

City of Melton

JANUARY 2023

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Circular Economy Hub Feasibility Study

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Circular Economy Hub Feasibility Study

City of Melton

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We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Executive Summary

Introduction

This Feasibility Study has been prepared for City of Melton to assess future opportunities for the development of a Circular Economy Hub within a defined project investigation area. The investigation area includes the existing Melton Resource Recovery Precinct (MRRP), the proposed Cobblebank Employment and Mixed-Use area (CEMU) and a range of existing industrial uses.

A Circular Economy Hub is a place where community and businesses come together to appreciate waste as a resource, and practically contribute to the transition to a circular economy by sharing resources, learning new skills and fostering a sense of community.

This study will also inform the development of City of Melton's *Resource Recovery and Circular Economy Strategy* that is due to commence in 2022/23.

Policy Context

In recent years, all levels of government have identified the urgent requirement to improve the performance of the waste management sector by changing thinking and behaviour to move away from the current 'take, make, use and dispose' philosophy and transition to a circular approach in which Australia retains the value of resources for as long as possible.

The 2018 Australian *National Waste Policy* identifies the top three elements of the waste hierarchy as critical in Australia's shift toward a Circular Economy. These are:

1. Avoiding and Reducing
2. Reusing
3. Reprocessing

In February 2020 the Victorian Government released the policy document *Recycling Victoria – A new economy*, with the key targets of:

- 15 per cent reduction in total waste generation per capita between 2020 and 2030
- Divert 80 per cent of waste from landfill by 2030, with an interim target of 72 per cent by 2025
- Cut the volume of organic material going to landfill by 50 per cent between 2020 and 2030, with an interim target of 20 per cent reduction by 2025
- Halve the volume of organic material going to landfill between 2020 and 2030, with an interim target of 20 per cent reduction by 2030
- 100 per cent of households have access to a separate food and organics recovery service or local composting by 2030

Melton City Council's local policies support a transition towards a circular economy and improved resource recovery, such as the following strategies proposed in the *Council and Wellbeing Plan 2021-2025*:

- Promote the efficient use of resources in the development of the City
- Educate and engage the community in local environmental and sustainability issues and decision making
- Reduce the amount of waste being sent to landfill

Other Key Drivers and Opportunities for Change

The study identified various additional factors currently driving the need for increased circularity of resource management across Australia, including:

- Waste stream bans and regulations introduced by the Australian and Victorian governments, applicable to materials such as glass, tyres, plastics, paper and cardboard and E-waste.
- The Victorian Waste Levy for waste disposed to landfill, which has risen constantly since its introduction in 2011 (as at 2022-2023, priced at \$125.90/tonne of municipal waste for Metropolitan and Provincial areas) and its potential impact on municipal rates.
- The introduction of a Container Deposit Scheme (CDS) planned for Victoria in 2023.
- A shift of social expectations and community attitudes in alignment with circular economy principles, driving interest in initiatives such as charity stores, home composting and online buy-swap-sell platforms.
- Expected insufficient infrastructure capacity in Victoria to process several waste streams by 2025, which will continue to worsen if significant investment does not occur.

Material Flows and Market Opportunities

An investigation of the predicted material flows through the existing Melton Resource Recovery Precinct and the broader Project Investigation Area was undertaken. These material flows were considered in alignment with other key drivers (such as global waste trends and government bans/regulations), to determine the following 'priority material streams' for the Melton Circular Economy Hub:

- | | | |
|--------------------------------|-------------------------------|-----------------------------------|
| ▪ Wood / Timber (inc. pallets) | ▪ Soft Plastics | ▪ Tyres |
| ▪ Metals (inc. steel) | ▪ Masonry (inc. bricks/tiles) | ▪ Medium-density fibreboard (MDF) |
| ▪ Paper / Cardboard | ▪ Paint | ▪ Solar PV Panel |
| ▪ Textiles / Clothing (Rags) | ▪ Mattresses | |
| ▪ Hard Plastics | ▪ Polystyrene (EPS) | |
| | ▪ E-waste | |

The link between priority material streams and local market opportunities was also explored, including opportunities for industrial symbiosis (including potential material uses by growth industries within the CEMU UDF), and direct industry partnerships that may facilitate the practical implementation of circular initiatives (e.g. partnerships with tertiary institutions for workshops and training).

Circular Economy Hub Activities

Activities that could be included in the Melton Circular Economy Hub were identified, and divided into Community and Commercial activities (employment zone) as follows:

- **Community Activities:** Resale Shop, Repair Café and Upcycling Centre, Workshop and Training Facilities, Tool Library, Childcare.
- **Commercial Activities:** Materials Warehousing, Eco Café and Kitchen Garden, Living Labs including Micro Factories

Masterplan considerations were provided regarding the potential implementation of these activities at the existing Melton Resource Recovery Precinct, particularly the separation of Community and Commercial activities to ensure user safety and accessibility. Opportunities may also exist outside of the title boundary (within 500m of the site), however further investigation is required.

Roadmap to a Circular Economy Hub for Melton

A Roadmap to developing, implementing, and maintaining a Circular Economy Hub for Melton was prepared, identifying the following key steps:

1. Trials and pop-up opportunities
2. High level masterplan and site selection, demonstrating community and commercial components
3. Engagement and education campaigns
4. Funding and government support
5. Design, planning and approvals
6. Development of a commercial engagement and attraction strategy
7. Construction
8. Advertisement of Circular Economy Hub activities
9. Operation of facility, including monitoring and reviews

Trial Recommendations

As a first step, it is recommended that trials be undertaken for a Tool Library, Workshop and Training Facilities, Micro Factories and/or Repair Café and Upcycling Centre. Potential set-ups and partnerships may include a shipping container or other temporary infrastructure, community centres, local schools and tertiary institutions, disability employment programs, social enterprises and charitable organisations.

As construction of the upgraded Melton Resource Recovery Precinct is expected to occur between February-December 2023, trials and pop-ups may be difficult to operate within the current site boundary during this period. However, trials and pop-ups may be able to occur on-site following the completion of construction works.

1 INTRODUCTION

1.1 DOCUMENT INTENT

This Feasibility Study has been prepared for City of Melton to assess future opportunities for the development of a Circular Economy Hub within the project investigation area (as shown in Figure 1.1).

A Circular Economy Hub is a place where community and businesses come together to appreciate waste as a resource, and practically contribute to the transition to a circular economy by sharing resources, learning new skills and fostering a sense of community.

The study assesses potential circular opportunities within the Cobblebank Employment and Mixed-Use area (CEMU) and the broader investigation area. This assessment is based on the materials that flow through the current Melton Resource Recovery Precinct (MRRP), and projections of other materials that would potentially flow through the Circular Economy Hub.

The study considers the current and future industries within the investigation area, including those that could be attracted to the area due to the materials flowing through the Circular Economy Hub.

The study also includes a Roadmap detailing key steps to developing, implementing and maintaining a Circular Economy Hub.

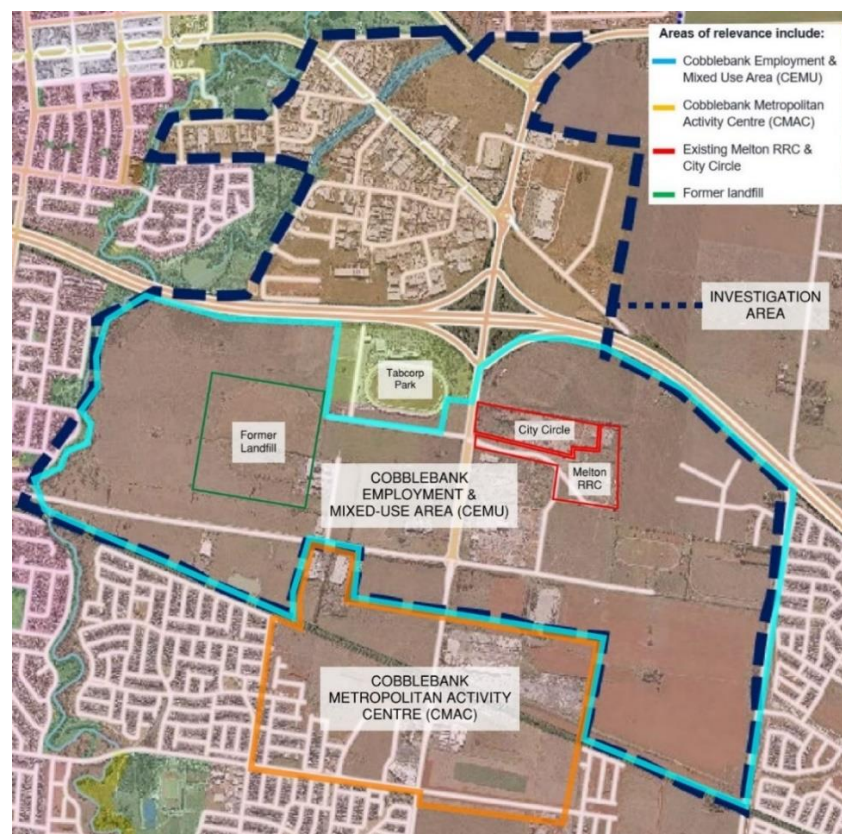


Figure 1.1 Project Investigation Area

This study will also inform the development of City of Melton's *Resource Recovery and Circular Economy Strategy* that is due to commence in 2022/23.

1.2 PROJECT BACKGROUND

City of Melton is currently upgrading the Melton Resource Recovery Precinct (MRRP) located 33-41 Ferris Road, Cobblebank and is investigating the feasibility of a Circular Economy Hub anchored around the upgraded facility. The MRRP is approximately 500 metres south of the Western Freeway, and is a Council owned site, 26ha in size.

Council currently offers a range of waste services to local residents including free drop off of a variety of materials at the MRRP, including kerbside recyclables, E-waste, steel, whitegoods, batteries, oils, paint, clean clothing and fluorescent tubes. There is a charge for the drop off of general waste, garden organics, clean inert material, timber, mixed inert material, tyres and mattresses. It also accepts household items in reasonable condition that will be suitable for resale at the site Resale Shop. The Melton Resource Recovery Precinct and Resale Shop are run by a contractor.

The City of Melton's kerbside collection services consist of a kerbside 120L weekly garbage collection, a fortnightly 240L recycling collection and an opt in fortnightly 120L or 240L garden collection which is available to areas receiving a kerbside service. The current uptake of this service is 75% of eligible residents.

Properties paying a waste service charge are also entitled to one (1) the following annual waste entitlements:

- Two booked hard waste collections up to 3m³ from within property boundaries OR
- Two visits to the MRRP with a car or trailer up to 1m³ OR
- One visit to the MRRP and one at home hard waste collection

1.2.1 Melton Resource Recovery Precinct (MRRP) Upgrade

The MRRP upgrade will include a 4,000m² Front End Resource Recovery (FERR) inclusive of a Drop off Zone, Back of House processing and sorting area and a Resale Shop for quality used items.

The facility upgrade also includes the construction of a 1,400m² multi-purpose Residual Waste Shed (RWS). This structure has been designed for the drop off and transfer of residual waste. However, if the long term goal of zero or minimal residual waste to landfill can be achieved, the structure can be used for timber or green waste drop off and processing.

After the redevelopment works are complete, the existing shed housing the Resale Shop could then be repurposed for a new use. This study will consider opportunities for this facility.

The planned development works for the current facility is shown in Figure 1.2.

It is envisaged that the drop off services at the current facility will continue once the Circular Economy Hub is established. Siting options for the new Circular Economy Hub may include expansion of the existing facility, occupying another parcel of land within the project investigation area, or a combination of both.

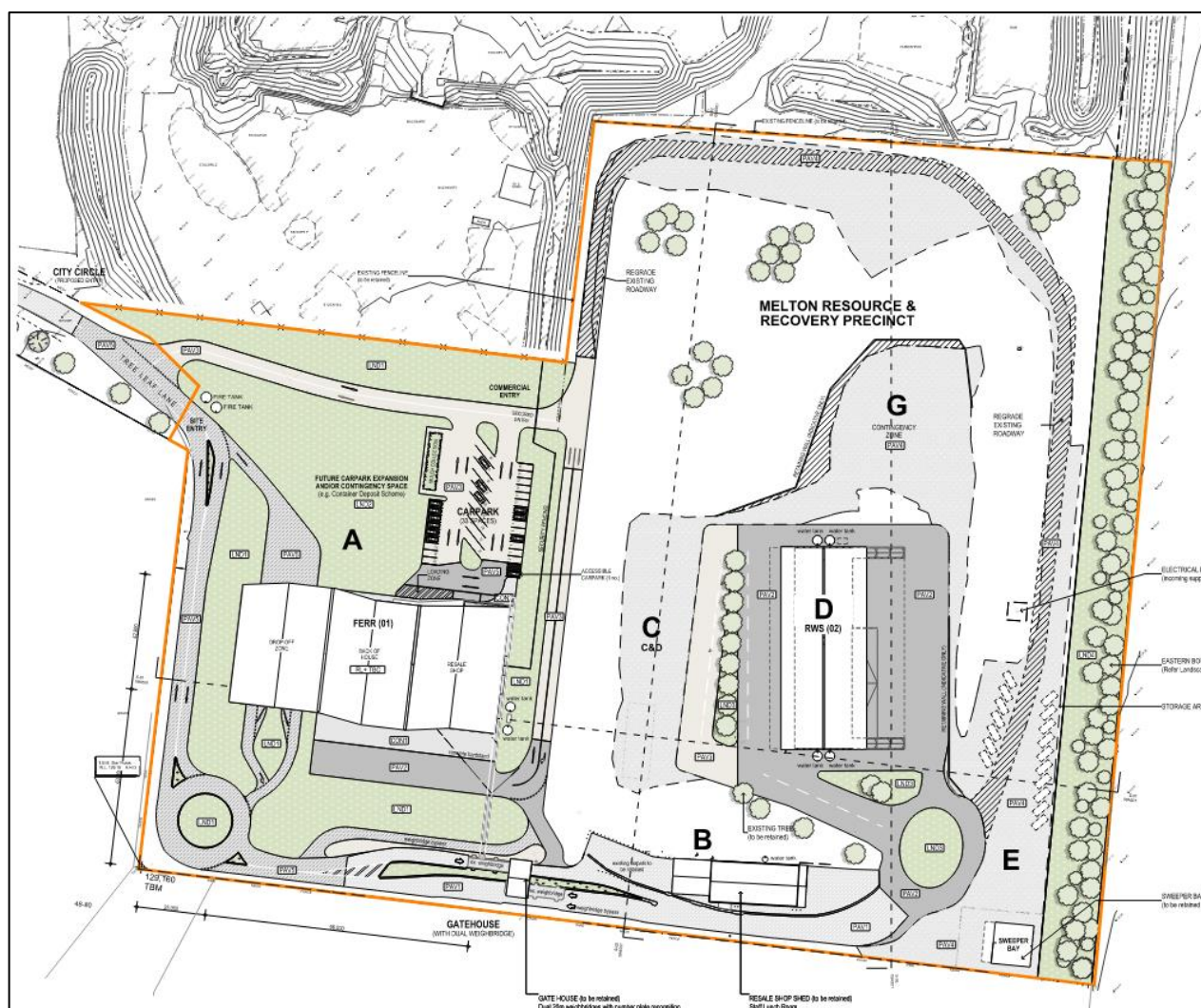


Figure 1.2 Design Overview of Upgraded Melton Resource Recovery Precinct (MRRP)

2 CIRCULAR ECONOMY

2.1 WHAT IS CIRCULAR ECONOMY

A Circular Economy is defined as shifting away from the 'take, make, use and dispose' route towards a more circular approach where the value of resources is retained for as long as possible at their highest value, as demonstrated in Figure 2.1.

Transitioning to a Circular Economy will require designing out waste from the outset and selecting materials and products that can serve their purpose for as long as possible. This includes product components that can, at the end of their service, be efficiently dismantled, reused, remanufactured or recycled and have a value beyond landfill.

It also requires a broader focus on positive benefits for the wider society and the environment, rather than purely economic benefits.

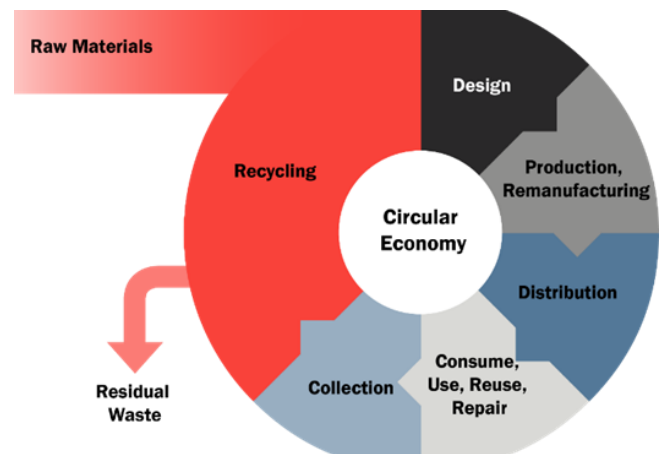


Figure 2.1 Circular Economy Approach (Source: WSP)

A circular economy is based on the following key principles:



- Design out waste and pollution in the first place to reduce the use of raw (virgin) materials and ensure that products are designed to be easily maintained in the loop.
- Keep products and materials in use at their highest possible value through reuse, repair, and repurpose initiatives in line with the waste hierarchy.
- Return materials to systems through recycling initiatives and have a value beyond landfill.

