

Review of Hard Waste and Product Pathways

Final Report to Darebin and Yarra City Councils





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Executive Summary

In total almost 1.5 million households in Melbourne have access to hard waste collections at a cost of over \$10 per household for a total cost of over \$14 million.

Darebin and Yarra Councils operate hard waste collections and seek to increase diversion of hard waste and streetscape waste in line with other collections and to understand the benefits and costs around increasing diversion.

The objective of this project was to identify opportunities to dramatically increase waste diversion through hard waste collections, a significant component of the domestic waste stream. The key objective of the study is to facilitate a metropolitan wide step change in handling non bin based household waste.

The study sought to test whether it is possible to significantly expand the diversion of materials collected through hard waste services without a dramatic increase in costs.

Table 1 – Summary of Melbourne metro hard waste services

Council	At call	Frequency	Scheduled	Frequency
City of Yarra	Yes	Twice a year		
Darebin City Council			Yes	Annual
Banyule City Council	Yes	Twice a year		
Bayside City Council			Yes	Twice a year
Boroondara City Council			Yes	Annual
Brimbank City Council			Yes	Annual
Cardinia Shire			Yes	Twice a year
City of Casey			Yes	Twice a year
City of Greater Dandenong	Yes	Once a year		
Frankston City Council			Yes	Annual
Glen Eira City Council	Yes	Three a year		
Hobsons Bay City Council	Yes	Once a year		
City of Hume	Yes	Twice a year		
Knox City Council			Yes	Twice a year
Manningham City Council	Yes	Twice a year		
Maroondah City Council	Yes	Twice a year		
Maribyrnong City Council	Yes	Once a year		
City of Melbourne	Yes	Once a year	Yes	Annual
Melton City Council	Yes	Once a year		
Monash City Council			Yes	Annual
Moonee Valley City Council			Yes	Annual
City of Moreland			Yes	Annual
Nillumbik Shire			Yes	Annual
City of Port Phillip	Yes	Four a year		
City of Stonnington			Yes	Twice a year
City of Whitehorse			Yes	Twice a year



Council	At call	Frequency	Scheduled	Frequency
City of Whittlesea	Yes	Twice a year		
Wyndham City Council	Yes	Twice a year		
Shire of Yarra Ranges			Yes	Annual

In reviewing the current approach taken in Darebin and Yarra Councils, a number of options are presented here for consideration. The direction taken by each council will relate back to the priorities and the cost parameters set for the service. The following are options for consideration:

Cease collections and assist residents with alternative routes

Across Victoria there are a large number of councils who don't provide a hard waste collection. The savings for these councils is highly significant, and frees up hundreds of thousands of dollars for other recycling programs or other council priorities. There is an argument that hard waste collections are a cross subsidy from low waste to high waste generating households. The removal of hard waste collections would need to be managed to avoid either a householder backlash or any increase in dumped rubbish. If this option was selected then communication with other councils who have stopped their service may assist in avoiding any negative outcomes and maximising the benefits.

Revised collection – subsequent sorting

It may become possible to collect material using the widespread format of rear load compactors and then to present this material to a facility for systematic subsequent sorting. There are an increasing number of sites being developed across Australia that are geared for sorting dry waste in this profile. These can also handle C&I sourced material. The subsequent sorting undertaken by Outlook is an example of what can be achieved in post collection sorting of the mixed waste stream.

Revised collection – additional drive past

Councils who have introduced additional collections for different recyclable fractions of the hard waste stream have achieved higher diversion. The additional cost of these collections is partly offset by the reduced waste disposal cost. There may be the ability to collect several recyclable materials in each sweep of the collection area.

Revised collection – modified vehicles

The level of subsequent sorting for reuse and recycling is negatively affected by the current method of using compaction vehicles. When sorting of material either during collection or at a post collection site, the use of an open flat load area or sorting compartments can benefit recycling and reuse. Some NSW councils use purpose built vehicles with separate compartments to aid sorting. These may be worth trialling in either booked or scheduled hard waste collections.

Charity collection for reuse and recycling

Rather than council operating a residual waste service, council could contract a comprehensive reuse and recycling collection regularly in the community. Through a partnership with a charity or other not for profit organisation, it may be possible to encourage householders to present, for collection and recovery, a range of products no longer required in the household. The key charities are open to



discussing the form that a combined Council/charity collection might take. This could utilise Council, charity or contractor staff for collection. It also could utilise council or charity booking services.

BACKGROUND

Project need

Most Melbourne residents have access to a hard waste collection service. These collections take several forms. Some councils provide one or two collections annually for all residents. Other councils operate a form of 'at call' service for hard waste pick up. Council-operated hard waste collections have been a feature in Melbourne for well over half a century.

In total, almost 1.5 million households in Melbourne have access to hard waste collections at a cost of over \$10 per household for a total cost of over \$14 million. The cost of collections has increased dramatically in recent years. In total, over 100,000 tonnes of waste is collected. In most cases diversion is limited to metals and garden organics.

The composition of the hard waste stream differs markedly from one area to another depending on household type and collection exclusions. Overall, the stream contains significant volumes of rigid plastics, mattresses, timber, tyres, floor coverings, textiles, appliances and furniture.

While many municipalities have sought to divert some material for recycling, this has often been narrow in scope and largely left to the initiative of collection contractors.

Darebin and Yarra Councils operate hard waste collections and seek to increase diversion of hard waste and streetscape waste in line with other collections and to understand the benefits and costs of increasing diversion.

The Councils, and the Metropolitan Waste Management Group, identified a need for a systematic study into this area which will include an analysis of the waste profile of each stream, identification of market outlets and will involve consultation with hard waste service providers and the recycling industry, together with those having product stewardship responsibility.

Project objectives

The objective of this project was to identify opportunities to dramatically increase waste diversion from hard waste collections, a significant component of the domestic waste stream. The key objective of the study is to facilitate a metropolitan wide step change in handling non bin based household waste.

The trial sought to test whether it is possible to significantly expand the diversion of materials collected through hard waste services without a dramatic increase in costs.

Project outcomes

The outcomes of this project will be:

1. an assessment of the cost and market outcomes of collecting a broader range of recyclables from households through the integration of more materials into hard waste recycling collections
2. an assessment of the practicality of collecting and sorting this material at the kerb or subsequently



3. the development of practical information for a council wishing to extend diversion when contracting hard waste services.

Through this study all of these matters are documented and the findings will be relayed to industry, local government and other key stakeholders. This will enable the MWMG, councils, the collection industry and others to assess and commit to improved hard waste contracting with confidence.

In relation to household product review aspect of this project, the report outlines current and proposed disposal and diversion pathways across all products. The report is framed to inform both local government action and product stewardship programs that are being developed.

Introduction

Hard waste collection services are offered in a large but reducing number of municipalities across Australia.

The collection is geared towards a broad range of household products and materials. Traditionally this has been a collection of material for disposal to landfill. The range of products materials accepted varies from one council to another. There is usually an exclusion list of materials/products. The exclusion of materials/products varies enormously across Victoria. The list below shows exclusions from some collections.

