance of the law and encourage users to participate in the well-being of the municipality.

Any council-notice that is issued to the development shall be promptly attended-to by the operator.

3.2 Noise Minimisation Initiatives

- Collection bins shall feature a plastic lid and body, with rubber castors for quiet rolling during transfers.
- The chutes shall be vibration-isolated from the building's structure (the project's acoustic consultant shall provide further information).
- Local laws shall be observed for all operations in public and private areas.
- Municipal waste collections shall take place as per council's timing/schedule.
- For private services, the hours of waste collections shall be as specified in council's local laws. Also, Section 5 of the Victorian EPA Noise Control Guideline Publication 1254 (see below) shall be observed to protect the acoustic amenity of the development and surroundings.

> Victorian EPA Noise Control Guideline Publication 1254 October 2008 (excerpt)
>
> [Section] 5. Domestic [and Commercial] Refuse Collection
>
> The main annoyance produced by domestic refuse collections occurs in the early morning (i.e. before 7:00am). Therefore, if possible, routes should be selected to provide the least impact on residential areas during that time.
>
> Collection of refuse should be restricted to the following criteria:
>
> - Collection occurring once a week should be restricted to the hours: 6am to 6pm Monday to Saturday.
> - Collections occurring more than once a week should be restricted to the hours: 7am to 6pm Monday to Saturday.
> - Compaction should only be carried out while on the move.
> - Bottles should not be broken up at the point of collection.
> - Routes which service entirely residential areas should be altered regularly to reduce early morning disturbance.
> - Noisy verbal communication between operators should be avoided where possible.

3.3 Litter Reduction and Prevention of Stormwater Pollution

The operator and residents shall be responsible for:

- Promoting adequate waste disposal into the bins (to avoid waste-dumping).
- Securing the Bin Stores (whilst affording access to users/staff/contractors).

- Preventing overfilled bins, keeping lids closed and bungs leak-free.
- Abating any site litter and taking action to prevent dumping and/or unauthorised use of waste areas.
- Requiring the collection contractor to clean-up any spillage that might occur when clearing bins.

The above will minimise the dispersion of site litter and prevent stormwater pollution (thus avoiding impact to the local amenity and environment).

3.4 Ventilation, Washing, and Vermin-Prevention Arrangements

The Bin Stores shall be ventilated in accordance with Australian Standard AS1668. For chute ventilation, a fan with riser to a rooftop exhaust shall be utilised.

The stores shall feature tightly fitted doors. All other openings shall have vermin-proof mesh or similar. The floor shall be impervious, smooth, slip-resistant, and appropriately drained. Store doors shall be kept closed when unattended.

The stores shall include a graded bin wash area, hosecock, hose, and a suitable floor-waste connected in accordance with the relevant authority requirements (provide hot and cold mixing hosecocks in the Commercial Bin Store). The bin and wash areas may overlap, as stored bins can be moved-out so that a bin can be washed.

A water-flushing nozzle with accessible water cock shall be provided at the head of the chute. Include a suitable floor waste and hosecock near the chute outlets.

The operator shall regularly clean waste areas/equipment and keep bin lids closed.

3.5 Design and Aesthetics of Waste Storage Areas and Equipment

Waste shall be placed within the bins and stored in designated onsite areas (hidden from external view). Following waste collection activities, bins shall be returned to the storage areas as soon as practicable.

Waste facilities shall be constructed of durable materials and finishes, and maintained to ensure that the aesthetics of the development are not compromised. These facilities and associated passages shall be suitably illuminated (this provides comfort, safety, and security to users, staff, and contractors). Access doors shall feature keyless opening from within.

The design and construction of waste facilities and equipment shall conform to the Building Code of Australia, Australian Standards, and local laws.

The chutes shall be sized and designed as recommended by a reputable chute manufacturer (chutes are proprietary items). The chute supplier shall fix safe-operating instructions to each intake-door and place a warning sign on the chute outlets. For improved safety, chute outlets shall be shrouded with a suitable rubber skirt and designed to minimise the effect of falling waste into the bins.