2.2 CIRCULAR ECONOMY: THE 10 R'S

In alignment with Circular Economy principles, shifting away from the terminology 'waste streams' towards 'materials streams' represents an important step to acknowledge the potential for each material based on its value for reuse, repair, repurpose and recycle rather than limiting it to Business as Usual (BAU) waste management practices.

Figure 3.1 shows an 'extended' waste hierarchy in alignment with a circular economy approach, which will be used as a guide for the potential elements of a Circular Economy Hub.

The 10 R's of Circularity replace the previous and popular 3 R's (Reduce, Reuse Recycle) of the waste hierarchy. The activities in Circular Economy Hubs should be guided by the 10 R's as described below:

1. **Refuse** – Avoid the use of a product by making it redundant and/or choosing a better alternative.
2. **Rethink** – Rethink the product's full lifecycle including but not limited to design, production, ownership and use.
3. **Reduce** – Use less materials in the first place.
4. **Reuse** – The reuse of products in its original form for the same purpose.
5. **Repair** – The repair of a product to return to its original functionality.
6. **Refurbish** – The upgrade or replacement of non-functioning parts of a product to return to its original functionality.
7. **Remanufacture** – The re-making of a product to its original functionality using a combination of reused, repaired and new parts.
8. **Repurpose** – The re-making of a product into a new product with a different function.
9. **Recycle** – The process of reducing a product into secondary raw materials for the application into new products (e.g. the use of crushed glass as road base).
10. **Recover** – The process of recovering energy from materials (after all other above options have been explored) and feeding it back into the system for an alternate use (e.g. power, heating, cooling).

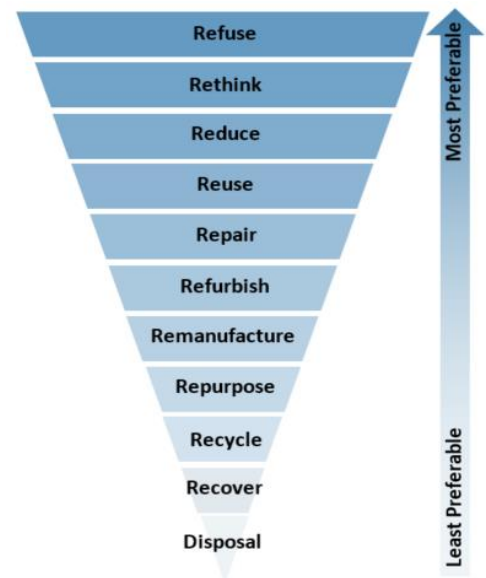


Figure 2.2 10R's of Circular Economy

2.3 WHAT IS A CIRCULAR ECONOMY HUB?

A Circular Economy Hub (CE Hub) is an opportunity to keep discarded materials in use at their highest value by actions such as reselling them in their current form, repurposing, remanufacturing or reprocessing through a new industry. Each of these actions keep materials in use before considering recycling, and can be achieved within a local area.

Circular Economy Hubs generally comprise of a number of elements and activities that align with the 10 R's, as well as providing education, employment, and entertainment. They also build community, provide positive social outcomes, and offer a vibrant centre of activity for the local area.

Community engagement and involvement is critical to the success of Circular Economy Hubs. The facility and its activities will ideally be driven by the community itself, with local users actively encouraged to participate through volunteering, leading and joining workshops, shopping for second hand goods or simply visiting the Hub for a family day out, thereby also spreading awareness and interest among the wider community.

Activities that could be included within a Circular Economy Hub are illustrated in Figure 2.3.



Figure 2.3 Circular Economy Hub - Vision of Activities

2.4 CIRCULAR ECONOMY HUB EXAMPLES

The following examples represent best practice examples of both community and commercial Circular Economy Hub activities. Additional research on not-for-profit opportunities and employment programs has also been included. A more extensive list of case studies from Australia and internationally is included in Appendix C.

THE BOWER (NSW)

Relevance: Community, Resale Shop, Education, Workshops

Service type: Community

Description: The Bower is a charity committed to reducing landfill. They have a range of services including community sheds, repair café, workshops, materials and products collection and consignment. They also offer multiple programs including 'Art from Trash', 'Tiny House', and House to Home'.

Outcomes: Have successfully repaired over 34,000 items, saved over 2,680,000kg from landfill, arranged over 21,500 workshops and served over 403,800 happy customers.

Link: <https://bower.org.au/>



[Reference material only]

MOULINS RECYCLING CENTRE (NICE, FRANCE)

Relevance: Community, Resale Shop, Education, Workshops

Service type: Community

Outcomes: Annually, the Moulins Recycling Centre restores 17 tons of items for resale, generates 24,547€ in sales turnover and has 2,833 participants in training and activities. They also aim to support local employment initiatives and have created 4 permanent jobs.

Description: The Moulins Recycling Centre is a community facility that promotes both circular economy and social outcomes.

The 194m² recycling space allows residents to drop off and sort reusable goods. It also contains a 30m² workshop, where items such as household appliances and furniture may be repaired, then displayed to the public for purchase within the 43m² sales area.

The centre seeks to educate users on eco-friendly actions by encouraging their direct involvement in the sorting, recycling, and recovery process, and by hosting an indoor/outdoor educational space for initiatives such as collective composting and shared gardening.

Link: <https://nicedazur.org/europe/environnement-et-energie/la-recyclerie-des-moulins>



[Reference material only]

BUURMAN (NETHERLANDS)

Relevance: Commercial, Education, Workshops

Service type: Commercial

Description: Buurman is a circular construction market for professionals and consumers. They accept residual materials from local construction companies, museums/art institutions, festivals and other organizations. The materials can be anything from scrap wood to electrical cable, so there is something for every creative person or handy do-it-yourself.

In addition to building materials, Buurman also offer workshop space where the materials can be processed immediately. It can be used by the community, for team building, company outings or master classes for companies. Buurman also regularly organises workshops and courses teaching people how to build different products or share their knowledge about Circular Economy.



[Reference material only]

Outcomes: Buurman have been a success and have been able to open a second shop in a different community.

Link: <https://www.buurmanrotterdam.nl/>

SYDHAVN GENBRUGCENTER (DENMARK)

Relevance: Commercial, Innovation, Shop, Education

Service type: Commercial

Description: Sydhavn Genbrug Center is a government owned and operated centre. In addition to being a recycle centre, Copenhagen's Circularity Lab is also located on site, with a test laboratory including a 135m² fully equipped workshop. Here entrepreneurs can work with access to recycled materials from the recycle centre to develop circular economy business ideas.

The site also includes a self-serve shop where people can buy second-hand building materials, windows, tiles, floors, toilets, etc. Workshops on various topics (e.g. how to repair materials, panel debates) are organised on-site.



[Reference material only]

Connection with local communities is also key, with local schools invited for presentations about transforming waste resources into new products and insights into Circular Economy.

Outcomes: The test laboratory alone has resulted in the creation of dresses from men's shirts, refillable shampoo bottles, garden furniture from recycled wood, campaign posters made from recycling materials, shell chairs made from wooden tiles, and more.

Link: <https://cirkacph.com/en/timely-insights/copenhagen-circularity-lab-beyond-recycling-how-citizens-help-create-the-circular-city/>

EAST KEILOR SUSTAINABILITY STREET (VIC)

Relevance: Community, Education, Workshops

Service type: Community

Description: Launched in 2004, the site is operated by East Keilor Sustainability Street, a community driven group that consists primarily of local East Keilor residents. Its services go far beyond a typical community garden, providing a space for locals to come together and engage in a wide range of activities, learning opportunities and social outings.



[Reference material only]

With an aim to 'source and use life's most basic commodities, water, food and power, in a sustainable way', their activities include leasing of garden plots, open days/BBQs, festivals, workshops, children's activities, tree planting and Clean Up Australia Day.

Outcomes: The community garden hosts approximately 50 individual garden plots, 2 disabled access garden plots and a variety of shared fruit trees, vegetable patches and herb/flower gardens. It is also home to a compost and worm farm, poultry shed, beehive, shared tools, children's playground, BBQ facilities and seating areas.

Link: <https://eksscsg.wordpress.com/>

NOT-FOR-PROFIT OPPORTUNITIES

BICYCLES FOR HUMANITY

Description: Bicycles for Humanity is a charity that accepts donations of either money or bicycles. Bicycles have to be clean, working or easily fixable complete bicycles (no parts). Bicycles for Humanity ship them to communities in Africa for reuse e.g. by nurses and doctors who can use them to travel to people in need of help.

Link: <https://b4hmelbourne.org.au/>

MATES ON THE MOVE

Description: Mates on the move provide life skills, education and work experience for people leaving prison in NSW. Mates on the Move provide sustainable waste management services to corporations like Mirvac, to divert waste from landfill.

Link: <https://www.prisonersaidnsw.org/matesonthemove>

RE-LOVE

Description: Re-love is a not-for-profit association who work with causes supporting families impacted by domestic violence, people experiencing homelessness and people seeking asylum. They do this by redistributing pre-loved, seconds and surplus furniture and technology from individuals and organisations.

Link: <https://www.relove.org.au/>

REVOLVE RECYCLING

Description: Revolve ReCYCLING recovers, recycles, and redeploys bikes, e-bikes, scooters and other Personal Transport Vehicles (PTVs) in Sydney. Revolve ReCYCLING's mechanics repair and redeploy the good quality bikes which are sold at affordable prices. Kids' bikes are donated to kids who need them. All other material is diverted from landfill towards recycling.

Link: <https://revolverecycling.net/>

TOO GOOD TO GO

Description: Too good to go is a platform in the form of an "anti-food waste app" that connects businesses with consumers. Users select their food or shop, and pick up food that could otherwise be thrown away. This may be anything from a bag of unknown bakery goods from a baker's leftovers, to filling up a takeaway box up from a buffet restaurant. Generally, pick up is near to business closing time and prices are reduced from the normal price.

Link: <https://toogoodtogo.co.uk/en-gb>

PRECIOUS PLASTIC

Description: Precious Plastic is a combination of people, machines, platforms and knowledge. They facilitate people/ groups seeking to create their own micro-recycling spaces. These spaces are connected and dependent on each other, together forming local recycling networks (e.g. workspaces, collection points, community points, machine shops).

Link: <https://preciousplastic.com/>

3 DRIVERS AND OPPORTUNITIES FOR CHANGE

There are many factors and opportunities currently driving the need for increased circularity of resource management across Australia. Several key drivers are discussed in this section, classified into the following categories:

- National, State and Local Policy (Section 3.1)
- National, State & Local Bans (Section 3.2)
- Mechanisms – Rates & Landfill Levy, CDS (Section 0)
- Social Expectations - Community attitude (Section 3.4)
- Consequences – Infrastructure Shortfall (Section 3.5)

3.1 WASTE & CIRCULAR ECONOMY POLICY

This section outlines the national, state and local policy and strategic context governing Resource Recovery and Circular Economy. These documents are outlined below in order of hierarchy:

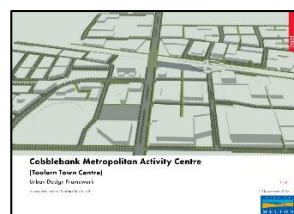
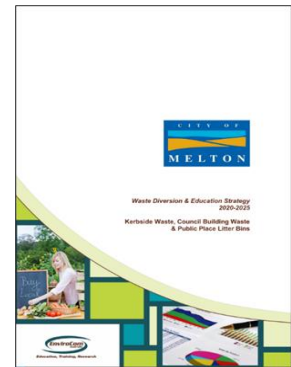
NATIONAL PLAN



STATE STRATEGY



LOCAL POLICIES & DEVELOPMENT PLANS



3.1.1 National Policy

In recent years, all levels of government have identified the urgent requirement to improve the performance of the waste management sector by changing thinking and behaviour to move away from the current 'take, make, use and dispose' philosophy and transition to a circular approach in which Australia retains the value of resources for as long as possible.

Underpinning policy at all levels of government is the Waste Hierarchy (Figure 3.1), which identifies a set of priorities for the efficient use of resources. This framework is reflected in the objectives of each state's Environmental Protection Act.

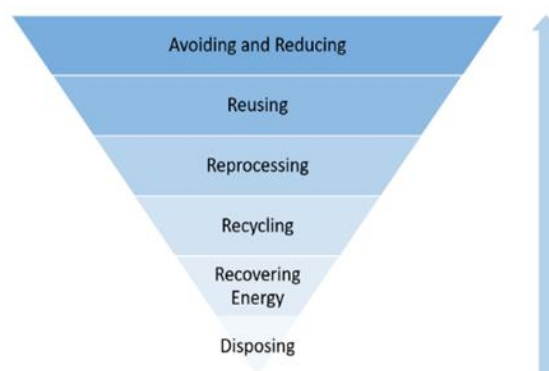


Figure 3.1 The Waste Hierarchy

The *National Waste Policy* (2018) was introduced in 2018 and the National Action plan was published the year late (2019). The *National Waste Policy Action Plan* set the following targets for Australia:

1. Ban the export of waste, plastic, paper, glass and tyres, commencing in the second half of 2020.
2. Reduce total waste generated in Australia by 10 per cent per person by 2030.
3. 80 per cent average resource recovery rate from all waste streams following the waste hierarchy by 2030.
4. Significantly increase the use of recycled content by governments and industry.
5. Phase out problematic and unnecessary plastics by 2025.
6. Halve the amount of organic waste sent to landfill by 2030.
7. Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

It should be noted that the National Waste Policy Action Plan previously included a goal to 'Deliver Food Organics and Garden Organics (FOGO) collection to households and businesses' by 2023. In October 2022, this was updated and reduced to metropolitan households and businesses only, with the date extended to 2030. It is expected that the state targets may be adjusted in alignment with this national goal and timeframe.

3.1.2 State Policy

In February 2020 the Victorian Government released *Recycling Victoria – A new economy*. In alignment with the National Waste Policy, the document promotes a shift to a circular approach, moving away from a focus on recycling and diversion from landfill, towards encouraging avoidance and reuse. It contains key goals and targets as per Table 3-1.

The delivery of this plan is being supported by Recycling Victoria, which was established in July 2022 as a dedicated government business unit with distinct legislative functions to oversee and provide strategic leadership for the waste and recycling sector.

Their establishment was a result of the *Circular Economy (Waste Reduction and Recycling) Act 2021*, which provided the foundation for Victoria's transition to a sustainable and thriving circular economy, including laws relating to the new container deposit scheme and new state-wide four stream household waste and recycling system.

Table 3-1 State Policy – Key Goals & Targets

GOAL	TARGETS	RELEVANCE TO PROJECT
Design to last, repair and recycle	15 per cent reduction in total waste generation per capita between 2020 and 2030. - Divert 80 per cent of waste from landfill by 2030, with an interim target of 72 per cent by 2025. - Cut the volume of organic material going to landfill by 50 per cent between 2020 and 2030, with an interim target of 20 per cent reduction by 2025.	A Circular Economy Hub can increase diversion from landfill, e.g. by capturing reusable residential waste, so that it becomes a community and industry focal point for circularity in the local area.
Use products to create more value	15 per cent reduction in total waste generation per capita between 2020 and 2030.	A Circular Economy Hub has the potential to significantly reduce waste generation by promoting and enabling sharing of tools and equipment, reducing the reliance on purchasing.
Recycle more resources	- Divert 80 per cent of waste from landfill by 2030, with an interim target of 72 per cent by 2025. - Halve the volume of organic material going to landfill between 2020 and 2030, with an interim target of 20 per cent reduction by 2030. 100 per cent of households have access to a separate food and organics recovery service or local composting by 2030	The MRRP has organic waste drop off, which enables all green waste received into the facility to be diverted from landfill.
Reduce harm from waste and pollution	No applicable targets.	The MRRP has free paint and chemical waste drop off, which enables all hazardous waste received into the facility to be diverted from landfill and reduces the chance of pollution through leachate.

A list of 'key commitments' and actions from the State Policy are also provided, to assist with the practical achievement of each goal. Key examples include but are not limited to those shown in Table 3-2.

Table 3-2 Circular Economy Commitment

KEY COMMITMENT	ACTION	RELEVANCE TO PROJECT
Key Commitment 1: Improve business productivity and reduce waste	Action 1.1: Circular Economy Business Innovation Centre A new Circular Economy Business Innovation Centre to "foster business innovation and collaboration across supply chains" and "bring together governments, industry, research organisations and communities to collaborate" to achieve circular economy outcomes in Victoria	A Circular Economy Hub has the potential to directly foster business innovation and collaboration across supply chains.

Key Commitment 2: Support Victorian Communities	Action 2.1: Support for Communities Grants to support local community groups, social enterprises and other not-for-profit businesses working to reduce waste and improve recycling, including thorough repair cafes and product-sharing schemes.	A Circular Economy Hub has the potential to directly engage with community groups, social enterprises and other not-for-profits to reduce waste and encourage repairing and reuse.
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3.1.3 Local Policy

3.1.3.1 RESOURCE RECOVERY & CIRCULAR ECONOMY STRATEGY (FUTURE)

At the time of issuing this report, Melton City Council are in the process of developing a *Resource Recovery & Circular Economy Strategy*. It is intended that the findings of this Feasibility Study will be utilised to inform further discussions and development of the strategy.