Table 2 – Examples of items excluded from some hard waste collections

Item	Reason for exclusion
Building rubble (concrete, bricks, dirt)	Handling issues for collection staff
Asbestos	OH&S
Oil	Environmental (hazardous waste)
Tyres	Environmental (landfill)
Paints (and other liquids)	Environmental (hazardous waste)
Gas bottles	OH&S
Ammunition or explosives	OH&S
Mattresses	Compaction issues
Car bodies and parts	Handling issues for collection trucks
Vegetation	Green organics collection service provided
Kerbside recyclable packaging	Recyclables collection service provided
Panes of sheet glass	OH&S
Car batteries	Environmental (hazardous waste)
Items exceeding 2 metres in length	Loading issues
Heavy items	OH&S (manual handling)



1. Victoria

In Victoria, 43 councils from a total of 79 councils (54%) offer a form of hard waste collection. These are usually in one of two forms: either a **universal or scheduled** annual collection down every street or an **at-call or booked** service.

The usual frequency of universal services is annual but a small and reducing number have twice yearly collections. Previously some offered quarterly collections. A universal or scheduled service operates to a nominated timetable for designated streets.

An at-call service operates to individual bookings. The number of booked collections annually for each household varies from council to council with most offering one or two booked collections annually and some up to four collections.

The following is a summary of Victorian hard waste services as reported by Sustainability Victoria for 2009/10. The diversion rate of 12% is low compared to other jurisdictions and other collection services. According to the Metropolitan Waste Management Group (MWMG), it is likely that since 2009–10 the diversion rate has dropped further to 9% and the cost per household has risen.

Table 3 – Summary of Victorian hard waste services in 2009–10

Summary item	Inner metro	Outer metro	Melbourne fringe	Small provincial	Rural township	Total
Annual service cost	\$2,983,269	\$8,701,434	\$1,543,661	\$242,401	\$86,774	\$13,557,539
Tonnes collected	13,454	49,765	7,014	598	280	71,111
Tonnes disposed	12,655	42,345	6,818	428	157	62,403
Diversion rate	6%	15%	3%	28%	44%	12%
Total HHs serviced	433,666	883,377	179,839	81,950	6,111	1,584,943
Cost per tonne	\$221.74	\$174.85	\$220.08	\$405.35	\$309.91	\$190.65
Cost per HH	\$6.88	\$9.85	\$8.58	\$2.96	\$14.20	\$8.55
HH yield (kg/HH)	31	56	39	7	46	45
No. of councils	10	17	4	9	3	43

2. Motivational driver

The motivation for providing a hard waste service differs from council to council. For some councils it is simply that the community has had the service for a long time and expects it to be provided. Others see the service as a contribution to reducing dumped rubbish. Others emphasise a need to keep streets tidy. Some indicate that because they don't provide a disposal site in their municipality they feel a need to give households a collection based outlet. For others the motivation is that low income people can't afford rubbish disposal and may not have a vehicle to access the transfer station.

For councils that do not provide a collection, the motivation is related to either reducing ratepayer costs or elimination of waste disposal that is not user-pays, as the cost of hard waste collections is distributed across all ratepayers, regardless of whether they use the service or not. There are also a large number of rural councils with dispersed populations where a collection is deemed impractical.



Across waste and recycling services there is a broad trend towards increasing the pricing signal for waste disposal as a policy objective. The practice of free disposal is now available only in a very small number of highly remote sites. The once common practice of offering free disposal vouchers has now been almost totally eliminated. Only Melton and Mornington Councils now offer this in the Melbourne area.

Prices for disposal at landfills or transfer stations are getting higher in part due to the increased level of the landfill levy. In this context the provision of a hard waste collection service that is not user pays can be seen as an unsustainable anomaly.

The cost of hard waste services is wholly included in the rates or in a waste management charge. No hard waste services have been identified where residents using the service contribute to the cost as a payment. Some councils offer additional collections with a user charge.

3. Hard waste collections in NSW

In NSW, 103 councils provided kerbside clean up collections.

In 2009–10, 136,600 tonnes of material was collected in council clean-ups. 109,028 tonnes went to landfill and 27,572 tonnes were recycled.

The overall Resource Recovery Rate (RRR) (or diversion rate) for kerbside clean up in NSW was 20%. This is significantly higher than Victoria's at 12%.

1. Sydney Metro Area – 16,170 tonnes recycled and 81,823 tonnes waste to landfill (17% RRR).
2. Extended Regulated Area (Newcastle, Wollongong) – 7,459 tonnes recycled and 16,458 tonnes waste to landfill (31% RRR).
3. Regional Regulated Area (Byron, Coffs, Blue Mountains) – 1,787 tonnes recycled and 6,020 tonnes waste to landfill (23% RRR).
4. Rest of the State – 2,146 tonnes recycled and 4,477 tonnes waste to landfill (32% RRR).

Of recent years there has been a drive to divert waste from landfill and many councils have reviewed their hard waste services in this context. One practice used for universal hard waste services has been to run an additional vehicle around the collection route collecting ferrous and non-ferrous metals. This has resulted in a high recycling rate for this fraction, which is typically 10–15% by weight of all hard waste. There are some NSW councils that have utilised collection vehicles that are designed for retention of material for reuse and recycling.

4. Hard waste collections in South Australia

A study of hard waste collections in South Australia was undertaken in 2007 by Flinders Bioremediation Pty Ltd.

Its findings included the following:

5. At-call collections brought out almost twice the volume and 2.5 times the weight of material per presentation than scheduled collections but the estimated yield when the total was divided by all households in the council, was similar for both collection systems – 40 kg for scheduled and 42 kg for at-call.



6. Generally, items presented had a high potential for reuse or recycling but that is limited by the collection systems adapted (e.g. the use of rear-loading compaction vehicle for hard waste collection).
7. The level of community recovery was significant with over 80% of the observed scheduled piles and 40% of the at-call piles having items removed before collection by the contractor.
8. Promotion of 'positive' community recovery may improve resource recovery and reduce some of the more negative aspects of scavenging (such as after dark operations). The ambiguity of ownership and liability in hard waste collection contributes to confusion and inconsistent policies for commercial and community-based resource recovery.
9. For reuse, some councils provide details in their literature of charitable organisations that collect furniture, electrical goods and other suitable items for sale and/or distribution to their clients.



CURRENT DAREBIN COLLECTION

5. Context

Darebin Council decided in 2012 to re-introduce an area-based universal hard waste collection (after providing an at call system for over 10 years prior). This was conducted in May and June with the municipality split into six areas and serviced by an external contractor. This collection was repeated again in 2013 using a similar system.

6. Scope

In 2012 and 2013 the hard waste service has used rear load compactor vehicles, with separate vehicles collecting recyclables. In 2012 mattresses and metals were collected separately, and this treatment extended to E-waste and tyres in the 2013 collection. The metals were delivered directly to a recycler and the mattresses sent to a shredding operation in the City of Knox. The mixed loads were taken to the resource recovery centre where the site operators were able to recover more materials, predominantly metals, for recycling. The separate collection of metals is now a common practice for metro hard waste collections.

In 2012 an estimated 34,000 Darebin households presented material as part of the hard waste collection out of a total of 58,000 households. This is an estimated 58% of households. In 2013 the amount of material collected is down 10% on 2012.

