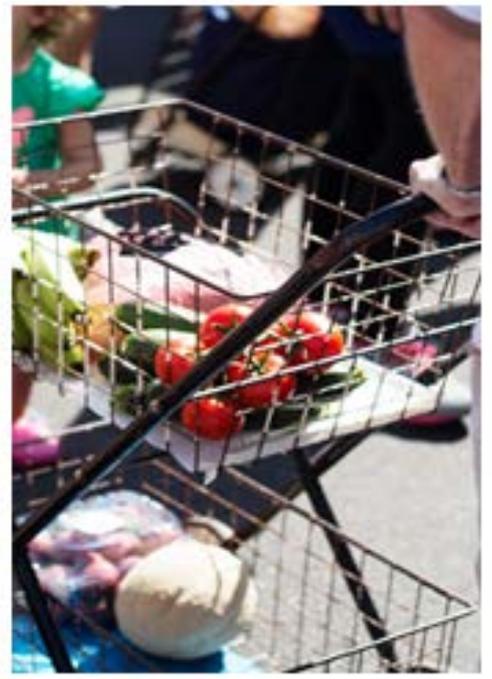




City of Yarra Waste and Resource Recovery Strategy 2014-2018



Contents

1. Introduction	1
<i>What is waste?</i>	1
<i>The evolution of waste</i>	1
<i>Redefining our waste</i>	2
<i>Where the Strategy came from</i>	3
<i>How the strategy will be used</i>	7
2. Strategic Objectives	9
<i>Vision</i>	9
<i>Objectives</i>	9
3. Targets and Measures	11
<i>Actions</i>	12
Appendix 1: Policy Context	25
<i>Policy context - Commonwealth</i>	25
<i>Policy Context – State</i>	26
<i>Policy Context – Yarra</i>	29
Appendix 2: Community and Stakeholder Engagement	33
<i>Industry Context - Stakeholder Engagement</i>	36
Appendix 3: The Waste Context	38
<i>Service delivery</i>	38
<i>Emerging Issues</i>	40
<i>Appendix 4:Glossary</i>	48

1. Introduction

WHAT IS WASTE?

The term “waste” has many definitions, from items that are no longer required to the misuse or squandering of resources. From a local government perspective, waste has traditionally been understood as something to be cleaned up and removed, something to be ‘managed’. This strategy moves beyond that understanding and looks at waste in terms of resources. How can we reduce the amount of waste we, as a community, generate? What other uses can we find for what we have traditionally understood as waste?

This strategy will redefine what the word ‘waste’ is with residents in the City of Yarra and change the association of how we to look at and use materials as resources that have value beyond their initial use.

THE EVOLUTION OF WASTE

The evolution and definition of the word ‘waste’ has come a long way since the early 1850s; with the influx of settlers during the gold rushes, garbage disposal started to become a major problem. Residents and traders often ‘disposed of’ their garbage by dumping it in their backyards, on streets, on any vacant area of land, or buried it in cesspits.

It soon became apparent that a more organised system for disposing of the city's garbage was required. In 1864 Fitzroy became the first municipality in Melbourne (and one of the first in Australia) to establish regular, although optional, collections for domestic rubbish.

By the mid-20th century council garbage collections were taken for granted, but many items were too valuable to be simply discarded. Empty bottles were taken to local shops or bottle depots to be washed and refilled. The Salvation Army and Boy Scouts collected newspapers for recycling, while fish and chip shops and greengrocers would buy old newspapers to use for wrapping and packaging. Other garbage could be burned off in backyard incinerators.

In the late 20th century, the focus for council services moved increasingly to reducing and recycling garbage. Encouraged by the Environment Protection Authority, most councils introduced kerbside recycling programs in the late 1980s. By 2002 a quarter of the garbage collected from Melbourne households was recyclable material, but not all was recycled.

While recycling rates are increasing, the amount of waste being created is also increasing. It is clear our lifestyles and the way we run our economy is turning natural resources into waste at a rate faster than nature can replenish. Our proportional ecological footprint is currently four times that which would enable all humans to live sustainably on the planet.