3.1.3.2 COUNCIL AND WELLBEING PLAN 2021-2025 (2021)

Melton City Council released a *Council and Wellbeing Plan 2021-2025* in 2021. The Plan outlines Council's strategic and planning direction to achieve their holistic 5-year vision for "A vibrant, safe and liveable City accessible to all".

This vision is underpinned by six themes, notably including "Theme 2: A vibrant and healthy natural and built environment". Table 3-3 highlights key outcomes, objectives, performance indicators and strategies that the Plan identifies in relation to waste management and circular economy.

Table 3-3 Key Waste and Circular Economy Goals from the *Council and Wellbeing Plan 2021-2025*

THEME 2: A VIBRANT AND HEALTHY NATURAL AND BUILT ENVIRONMENT		RELEVANCE TO PROJECT
Outcome	Outcome 2: A City that protects and enhances its natural environment for future generations	A Circular Economy Hub has the potential to raise community awareness on sustainability issues, particularly waste management and Circular Economy. A Circular Economy Hub also the potential to significantly reduce waste generation and waste to landfill by promoting and enabling sharing of tools and equipment (thereby reducing reliance on purchasing) and improving correct disposal behaviours, including recycling.
Objectives	Objective 2.3: A City growing and developing sustainably Objective 2.4: A City that mitigates and adapts to climate change, and is environmentally aware	
Performance Indicators	- Number of Council led or supported environmental sustainability events - Waste diverted from landfill	
Strategies	Strategy 2.3.2: Promote the efficient use of resources in the development of the City Strategy 2.4.1: Educate and engage the community in local environmental and sustainability issues and decision making Strategy 2.4.4: Reduce the amount of waste being sent to landfill	

3.1.3.3 CITY OF MELTON ENVIRONMENT PLAN 2017-2027

The City of Melton Environment Plan 2017-2027 sets a vision for the future City of Melton to be “a clean, green, sustainable city that meets the needs of its current and future population while valuing and protecting its unique environmental assets”.

The Plan provides practical guidance for Council to improve its environmental outcomes, based upon the following three key themes:

1. **Built Environment:** A City growing and developing sustainably
2. **Natural Environment:** A City with healthy waterways, biodiversity and ecosystems
3. **Resource Use:** A resource efficient City

Eight guiding principles are also identified to assist planning and decision-making, notably:

- **Sustainable development:** Aim to meet the needs of the present population without compromising the needs of future generations. Development will be in balance with the natural environment.
- **Live within ecological limits:** Use resources only as fast as the earth can replace them. Create waste only as fast as the earth can assimilate.

Table 3-4 highlights key goals that the Plan identifies in relation to waste management and circular economy.

Table 3-4 Key waste and circular economy goals from the City of Melton Environment Plan

THEME 3: RESOURCE USE	
Key Targets	▪ 20% reduction in GHG emissions on 2015/2016 levels by 2020/2021 ▪ Zero-net emissions by 2040 ▪ Complete Waste Management Strategy with waste reduction and diversion targets by 2018/2019
Goals	▪ 3.2: Council considers waste as a resource and adheres to the waste hierarchy ▪ 3.3: Best practice sustainable procurement and lifecycle approaches are considered in Council purchases
Potential indicators	▪ Waste diversion rates from Council's buildings ▪ Spending on sustainable products and services

The document also acknowledges the key role that will be played not only by Council, but also by “individuals, households, businesses, industry and other government and non-government organisations” to achieve their desired environmental outcomes.

3.1.3.4 WASTE DIVERSION & EDUCATION STRATEGY 2020-2025 (WDES 20-25)

The *Waste Diversion and Education Strategy 2020-2025* (WDES 20-25) was prepared by Envirocom and the City of Melton, focused primarily on Melton's kerbside waste collection services, Council building waste and public place litter bins. It provides an operational framework to guide Council's annual education plans to improve waste minimisation, resource recovery and correct disposal.

The strategy establishes key targets for kerbside collection services by waste stream. An overview of relevant targets for the kerbside General Waste stream is provided in Table 3-5.

Table 3-5 Key targets from the Melton City Council Waste Diversion & Education Strategy 2020-2025 (WDES 20-25)

WASTE STREAM	TARGET	TIMING
General Waste	- Reduce overall waste to landfill volume from 57% to 25% (comprising 20% to FOGO diversion and 12% to recycling streams). - Monitor waste streams to ensure E-waste and other valuable resources are not included in the kerbside waste stream.	1st July 2025 Biennial audits

The strategy also identifies a range of potential education Delivery Methods, including but not limited to:

- Training modules
- Workshops
- Community events
- Facilitated forums
- Skill based training
- Presentations
- Facility tours
- Community competitions
- Awards and recognitions
- Signage at transfer facilities and diversion points

3.1.3.5 URBAN DESIGN FRAMEWORKS (UDFS)

The City of Melton have issued the following Urban Design Frameworks (UDFs) to guide the long term integrated design vision, future use and development within the City of Melton growth areas:

- Cobblebank Metropolitan Activity Centre Urban Design Framework (CMAC UDF)
- Cobblebank Employment and Mixed Use Urban Design Framework (CEMU UDF)
- Rockbank Major Town Centre Urban Design Framework (UDF)

This Study will draw strongly upon both the CEMU UDF (located within the project investigation area) and the CMAC UDF (located directly adjacent to the project investigation area).

3.2 LEGISLATION - WASTE BANS

Several bans on specific waste stream occur throughout Australia. Bans can apply to federal, state or local government jurisdictions. The key bans that impact this project are detailed below by jurisdiction.

3.2.1 National Bans

The Recycling and Waste Reduction Act 2020 became law in December 2020. This law regulates the export of several waste items. These items now require higher degree of separation and/or pre-processing to enable any export. These streams and dates from which they are regulated are as follows:

- Glass, from January 2021
- Tyres, from 1 December 2021
- Unsorted mixed plastics, from 1 July 2021
- Unprocessed single polymer or resin plastics, from 1 July 2022
- Paper and cardboard, from 1 July 2024

The logic of the regulation is to ensure Australia only exports properly processed materials so that they will not be dumped overseas, causing harm to the environment and human health. It will stimulate the building of capacity in Australia to turn waste materials into valuable commodities and to develop the potential of Australia's onshore recycling industry.

3.2.2 *State Bans*

3.2.2.1 SINGLE USE PLASTIC AND FOODWARE

From 1 February 2023, single use plastics will be banned from sale or supply in Victoria. This ban will apply to single use plastic drinking straws, cutlery, plates, drink stirrers and cotton bud sticks made from conventional, degradable, and compostable plastics. It will also apply to food service items and drink containers made from expanded polystyrene.¹

From 1 January 2026, the supply of single use plastic items that are included or attached with a food or beverage product by a machine-automated process (e.g. a straw attached to a juice box, or a plate in a frozen meal) will also be banned.²

3.2.2.2 E-WASTE

From 1 July 2019, E-waste was banned from landfill in Victoria. Sustainability Victoria has since funded a significant number of E-waste initiatives, including many transfer station upgrades.³

3.2.2.3 HELIUM BALLOONS

From 1 July 2021, the releasing of Helium Balloons into the environment was banned in Victoria. Wildlife can be seriously harmed or killed by balloons and their attachments. They can become entangled or ingest balloon litter. Penalties range from \$991 per person to \$4,956 per company.

3.2.3 *Potential Bans*

Several industries are advocating for the bans of high volumes or single use items. This includes clothing/textiles and expanded polystyrene. Expanded polystyrene is being phased out in food packaging but is still very common in protecting delicate goods such as appliances. Several organisations are advocating for these materials to be considered for future State or Federal Government bans.

¹ <https://www.vic.gov.au/single-use-plastics>

² <https://www.vic.gov.au/sites/default/files/2022-11/Victorian-Plastics-Ban-Guide-for-Business-FAQs.pdf>

³ <https://www.environment.vic.gov.au/sustainability/e-waste-in-victoria>

3.3 MECHANISMS

The mechanisms discussed below may aid with the introduction of behaviour change with respect to waste management. These include financial penalties and financial incentives.

3.3.1 Waste Levy

The 'Waste Levy' is a charge that applies to all waste disposed of to landfill, and is a key mechanism for achieving increased resource recovery. It is administered by each State or Territory and therefore the rate and its application vary by location.

Waste levies are required to be paid by licensed waste facilities for each tonne of waste received at the facility. Waste levies are intended to encourage the diversion of waste from landfill to recycling.

The Victorian Waste Levy has risen constantly since its introduction in 2011, as shown in Table 3-6. The Metropolitan Municipal waste levy has almost tripled, with an increase from \$44.00 per tonne to \$125.90 per tonne.

Table 3-6 Victorian Rates for Municipal and industrial waste (\$/tonne)

YEAR	RURAL (\$/TONNE)		METRO AND PROVINCIAL (\$/TONNE)	
	Municipal waste	Industrial waste	Municipal waste	Industrial waste
2011–12	\$22.00	\$38.50	\$44.00	\$44.00
2012–13	\$24.20	\$42.40	\$48.40	\$48.40
2013–14	\$26.60	\$46.60	\$53.20	\$53.20
2014–15	\$29.30	\$51.30	\$58.50	\$58.50
2015–16	\$30.42	\$53.20	\$60.70	\$60.70
2016–17	\$31.09	\$54.37	\$62.03	\$62.03
2017–18	\$31.71	\$55.46	\$63.28	\$63.28
2018–19	\$32.22	\$56.36	\$64.30	\$64.30
2019–20	\$33.03	\$57.76	\$65.90	\$65.90
2020–21	\$33.03	\$57.76	\$65.90	\$65.90
2021–22	\$52.95	\$93.19	\$105.90	\$105.90
2022–2023	\$62.95	110.79	\$125.90	\$125.90

3.3.2 Municipal Rates

Municipal rates include a waste collection charge that covers costs associated with waste collection and disposal, including kerbside bins supply and collection, hard waste collections and disposal, transfer station operations and materials management (cartage of recyclable materials), street sweeping, dumped rubbish management and graffiti removal.

As waste levies increase, many councils pass on the increase through their municipal rates.

3.3.3 Container Deposit Scheme (CDS)

In December 2021, the Circular Economy (Waste Reduction and Recycling) Act 2021 was passed by the Victorian Parliament. Part of the legislation gave effect to the Container Deposit Scheme (CDS) that will be introduced in Victoria in 2023.

Drink containers make up almost half of Victoria's litter and the CDS will help reduce this litter and its impact on the environment. The CDS will also reduce clean-up costs for council and make producers more responsible for their products even after they are used, as well as assisting Victoria in moving towards a circular economy. The CDS will also provide a source of income for individuals or groups who return containers to reimbursement locations.

3.4 SOCIAL EXPECTATIONS

Over time, community attitudes towards waste management are shifting in a positive direction, becoming more aligned with Circular Economy principles. For example, members of the general public have embraced waste initiatives such as BYO shopping bags, keep cups and refillable water bottles, that demonstrate a conscious effort to consider individual actions and the resulting environmental impacts.

There are many examples of community expectations to move beyond minimum requirements and bans, seeking further ways to live more sustainably, such as:

- **Charity stores:** According to Charitable Recycling Australia's [2021 Impact Report](#), over 1 million tonnes of waste was diverted from landfill via the charitable recycling sector in FY2020. This activity provided a total revenue of \$961 million nationwide, \$527 million of which was from textiles. A breakdown of [Charitable Impact by State \(Annually\)](#) showed that Victoria contributed approximately \$232 million of this revenue, \$127 million of which was from clothing. Nationally, the sector was represented by over 3,000 charity and social enterprise retailers, 5,295 full time employees and 33,500 volunteers.
- **Home composting:** [ABS data published in 2013](#) found that over a third of Australians (35%) always composted or recycled garden waste, and 23% always composted or recycled kitchen or food waste. These percentages are likely to be higher almost 10 years on.
- **Online buy-swap-sell platforms:**
 - The not-for-profit [Freecycle Network](#) (launched 2003) has more than 9 million members, across more than 110 countries. Operating via local Town groups, the aim of the movement is to provide a platform for giving (and getting) items for free, to keep them out of landfill.
 - Gumtree Australia's June 2021 [Trading in the Circular Economy Report](#) highlighted the success of the marketplace platform, with over 2.8 million live listings and 7 million users each month.
 - Locally, the [Buy, Swap and Sell for Melbourne's Western Suburbs](#) Facebook group has over 80,000 members (as at January 2023).
- **Toy libraries:** [Toy Libraries Australia](#) (a non-profit incorporated association) reported over 260 toy libraries across Australia, "encouraging families to play and learn together in a sustainable way".

3.5 CONSEQUENCES – INFRASTRUCTURE DEVELOPMENT

In April 2020 Infrastructure Victoria released the findings of a [Waste and Resource Recovery Infrastructure review](#). Key findings of the review include:

- Victoria's recycling resource recovery system is under pressure. Since 2015, the Victorian Government has invested more than \$135 million in supporting the recycling and resource recovery sector in Victoria, to ensure continuity of service to Victorians and to minimise the likelihood of otherwise recoverable material being sent to landfill.
- Some recyclable material is still being landfilled and some Victorians have become sceptical about the fate of their recycling. In developing our advice, we polled community members and found that a quarter of Victorians we surveyed believe their recycling goes to landfill.
- There will be insufficient infrastructure in Victoria to process several waste streams by 2025 and this will continue to worsen if significant investment does not occur.

An indication of the waste streams where infrastructure is required between 2025 and 2039 is shown in Figure 3.2. This demonstrates the importance of Circular Economy hubs, which support a shift from relying on recycling towards reuse, repurposing, and remanufacturing.

Priority material		2025 (COAG ban & 70% RR)	2030 (80% RR)	2039 (90% RR)
Paper and cardboard		✗	✗	✗
Plastic		✗	✗	✗
Organics		✗	✗	✗
E-waste		✓	✗	✗
Glass		✓	✓	✓
Tyres		✓	✓	✓

Figure 3.2 Reprocessing capacity varies by material (Source: Development Victoria)

4 MATERIAL FLOWS AND MARKET OPPORTUNITIES

An investigation of the predicted flow of materials throughout the existing Melton Resource Recovery Precinct and the broader Project Investigation Area has been undertaken. These materials highly influence the ultimate feasibility of Melton Circular Economy Hub and its proposed activities. Figure 4.1 is a high-level map of material flow considered in this study.

These material flows have been considered in alignment with other key drivers (such as global waste trends and government bans/regulations), to ultimately develop an overall list of 'priority material streams' for the Melton Circular Economy Hub.

The link between priority material streams and local market opportunities has also been explored, including opportunities for industrial symbiosis (including potential material uses by growth industries within the CEMU UDF), and direct industry partnerships that may facilitate the practical implementation of circular initiatives (e.g. partnerships with tertiary institutions for workshops and training).

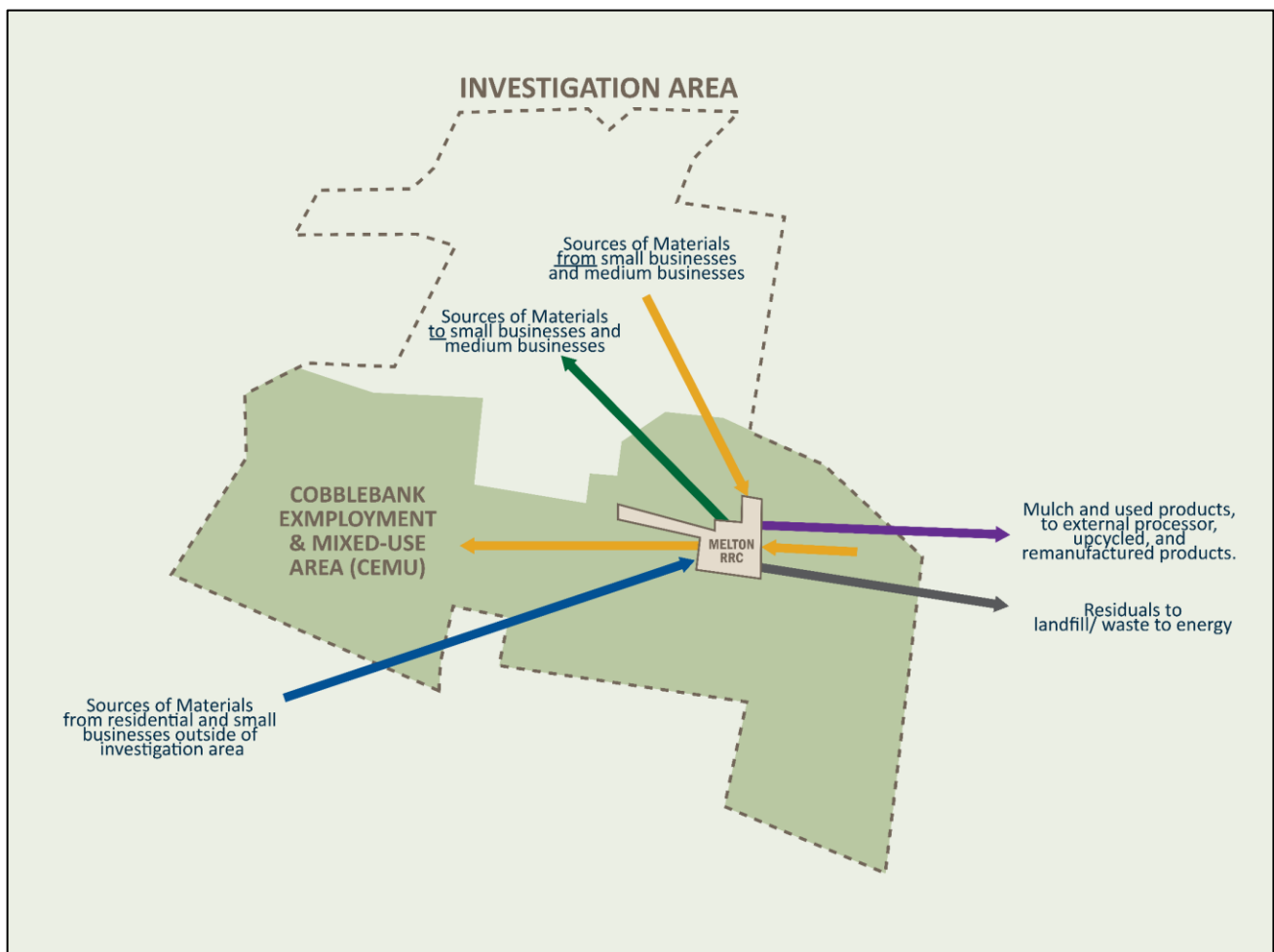


Figure 4.1 Map of Materials flowing through the Investigation Area

4.1 KEY MATERIAL STREAMS THROUGH THE EXISTING MELTON RESOURCE RECOVERY PRECINCT

As illustrated in **Error! Reference source not found.**, the material streams flowing through the existing Melton Resource Recovery Precinct (from residential and small business sources) will play a significant role as inputs to Circular Economy Hub activities. As such, a review of the top material streams (by annual tonnage) flowing through the site was performed to assess the suitability of Circular Economy Hub activities within the local context.