7. Diversion

In total 2564 tonnes was collected with 12% source separated recovery and a further 6% recovered at the resource recovery centre. Overall the diversion rate of 18% was low, with 470 tonnes of recyclables collected.

Darebin resolved to extend its diversion activity in 2013 by collecting additional materials/products with added collection vehicles. This was done by running multiple vehicles down each street collecting the following materials and products separately: metals, electronics including TVs, tyres, mattresses and residual waste. As a result the Council and its contractor anticipate a higher diversion rate. The diversion rate for 2013 rose marginally from 19.65% to 20.57%. This additional effort will add to the total hard waste service cost. There is some encouragement to send material to charity through reference to the Brotherhood of St Lawrence Phoenix Fridge Program on the resident brochure.

8. Cost

On average, participating households presented 69.1kg in 2012 and this dropped to 66.8kg of material for collection in 2013. The cost for disposal and recycling dropped from \$27.26 per household served in 2012 to \$25.35 in 2013. The cost per tonne of material collected reduced from \$387.30 in 2012 to \$382.21 in 2013.



9. Issues

- There is a tendency for households to put material at kerbside after the collection had occurred. This is classified as dumped rubbish and therefore it is difficult to assess the overall impact on actual dumped rubbish. There is a dip in dumped rubbish reports during the hard waste collection period. There is also a dip in the amount of material presented at the transfer station in Reservoir. There is also less material presented at the tip shop for reuse.
- In relation to the practice of community recycling, where residents take material from the kerb of other households, Darebin Council discourages this. This is primarily driven by a desire to protect the higher value metals for the collection contractor. This discouragement is low key and does not extend to portraying the practice as unlawful.
- There is also a level of pilfering activity where commercial operators patrol streets before collection and take a range of metals and reusable items. The level of community recycling and pilfering is not known but is likely to be quite high and to strongly alter the profile of the remaining material.
- The lack of a user pays cost means there is no incentive for residents to minimise waste generation. This service needs to be viewed as part of the overall waste program objectives and expenditure of Council to reduce waste generation and disposal.

10. Transfer station

Council also operates a transfer station that receives hard waste from the community. The following is an outline of key issues related to the transfer station.

The transfer station is operated by Outlook Environmental. They track diversion of transfer station waste and have over two years of data. It shows a month to month diversion rate for recycling of between 35–55%.

They break open and strip mattresses, recovering 50% steel, 10% foam and 5% cotton covers. They are looking for an outlet for polyurethane mattresses. They cannot stockpile mattresses for a long period due to fire risk. The dismantling and recovery for recycling is very comprehensive at this site.

They recover an extensive range of products and materials as outlined in Table 7 in Section 6 of this report.

They currently dismantle and recycle computer towers.

Figure 1 – Transfer station shop



Outlook's business model relies on a good throughput of material that is able to be diverted from landfill. They therefore view kerbside hard waste as a concern, as it may affect their financial viability. They can also see the benefit in increased diversion and are interested in what role they may play.

Outlook sees the benefits of its activities as:

10. avoiding waste to landfill
11. employment of disadvantaged workers
12. revenue from sales
13. provision of goods to low income households.



The year round drip feed of products into their shop spreads the sales and volumes well. They estimate that they sell 50% to regulars who on sell and 50% to site visitors.

They see an advantage in spreading the hard waste collection over a whole year where possible as it minimises warehousing of goods. It may also make organised pilfering at the kerb harder to sustain.

Their observations are that self-haul waste and collected hard waste have similar profiles (except for building materials being included in self-hauled waste).

There is a significant drop off in self-hauled quantities in the month leading up to and after hard waste collection. This creates throughput issues for Outlook.

Outlook recovers some materials from the hard waste collection, mostly cardboard, bricks, computers and TVs. The collection contractor achieves a recovery rate of 12%, primarily steel and green waste. Outlook recovers a further 6%, which is primarily of steel and non-ferrous metals. In recovering material from hard waste loads, reuse was very limited due to the damage sustained in the compaction truck.

CURRENT YARRA COLLECTION

11. Context

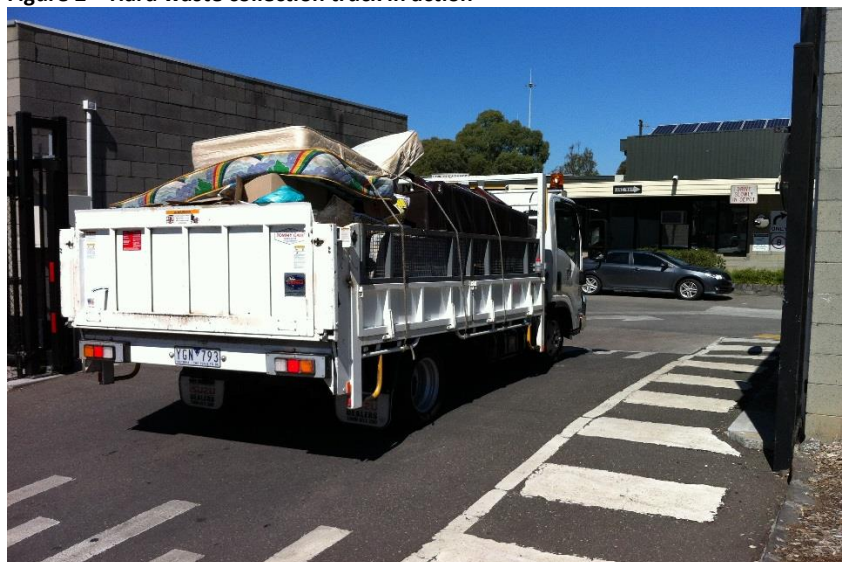
Yarra Council has operated an at-call or booked hard waste collection for a number of years. A key motivation for Council to provide this service is that it does not operate a waste transfer station for resident use. The at-call collection is undertaken by Council staff. Council has a high resident turnover rate with 50% changeover of residents every five years. New residents, including renters, are given a new resident pack. All residents are provided with an A-Z listing of recycling opportunities.

12. Scope

Yarra Council operates the at-call service using council staff collecting with open tipping vehicles rather than rear compactors. During collection, staff are instructed to place materials that can be recycled towards the rear of the vehicle so that they can be removed prior to the load being tipped.

Yarra Council sets a limit of 2 m³ of material for collection from each site. This is regularly exceeded and often up to 4 m³ is presented. Generally staff will still collect the material unless the material is manifestly excessive. The number of booked collections each year is 10,000. Some households are using the service on more than one occasion each year. The total number of households in Yarra is 35,000 and it is therefore estimated that 25–30 % of households use the service. There is a broad geographic spread of those booking a service across the municipality.

Figure 2 – Hard waste collection truck in action



It is noted that there is anecdotal evidence that the demographic profile of those booking the service regularly, is weighted to the higher income and higher educated end of the spectrum. As the cost of the service is borne by all households regardless of their use, it may be that lower income



households are essentially subsidising higher income households for waste disposal. Further, there is a cost shift to those who do not generate waste from households that do.

13. Diversion

The following table gives a summary of the tonnes of hard waste collected and diverted for recycling in 2011–12.