The next transformation in the evolution of waste is to look at the materials we use and consume as having a resource value that must be used more efficiently and sustainably over the long-term. The Yarra community has embraced the changes to date. Recycling has now become commonplace

with strong community support. The use of reusable cups, the rejection of extra packaging and the popularity of farmers' markets are all indications of an appetite for change. The challenge and opportunity for the twenty-first century will be to build on this, establishing a culture of reducing our waste footprint using pre and post consumption measures.

REDEFINING OUR WASTE

The 2014-2018 Yarra Waste and Resource Recovery Strategy (YWS) will help us to redefine how we use our resources in a way that profoundly changes our approach to resources and the production of waste.

Traditionally waste management decisions have focused on how to transport our 'Waste' elsewhere to be dealt with by somebody else, in a way that is not going to harm the environment or human health. In recent years Yarra has begun to look for more sustainable and localised solutions to waste management. The new YWS builds on this work and aims to redefine our current understanding of 'Waste'. This will be achieved not only by recycling and diverting materials from landfills, but also advocating for better product design and stewardship, which will help us to develop new consumption behaviours that prevent waste from being produced in the first place.

It is essential that what is already in existence is used to its maximum potential. This avoids the unnecessary exploitation of resources, while also providing economic and environmental efficiencies throughout the chain of production. Achieving this requires a significant behavioural shift within the community. Our current 'disposable' mindset will need to embrace the notion of waste minimisation, beneficial reuse, and resource recovery. Without these changes, an increasing portion of Yarra's rates could be spent on addressing waste management issues.

Redefining our waste requires a significant change in mindset and attitude and is a journey we will undertake with our community over a period of time, not overnight. Our community will need to consider waste in its purchasing decisions. Industries will have to look at the full cycle of a product to design and manufacture more sustainably. Where waste generation cannot be avoided, it will be recovered as a resource for reuse or recycling.

Current and emerging waste technologies can improve resource recovery for example by enabling better sorting or by using waste as an energy resource. While energy is a lower priority in the waste hierarchy than recycling and reuse, it can recover residual waste or materials for which there is currently no reuse or recycling option.

To develop the new approaches and facilities needed to lift resource recovery across Metropolitan Melbourne, industry needs certainty from State Government to overcome barriers to investment.

Council should continue to work closely and cooperatively with the Metropolitan Waste Management Group, Environment Protection Authority,

Sustainability Victoria and the State Government to help achieve the establishment of the most appropriate technologies.

By taking these steps, our reliance on landfill will progressively lessen, and we will become a 'sustainable' city.

WHERE THE STRATEGY CAME FROM

This strategy was developed through an extensive process of community consultation, stakeholder engagement, policy and strategy review and analysis. It builds on the achievements of the previous Waste Management Strategy 2009 – 2013 which was successful in increasing diversion rates to landfill and ensuring an excellent service to the Yarra Community through a series of innovative waste management measures, for example the all-day recycling drop off, the Food Know How Program and the Multi Unit Development Resource Recovery Program.

Key Principles of the Waste Hierarchy

The waste hierarchy provides a tool for understanding waste and how to reduce resource loss. Over recent years the hierarchy has been adapted to better articulate our understanding of waste and how it must be understood not only in terms of the management but also in terms of avoidance. The hierarchy below shows that it is possible to minimise, and virtually eliminate resources being wasted, and going to landfill, by considering alternative options for how we consume and use materials.

Material Value Hierarchy



Figure 1 Hierarchy adapted from Gaia Foundation Short Circuit Report

Note: Input of energy and water is required to recover and recycle resources.

Policy Context – Commonwealth

This strategy has been developed within the context of Federal and State policies and strategies, which are guided by three objectives:

1. To generate less waste;
2. To increase the amount of materials which are recycled; and
3. To reduce damage to our environment caused by waste.