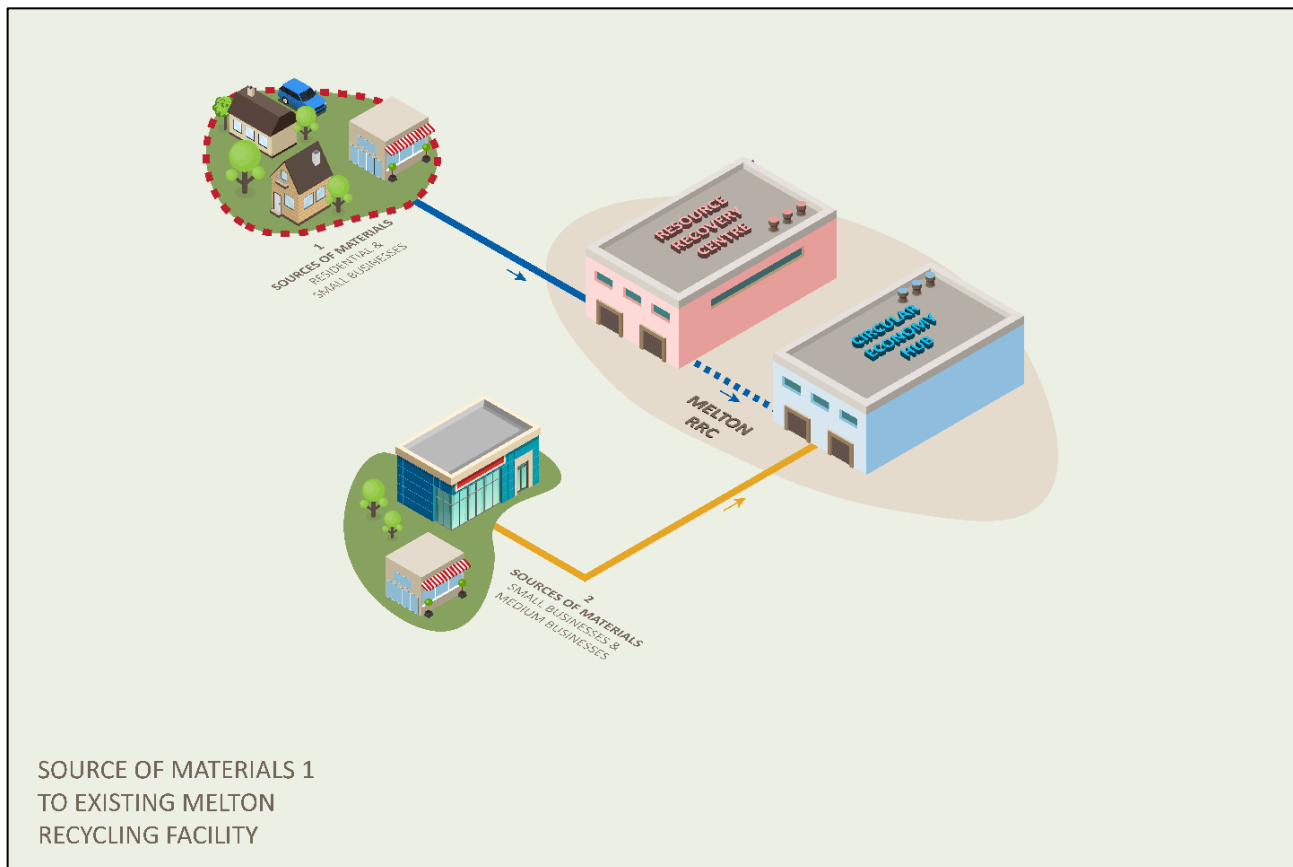


Figure 4.2 The source of materials flowing through the existing Melton Resource Recovery Precinct

NOTE: The below findings are based upon previous services undertaken by WSP for City of Melton as part of the Melton Resource Recovery Precinct Stage 2 upgrade works. Further detail can be found within the Schematic Design Report (Melton Resource Recovery Precinct) issued by WSP in February 2021.

4.1.1 Accepted Waste Streams (Current and Future)

Table 4-1 provides an overview of current waste streams flowing through the existing Melton Resource Recovery Precinct, and additional future (potential) streams to be implemented at the site in coming years.

Future waste streams have been identified to align with current best practise, known end-markets and current streams deposited or where emerging waste stream end markets have been identified.

An extended list of example materials typically found in each waste stream is provided in Appendix A.

Table 4-1 Current and Future Waste Streams at Melton Resource Recovery Precinct

SITE ELEMENT	CURRENT WASTE STREAMS		FUTURE WASTE STREAMS
Front End Resource Recovery (FERR)	Commingsles (Glass & Plastic)	Chemicals	All current waste streams, plus:
	Cardboard / Paper	Household Batteries	Polystyrene
	Car Batteries	Fire Extinguishers	Textiles / Clothing (Rags)
	Motor oil	Other Hard Plastics	Soft Plastics
	Cooking oil	Reusable Homewares / Furniture	DrumMuster
	E-waste	Reusable Clothing (Charity)	Aluminium
	Gas Bottles	Mattresses	Reusable Building Materials
	Lamps Fluorescent	Tyres	
	Paint		
Back End Resource Recovery (BERR) / C&D	Mixed C&D Waste	Green Organics	
	Screened Soil	Timber	
	Concrete	Scrap Steel	
	Bricks / Blue Stone / Tiles	Bitumen / Asphalt	
Residual Waste Shed (RWS)	Mixed Waste (Landfill)		

4.1.2 Repairable Residential goods

Several goods such as bicycles, furniture, clothing and electric appliances are currently classified as recyclable steel, timber, textiles and E-waste respectively. Each of these goods could be collected, reused or repaired through a repair café or repair service.

4.1.3 Top Waste Streams (by Annual Tonnage)

The ongoing upgrades to the existing Melton Resource Recovery Precinct are proposed to improve the site's landfill diversion rate from approximately 46% to 77%. As this improved stream separation will have a gradual but significant impact on the type and quantity of input streams to the Circular Economy Hub over time, it will be important to consider both current and future (potential) material flows through the site.

As a preliminary step, a review of annual waste stream tonnages currently received at the site (based on 2019-20 data) was performed to identify the current composition and overall diversion rate.

Following this, the waste stream composition profile was compared to those of similar resource recovery facilities in Australia, to identify further diversion opportunities. The annual tonnage was redistributed across recoverable waste streams to determine the revised top waste streams that may be achieved under future conditions.

Based on this approach, an overview of the top material streams flowing through the Melton Resource Recovery Precinct under both current and potential composition scenarios is provided in Table 4-2.

An extended list of current and potential composition for all material streams is provided in Appendix A.

Table 4-2 Top Material Streams through Melton Resource Recovery Precinct (Current vs. Potential Composition)

RANK	MELTON DATA 2019-20			POTENTIAL COMPOSITION (2040-41 + 25%)		
	Waste Stream	Composition	Annual Tonnage	Waste Stream	Composition	Annual Tonnage
1	Mixed Waste (Landfill)	53.65%	13,647	Mixed Waste (Landfill)	23.05%	17,055
2	Green Organics	12.29%	3,125	Green Organics	13.62%	10,078
3	Mixed C&D Waste	11.77%	2,995	Timber	13.41%	9,921
4	Screened Soil	6.43%	1,635	Mixed C&D Waste	13.36%	9,888
5	Timber	5.15%	1,311	Cardboard/Paper	7.13%	5,274
6	Scrap Steel	4.35%	1,106	Screened Soil	6.43%	4,755
7	Concrete	4.18%	1,063	Concrete	5.83%	4,314
8	Cardboard/Paper	1.03%	262	Scrap Steel	4.73%	3,498
9	Mattresses	0.45%	113	Other Hard Plastics	3.75%	2,772
10	Paint	0.23%	58	Bricks/Blue Stone/Tiles	3.62%	2,677
11	Motor Oil	0.14%	35	Mattresses	2.67%	1,973
12	Car Batteries	0.10%	25	Textiles/Clothing (Rags)	0.89%	658

NOTE: There were several waste streams where sufficient waste data was not available to adequately forecast volumes. These include waste streams such as reusable homewares / furniture, aluminium and building materials. Industry/market trends demonstrate that these streams can be diverted from landfill.

4.2 KEY MATERIAL STREAMS GENERATED BY LOCAL INDUSTRY

As illustrated in Figure 4.3, the material streams generated by local industry (Commercial and Industrial (C&I) waste sources) will contribute the remainder of material inputs to Circular Economy Hub activities.

A review of the top C&I waste streams (by annual tonnage) generated by current and future industries within the Project Investigation Area was performed to identify additional priority material streams, further assess the suitability of Circular Economy Hub activities within the local context and identify opportunities for industrial partnerships and symbiosis.

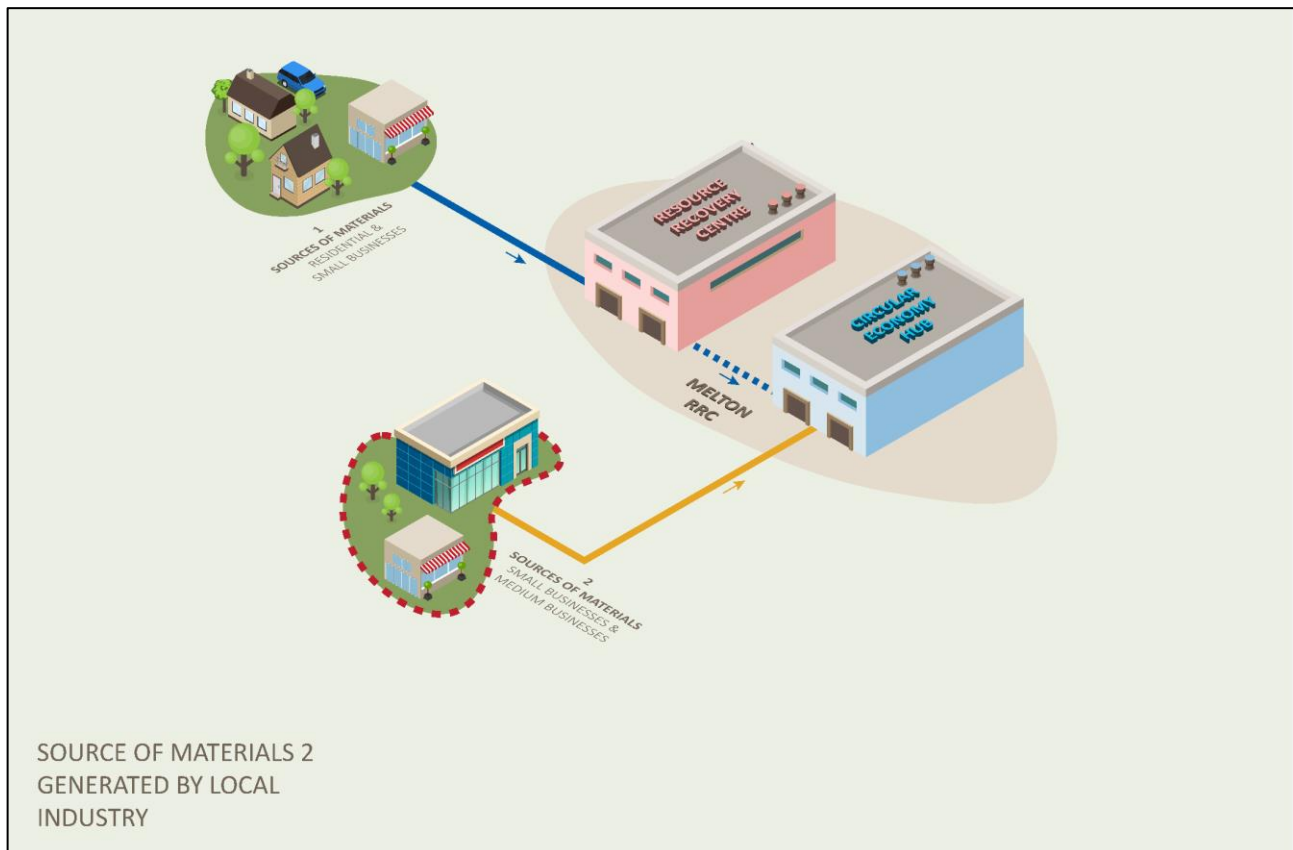


Figure 4.3 The source of materials generated by local industry

4.2.1 Scope of Industry Waste Assessment

In alignment with this Feasibility Study's purpose to identify opportunities for Circular Economy Hub initiatives and industry partnerships within the Project Investigation Area, a waste assessment was performed to determine the top **Commercial and Industrial (C&I) waste streams** generated by industries (existing and future) **located within the Project Investigation Area boundary**.

While additional industries within the broader City of Melton may ultimately contribute to Circular Economy Hub material flows and operations, the high density of both existing and future growth industries (particularly the CEMU UDF area) within the Project Investigation Area itself present the 'ideal' opportunity for integration into the local economy, including benefits such as ease of material transfer, reduced transport costs and reduced emissions.

4.2.2 Methodology and Key Assumptions

An overview of key steps, assumptions and data sources used throughout the local industry waste assessment is provided in Table 4-3.

Table 4-3 Project Investigation Area Industry Waste Assessment - Key Assumptions

TOPIC	KEY ASSUMPTIONS
Local Industry Breakdown and Employment (Current)	Data Source: The number of full-time employees per industry sector within the Project Investigation Area were estimated based on <i>Local Workers by Destination Zone</i> (2021) data published by Economy.id⁴. As illustrated below, the Project Investigation Area spans over two 'destination zones'. The ratios of land covered by the Project Investigation Area were applied to determine the relevant proportion of local workers (by industry) per zone. 'Local Workers' vs. 'Total Workers': Given the Feasibility Study's high-level purpose of identifying the ranked order of material streams (i.e. relative breakdown rather than total tonnages), it has been assumed that the breakdown of 'local workers' (i.e. workers residing within the local area) per industry is representative of 'total workers' per industry (regardless of where they reside), due to unavailable data for 'total workers' by destination zone. Employment Type: Similarly, it has been assumed that the quantities of local workers represent Full Time Employees (assumed to have negligible impact to overall breakdown by industry sector). Overall Approach: Alternate methods of calculating total full-time employment as a proportion of whole City of Melton values were deemed less relevant to the Study, as they did not capture the unique industry mix and fast-growing nature of the CEMU UDF and Project Investigation Area.