Table 4 – Hard waste collected in 2011–12

Total hard waste collected (tonnes)	2147
Hard waste taken to landfill (tonnes)	1450
Diversion from landfill (tonnes)	697
% diverted from landfill	32%

In addition to the hard waste collected, a further 668 tonnes of dumped rubbish is also collected. Only 7% of this material is recycled (mostly white goods, e-waste and cardboard).

Table 5 – Dumped rubbish collected in 2011–12

Total dumped collection (tonnes)	668
Dumped taken to landfill (tonnes)	621
Dumped diversion from landfill (tonnes)	47
% diverted from landfill	7%

Most staff are active in diverting material and, as a result, 32% of hard waste collections is diverted for recycling. A small proportion of this is for reuse. The range of materials diverted includes: cardboard, EPS, metals, rigid plastics, mattresses and electronic equipment.

Booked collections are easier to service with non-compaction vehicles. This can result in higher levels of diversion. For this to occur, council needs to identify market outlets for each material or product and designate these for diversion. It then needs to train and monitor staff to ensure the diversion of these materials/products occurs. In the case of Yarra, there are a number of materials that Council could look to add to its current diversion activity. The most significant of these is timber which comes in the form of furniture and building materials. In addition to reuse of furniture, there is also a market for the chipping of most timber for use as mulch. There has been timber sent by Council for recycling in the past and reintroduction of this would improve the diversion rate from hard waste collections. Other materials and products that could be diverted if outlets were found include: flexible plastics, carpet and textiles.

Yarra has tried to put aside goods that are still suitable for reuse and to offer these to charities. This has not been very successful with the charities selecting only a small fraction of the retained items. This may be changing with a renewed move to provide goods directly to charities that are giving the goods away rather than retailing them. This includes the potential reuse of some mattresses collected.



14. Cost

The cost of the service is \$750,000 made up 50% of collection costs and 50% for disposal. These costs are partially offset by revenue from recycled material sales of \$50,000. This puts the cost of each collection at \$75 each, and the cost per tonne collected at \$349 per tonne.

15. Issues

The council acknowledges that some of their staff are more committed to diverting material for recycling than others. Observations were made of some material designated for recycling being directed for landfill disposal. There is also a constant challenge to ensure compliance with OH&S requirements. It has now become difficult to sort material off the tray of the truck.

As with all hard waste collections, Yarra Council is mindful of the need for worker safety to be maintained. Issues related to vehicle loading and unloading are an area of focus.

Another concern is that the convenience of the service could lead to a shift in community behaviour from taking goods to charities for reuse, to a collection with little prospect of their reuse. Currently hard waste collections are waste collections with a level of attempted diversion added to them, rather than a recycling collection with a leakage of residual material to waste.

Council operates their hard waste collections from a site with limited space and this can make increased diversion difficult to accommodate. Council will consider off site sorting opportunities.

16. Depot based recycling centre

Yarra Council operates a recycling drop off station at its Clifton Hill depot. The material diverted for recycling from hard waste collections is blended with this material. In addition it also operates cardboard recycling drop off at sites in Fitzroy North, Burnley and West Richmond. None of these sites are waste disposal sites and the amount of residual waste at each site is minimal (10% at Clifton Hill and 5% at other sites).

The amount of cardboard received at the Clifton Hill recycling centre dramatically increased after Amcor stopped receiving waste paper into the Fairfield mill site (closed 21 December 2012). Four 4.5 cubic metre skips are being filled twice a day at the moment. This cardboard appears to be sourced 50% from households and 50% from C&I sources.

The range of products that can be dropped off for recycling is extensive and includes:

14. all rigid packaging
15. EPS
16. cardboard
17. all forms of electronic waste inc. cable
18. electrical appliances
19. fluoro tubes
20. batteries-auto and other
21. phones
22. clothing
23. footwear
24. cork
25. smoke detectors
26. gas bottles

- 27. toys
- 28. bikes
- 29. books
- 30. prams
- 31. plastic bags.

The centre does not accept large whitegoods, furniture, sporting, exercise or camping equipment. It also does not accept timber, bricks, concrete, or any hazardous wastes including paint.

Figure 3 – Second hand mattresses



In addition to the public drop off, the site also receives the material from:

- 32. hard waste collections
- 33. litter pick ups
- 34. dumped rubbish
- 35. green waste collections.

This material comes into the site on open trucks and utes. There is some separation of this waste by the drivers but much of it is tipped in a mixed form into a collection bay. From here, there are staff on site who will try to recover some further recyclables through separation of this mixed stream. The configuration of site based storage for each material/product is dispersed and inconsistent. This possibly reflects:

- 36. limitations on space at the site
- 37. the site being originally a roads and fleet depot
- 38. the progressive introduction of each diverted material/product
- 39. the different quantity of product received and the difference in product size.

Council staff acknowledges that site would function better with a retrofit of some of the area for a waste diversion purpose.



Based on community surveys, the estimate is that 50% of residents are aware of the drop off site's existence and 30% currently use it. The limitation to use of the drop off site is often geographic with many residents living much further to the South and West of the municipality. There is currently only a limited recovery of product for reuse.

This is mainly due to:

- 40. charities being very selective in what they will take
- 41. the products being damaged during collection
- 42. no policy objective to achieve a reuse outcome.

There is some reuse of bikes, furniture and fridges but this is minimal.

CURRENT COLLECTION – OTHER MELBOURNE MUNICIPALITIES

Based on information from Recycling Near You and Sustainability Victoria, the following tables summarises the hard waste collection services operating across a range of Melbourne metro councils. Table 6 summarises the type of collection for all metropolitan councils and Table 7 details the scope and cost of collections for a selection of metropolitan councils.

Table 6 – Summary of Melbourne metro hard waste services

Council	At call	Frequency	Scheduled	Frequency
City of Yarra	Yes	Twice a year		
Darebin City Council	Yes	During Spring	Yes	Annual
Banyule City Council	Yes	Twice a year		
Bayside City Council			Yes	Twice a year
Boroondara City Council	Yes	Twice a year		
Brimbank City Council			Yes	Annual
Cardinia Shire			Yes	Twice a year
City of Casey			Yes	Twice a year
City of Greater Dandenong	Yes	Once a year		
Frankston City Council			Yes	Annual
Glen Eira City Council	Yes	Three a year		
Hobsons Bay City Council	Yes	Once a year		
City of Hume	Yes	Twice a year		
Knox City Council			Yes	Twice a year
Manningham City Council	Yes	Twice a year		
Maroondah City Council	Yes	Twice a year		
Maribyrnong City Council	Yes	Once a year		
City of Melbourne	Yes	Once a year	Yes	Annual
Melton City Council	Yes	Once a year		
Monash City Council			Yes	Annual
Moonee Valley City Council			Yes	Annual



Council	At call	Frequency	Scheduled	Frequency
City of Moreland			Yes	Annual
Nillumbik Shire			Yes	Annual
City of Port Phillip	Yes	Four a year		
City of Stonnington			Yes	Twice a year
City of Whitehorse			Yes	Twice a year
City of Whittlesea	Yes	Twice a year		
Wyndham City Council	Yes	Twice a year		
Shire of Yarra Ranges			Yes	Annual