Aligning the Yarra Waste and Resource Recovery Strategy with these objectives ensures Yarra is part of an integrated approach to waste, within both the Victorian and the Australian context.

Current Federal and State policies emphasise a shift from target based policies to those aimed at achieving the right mix of infrastructure in the right places. This will assist in minimising health and environmental challenges and maximising resource recovery.

The following Federal and State policies are fundamental to the Yarra Waste and Resource Recovery Strategy:

- Federal Government's *National Waste Policy: Less Waste and More Resources 2009*.
- Victoria's *Getting Full Value: Victoria's Waste and Resource Recovery Policy 2013*.
- Victoria's *Draft - Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) for Victoria 2014*.
- Victoria's *Draft - Metropolitan Waste and Resource Recovery Strategic Plan (MWRRSP) for Melbourne 2014*.

A full review of relevant Federal and State strategies and policies can be found in Appendix 1.

Policy Context – Local

Waste management is a major task of local government and is embedded into major documents such as the Council Plan 2013-17, Municipal Strategic Statement 2009 and the Municipal Health and Wellbeing Plan 2013-17.

In addition the Yarra Environment Strategy 2013-17 (YES) outlines a four-year vision in which *"Yarra is a resilient and sustainable city where current and future populations enjoy a high quality of life within our fair share of the earth's resources, whilst ensuring we co-exist harmoniously with the natural environment."*

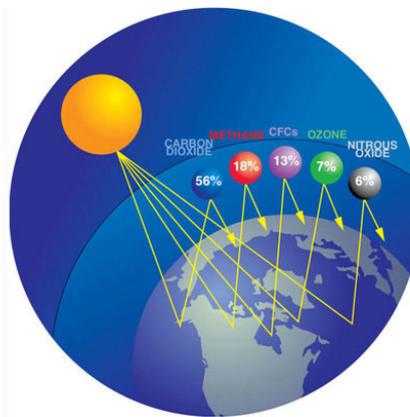
The Yarra Environment Strategy 2013-17, which was endorsed by Council in 2013, outlined a number of strategic actions and targets relating to waste. These actions and targets have been considered in the Yarra Waste Management Strategy.

A full review of relevant Yarra strategies and policies can be found in Appendix 1.

Policy Context – Greenhouse Emissions

Greenhouse gas emissions within a waste management context stem from two main factors:

1. **Plant based materials-** When organic materials like food scraps enter a landfill they breakdown and decompose within anaerobic (absence of oxygen) conditions, resulting in methane production (a greenhouse gas over 20 times more potent than carbon dioxide). Compare this to more natural decomposing processes such as composting (aerobic), where the material breaks down in the presence of oxygen, and reduces emissions considerably.



However, the management of methane in modern, compliant landfills is far better than past practices. Landfills in metropolitan Melbourne are managed in accordance with strict EPA regulations and operators utilise latest technologies to maximise the operational lifetime of the landfill and limit the environmental and social impacts of landfilling. All Victorian landfills have strict management requirements (for instance, the Environmental Management System (EMS) requirements overseen by the Metro Waste Management Group (MWMG)) and many landfills capture a large proportion of the methane produced and use this for onsite energy purposes, thus reducing greenhouse impacts. Nevertheless, better greenhouse outcomes can be achieved through avoidance, diversion and other practices.

2. **Embodied energy in man-made/ non-plant based materials** - Looking at how and what we consume, and the materials product lifecycle, along with how we discard of an item once we are done with it, will play a significant role in helping our community to divert items from landfill and lower our overall greenhouse gas emissions. Product lifecycles typically include on five stages which can impact emissions:
 - (a) Materials extraction- taking into account whether its sourced from virgin, recycled or raw materials;

- (b) Manufacturing- this step needs to consider the energy required to create the product;
- (c) Distribution and transport - where products could to be shipped overseas, moved to warehouses, delivered to retailers and transported to the location of use;
- (d) Usage- some products may require energy just to actually use them;
- (e) End of life management – where energy may be required to safely store or dispose of the product.