⁴ <https://economy.id.com.au/melton/employment-locations?sEndYear=2009&BMID=20>

Local Industry Breakdown and Employment (20-30 year growth)	Growth Areas: Due to the high concentration of existing industry in the northern Project Investigation Area, industry growth was only deemed applicable to the CEMU UDF area (assumed 20-30 year growth in line with the area’s anticipated build-out timeframe). Employment Land Use Breakdown: The following employment land use breakdowns were applied within the CEMU UDF area:																					
	<table><tr><th>LAND USE</th><th>AREA</th><th>SOURCE</th></tr><tr><td>Light Industrial / Business</td><td>200 ha</td><td>As stated in CEMU UDF</td></tr><tr><td>Restricted Retail / Showroom</td><td>35 ha</td><td>As stated in CEMU UDF</td></tr><tr><td>Commercial / Business</td><td>30 ha</td><td>As stated in CEMU UDF</td></tr><tr><td>High Amenity / Business Park / Research</td><td>50 ha</td><td>As stated in CEMU UDF</td></tr><tr><td>Residential / Mixed Use</td><td>41 ha</td><td>As measured from CEMU UDF Plan</td></tr><tr><td>Conservation Open Space</td><td>12 ha</td><td>As measured from CEMU UDF Plan</td></tr></table>	LAND USE	AREA	SOURCE	Light Industrial / Business	200 ha	As stated in CEMU UDF	Restricted Retail / Showroom	35 ha	As stated in CEMU UDF	Commercial / Business	30 ha	As stated in CEMU UDF	High Amenity / Business Park / Research	50 ha	As stated in CEMU UDF	Residential / Mixed Use	41 ha	As measured from CEMU UDF Plan	Conservation Open Space	12 ha	As measured from CEMU UDF Plan
	LAND USE	AREA	SOURCE																			
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Residential / Mixed Use	41 ha	As measured from CEMU UDF Plan																				
Conservation Open Space	12 ha	As measured from CEMU UDF Plan																				
<u>Note:</u> It was conservatively assumed that employment land use areas are equivalent to operational Gross Floor Area (GFA). Job Creation: Estimation of full-time jobs created by the above employment land uses was based on the 22,000 minimum jobs for local residents expected for the wider Toolern PSP area. Assuming geographically even distribution of these jobs, and the CEMU UDF covering approximately 21.5% of the Toolern PSP by land area, it was estimated that 4,750 jobs will be created within the Project Investigation area. Redistribution of Job Growth by CEMU Land Use: The estimated 4,750 jobs created were initially distributed among the above land uses (based on relative area proportions), Redistribution of Job Growth by Industry Sector: Estimated jobs per land use were subsequently redistributed among standard ANZSIC industry sectors, based on a series of assumptions relating to typical industry activities (e.g. Light Industrial / Business jobs were distributed equally among the Manufacturing, Construction and Transport/ Postal/ Warehousing industry sectors). A detailed list of assumed industry sectors per land use is provided in Appendix B.																						
Commercial & Industrial Waste Generation Rates	Commercial & Industrial waste generation rates by industry sector were sourced from <i>Waste flows in the Victorian commercial and industrial sector</i>, published by Sustainability Victoria and Sustainable Resource Use in June 2013. A detailed list is provided in Appendix B. Based on forecast full time employment and C&I waste generation rates, the total annual C&I waste tonnage was determined for each applicable industry.																					
Material Composition of Commercial & Industrial Waste (by Industry)	The material composition of overall C&I waste by industry sector (potential composition with garbage bags distributed) was sourced from <i>Disposal-based audit: Commercial and industrial waste stream in the regulated areas of New South Wales</i>, published by NSW EPA in May 2015. A detailed list is provided in Appendix A. Based on the total annual C&I waste tonnages by industry and material compositions, the detailed tonnages for each material stream were determined both by industry (refer Appendix B), and cumulatively across the Project Investigation Area (refer Section 4.2.3).																					

4.2.3 Top Waste Streams (by Annual Tonnage)

Based on the approach detailed in Sections 4.2.1 and 4.2.2, Table 4-4 ranks the key C&I material streams generated by existing and future industries located within the Project Investigation Area (including additional job growth to be generated by the CEMU UDF land use zoning over a 20-30 year period).

Table 4-4 Commercial & Industrial Waste Generation Assessment for the Project Investigation Area

Project Investigation Area – Commercial & Industrial Waste Generation Assessment				
Rank	Material Stream	Composition	Annual Tonnage	Example Materials
1	Other	17.7%	1,826	Other (mixed), batteries, gas bottles, nappies, fines
2	Plastic	14.4%	1,484	Film packaging, rigid packaging, EPS foam, other
3	Wood	14.3%	1,472	Pallets, treated/painted wood, untreated wood
4	Food	12.7%	1,308	Packaged, unpackaged
5	Paper	11.5%	1,185	Packaging, office paper, other
6	Masonry	10.6%	1,089	Concrete/bricks, other
7	Cardboard	6.2%	636	Dry – compacted, dry – loose, wet – loose, waxed
8	Textiles	3.6%	368	Textiles/leather, carpet/underlay, furniture, mattresses
9	Garden organics	3.3%	344	Garden organics
10	Metals	2.6%	265	Ferrous/non-ferrous, packaging/non-packaging, low/high density
11	Glass	1.9%	196	Packaging, non-packaging
12	Rubber	0.8%	83	Rubber

Note: 'Other' has been identified at the largest waste stream by volume. Case Study data held by WSP notes that the most significant portion of this material is nappies. This is not relevant to the C&I waste expected in the study area, hence 'Other' has not been included in the top streams below.

4.3 OTHER MATERIAL STREAMS FOR CONSIDERATION

4.3.1 *Dumped Waste*

Based on Council observations, the following items represent the most commonly dumped waste streams within the City of Melton:

- Soil
- Construction materials (including concrete, electrical wiring, rock)
- Green waste (mainly yucca plants)
- Tyres

It was also noted by Council (during project workshop discussions) that approximately 80-90% of dumped waste offenders had not yet used their annual drop-off entitlements (i.e. had the opportunity to dispose properly of their waste for free and chose not to do so).

Future improvements to dumped waste data collection, monitoring and enforcement may provide further insight regarding opportunities to capture high value dumped waste streams as an input to Circular Economy Hub activities.

4.3.2 *Hard Waste*

Based on Council observations, the following items represent the most common hard waste streams disposed within the City of Melton:

- Mattresses
- Furniture (including couches, dining chairs, beds)
- Packaging (including cardboard and polystyrene)

The bulky nature of hard waste streams (and consequent challenges with their transport / storage / processing) means that there is significant opportunity for their reuse or reprocessing within close proximity to their collection / drop-off location.

Future improvements to the accuracy of hard waste data (capturing both kerbside collections and transfer station drop-offs) may provide further insight into opportunities for their use within Circular Economy Hub activities.

5 A Circular Economy Hub for Melton

5.1 CIRCULAR ECONOMY HUB ACTIVITIES

Activities that could be included in the Melton Circular Economy Hub are discussed in detail below. These have been divided into **Community** and **Commercial** activities (employment zone). The activities below are in addition to the facilities at the existing Melton Resource Recovery Precinct (excluding the Resale Shop).

Each of the activities have been aligned with the 10 R's of Circularity defined in Section 2.2.

5.1.1 *Community Elements of a Circular Economy Hub*

The following CE Hub elements and activities would serve the community, and may be located within the grounds of the current Melton Resource Recovery Precinct.

5.1.1.1 RESALE SHOP

A resale shop will stock quality second hand items (in functioning order) that have been dropped off by the local community, and offer them for sale. Common use products may include homewares, sporting goods, prams, office furniture and clothing.

Products are not catalogued or placed on an inventory, but simply stored and presented for resale. Product availability is purely based on community donations.



Resale shops are an excellent means of reusing functioning items that would otherwise go to landfill.

Resale Shops sit in the Refuse and Reuse section of the 10 R's of Circularity.

5.1.1.2 REPAIR CAFÉ AND UPCYCLING CENTRE

A Repair Café is a venue where people can gather to repair everyday items with help from volunteers/staff. They are typically held in community spaces where tools are available.

Other than just repairing items, Repair Cafés are also an excellent way of sharing tools, spaces, knowledge and skills required to keep an item out of landfill and acquiring specialist knowledge and skills that would normally prevent an item being fixed or replaced.



Repair cafes sit in the Repair and Refurbish section of the 10 R's of Circularity.

5.1.1.3 WORKSHOP AND TRAINING FACILITIES

The role of workshop and training facilities is to provide spaces for a variety of activities such as public demonstrations/workshops, sustainability and waste education courses for residents and fostering ideas sharing.

These uses can be flexible, scheduled or fixed to cater for a variety of community and Council needs.

Workshops sit in the Refuse, Rethink and Reduce section of the 10 R's of Circularity.



5.1.1.4 TOOL LIBRARY

Tool libraries provide common access to tools that would otherwise have to be purchased by residents. They allow patrons to borrow on site or check out tools and equipment free of charge as a form of community sharing.

A tool library requires administration to ensure timely and complete return of tools, and to seek compensation for lost tools and late returns.

It also has to ensure the safety of the tools it lends out, performing maintenance and repairs to ensure good condition and to extend the lifespan of the available tools. The latter is normally performed by employees or volunteers with a licence to undertake the task.

Tool Libraries sit in the Refuse, Rethink and Reduce section of the 10 R's of Circularity.



5.1.1.5 CHILDCARE

Occasional Childcare facilities offer short-term (1-2 hours of care for pre-school aged children). This would allow parents and caregivers to access activities and education opportunities at the Circular Economy Hub.

This use would not be permitted at the current Melton Resource Recovery site due to planning restrictions, however, may be possible within the broader CEMU area.



5.1.2 Commercial Elements of a Circular Economy Hub

The following CE Hub elements and activities would provide commercial opportunities, both within the grounds of the Melton Resource Recovery Precinct and within the broader project investigation area.

5.1.2.1 MATERIALS WAREHOUSING

Materials, especially construction materials such as timber, pipes, doors and fences, can be stored and presented for resale.

Warehousing storage can be beneficial when the material amounts coming on-site are too high to process through a smaller scale resale shop. Material Warehousing includes material cataloguing and advertising.

Warehousing sits in the Refuse and Reuse section of the 10 R's of Circularity.



5.1.2.2 ECO CAFÉ AND KITCHEN GARDEN

An Eco Café is a restaurant with sustainable management principles at its core in terms of systems, materials and food selection based on sustainable agriculture and animal welfare. A Kitchen Garden grows food that will be used onsite in an associated café or restaurant.

In the context of a Circular Economy Hub, this would be an element that would attract community to the Hub, who could then participate in the wider activities present.

However, the kitchen garden would need to be located in an area where the soil is not contaminated, and in which planning controls permit this use.



5.1.2.3 LIVING LABS INCLUDING MICRO FACTORIES

Living Labs are intended as a flexible and modular space dedicated to selected businesses (e.g. trades persons, small businesses, tenants) with a variety of uses including but not limited to:

- Micro factories: a small and often highly automated manufacturing facility used for the local assembly of a complex product or system. Materials dropped off within the broader Circular Economy Hub site could be used as input materials for the micro factories.
- Repair Service: allows residents to drop off goods that can be repaired by a professional. This includes electrical items and large furniture or technical goods such as sporting equipment.
- Circular Start-up spaces: a good way to test the business feasibility of different ideas for the processing of materials that enter the Circular Economy Hub.
- Artist studios: allows the artists in residence to use materials that enter the Circular Economy Hub as inputs to their work.
- Collaboration spaces where businesses (particularly start-ups and micro factory/labs staff) can easily come together to share ideas and collaborate.



Living Lab sits in the Rethink, Repurpose and Recycle section of the 10 R's of Circularity.

5.1.2.4 REVERSE LOGISTICS

Reverse logistics refers to the supply chain process of returning products from end users back through the supply chain to either the retailer or manufacturer.

The Circular Economy Hub could be a temporary storage point in this cycle. Examples include milk and bread crates and cardboard removalist boxes.



5.2 MATERIALS FOR MELTON CIRCULAR ECONOMY HUB

Table 5-1 provides a list of priority material streams as high opportunity inputs to the proposed Melton Circular Economy Hub. The classification of these priority materials is based on key findings such as:

- High tonnage streams flowing through the existing Melton Resource Recovery Precinct (refer Section 4.1)
- High tonnage streams generated by local commercial and industrial sources within the Project Investigation Area (refer Section 4.2)
- City of Melton commonly observed dumped waste and hard waste streams (refer Section 4.3)
- Relevant government bans and regulations (refer Section 3.2)
- Global and local waste trends (e.g. emerging and fast-growing streams)

Table 5-1 Priority Material Streams for Melton Circular Economy Hub

Material Stream	High Tonnage Stream (Existing MRRP)	High Tonnage Stream (Local Industry)	Other Key Drivers and Considerations
Wood / Timber (inc. pallets)	✓	✓	▪ Local processing opportunities ideal, due to difficulty in transporting long distances (often large / bulky items)
Metals (inc. steel)	✓	✓	▪ Local processing opportunities ideal, due to difficulty in transporting long distances (often large / bulky items)
Cardboard / Paper	✓	✓	▪ National export ban from 1 July 2024
Textiles / Clothing (Rags)	✓	✓	▪ Known problem waste stream – fast growing (e.g. fast fashion) with many opportunities for repurpose/recycle
Hard Plastics	✓	✓	▪ National export ban on unsorted mixed plastics from 1 July 2021 ▪ National export ban on unprocessed single polymer or resin plastics from 1 July 2022 ▪ Victoria ban on problematic single use plastic items from 1 Feb 2023
Soft Plastics		✓	▪ Likely 'phase out' waste stream in coming years ▪ National export ban on unsorted mixed plastics from 1 July 2021 ▪ Victoria ban of lightweight plastic bags ▪ Specialty processing required (emerging industry)
Masonry (inc. bricks and tiles)	✓	✓	▪ Difficult to transport long distances (often large / bulky items)
Paint	✓		▪ Often received in usable condition (e.g. half full paint tins)

			Chemical / hazardous waste classification – safety considerations for storage and processing
Mattresses	✓		- Known problem waste stream - challenging to repurpose/recycle - Among City of Melton's most commonly dumped waste streams - Local processing opportunities ideal, due to difficulty in transporting long distances (large / bulky items) - Specialty processing required (emerging industry)
Polystyrene (EPS)		✓	- Likely 'phase out' waste stream in coming years - City of Melton and Moonee Valley City Council grant application partnership for on-site EPS recycling at transfer stations
E-Waste			- Victoria ban on E-waste to landfill from July 2019 - Global waste trends: increasing waste stream (e.g. increased presence of electronic products)
Tyres			- Among City of Melton's most commonly dumped waste streams - National export ban from December 2021
Medium-density fibreboard (MDF)			- Known problem waste stream - challenging to repurpose/recycle due to mixed material composition - Global waste trends: increasing waste stream (e.g. budget furniture)
Solar PV Panels			- Emerging waste stream (installed at approx. 33.6% of Melton dwellings, total estimated capacity of 110,563 kW) as first-generation panels reach end of life. - Specialty processing required (emerging industry) - Local processing opportunities ideal, due to difficulty in transporting long distances (often large / bulky items)

5.2.1 Additional Materials

In addition to the large volume materials listed in the table above, a significant volume of materials are currently recycled rather than repaired. Data on this is currently not available. This includes goods such as bicycles, furniture, clothing and electric appliances are. Each of these goods could be collected and reused, repaired through a repair café or repair service.

5.3 LOCAL INDUSTRY OPPORTUNITIES

An overview of the precincts and supported land uses proposed for the CEMU UDF area is provided in Figure 5.1 (CEMU UDF Precinct Plan) and Table 5-2 (Supported Land Uses by Precinct).

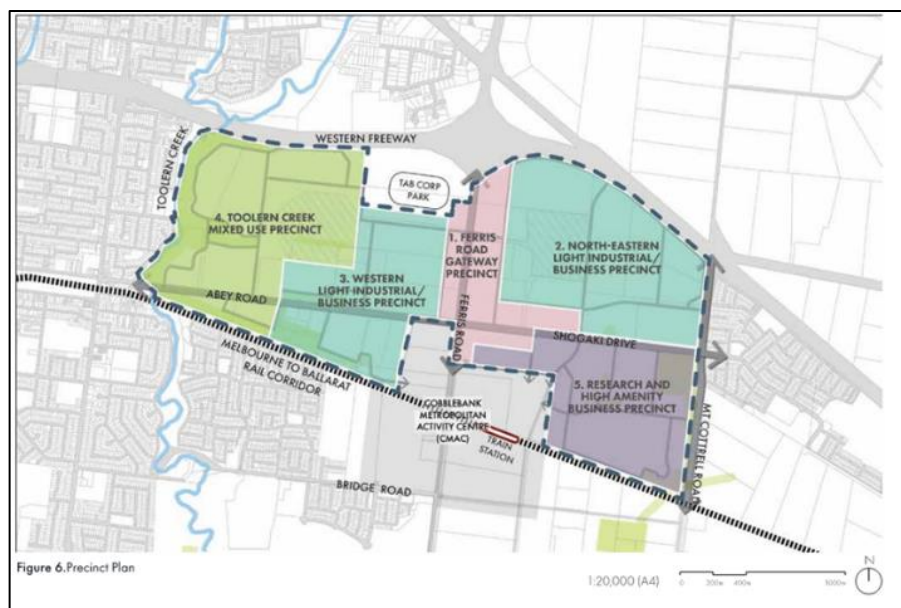


Figure 5.1 CEMU UDF Precinct Plan

Table 5-2 Overview of CEMU UDF Precincts and Supported Land Uses

PRECINCT	SUPPORTED LAND USE	
1. Ferris Road Gateway Precinct	Restricted retail premises	Showrooms (e.g. sale of automotive, marine, trade and building supplies)
2. North-Eastern Light Industrial Precinct	Service Industry	Landscape Gardening Supplies
3. Western Light Industrial/Business Precinct	- Offices - Warehouse + Logistics - Trade Supplies	- Manufacturing + Repairs - Construction Support - Food and Drink Premises
4. Toolern Creek Mixed Use Precinct	- Food and Drink Premises - Convenience Shops - Healthy and Beauty Services - Offices - Child Care Centres	- Medical Services - Home Based Business - Dwellings - Aged Care - Retirement Villages
5. Research and High Amenity Business Precinct	- Research + Development Centres - Major Specialised Government / Public Sector Infrastructure - Offices	- Exhibition Centre - Conference Centre

As shown in Table 5-3, the priority material streams identified in Section 5 were assessed in relation to each CEMU supported land use, to identify potential future growth industries that may be able to utilise the materials as inputs.