Table 7 – Scope and cost of Melbourne metro hardwaste collections

Council	Contract or council	Scope of recycling	Scope of reuse	Landfill (tonnes/HH)	Recycling (tonnes/HH)	Cost (\$/HH)
City of Yarra	Council	Metals, packaging, mattresses, whitegoods, rigid plastics	None	41	20	\$21
Darebin City Council	Contractor	Metal, mattresses	None	33	8	\$18
Banyule City Council	Contractor	Metal	Some furniture	34	10	\$9
Boroondara City Council	Council	Metal, E-waste, mattresses, whitegoods	Charity link	44	6	\$14
Hobsons Bay City Council	Contractor	Metal, garden organics, timber, mattresses	None	8	22	\$9
Kingston City Council	N/A	None	None	N/A	N/A	N/A
Melton City Council	Contractor	Metal, E-waste, mattresses, timber, whitegoods, plastics, packaging	Appliances, furniture, clothing, tools, books, toys, kitchen and plumbing fixtures	35	68	\$9
City of Melbourne	Contractor	Metal, mattresses	None	8	N/A	N/A
Nillumbik Shire	Contractor	Metal, E-waste, mattresses	None	76	9	N/A
Port Philip City Council	Contractor	None	None	22	N/A	\$8
City of Whittlesea	Council	Metal	None	15	2	\$5
Wyndham City Council	Contractor	Metal, E-waste, mattresses, timber, whitegoods, garden organics	None	17	12	\$18



OPTIONS

In reviewing the current approach taken in Darebin and Yarra Councils, a number of options are presented here for consideration. The direction taken by each council will relate back to the priorities and the cost parameters set for the service. The following are options for consideration.

17. Cease collections and assist residents with alternative routes

Across Victoria there are a large number of councils who don't provide a hard waste collection. The savings for these councils is highly significant, and frees up hundreds of thousands of dollars for other recycling programs or other council priorities. There is an argument that hard waste collections are a cross subsidy from low waste to high waste generating households. The removal of hard waste collections is also possible to justify in that it may reduce waste generation in the community and assist the diversion of product to charities and tip shops for reuse.

The removal of hard waste collections would need to be managed to avoid either a householder backlash or any increase in dumped rubbish. This could be assisted by providing householders with a suite of practical ideas on how to utilise other outlets. An obvious component of this would be highlighting reuse and recycling collection and drop off opportunities provided by council and a range of charities. It could also include the retention of a booked call service for low income households (health care card holders) who may not have either self-haul options or the ability to fund a commercial collection.

If this option was selected then communication with other councils who have stopped their service may assist in avoiding any negative outcomes and maximising the benefits.

18. Continued collection – householder awareness and scope changes

It may be possible to reduce the volume of waste generated by increased efforts to change the profile of materials presented. This could include a more systematic awareness-raising of charity and other reuse and recycling options. It may also be possible to more actively encourage careful community recycling rather than the current discouragement. Any efforts to explain to the community the cost of waste disposal and dumped rubbish will likely see less material requiring collection.

There is also a range of materials excluded from collections. This list could be maximised to exclude all building materials and products for which there is a convenient recycling pathway including council run drop off sites. This could include cardboard, e-waste, clothing, toys, books etc. The frequency of collection and limits on the amount of waste presented could also be more stringently contained for at-call servicing. There could be a review of allowing more than one uncharged booked call per year or allowing over 2 m³ of waste to be presented.

For universal services, the option of moving to a two year collection cycle may be adequate and offer substantial savings.



19. Revised collection – subsequent sorting

It may become possible to collect material using the widespread format of rear load compactors and then to present this material to a facility for systematic subsequent sorting. There are an increasing number of sites being developed across Australia that are geared for sorting dry waste in this profile. These can also handle C&I sourced material.

There would need to be a strong householder promotion and collection message about eliminating any hazardous components including liquids and dusts. The use of these facilities is focused on streams where source separation is not practical and hard waste could be viewed in this manner. The subsequent sorting undertaken by Outlook is an example of what can be achieved in post collection sorting of the mixed waste stream. Hard waste contractor WM Waste Management Services is also developing subsequent sorting infrastructure but this is limited to metals recovery at this stage.

20. Revised collection – additional drive past

Councils who have introduced additional collections for different recyclable fractions of the hard waste stream have achieved higher diversion. The additional cost of these collections is partly offset by the reduced waste disposal cost.

There may be the ability to collect several recyclable materials in each sweep of the collection area. The range of materials/ products that could be considered for collection by this method includes:

- 43. metals
- 44. garden organics
- 45. rigid plastics
- 46. mattresses
- 47. tyres
- 48. timber
- 49. flexible plastics
- 50. electronic products.

This will leave a much reduced volume of residual material for collection composed primarily of composite material products. There is a financial and environmental cost for each vehicle movement around the collection area and therefore maximising multiple material collection would be important. This use of multiple vehicles is most cost effective if the end destination is within the municipality or close by.

21. Revised collection – modified vehicles

The level of subsequent sorting for reuse and recycling is negatively affected by the current method of using compaction vehicles. It is acknowledged that compaction vehicles are highly cost efficient if the goal is purely for disposal. However, when sorting of material either during collection or at a post collection site, the use of an open flat load area or sorting compartments can benefit recycling and reuse.



Yarra Council currently achieves some success with this approach. Collection staff put recyclable material to the rear of the vehicle for removal before tipping of the remaining material. The vehicle design and collection system would need to be in line with OH&S standards. An investigation of vehicle design from other councils such as Wyndham and Melton or interstate may be beneficial in identifying the optimal approach. Some NSW councils use purpose built vehicles with separate compartments to aid sorting. These may be worth trialling in either booked or scheduled hard waste collections.

22. Charity collection for reuse and recycling

Rather than council operating a residual waste service, council could contract a comprehensive reuse and recycling collection regularly in the community. Through a partnership with a charity or other not for profit organisation, it may be possible to encourage householders to present, for collection and recovery, a range of products no longer required in the household.

The involvement of a charity would encourage householders to present products of a higher quality than would be the case for a landfill based hard waste collection. It would also require charities currently geared towards reuse, to broaden their effort and collect a range of product suitable only for recycling. There is the potential for external funding of this service through product stewardship programs and through the value of the material collected. Products would need to be collected promptly to avoid weather damage and a collection of product from within the property line would work better for this approach.

The introduction of such a collection would be expected to have strong community support and would therefore offset any concern about the lack of a hard waste service. To deal with the residue of waste that would have come through hard waste but cannot be collected for reuse and recycling, council would need to promote that residents use drop off sites, commercial collection options and the weekly garbage collection service.











The key charities are open to discussing the form that a combined Council/charity collection might take. This could utilise Council, charity or contractor staff for collection. It also could utilise council or charity booking services. For charities to extend beyond their current reuse focus to a broader reuse/recycling scope, they would need to be assured of sufficient funding to ensure the recycling of lower value materials is not a financial burden. There would also need to be an active list of excluded materials to ensure the charities did not face significant landfill disposal costs.

A more detailed outline of a reuse/recycling collection service is provided as Appendix A.