4 MANAGEMENT AND SUSTAINABILITY

4.1 Waste Sorting, Transfer, and Collection Responsibilities

Garbage shall be placed within tied plastic bags prior to transferring into the collection bins or chutes. Cardboard shall be flattened and recycling containers un-capped, drained, and rinsed prior to disposal into the appropriate bin or chute. Bagged recycling is not permitted.

Refer to Section 2 for waste transfer requirements and collection arrangements.

4.2 Facility Management Provisions to Maintain & Improve the Waste System

It shall be the responsibility of the operator to maintain all waste areas and components, to the satisfaction of users, staff, and the relevant authority (users shall maintain their internal waste receptacles).

The operator shall ensure that maintenance and upgrades are carried-out on the facility and components of the waste system. When required, the operator shall engage an appropriate contractor to conduct services, replacements, or upgrades.

4.3 Arrangements for Protecting Waste Equipment from Theft and Vandalism

It shall be the responsibility of the operator to protect the equipment from theft and vandalism. This shall include the following initiatives:

- Secure the bin storage areas.
- Label/number the bins according to property address.
- The private collection contractor shall transfer bins between the store and the truck (only council bins allowed to await collection on kerbside, which once collected, shall be promptly returned to the storage areas).

4.4 Arrangements for Bins/Equipment Labelling and Ensuring Users and Staff are Aware of How to Use the Waste System Correctly

- The operator shall provide appropriate signage for the bins. Signage is available at the following internet address: http://www.sustainability.vic.gov.au/www/html/2040-images-for-download.asp.
- The operator shall publish/distribute “house rules” and educational material to:
  - Inform users/staff about the waste management system and the use/location of the associated equipment (include Page 2 of this report).
  - Improve facility management results (lessen equipment damage and chute blockages, reduce littering, and achieve cleanliness).
  - Advise users/staff to sort and recycle waste with care to reduce contamination of recyclables.

4.5 Sustainability and Waste Avoidance/Reuse/Reduction Initiatives

Victoria's Toward Zero Waste Strategy (TZW) promotes waste avoidance and sets targets for increasing the recovery rate of solid waste for reuse and recycling. For developments, the strategy calls to "ensure recycling is supported in the design of new residential buildings and infrastructure".

The operator shall promote the observance of the above legislation and encourage users and staff to participate in minimising the impact of waste on the environment. For improved sustainability, the operator and residents shall consider the following:

- Peruse the Sustainability Victoria Website: www.sustainability.vic.gov.au.
- Embrace TZW's Waste Hierarchy (in order of preference): 1) waste avoidance, 2) reuse/recycle, 3) recover/treat/contain, and 4) disposal.
- Participate in council and in-house programs for waste minimisation.
- Establish waste reduction and recycling targets: Conduct periodic waste audits, keep records, and monitor the amount of recyclables found in landfill-bound bins (sharing results with users/staff).

4.6 Waste Management Plan Revisions

For any future council request, or changes in legal requirements (legislation, by-laws, guidelines, codes of practice, etc), or changes in the development's needs and/or waste patterns (waste composition, volume, or distribution), or to address unforeseen operational issues, the operator shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required):

- Conduct a waste audit and define a new waste strategy.
- Revise the waste system (bin size/quantity/streams/collection frequency).
- Re-educate users/staff.
- Revise the services provided by the waste collector(s).
- Obtain the necessary approval(s) from the responsible authority.

5 SUPPLEMENTARY INFORMATION

In order to address regulatory requirements pertaining town planning, site operations, waste handling, and collections, the following shall be considered:

- The operator shall ensure that bins are not overfilled or overloaded.
- Waste incineration devices are not permitted, and offsite waste treatment and disposal shall be carried-out in accordance with regulatory requirements.
- For bin traffic areas, either level surfaces (smooth and without steps) or gentle ramps are recommended. Should ramp gradients, bin weight, and/or distance affect the ease/safety of bin transfers, the operator shall consider the use of a suitable tug.
- The operator shall be responsible for all operations, site safety (including visitors, children, residents, tenants, staff, and contractors), and shall:
  - Abide by all relevant OH&S legislation, regulations, and guidelines.
  - Ensure the collector's compliance with Worksafe Victoria's Occupational Health and Safety Guidelines for the Collection, Transport and Unloading of Non-hazardous Waste and Recyclable Materials (June 2003).
  - Assess the Manual Handling Risk and prepare a Manual Handling Control Plan for waste and bin transfers (as per regulatory requirements and Victorian COP for Manual Handling).
  - Obtain and provide to staff/contractors equipment manuals, training, health and safety procedures, risk assessments, and adequate personal protective equipment (PPE) to control/minimise risks/hazards associated with all waste management activities. As a starting point, these documents and procedures shall address the following:

Task (to be confirmed)	Hazard (TBC)	Control Measures (TBC)
Sorting waste and cleaning bins	Biological hazard & bodily puncture	Personal protective equipment (PPE). Develop a waste-sorting procedure
Bin manual handling	Sprain, strain, crush	PPE. Maintain bin wheel-hubs. Limit bin weight. Provide mechanical assistance to transfer bins
Chute discharge	Strike & debris from falling waste	PPE, staff training, and signage, maintain access restrictions. Include a rubber skirt and a lockable mesh fence around the discharge zone of the chute
Bin transfers to the truck and emptying	Vehicular strike, run-over	PPE. Develop a hazard control plan and collection procedure. Maintain visibility. Use a mechanical bin-tipper
Truck access	Vehicular incident, strike, run-over	PPE. Use a trained spotter. Develop a truck-manoeuvring and traffic-control procedure

Note: The above shall be confirmed by a qualified OH&S professional who shall also prepare site-specific assessments, procedures, and controls (refer to Section 6).

6 CONTACT INFORMATION

City of Yarra (local council), ph 03 9205 5555

Waste Wise Environmental (private waste collector), ph 0417 511 396

Wayne Cleaning Systems (private waste collector), ph 03 9484 5366

Eco-Safe Technologies (odour control equipment supplier), ph 03 9706 4149

Solution for Workplace Health and Safety (OH&S consultant), ph 0425 802 669

Electrodrive Pty Ltd (tug & trailer supplier – for bin transfers), ph 03 9357 7699

Sabco Commercial (supplier of cleaner's trolleys), ph 1800 066 522

Sulo MGB Australia (bin supplier), ph 03 9357 7320

One Stop Garbage Shop (bin supplier), ph 03 9338 1411

JD MacDonald Pty Ltd (chute supplier), ph 03 9271 6400

Wastech Engineering Pty Ltd (chute supplier), ph 03 8787 1600

Note: The above includes a complimentary listing of contractors and equipment suppliers. The stakeholders shall not be obligated to procure goods/services from these companies. Leigh Design does not warrant (or make representations for) the goods/services provided by these suppliers.

7 LIMITATIONS

The purpose of this report is to document a Waste Management Plan, as part of a Town Planning Application.

This report is based on the following conditions:

- Operational use of the development (excludes demolition/construction stages).
- Drawings and information supplied by the project architect.
- The figures presented in this report are estimates only. The actual amount of waste will depend on the development's occupancy rate and waste generation intensity, the user's disposition toward waste and recycling, and the operator's approach to waste management. The operator shall make adjustments, as required, based on actual waste volumes (if the actual waste volume is greater than estimated, then the number of bins and/or the number of collections per week shall be increased).
- This report shall not be used to determine/forecast operational costs, or to prepare feasibility studies, or to document operational/safety procedures.

8 APPENDIX A – ANCILLARY EQUIPMENT

Below please find information about recommended equipment (or similar). The operator shall assess and specify as required (note: this equipment would be supplied by the operator):

Equipment: Bin tug for assistance when transferring bins along the driveway and up/down ramps (max. grade 1:4).

Basic Specification: Electrodrive Classic 2 tonne Tug (battery powered) including extra weight with modified gearing, hitch, and a trailer for 2x240-lt bins (if required).

Supplier:
Electrodrive Pty Ltd
Ph: 03 9357 7699
www.electrodrive.com.au

Illustrations: An Electrodrive tug pulls a trailer with 2x240-lt bins or one 1100-lt bin.