Overall, it was found that Precincts 2 (North-Eastern Light Industrial Precinct) and 3 (Western Light Industrial/Business Precinct) and Precinct 5 (Research and High Amenity Business Precinct) present the most opportunities to capture priority material streams, particularly via industries such as Manufacturing/Repairs and Research and Development Centres.

As further details emerge regarding specific industry tenants that will move into the CEMU UDF area (over its anticipated 20-30 year build-out timeframe), mapping of material flows may be regularly reviewed to identify emerging opportunities for industrial symbiosis and partnerships as they develop over time.

Table 5-3 Potential opportunities for use of priority materials by CEMU UDF precincts and supported land uses

CEMU UDF PRECINCT	PRECINCT 1 FERRIS ROAD GATEWAY PRECINCT		PRECINCTS 2 AND 3 LIGHT INDUSTRIAL / BUSINESS PRECINCTS								PRECINCT 4 TOOLERN CREEK MIXED-USE PRECINCT										PRECINCT 5 RESEARCH AND HIGH AMENITY BUSINESS PRECINCT				
Supported Land Use	Restricted Retail Premises	Showrooms (e.g. sale of automotive, marine, trade and building supplies)	Service Industry	Offices	Warehouse + Logistics	Trade Supplies	Landscape Gardening Supplies	Manufacturing + Repairs	Construction Support	Food and Drink Premises	Food and Drink Premises	Convenience Shops	Health and Beauty Services	Offices	Child Care Centres	Medical Services	Home Based Business	Dwellings	Aged Care	Retirement Village	Research + Development Centres	Major Specialised Government / Public Sector Infrastructure	Offices	Exhibition Centre	Conference Centre
Material Stream																									
Wood / Timber (inc. pallets)	✓	✓			✓	✓	✓	✓	✓	✓	✓						✓	✓			✓	✓			
Metals (inc. steel)					✓	✓	✓	✓	✓								✓				✓	✓		✓	✓
Cardboard / Paper	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓		✓	✓			✓		✓		
Textiles / Clothing (Rags)							✓	✓									✓	✓			✓				
Hard Plastics					✓			✓	✓						✓		✓				✓	✓			
Soft Plastics	✓	✓			✓			✓									✓				✓				
Masonry (inc. bricks and tiles)				✓		✓	✓	✓	✓					✓	✓		✓	✓			✓	✓	✓	✓	✓
Paint	✓	✓		✓		✓	✓	✓	✓					✓			✓	✓			✓	✓	✓	✓	✓
Mattresses								✓										✓			✓				
Polystyrene (EPS)						✓	✓	✓	✓								✓				✓				
E-Waste			✓		✓			✓									✓				✓				
Tyres						✓	✓	✓	✓												✓				
Medium-density fibreboard (MDF)	✓	✓		✓	✓	✓	✓	✓	✓					✓			✓	✓			✓	✓	✓		
Solar PV Panels								✓													✓				

6 OTHER CONSIDERATIONS

6.1 ALTERNATIVE WASTE TREATMENT

Alternative Waste Treatment sits in the Recovery section of the 10 R's, where all other options have been explored, and all that remains to be obtained from the processing of residual material is heat and/or useable energy. This typically occurs in an Energy from Waste (EfW) plant, which may convert the material into a useable form of energy including electricity, heat and transport fuels.

As detailed in EPA Victoria's [1559.1: Energy from waste guideline](#) (July 2017), the EPA does encourage EfW in some cases, "where energy recovery provides the best practicable environmental outcome for the management of the waste having regard to economic, social and environmental considerations, and when the waste has a gross calorific value that can be recovered".

However, the guideline also identifies considerations that must be assessed as part of the approval process, such as the suitability of a proposed feedstock, the benefits and impacts of an EfW plant over its whole lifetime, operational risks such as discharge of pollutants and odour, and local planning and zoning requirements. It also highlights that "In accordance with [publication 1518](#), EPA will assess separation distances for EfW plants on a case-by-case basis, using site-specific scientific evidence from air, noise, odour and dust modelling as it becomes relevant."

Due to sensitive uses (e.g. residential) proposed within the project investigation area, the local development of an Alternative Waste Treatment facility may be challenging. Moreover, Energy from Waste plants tend to be unpopular with local communities, due to the perception that they are highly polluting. However, as EfW is supported by EPA Victoria, it may be possible for a facility to be built in the surrounding area. Further investigation would be required.

6.2 ORGANICS PROCESSING

Organic material can be processed via aerobic (with oxygen) or anaerobic (without oxygen) methods, to recover energy and/or provide outputs such as soil conditioner, mulching material, and fertiliser.

Aerobic processing of garden organics is common and often performed in open windrows, which can be a highly space intensive process. As detailed in EPA Victoria's [1588.1: Designing, constructing and operating composting facilities](#) guideline (June 2017), the development of a facility must also consider recommended separation distances from sensitive uses (which vary based on feedstocks, process design and site capacity). Due to sensitive uses (e.g. residential) proposed within the project investigation area, the local development of such a facility may be challenging.

Based on the assessment undertaken in Section 4.1, the existing Melton Resource Recovery Precinct received 3,125 tonnes per annum of green organics for 2019-20, with a predicted increase to 10,078 tonnes per annum by 2040-41. It is also predicted that industries in the area will produce 1,308 tonnes per annum of food organics and 344 tonnes per annum of garden organics (refer Section 4.2). These throughputs demonstrate potential for local processing of the material, however further investigation would be required.

7 OPERATING MODELS

The Circular Economy Hub and Melton Resource Recovery Precinct offers employment opportunities for various sectors of the community. These can be managed under several operating models.

Common operating models for waste facilities include:

- **Government:** local government often operate the staffing and management of resource recovery facilities. Facilities are often co-located with works depots. Local Government may choose to include staff from employment programs for disability workers, prison return to work programs, community service, and asylum seekers.
- **Private:** Waste service providers often operate transfer stations and resource recovery centres. These can be associated with waste collection contracts or processing and disposal facilities. These operators have a very good understanding of material values and commodity trading, opportunities and constraints.
- **Social Enterprise:** Environmental organisations (for profit) are common operators of waste facilities including resource recovery facilities. These organisations are often employers of staff from disability employment programs or community members from disadvantaged backgrounds.
- **Charities:** Charities are registered organisations that provide Not-for-Profit services with the intent to raise money for the community or a specific cause. Charities are often operators of used good stores and are very knowledgeable on the value and operation of these facilities.
- **Partnerships:** Partnerships are a combination of a multiple of the above service providers.
- **Community Driven:** Local community members create a body corporate, to operate a Council owned asset and manage memberships (e.g. [East Keilor Sustainability Street](#)).

Circular Economy Hubs are an emerging concept in the Australian resource recovery industry. Consideration should be given to which model/s may be most suitable for businesses, start-ups, staff, leasing of spaces and storage of materials.

8 MASTERPLAN CONSIDERATIONS

As discussed in Section 5, the **Community zone** and **Commercial zone** (shown in Figure 8.1) highlight opportunities that may be achieved within the Melton Resource Recovery Precinct. Opportunities may also exist outside of the title boundary (within 500m of the site), however further investigation is required.

This section introduces high level masterplan considerations for the proposed Circular Economy Hub.

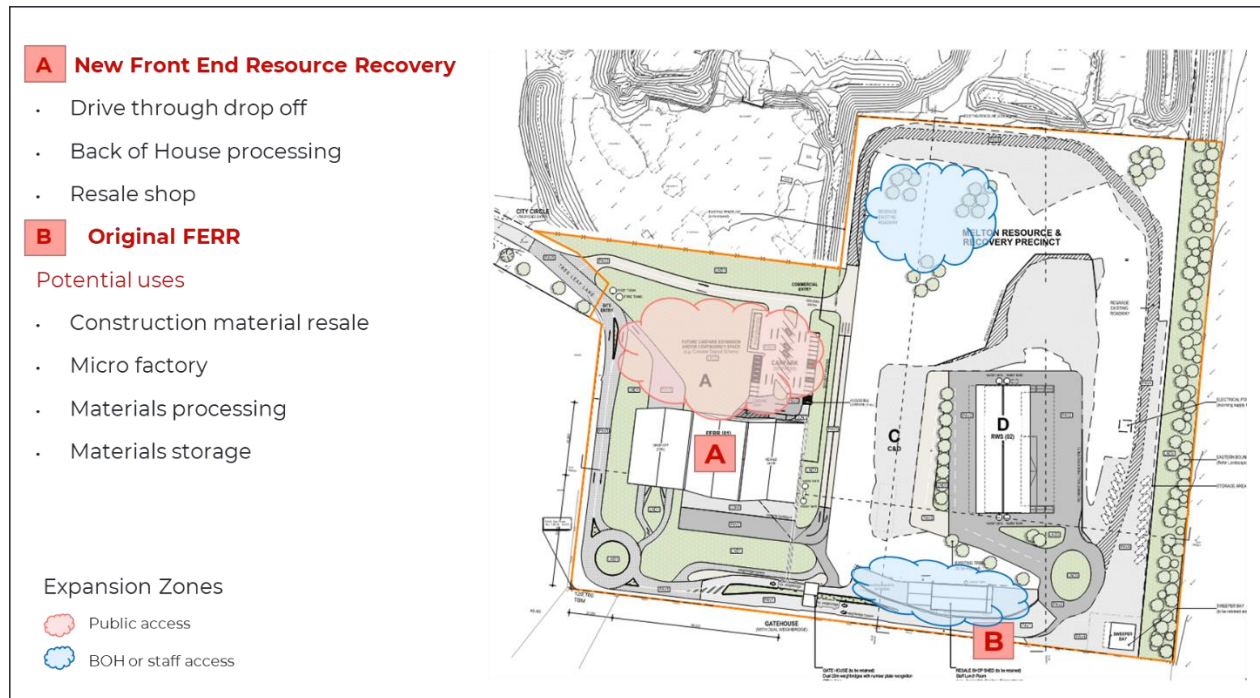


Figure 8.1 Potential expansion zones for Melton Resource Recovery Precinct's transition into a Circular Economy Hub

8.1 USE OF CONTINGENCY ZONES

Figure 8.1 denotes potential uses of the proposed contingency zones. The pink shaded area demonstrates land suitable for community activities, and the blue shaded areas demonstrate land ideally suited to commercial zones (BoH or Staff Access).

8.2 CONNECTED SITE

Key to the success of a Circular Economy Hub will be achieving a balance between both its community and industrial activities and users. These users may have some conflicting interests and requirements, such as commercial users requiring access to bulk quantities of materials and heavy vehicles, while maintaining safe pedestrian access points for community users.

As such, separation between certain community and industry uses may be necessary. It is proposed that community activities be centred around the front of the site, and commercial uses be confined to the limited access back of house area of the site.

8.3 LONG TERM FUTURE OF RESALE SHED AT MRRP

The layout of the current MRRP dictates that the safest use for the current resale shed (labelled B in Figure 8.1) is a commercial use. Long term, the current Resale Shed could include activities such as:

- Repair service centre (for the repair of goods dropped off and collected at the resale shop)
- Building materials storage such as doors, windows, tiles and sinks
- Micro factory, such as E-waste processing or a mattress processing facility

8.4 EMBEDDING INNOVATION

Embedding innovation into the Circular Economy Hub will be an ongoing discovery process based on industry interest in the materials flowing through the facility, and the openness of all stakeholders to participate in new approaches to circularity. This will require close attention to the types and quantity of materials flowing through the hub over time, and flexibility to react to changes therein.

Working with researchers in the development of the Circular Economy Hub (such as the [Circular Economy Hub@RMIT](#)) will provide Council with insights into new possibilities, innovations and potential trials.

Innovation may also be embedded by designing the Circular Economy Hub with flexible components that can easily adapt to accommodate different or multiple uses over time, as new opportunities arise. For example, a Tool Library that also provides classes and regularly hosts a Repair Café.

Innovative ways to bring materials into the Circular Economy Hub may also be investigated, such as a pickup service for residents' used and unwanted furniture, so that it may be transferred to the site and refurbished for resale. A similar service could be contracted to obtain construction waste from tradesmen, saving them landfilling and disposal costs.

8.5 ACHIEVING PRACTICAL CIRCULAR ECONOMY OUTCOMES

The key outcome of the Circular Economy Hub is the diversion of material away from landfill and into a purposeful and long-term use. The success of the proposed circular economy outcomes will be dependent on the extent to which:

- Council is able to attract the right industries to the CEMU area
- The CE Hub becomes a focal point for the community, and is driven by their interest and curiosity
- Council is able to monitor the material types and flows circulating in the local area, and is able to communicate the availability of these resources to potential users
- Council explores funding opportunities
- Council partners with community, commercial, research and innovation stakeholders

A Roadmap has been prepared in the following Section 9 to guide the achievement of these outcomes.

9 ROADMAP

A roadmap of key steps to developing, implementing and maintaining a CE Hub in Melton has been prepared, a summary of which is illustrated in Figure 9.1. Further detail for each step is provided in Table 9-1.

STEP	ACTION PLAN	TIMEFRAME	LEAD COUNCIL DEPARTMENT	SUPPORTING DEPARTMENTS
STEP 1	Trials and pop-up opportunities	2-6 months	Environment & Waste	Engagement & Advocacy Community Planning City Design & Strategy
STEP 2	High level masterplan and site selection, demonstrating community and commercial components	6 months	Environment & Waste	Planning Services Engagement & Advocacy Community Planning
STEP 3	Engagement and education campaigns	3 months	Engagement & Advocacy	Environment & Waste Community Planning
STEP 4	Funding and government support	3 months	Engagement & Advocacy	Environment & Waste Community Planning Planning Services
STEP 5	Design, planning and approvals	6-12 months	Environment & Waste	Planning Services Community Planning Engineering Services City Design & Strategy Operations
STEP 6	Development of a commercial engagement and attraction strategy	3-6 months	Engagement & Advocacy	Environment & Waste Community Planning
STEP 7	Construction	12 months	Capital Projects	Environment & Waste Engineering Services
STEP 8	Advertisement of Circular Economy Hub activities	3-6 months	Engagement & Advocacy	Environment & Waste Community Planning
STEP 9	Operation of facility, including monitoring and reviews	Ongoing	Environment & Waste	Operations Engagement & Advocacy

Figure 9.1 Summary of Roadmap to a Circular Economy Hub for Melton

Table 9-1 Detailed Roadmap to a Circular Economy Hub for Melton

STEP	ACTION PLAN	TIMEFRAME	LEAD COUNCIL DEPARTMENT	SUPPORTING DEPARTMENTS
1	Trials and pop-up opportunities 1.1. Investigate opportunities for trials and pop-ups of the proposed CE Hub activities, located within the existing MRRP or wider community. Refer to Table 9-2 for detailed trial recommendations. 1.2. Collect data from trials and pop-ups (e.g. uptake rates, participant surveys), to inform the development of future trials or permanent programs.	2-6 months	Environment & Waste	Engagement & Advocacy Community Planning City Design & Strategy
2	Prepare high level masterplan and site selection, demonstrating community and commercial components 2.1. Establish criteria for transfer of materials from the MRRP and commercial CE Hub. 2.2. Prepare light masterplan suitable for funding support 2.3. Prepare cost plan based on masterplan engagement feedback 2.4. Identify land parcels suitable for size of development 2.5. Seek council endorsement for post-masterplan development	6 months	Environment & Waste	Planning Services Engagement & Advocacy Community Planning
3	Engagement and education campaign 3.1. Undertake community engagement and stakeholder activities 3.2. Undertake commercial engagement to confirm industry interest in materials	3 months	Engagement & Advocacy	Environment & Waste Community Planning
4	Funding and government support 4.1. Obtain funding and government support for infrastructure 4.2. Undertake land acquisition or land use partnership	3 months	Engagement & Advocacy	Environment & Waste Community Planning Planning Services
5	Design, planning and approvals 5.1. Undertake detailed design, including opportunities for: - Community components (e.g. Tool library, Repair Café and Workshops) - Commercial components (e.g. micro factories) 5.2. Finalise concept plan through to construction documentation, including planning and approvals	6-12 months	Environment & Waste	Planning Services Community Planning Engineering Services City Design & Strategy Operations
6	Development of a commercial engagement and attraction strategy The Commercial Engagement and Attraction Strategy should include detailed information and action items regarding: 6.1. Employment of Economic Development Officers and Circular Economy Officers to work with local industries to:	3-6 months	Engagement & Advocacy	Environment & Waste Community Planning

	- Manage EOI process for established businesses and start-ups - Assess interest in innovation hubs or start-up incubators within the CEMU 6.2. Assess opportunities for industrial symbiosis within the CEMU 6.3. Commence discussion with possible industry partners, including: - TAFE - Disability Employment - Social Enterprises - Charitable Organisations			
7	Construction 7.1. Undertake tender and appoint building contractor 7.2. Undertake construction	12 months	Capital Projects	Environment & Waste Engineering Services
8	Advertisement of Circular Economy Hub activities 8.1. Prepare community and business engagement strategies 8.2. Undertake community and business engagement	3-6 months	Engagement & Advocacy	Environment & Waste Community Planning
9	Operation of facility, including monitoring and reviews 9.1. Commence operation of CE Hub 9.2. Maintain records of materials flowing into and out of the CE Hub, including material type, weight, origin & destination. 9.3. Ongoing review (e.g. annually) to adjust engagement strategies and general operation of the CE Hub	Ongoing	Environment & Waste	Operations Engagement & Advocacy

9.1 EARLY TRIALS

Table 9-2 provides further recommendations regarding potential trials and pop-ups of CE Hub activities that were initially listed in Table 9-1.