The following table outlines the current spectrum of end of life products and how a focus on a reuse and recycling collection could lead to a stronger recovery for products of higher value.



Table 7 -A focus on a reuse and recycling collection

Profile of end of life products	Product value	Current destination	Reuse and recycling collection outcomes
High value products suitable for reuse. Good condition, functional, active second hand market	 Product value \$20 or greater	Major Sold online Given to family and friends Minor Given to charity collections Taken to charity	 Charity collections  Online sales
Lower value products suitable for reuse. Poor condition, in need of repair/ restoration	 Value in use	Major Neighbour recycling Pilfering Landfill via hard waste Minor Material recycling Landfill via self haul Charity drop off	 Charity collections Material recycling  Pilfering Neighbour recycling Landfill
Lower value products and packaging suitable only for recycling. Metals, rigid and flexible plastics, textiles, fibre, rubber, glass	 Material value only	Major Landfill via hard waste Minor Material recycling Landfill via self haul Dumping	 Material recycling  Landfill Dumping
Lower value products and packaging unsuitable for reuse or recycling	 Zero financial value	Major Landfill via hard waste Minor Landfill via self haul Dumping	



MATERIAL & PRODUCT PROFILES

In identifying the way forward for the removal of unwanted material and products from households, it is appropriate to review the pathways that are current available and what may be possible for a broad range of products and materials. There is currently a low level of community awareness of different product pathways that are available at end of life.

Table 8 – Summary of current Darebin recycling profile

Product	Product category	Transfer station / depots	Public office drop-off
Fire extinguishers	Hazardous		
Smoke detectors	Hazardous		
BBQs	Outdoor	Y	
Bicycles	Outdoor	Y	
Computers	Electronic	Y	
Furniture	Furnishings	Y	
Gas cylinders	Hazardous	Y	
Mattresses	Furnishings	Y	
Mowers and tools	Outdoor	Y	
Outdoor furniture	Outdoor	Y	
Plant pots	Outdoor	Y	
Printers	Electronic	Y	
Scanners	Electronic	Y	
Televisions	Electronic	Y	
White goods	Electrical	Y	
CD/DVD players	Electronic	Y	
Fixed line phones	Electronic	Y	
Fluorescent tubes	Electronic	Y	Y
Mobile phones	Electronic	Y	Y
Personal batteries	Electronic	Y	Y
Phone chargers	Electronic	Y	
Stationery	Recreation		
Artwork	Furnishings	Y	
Buckets	Outdoor		
Camping/hiking equip.	Outdoor	Y	
Clothing	Clothing	Y	
Crockery	Furnishings	Y	
Exercise equipment	Recreation	Y	
Footwear	Clothing	Y	
Games and toys	Recreation	Y	
Manchester	Furnishings		
Radio	Electronic		



Product	Product category	Transfer station / depots	Public office drop-off
Small appliances	Electrical	Y	
Sports equip	Recreation	Y	
Auto batteries	Automotive	Y	
Cardboard	Materials	Y	
Metals	Materials	Y	
EPS	Materials		
Bricks	Materials	Y	
Roofing iron	Materials	Y	
Timber	Materials	Y	
Paint	Materials	Y	
Motor oil	Automotive	Y	
Cars	Automotive	Y	
Tyres	Automotive	Y	

Table 9 – Summary of current Yarra recycling profile

Product	Product category	Transfer station / depots	Public office drop-off
Fire extinguishers	Hazardous		
Smoke detectors	Hazardous		
BBQs	Outdoor	Y	
Bicycles	Outdoor	Y	
Computers	Electronic	Y	
Furniture	Furnishings		
Gas cylinders	Hazardous		
Mattresses	Furnishings	Y	
Mowers and tools	Outdoor		
Outdoor furniture	Outdoor		
Plant pots	Outdoor		
Printers	Electronic	Y	
Scanners	Electronic	Y	
Televisions	Electronic	Y	
White goods	Electrical		
CD/DVD players	Electronic	Y	
Fixed line phones	Electronic	Y	
Fluorescent tubes	Electronic	Y	
Mobile phones	Electronic	Y	Y
Personal batteries	Electronic	Y	Y
Phone chargers	Electronic	Y	Y
Stationery	Recreation		
Artwork	Furnishings		



Product	Product category	Transfer station / depots	Public office drop-off
Buckets	Outdoor		
Camping/hiking equip.	Outdoor		
Clothing	Clothing	Y	
Crockery	Furnishings		
Exercise equipment	Recreation		
Footwear	Clothing		
Games and toys	Recreation		
Manchester	Furnishings		
Radio	Electronic	Y	
Small appliances	Electrical		
Sports equip	Recreation		
Auto batteries	Automotive	Y	
Cardboard	Materials	Y	
Metals	Materials		
EPS	Materials	Y	
Bricks	Materials		
Roofing iron	Materials		
Timber	Materials		
Paint	Materials		
Motor oil	Automotive		
Cars	Automotive		
Tyres	Automotive		

The following table is a summary of possible product recovery pathways. It is acknowledged that there will often be benefit in having multiple pathways based on quality of product and convenience. This summary anticipates the active consideration of expanded recovery options that are outlined in Section 5.

Table 10 – Summary of potential recycling pathway profile

Product	Product category	Transfer station/ depots	Charity collection	Charity drop off	Kerbside recycling	Point of sale	Public office drop off
Fire extinguishers	Hazardous	Y	Y	Y			Y
Smoke detectors	Hazardous	Y	Y	Y			Y
BBQs	Outdoor	Y	Y	Y			
Bicycles	Outdoor	Y	Y	Y			
Computers	Electronic	Y	Y	Y			
Furniture	Furnishings	Y	Y	Y			
Gas cylinders	Hazardous	Y	Y	Y		Y	
Mattresses	Furnishings	Y	Y	Y			



Product	Product category	Transfer station/ depots	Charity collection	Charity drop off	Kerbside recycling	Point of sale	Public office drop off
Mowers and tools	Outdoor	Y	Y	Y			
Outdoor furniture	Outdoor	Y	Y	Y			
Plant pots	Outdoor	Y	Y	Y	Y		
Printers	Electronic	Y	Y	Y			
Scanners	Electronic	Y	Y	Y			
Televisions	Electronic	Y	Y	Y			
White goods	Electrical	Y	Y	Y			
CD/DVD players	Electronic		Y	Y			Y
Fixed line phones	Electronic		Y	Y			Y
Fluorescent tubes	Electronic		Y	Y		Y	Y
Mobile phones	Electronic		Y	Y		Y	Y
Personal batteries	Electronic		Y			Y	Y
Phone chargers	Electronic		Y	Y		Y	Y
Stationery	Recreation		Y	Y			Y
Artwork	Furnishings		Y	Y			
Buckets	Outdoor		Y	Y	Y		
Camping/hiking equip.	Outdoor		Y	Y			
Clothing	Clothing		Y	Y			
Crockery	Furnishings		Y	Y			
Exercise equipment	Recreation		Y	Y			
Footwear	Clothing		Y	Y			
Games and toys	Recreation		Y	Y			
Manchester	Furnishings		Y	Y			
Radio	Electronic		Y	Y			
Small appliances	Electrical		Y	Y	Y		
Sports equip	Recreation		Y	Y			
Auto batteries	Automotive	Y				Y	
Cardboard	Materials	Y					
Metals	Materials	Y					
EPS	Materials	Y					
Bricks	Materials	Y					
Roofing iron	Materials	Y					
Timber	Materials	Y					
Paint	Materials	Y					
Motor oil	Automotive	Y					
Cars	Automotive	Y				Y	
Tyres	Automotive	Y				Y	



The following table summarises the market outlet opportunities for each product. If councils are to extend their diversion activity across a broader range of products/materials, they will need guidance in the range of market outlets available to them for each product.

Table 11 – Product market outlet opportunities

Product	Product category	Market opportunities
Fire extinguishers	Hazardous	Good prospects for refurbishment or to steel recycling
Smoke detectors	Hazardous	Overseas recycling
BBQs	Outdoor	Refurbishment or to steel recycling
Bicycles	Outdoor	Refurbishment or to steel/aluminium recycling
Computers	Electronic	National Product Stewardship Scheme outlets and funding
Furniture	Furnishings	Refurbishment or to timber recycling
Gas cylinders	Hazardous	Good prospects for refurbishment or to steel recycling through swap companies
Mattresses	Furnishings	Options for shredding or dismantling
Mowers and tools	Outdoor	Refurbishment or to steel recycling
Outdoor furniture	Outdoor	Refurbishment or options for separated recycling of plastic, steel and timber
Plant pots	Outdoor	Outlets for recycling of plastics/nurseries
Printers	Electronic	National Product Stewardship Scheme outlets and funding
Scanners	Electronic	National Product Stewardship Scheme outlets and funding
Televisions	Electronic	National Product Stewardship Scheme outlets and funding
White goods	Electrical	Refurbishment or to steel recycling
CD/DVD players	Electronic	Not known
Fixed line phones	Electronic	Not known
Fluorescent tubes	Electronic	Outlets for recycling of fluorescent tubes
Mobile phones	Electronic	National Product stewardship scheme outlets and funding
Personal batteries	Electronic	Product Stewardship Scheme outlets for some batteries
Phone chargers	Electronic	National Product Stewardship Scheme outlets and funding
Stationery	Recreation	Outlets for recycling of plastics and paper
Artwork	Furnishings	Reuse opportunities through charity outlets
Buckets	Outdoor	Outlets for recycling of plastics
Camping/hiking eq.	Outdoor	Reuse opportunities through charity outlets
Clothing	Clothing	Reuse opportunities through charity outlets, and fibre recycling overseas
Crockery	Furnishings	Reuse opportunities through charity outlets
Exercise equipment	Recreation	Refurbishment or to steel recycling
Footwear	Clothing	Not known
Games and toys	Recreation	Reuse opportunities through charity outlets
Manchester	Furnishings	Reuse opportunities through charity outlets, and fibre recycling overseas
Radio	Electronic	Not known
Small appliances	Electrical	Refurbishment or to steel recycling



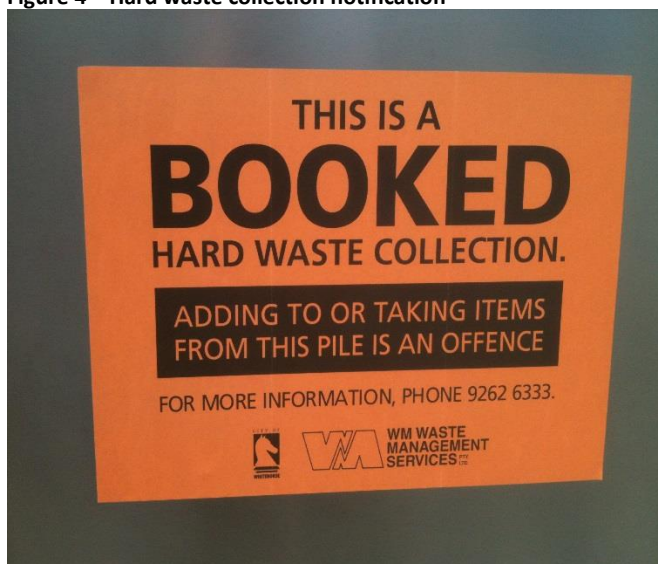
Product	Product category	Market opportunities
Sports equip.	Recreation	Reuse opportunities through charity outlets
Auto batteries	Automotive	Outlets for recycling of batteries through metal recyclers
Cardboard	Materials	Outlets for recycling of cardboard
Metals	Materials	Outlets for recycling of ferrous and non-ferrous scrap
EPS	Materials	Industry Product Stewardship Scheme outlets
Bricks	Materials	Outlets for recycling of bricks through C&D recyclers
Roofing iron	Materials	Refurbishment or to steel recycling
Timber	Materials	Mulch based chipping outlets available
Paint	Materials	National Product Stewardship Scheme outlets on a trial basis
Motor oil	Automotive	National Product Stewardship Scheme outlets and funding
Cars	Automotive	Refurbish or steel scrap
Tyres	Automotive	National Product Stewardship Scheme outlets

MAXIMISING REUSE

A broad range of products that households see as surplus to their needs are still viable for reuse. This includes clothing, furniture, appliances, electronics and sporting, camping and cooking equipment. One of the challenges for councils is to assist households with responsible disposal of these in a manner that maximises the potential for subsequent reuse by others.

This is a particular challenge for hard waste collections as the convenience of hard waste collection can undermine other collection routes such as charity outlets where reuse is more likely to occur. The capture and reuse of presented products by other residents has often been discouraged (including threats of legal action).

Figure 4 – Hard waste collection notification



It is also an issue that the method of compaction based collection all but eliminates any opportunity for reuse.

Figure 5 – Forgone reuse opportunity



For booked hard waste collections it is easier to see how the use of non-compaction vehicles could result in higher retention of products for reuse. For universal collections, the promotion, rather than discouragement, of community recycling (resident reuse) offers one way of maximising reuse while reducing collection volumes and cost.

In considering options for the future, councils should give appropriate attention to maximising reuse and the options explored in Section 5 on:

- 51. modified vehicles
- 52. reuse and recycling collections.



MINIMISING DUMPED RUBBISH

One of the main reasons presented for undertaking or maintaining hard waste collections is to minimise dumped rubbish in the community. Dumped rubbish takes many forms from tyres being dumped in bush locations, household garbage in laneways, and mattresses, furniture and electronics from house and flat relocations. There is no strong evidence that overall dumped rubbish is higher or lower in municipalities with a hard waste collection. Intuitively it would be expected that some of the material disposed through a council run service would otherwise have been dumped. On the other hand the practice of putting waste on the nature strip for hard waste collection may encourage some to use this method on a year round basis.

Many councils handle dumped rubbish collections with their hard waste collections. It is difficult to relate the motivation of rubbish dumping activity to any single cause. For some the lack of access to transport for waste disposal is a key issue. For others, the timing of collections does not meet their real or perceived urgency to get rid of rubbish. Others lack any knowledge or motivation to dispose of rubbish correctly. There is now a widespread practice of dumping televisions, computers and mattresses on the kerb, particularly outside rental properties and multi-unit sites.