As construction of the upgraded Melton Resource Recovery Precinct is expected to occur between February-December 2023, trials and pop-ups may be difficult to operate within the current site boundary during this period. However, trials and pop-ups may be able to occur on-site following the completion of construction works.

Table 9-2 Recommended Trials and Pop-Up Opportunities for Melton CE Hub Activities

CE HUB ACTIVITY	TRIALS AND POP-UP OPPORTUNITIES	LIKELY PARTICIPANTS	LIKELY COSTS
Tool Library	Could be set up at the following sites: - Community centre - Shipping container close to the existing facility - A local school or tertiary institution	- Established by Council - Operated by Council, Disability Employment, or Charitable Organisations	- Lease of site - Purchase of tools - Staffing - Inventory/tracking system
Workshop and Training Facilities	Could be set up in partnership with: - Council, at a community centre - A local school or tertiary institution that undertake design and technology subjects (e.g. woodwork, metalwork, engineering, robotics, textiles)	- Established by Council - Operated by TAFE, Disability Employment, Social Enterprises or Charitable Organisations	- Lease of site - Transfer of materials to workshop/training facility - Staffing
Micro Factories	Could be set up at the following sites: A local industrial estate as short-term lease or shared rental space, with start-up program.	- Established by Council - Operated by Council, university (e.g. RMIT), or private enterprise	- Lease of site - Purchase of equipment - Staffing
Repair Café and Upcycling Centre	Could be set up at the following sites: - Community centre - Shipping container close to the existing facility - A local school or tertiary institution	- Established by Council - Operated by Council, Disability Employment, or Charitable Organisations	- Lease of site - Purchase of equipment - Staffing

10 RECOMMENDATIONS

A Circular Economy Hub can be established within the investigation area. If focused on attracting industries and micro factories based on the high-volume materials discussed in Section 4, the CE Hub could be highly successful in diverting materials away from landfill and keeping materials in use at their highest value while generating employment and social benefits.

The potential waste flows between the community and business into and out of the investigation area are depicted in Figure 10.1.

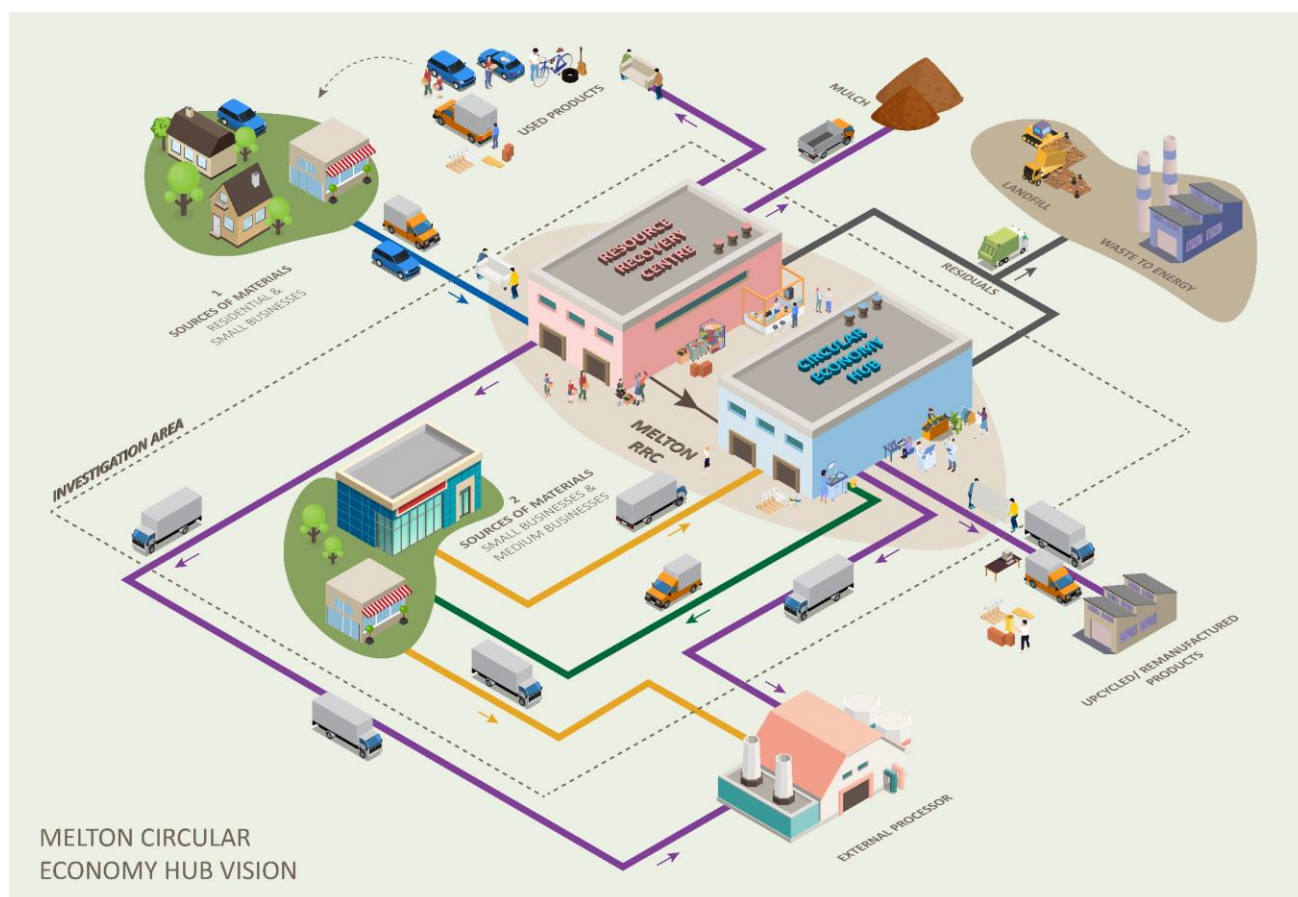


Figure 10.1 Potential waste flows within the Project Investigation Area

Key materials and associated industries should be focused on the wastes streams that are high volume. These include:

- | | | | |
|-----------|-------------|-------------------|----------|
| ▪ Plastic | ▪ Paper | ▪ Textiles | ▪ Glass |
| ▪ Wood | ▪ Masonry | ▪ Garden organics | ▪ Rubber |
| ▪ Food | ▪ Cardboard | ▪ Metals | |

Key to the long-term success of the Melton Resource Recovery Precinct and a Circular Economy Hub will be ensuring that the facility is:

- Easy to access
- Safe to use
- As accessible for residents as for commercial businesses
- Focused on local materials
- Providing opportunities for local employment across various sectors
- Based on a suitable operating model for both the MRRP and CE Hub
- Sufficient in size and layout

It is recommended that government funding be pursued, particularly for materials that align with the current and proposed government export bans and infrastructure shortfall. This includes:

- | | | |
|-------------------------|-----------------------|---------------------|
| ▪ Plastic | ▪ Metals | ▪ E-waste |
| ▪ Wood, Food & Organics | ▪ Glass | ▪ Clothing/textiles |
| ▪ Paper & Cardboard | ▪ Rubber (inc. tyres) | |

11 Appendices

Appendix A

Melton Resource Recovery Precinct (MRRP) – Waste Data

Table 11-1 Melton Resource Recovery Precinct - Example Materials by Waste Stream

WASTE STREAM	EXAMPLE MATERIAL
Commingles (Glass & Plastic)	Glass and plastic recyclable containers and packaging including glass bottles and jars, plastic bottles, plastic takeaway containers.
Cardboard / Paper	Clean dry cardboard or paper, cardboard boxes, magazines, pamphlets
Car Batteries	Lead acid car batteries
Motor oil	Engine oil, motor oil, engine lubricant, etc. (max. 10L containers, up to 50L combined)
Cooking oil	Used or unused cooking oil (max. 25L containers, up to 50L combined)
E-waste	Electronic or electrical equipment (typically has a power supply or contains batteries) including <u>Small E-waste</u> : blenders, mobile phones, hair dryers, clock radios, etc. <u>Medium / Large E-waste</u> : Televisions, computers, microwaves, stereos, printers, etc.
Gas Bottles	Empty gas bottles up to 9kg in size.
Lamps Fluorescent	Fluorescent light tubes or bulbs
Paint	Water or oil-based paints – Paintback scheme eligible products (max. 100L, no larger than 20L containers)
Chemicals	Household hazardous chemicals: fertiliser, weed killer, insect spray, nail polish remover, glues, disinfectants, detergents, ammonia-based cleaners, etc.
Household Batteries	Alkaline batteries (AA, AAA, 9volt, 6volt), nickel-metal hydride batteries (used in toys, torches, radios), rechargeable batteries, lithium-ion batteries (used in power tools, mobile phones, laptops), mercury batteries (usually in round button cells).
Fire Extinguishers	Fire extinguishers
Other Hard Plastics	Plastic toys, outdoor furniture (plastic chairs)
Polystyrene	Polystyrene packaging and boxes
Textiles / Clothing (Rags)	Textiles and clothing that is no longer reusable such as torn sheets and towels, worn clothing, etc.
Soft Plastics	Plastic bags and film, bubble wrap, pasta and rice bags, frozen food bags, confectionary bags, bread bags, etc. (REDcycle accepted items)
DrumMuster	DrumMuster approved drums / containers
Aluminium	Aluminium tins / soft drink cans, aluminium steel items (e.g. pots, pans, baking trays, etc.)
Reuseable Homewares / Furniture	Reusable household furniture (chairs, tables, desks, shelving), cutlery and crockery, toys, books, sporting equipment, bicycles, ironing board, prams, cots, etc.
Reuseable Clothing (Charity)	Clothing items that are in good condition for reuse, accessories such as shoes, handbags, hats and

	jewellery
Mattresses	Household bed mattresses
Reuseable Building Materials	Reusable tiles/ bricks / timber / steel, tools (hammer, saw, lawn mower, wiper snipper, etc.), gardening tools
Tyres	Typical vehicle tyres ranging from passenger cars, motorcycles, trucks, and 4WDs.
Mixed C&D Waste	Mixed construction and demolition waste including materials such as tiles, plasterboard, carpet, underlay, insulation, rubber, reinforced concrete, etc.
Screened Soil	Uncontaminated soil, rocks/stones/gravel, inert soil-based material.
Concrete	Concrete / bags of cement
Bricks/Blue Stone/Tiles	Full or broken bricks, blue stone and tiles and other ceramic items.
Green Organics	Garden waste including, flowers, garden prunings, grass clippings, leaves, tree branches and trucks and weeds.
Timber	Full / broken bricks and tiles
Scrap Steel	Ferrous (mainly steel or iron) and non-ferrous (aluminium, copper) metal items including whitegoods (fridges, washing machines, etc.)
Bitumen / Asphalt	Road based bitumen and asphalt waste
Mixed Waste (Landfill)	Residual materials that are not able to be recycled, reused, recovered or treated

Table 11-2 Melton Resource Recovery Precinct - Redistribution of Potential Diversion from Landfill

Waste Diversion Potential	Waste Stream Category	Melton 2019-2020		ACT Audit Data Composition	Additional Diversion from landfill tonnage	New Total Annual Tonnage	Potential Composition
		Composition	Annual Tonnage				
RECYCLING	Commingle (Glass & Plastic)	0.012%	3.00	0.355%	48.45	51.45	0.202%
	Cardboard / Paper	1.032%	262.40	11.361%	1,550.41	1,812.81	7.127%
	Car Batteries	0.098%	24.92	0.000%	-	24.92	0.098%
	Motor oil	0.136%	34.70	0.000%	-	34.70	0.136%
	Cooking oil	0.000%	-	0.000%	-	-	0.000%
	E-waste	0.066%	16.88	0.118%	16.15	33.03	0.130%
	Gas Bottles	0.023%	5.80	0.000%	-	5.80	0.023%
	Lamps Fluorescent	0.001%	0.25	0.000%	-	0.25	0.001%
	Paint	0.226%	57.54	0.000%	-	57.54	0.226%
	Chemicals	0.000%	-	0.000%	-	-	0.000%
	Household Batteries	0.011%	2.90	0.355%	48.45	51.35	0.202%

	Fire Extinguishers	0.014%	3.56	0.000%	-	3.56	0.014%
	Other Hard Plastics	0.000%	-	6.982%	952.86	952.86	3.746%
	Polystyrene	0.000%	-	0.473%	64.60	64.60	0.254%
	Textiles / Clothing (Rags)	0.000%	-	1.657%	226.10	226.10	0.889%
	Soft Plastics	0.000%	-	0.355%	48.45	48.45	0.190%
	DrumMuster	0.000%	-	0.000%	-	-	0.000%
	Aluminium	0.000%	-	0.000%	-	-	0.000%
	Reuseable Homewares / Furniture	0.000%	-	0.000%	-	-	0.000%
	Reuseable Clothing (Charity)	0.000%	-	0.000%	-	-	0.000%
	Mattresses	0.445%	113.07	4.142%	565.25	678.32	2.667%
	Reuseable Building Materials	0.000%	-	0.000%	-	-	0.000%
	Tyres	0.059%	14.99	0.000%	-	14.99	0.059%
	Mixed C&D Waste	11.774%	2,994.90	2.959%	403.75	3,398.65	13.361%
	Screened Soil	6.426%	1,634.52	0.000%	-	1,634.52	6.426%
	Concrete	4.179%	1,063.02	3.077%	419.90	1,482.92	5.830%
	Bricks/Blue Stone/Tiles	0.062%	15.72	6.627%	904.41	920.13	3.617%
	Green Organics	12.286%	3,125.01	2.485%	339.15	3,464.16	13.619%
	Timber	5.153%	1,310.66	15.385%	2,099.52	3,410.18	13.407%
	Scrap Steel	4.346%	1,105.50	0.710%	96.90	1,202.40	4.727%
	Bitumen / Asphalt	-	-	0.000%	-	-	0.000%
LANDFILL	Mixed Waste (Landfill)	53.652%	13,646.85	42.959%	5,862.49	5,862.49	23.048%
TOTAL WASTE		100%	25,436.10	100%	13,646.85	25,436.19	100%
ADDITIONAL RECYCLING					7,784.36		

NOTE: There are several waste streams where sufficient waste data was not available to adequately forecast volumes. These include waste streams such as reusable homewares / furniture, aluminium and building materials. Industry/market trends demonstrate that these streams can be diverted from landfill. As such, there is potential for higher recycling rate than shown in above table.

Appendix B

Project Investigation Area – C&I Waste Assessment (Supporting Information)

B1. Assumed Alignment of Industry Sectors to CEMU UDF Land Uses

CEMU UDF EMPLOYMENT LAND USE	ANZSIC INDUSTRY SECTOR
Light Industrial / Business	- Manufacturing - Construction - Transport, Postal and Warehousing
Restricted Retail / Showroom	- Wholesale Trade - Retail Trade
Commercial / Business	- Information Media and Telecommunications - Financial and Insurance Services - Rental, Hiring and Real Estate Services - Administrative and Support Services - Public Administration and Safety
High Amenity / Business Park / Research	- Professional, Scientific and Technical Services - Education and Training - Health Care and Social Assistance
Residential / Mixed Use	- Accommodation and Food Services - Arts and Recreation Services
Conservation Open Space	Agriculture, Forestry and Fishing
Other	- Mining - Electricity, Gas, Water and Waste Services - Other

B2. C&I Waste Generation Rates (by Industry Sector)

The below Commercial & Industrial waste generation rates by industry sector were sourced from *Waste flows in the Victorian commercial and industrial sector*, published by Sustainability Victoria and Sustainable Resource Use in June 2013.

INDUSTRY	TOTAL C&I WASTE GENERATION (KG/EFTE/YEAR)
Agriculture, Forestry and Fishing	0
Mining	0
Manufacturing	4,370
Electricity, Gas, Water and Waste Services	0
Construction	0
Wholesale Trade	2,130
Retail Trade	2,250
Accommodation and Food Services	4,650
Transport, Postal and Warehousing	710
Information Media and Telecommunications	0
Financial and Insurance Services	240
Rental, Hiring and Real Estate Services	240
Professional, Scientific and Technical Services	240
Administrative and Support Services	240
Public Administration and Safety	330
Education and Training	330
Health Care and Social Assistance	640
Arts and Recreation Services	1,960
Other	0

B3. Material Composition of C&I Waste (by Industry Sector)

The below material compositions of overall C&I waste by industry sector (potential composition with garbage bags distributed) was sourced from *Disposal-based audit: Commercial and industrial waste stream in the regulated areas of New South Wales*, published by NSW EPA in May 2015.

MATERIAL	COMPOSITION OF OVERALL C&I WASTE BY SECTOR, GARBAGE BAGS DISTRIBUTED										
	Total (All Region) % (by weight) of waste stream										
	Manufacturing	Mixed Small Business	Retail	Healthcare and Social Assistance	Accommodation / Food Services	Wholesale Trade	Transport/ Postal/ Warehousing	Education and Training	Arts/ Recreation Services	Offices	Shopping Centres
Cardboard	5.6%	3.7%	9.1%	5.5%	8.2%	2.5%	7.1%	8.4%	1.8%	3.2%	10.1%
Electrical	0.4%	0.5%	0.4%	0.9%	0.4%	0.1%	0.7%	0.6%	0.1%	0.2%	0.4%
Food	9.7%	4.7%	16.4%	11.5%	20.9%	28.7%	1.8%	16.7%	1.6%	1.7%	24.2%
Garbage bags	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Garden organics	2.8%	5.0%	4.0%	4.1%	3.5%	0.3%	1.0%	8.9%	11.1%	0.4%	5.2%
Glass	1.5%	1.5%	1.9%	1.7%	4.5%	0.1%	0.6%	1.7%	0.6%	0.8%	2.1%
Masonry	6.1%	24.7%	4.8%	4.9%	4.8%	8.7%	21.0%	5.2%	59.0%	48.5%	2.5%
Metals	2.2%	2.9%	4.0%	4.6%	3.3%	0.9%	2.8%	3.8%	1.5%	1.1%	3.2%
Paper	11.4%	6.9%	16.6%	12.3%	18.2%	0.5%	3.0%	19.3%	1.9%	3.5%	16.3%
Plastic	13.9%	12.1%	19.8%	16.5%	20.0%	6.4%	10.3%	18.2%	3.3%	6.6%	18.0%
Rubber	0.9%	0.5%	0.7%	0.6%	0.8%	0.5%	0.9%	0.8%	0.8%	0.1%	0.6%
Textiles	3.3%	8.9%	5.2%	8.3%	4.0%	0.1%	1.8%	4.3%	2.5%	13.5%	4.4%
Wood	12.5%	24.6%	12.5%	20.1%	7.2%	41.0%	30.5%	7.2%	8.9%	18.3%	9.5%
Other	29.7%	3.9%	4.8%	9.0%	4.2%	10.1%	18.6%	5.0%	6.8%	2.1%	3.5%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

B4. C&I Waste Generation Breakdown (by Industry Sector)

C&I ANNUL WASTE GENERATION (KG/YEAR) BY INDUSTRY SECTOR																			
(Based on Composition of Overall C&I Waste by sector, garbage bags distributed - Total (All Region) % of waste stream)																			
Melton Industry Sector	Agriculture, Forestry and Fishing	Mining	Manufacturing	Electricity, Gas, Water and Waste Services	Construction	Wholesale Trade	Retail Trade	Accommodation and Food Services	Transport, Postal and Warehousing	Information Media and Telecommunications	Financial and Insurance Services	Rental, Hiring and Real Estate Services	Professional, Scientific and Technical Services	Administrative and Support Services	Public Administration and Safety	Education and Training	Health Care and Social Assistance	Arts and Recreation Services	Total
Ref. Industry Sector for Composition Data	-	-	Manufacturing	-	-	Wholesale Trade	Retail	Accommodat ion / Food Services	Transport/ Postal/ Warehousin g	-	Offices	Offices	Offices	Offices	Offices	Education and Training	Healthcare and Social Assistance	Arts/ Recreation Services	-
Estimated Future Tonnage (w/CEMU Job Growth)	0	0	4,842,763	0	0	611,892	1,265,115	1,914,974	653,330	0	19,737	19,977	57,731	24,777	35,718	79,050	155,869	613,132	10,294,065
Cardboard			271,195			15,297	115,125	157,028	46,386		632	639	1,847	793	1,143	6,640	8,573	11,036	636,335
Electrical			19,371			612	5,060	7,660	4,573		39	40	115	50	71	474	1,403	613	40,083
Food			469,748			175,613	207,479	400,230	11,760		336	340	981	421	607	13,201	17,925	9,810	1,308,451
Garbage bags																			
Garden organics			135,597			1,836	50,605	67,024	6,533		79	80	231	99	143	7,035	6,391	68,058	343,711
Glass			72,641			612	24,037	86,174	3,920		158	160	462	198	286	1,344	2,650	3,679	196,320
Masonry			295,409			53,235	60,726	91,919	137,199		9,572	9,689	28,000	12,017	17,323	4,111	7,638	361,748	1,088,583
Metals			106,541			5,507	50,605	63,194	18,293		217	220	635	273	393	3,004	7,170	9,197	265,248
Paper			552,075			3,059	210,009	348,525	19,600		691	699	2,021	867	1,250	15,257	19,172	11,650	1,184,875
Plastic			673,144			39,161	250,493	382,995	67,293		1,303	1,318	3,810	1,635	2,357	14,387	25,718	20,233	1,483,849
Rubber			43,585			3,059	8,856	15,320	5,880		20	20	58	25	36	632	935	4,905	83,331
Textiles			159,811			612	65,786	76,599	11,760		2,664	2,697	7,794	3,345	4,822	3,399	12,937	15,328	367,554
Wood			605,345			250,876	158,139	137,878	199,266		3,612	3,656	10,565	4,534	6,536	5,692	31,330	54,569	1,471,997
Other			1,438,301			61,801	60,726	80,429	121,519		414	420	1,212	520	750	3,953	14,028	41,693	1,825,766
Total	0	0	4,842,763	0	0	611,280	1,267,645	1,914,974	653,984	0	19,737	19,977	57,731	24,777	35,718	79,129	155,869	612,519	10,296,103

Appendix C

Circular Economy Hub Examples

The following examples demonstrate successes that can be achieved through the application of Circular Economy principles ('Design Out Waste', 'Keep Materials in Use' and 'Return Materials to System') at various scales of intervention.

REVERSE GARBAGE (QLD)

Relevance: Community, Industry, Shop, Education, Workshop

Service type: Community

Description: Reverse Garbage is an eco-art and reuse co-operative specialising in the collection of clean industrial discards and other high-quality materials and re-sale back to the public. They also run environmental education workshops and tours for schools, festivals, and community groups both in-house and externally.

Outcomes: Reverse Garbage collect industrial discards from over 300 businesses in Brisbane, with a weekly diversion from landfill to be approximately 2 tonnes of reusable 'waste'. This success has resulted in their expansion to a sister shop in Sydney.

Link: <https://reversegarbagequeensland.com.au/home>



[Reference material only]

HUBBUB, (ENGLAND)

Relevance: Community, Educational, Campaign, Charity

Service type: Community

Description: HUBBUB is a charity operating since 2014 in the UK, which has developed various creative and disruptive campaigns. Collaboration is central to their approach and they have worked with over 2,300 organisations, from international businesses to local authorities and community groups.

Outcomes: HUBBUB have delivered more than 145 environmental campaigns and have inspired 865,000 people to take action and change behaviour. The Community Fridges campaign has resulted in over 300 sharing fridges across the UK, saving fresh food from going to waste. The Grab Your Cup campaign encouraged coffee cup retailers to collect and recycle 5 million coffee cups in 1 year. In 2020, HUBBUB was awarded Charity of the Year at The Charity Time Awards.

Link: <https://www.hubbub.org.uk/what-we-do>



[Reference material only]

WASTESORTED SCHOOLS IN WESTERN AUSTRALIA (WA)

Relevance: Community, Educational

Service type: Community

Description: The WasteSorted Schools program is available to all schools in Western Australia, to implement waste avoidance and resource recovery practices and waste behaviour change in students and the wider school community. The WasteSorted Schools program is provided free of charge. They develop a tailored school program inclusive of educational resources (such as toolkits, surveys, videos, and fact sheets) and offer grants for schools that want to improve.

Outcomes: It offers resources and support for schools to implement projects such as recycling, composting and worm farming. Many schools find these activities provide a meaningful, hands-on learning experience. It also develops positive environmental values in students and the whole school community.

Link: <https://www.wasteauthority.wa.gov.au/wss/>



[Reference material only]

HAZELMERE RESOURCE RECOVERY PARK (WA)

Relevance: Commercial

Service type: Commercial

Description: Hazelmere Resource Recovery Park is an area of approximately 114ha under development, designed to receive, process, separate and repair discarded materials, with the goal of selling them back to markets and the community.

They currently have a Timber Recycling Facility, Mattress Processing, Commercial & Industrial Waste Sorting Facility and Green Waste Processing Area.

They are currently planning to add a Wood Waste to Energy Plant (WWTE), Household Hazardous Waste (HHW) drop off point and PS baler, Processing of Western Power Poles, Container Deposit Scheme (CDS) Refund Point, Waste Transfer Station (WTS) and Community Recycling Centre (CRC).

Outcomes: The site has processed recycled timber since 2009. The current timber recycling activities involve processing untreated waste wood (such as pallets, packaging and crates, off-cuts and cable reels) into woodchip fines and woodchip. The woodchip fines and woodchip are sold to established markets in the broiler grower and livestock industries, whilst the woodchip remains as residual waste for which there are currently limited markets (landscaping and animal bedding).

Timber processing in 2020/2021 included: 14,242 tonnes of incoming timber, 14,579 tonnes of broiler growers animal bedding, 338 tonnes of coloured chips.

Link: <https://www.emrc.org.au/operations-and-projects/waste-and-recycling-services/hazelmere-resource-recovery-park.aspx>



[Reference material only]

BLUE CITY (NETHERLAND)

Relevance: Commercial, Innovative, Materials

Service type: Commercial

Description: Blue City is a showcase city for Circular Economy. It is a place where entrepreneurial minds can meet and develop concrete roadmaps.

The building consists of an existing deserted swimming pool of 12,000m² that has been remodelled into a Living Lab, where Circular Economy entrepreneurs share resources, knowledge and talent, creating an inspiring example of the circular economy.

Outcomes: During the remodelling process there was a focus on embedding Circular Economy principles in design. 90% of the materials were locally 'harvested' and reused, which saved a total of 60 tons of CO₂. Blue City received the Rotterdam Architecture Prize 2017 and the ARC 17 Innovation Award. It currently strives to achieve the most efficient and smart use of raw materials, be zero waste and develop future proof materials.

Link: <https://hollandcircularhotspot.nl/case/bluecity/>



[Reference material only]

ZERO FOOTPRINT REPURPOSING (VIC)

Relevance: Commercial, Storing, Education

Service type: Commercial

Description: This 1,500m² warehouse is planned to be demolished in 2024. Until then it is operating as a free repurposing hub used to store salvaged materials from demolition projects until other similar structures are built for repurposing. They currently operate 1 day per week where visitors are given a tour of the facility, followed by a series of speakers who share their knowledge of repurposing to benefit designers and builders.

Outcomes: Encourage the repurposing of construction and demolition waste, and storing it using a free space to increase opportunities for its reuse.

Link: <https://designweek.melbourne/program/zero-footprint-repurposing/>



[Reference material only]

WILDFLOWER (SA)

Relevance: Community, Shop

Service type: Community

Description: Wildflower is part of the sustainable fashion movement. It is a place where the community can buy & sell preloved threads. Customers can come in to shop or rent a full or a half rack in the store with their own tags and prices, to sell their preloved designer items.

Similar shops also exist in Europe, with a specific target market such as baby related items or outdoor camping equipment.

Outcomes: Encourage the community to sell their items for reuse through easy to access and well-presented shops.

Link: <https://wildflowerexchange.square.site/>



[Reference material only]

Examples of E-Platforms

Circular Economy Platforms are digital platforms that provide, information, expertise, education, and resources to help users in their journey towards circularity, whether they are an individual, a business or in government. Due to the wide reach of the internet, these platforms can operate on a local, national, or global scale.

[Repair Monitor](#)

Repair Monitor is an online tool to collect and share repair data with Repair Cafés around the world. Cafés taking part in the Repair Monitor portal can input data on how the items that come through their doors are repaired. This collective global information is used to assess which types of items are repaired most often, and which had the most successful repair rate. The data is also used to argue for better designed products, designing out planned obsolescence, and better regulation.

[Platform for Accelerating Circular Economy \(PACE\)](#)

Established in 2018, PACE is a global collaboration platform for public and private sectors. Their mission is to catalyse global leadership from business, government, and civil society to accelerate the transition from a linear to a circular economy, that will improve human and environmental well-being for current and future generations.

[Viet Nam Circular Economy](#)

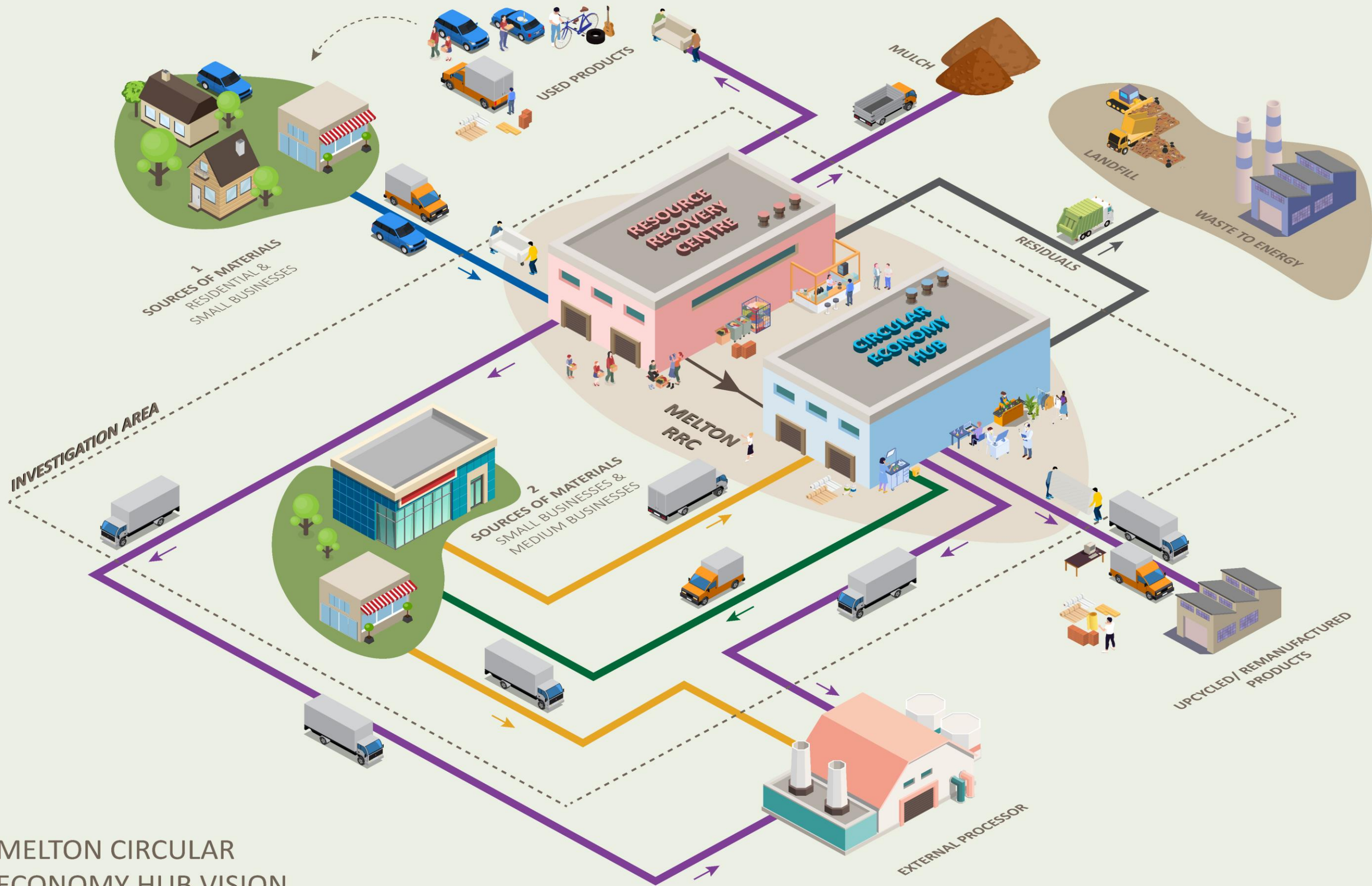
Focused on Vietnam, this platform aims to contribute to the development of a green and prosperous Viet Nam. It is a public-private partnership that has the three main objectives of enhancing dialogue, generating know-how and mobilising collective action towards the transition to a circular economy in Viet Nam.

[Circular Economy Hub \(CEH\) and the Digital Platform for Circular Economy for Serbia \(DPCES\)](#)

Focused on Serbia, CEH and DPCES aims to be a direct communication channel from business to the executive branch of government, for dialogue on sustainability issues including responsible production and consumption across the Western Balkans.

Appendix D

Potential Waste Flows within the Project Investigation Area



MELTON CIRCULAR ECONOMY HUB VISION