The profile of those arranging a booked hard waste collection is often those with a high correlation between collection use and education and skills. For the more immediate and opportunistic dumping of mattresses, TVs and furniture, a convenient and well publicised drop off opportunity or low cost pick up may divert material.

Some stakeholders suggested that hard waste collections affect both self-haul of waste and dumping of rubbish in the lead up and aftermath of universal collections. Those operating hard waste should not see the service as a significant component of its dumped rubbish avoidance programs. Likewise a move away from hard waste is unlikely to result in a significant rise in dumping. Enforcement will remain a better deterrent method.



RECOMMENDATIONS

In reviewing the use of hard waste collections, the profile of material collected, and the diversion of this into reuse or recycling, the following suggestions are presented:

23. Reuse and charities

Support and strongly publicise the opportunities for reuse that are available through local charities and social enterprises. This could include the provision of collection points for the donation of materials by council. Furthermore, councils should explore the capacity of each charity to operate a universal recycling collection across the municipality. This would focus on the collection of surplus products for reuse and recycling. In this scenario non-recyclable garbage would then be handled through domestic garbage bins, transfer stations and commercial waste collectors. Councils may also wish to support garage sales and on line connectivity for reuse.

24. Maximising diversion in hard waste collection

If council remained committed to providing a hard waste collection (whether booked or universal) then maximising diversion should become a paramount objective. This would then include:

- 53. Encouraging and equipping residents to utilise local charity, reuse and recycling options
- 54. Encouraging community recycling across each neighbourhood (discouraging only metal scavenging by non-residents)
- 55. Structure collections using either modified vehicles that allow separation of recyclables or multiple collections of recyclable materials to include mattresses, tyres, rigid plastics, timber, metals and appliances.

A key aspect in increasing recycling will be the continued expansion of extended product stewardship schemes. For government at a Federal and state level considering the expansion of product stewardship frameworks, the range of divertible products being disposed of through hard waste collections should form a basis for priorities.

25. Containing the range of materials for collection

The cost of hard waste collections can blow out if the scope of collection is too high in materials, frequency or volume. For this reason, councils should more rigorously restrict the volume of materials presented and also exclude building and renovation waste and readily reusable products (clothing, toys, bikes etc.).

By providing the community with the names of commercial waste collectors who operate locally and then subsequently sort for recycling, the volume of material presented for hard waste collection can be contained.

26. Regularly monitor the collection

If council sets objectives for the collection, including restricting what can be presented and what is collected for diversion, it must regularly monitor compliance with this. Some of this auditing can be done at kerb and some auditing of activity at the point of disposal or diversion. Contractors should be asked to report on diversion results.



27. Develop and promote a product pathway program

Based on an agreed set of convenient pathways for each product, establish a program to ensure infrastructure is in place and the community has a high level of awareness of each pathway. State and regional government agencies should play an active role in assisting the consistent availability of a broad range of product pathways and in supporting the recovery of product at end of life through approved product stewardship arrangements.



Appendix A – Reuse and recycling collection service outline



Every household has a range of products that are no longer wanted or required. This could be for a range of reasons including purchase of an upgraded replacement, moving house, fashion, decluttering, etc. Many of these products are still functional and if passed on could have a second life. A traditional pathway for some of these products is through charity outlets. In addition, this range of unwanted product can go to family, garage sales and increasingly sold online. Some is discarded at landfill and transfer stations and some enters the waste stream through kerbside garbage bins and hard waste collections.

The convenience of kerbside disposal can undermine the diversion to other reuse outlets including charities. Charity pathways have been limited by issues such as local government restriction on charity bin location (litter related), bogus charity siphoning of donations, after hours drop off pilfering, waste dumping and cost of individual collections.

Metropolitan councils are currently all providing a hard waste collection and would find it difficult to withdraw the collections completely as they are seen as a valuable service. Currently reuse is not a component of most hard waste services. Melton Council diverts 10% of collected material for reuse through van based collections delivering to a council operated tip shop. Boroondara is currently trialling a reuse collection using council staff and vehicles in partnership with the National Association of Charitable Recycling Organisations (NACRO) and the Salvation Army.

With both booked hard waste, and particularly universal hard waste, there is a degree of reuse through community recycling activity by neighbours and also through commercial pilfering. This is limited by the quality of what is presented. As hard waste is designed and executed primarily as a disposal to landfill collection, householders do not present high quality product at the kerb.

Rather than trying, by reconfiguration of systems, to increase diversion of hard waste, a different approach is to replace this with a charity linked reuse and recycling collection service. This approach would involve local councils linking with a charity that is seeking goods for reuse and conducting a collection of unwanted products suitable for either reuse or recycling. The actual collection could be handled by the charity, by council staff or by a contractor. This approach could be offered in either the booked or universal configurations.

Each household would be given a list of the products that are designated for collection with a strong emphasis on the charity being the recipient to maximise quality products and minimise rubbish. It would be communicated that anything outside the designation will be left at the household. This is similar to the current situation where hard waste collections have exclusions and this material is not collected.

In operating a reuse/ recycling collection there are some fundamental differences to hard waste collection methods. Firstly, the practice of householders presenting goods for collection outside the property boundary is not appropriate for reuse and recycling as the message would be given that people can take from presented material and neighbourhood or professional pilfering would undermine the arrangement. Similarly the protection of goods from weather would be a priority and therefore the presentation of goods inside the property boundary protected by a shelter or a provided plastic cover would be appropriate. The dwell time between goods presented and collected should also be kept to a practical minimum.

It is not known how much product would be presented suitable for either reuse or recycling, but with the right householder information provided, it would be possible to get high quality goods (furniture, bikes, appliances etc.). It is anticipated that, by weight, the reusable products may make up 20–40% of overall collection with recyclables the remainder (and a small residual waste component).



controlled by non-collection of rubbish). By value, it is anticipated that reusable goods would account for a substantial proportion, (possibly more than half) of the revenue derived.

The funding of this collection would potentially come from four areas:

- 56. revenue value of reusable goods
- 57. revenue value from recyclable materials
- 58. revenue from council for the provision of the collection service
- 59. product stewardship contributions for products covered by a stewardship scheme.

Due to the reduced cost of waste disposal and the increased value of higher quality goods, it is anticipated that the cost to councils would be much lower than for hard waste collections.

This approach would require charities to move their focus beyond reuse into the collection and sale of recyclables. This could be done through contractual partnerships. It would not require charities to operate large recycling sorting or processing facilities.

Residents who are generating rubbish unsuitable for a reuse and recycling service would need to be advised of their disposal options. These would include weekly kerbside garbage bins, drop off at transfer stations and commercial waste collection operators. Acknowledging that some households have limits in vehicle access for self-haul or budget for contracted collection, some councils may opt to provide a limited hard waste collection on a user pays basis or a service only for low income households. Councils could also consider a transition period where both a hard waste and reuse and recycling service operated in the same year.

A reuse and recycling service would complement the kerbside recycling of packaging material and drop off opportunities offered by most councils in an increasingly comprehensive manner.

A reuse and recycling collection service is a significant departure from the current approach and would therefore need to be well scoped and trialled before full implementation. This is something that could be done on a single suburb zone and followed up with resident satisfaction surveys.