When a product is made from recycled material it takes less energy to produce than it takes to make that same item from brand new raw materials. Making new cans from used aluminum requires only 5% of the energy needed to make a new can from scratch.

Therefore, Yarra’s greenhouse gas emissions from waste can be minimised by preventing any recyclable materials entering the landfill system, taking full advantage of recycling facilities, and also by minimising the amount of waste that is generated.

The Yarra Waste and Resource Recovery Strategy provides Council and residents with strategic directions to reduce the amount of waste that we generate and the associated greenhouse emissions in managing waste.

The Yarra Community

Understanding the Yarra community is fundamental to developing an effective Waste and Resource Recovery Strategy that will meet the needs of the community as well as it’s aspirations for a more sustainable city.

The City of Yarra has experienced sustained population growth since the 1980s and currently has a population of over 80,000. This growth is predicted to continue with a population forecast to be in excess of 100,000 by 2026. Many of these new residents will live in medium and high-density housing; currently 78% of the Yarra community lives in medium or high-density housing.

In addition to the high percentage of medium and high density housing Yarra also has a higher than average percentage of people aged 10-24 years. Yarra residents are also more transient than the Melbourne average, with over 46% of residents moving between 2006 and 2011.

Community engagement indicated a very high level of satisfaction with waste management services in Yarra. In addition there was a strong belief in the need to reduce waste through personal behaviour change. A desire for education and improved communication in relation to waste was also clearly articulated.

A demographic profile of the Yarra community and an overview of community and stakeholder consultation can be found in Appendix 2.

Service Delivery

Yarra provides its community with a comprehensive range of waste services including domestic and commercial kerbside garbage and recycling services,

hard waste and garden waste collections and a 24 hour recycling drop off point. In the year 2012/2013 these services cost \$5,500,000.

A trend in reduced recycling weight is thought to be occurring due to a combination of the recyclables still finding their way into the landfill bin and change in the makeup of recycled materials. Many manufacturers are redesigning their packaging to be thinner and lighter, resulting in reduced weight, but not necessarily reduced volume.

Recyclable material can be sold to partially offset the costs of waste management, so any reduction in the tonnages of recyclables being collected will increase the costs associated with providing this service.

The City of Yarra service delivery model aligns with an inner metropolitan “procurement cluster” approach. Unfortunately three bin collection systems are not a practical solution option in these higher density municipalities because of space and traffic congestion considerations. A full review of service delivery, including more detailed waste generation data, can be found in Appendix 3.

The current waste services provided by Yarra are highly regarded by the community. Consultation however has identified areas the community feels could be improved. These include a localised tailored approach to processing food organics and improving recycling opportunities in multi-unit developments and public housing precincts.

HOW THE STRATEGY WILL BE USED

The Yarra Waste and Resource Strategy provides Council with the framework to engage the community on the importance of minimising the creation of waste and realising the financial and environmental value of materials by providing services and programs to make this occur.

The Yarra Waste and Resource Recovery Strategy will be used by Council and community to help shape the design and delivery of Council waste services, programs and operations. This includes the nature and direction of our partnerships and engagement with our stakeholders and the community, our advocacy agenda and how we operate internally.

More specifically, the Waste and Resource Recovery Strategy provides:

- A central vision that describes a unifying aspiration of *Revaluing or Redefining our Waste*.
- The waste context (as identified by stakeholders) that are considered relevant to Yarra.
- A context for the development of the new waste management contract.
- Objectives that outline the core outcomes we aim to deliver, and
- Measures to inform us whether or not we are on track.

The Yarra Waste and Resource Recovery Strategy is also supported by an Action Plan that details desired outcomes, targets, indicators, plans,

programs and resources required to implement the Yarra Waste and Resource Recovery Strategy.

Budget for implementation of the Strategy and Action Plan is subject to annual Council approval. On an annual basis Council Officers will develop a budget submission for resourcing the implementation of the Yarra Waste and Resource Recovery Strategy to be reviewed as part of the overall Council budget process.

2. Strategic Objectives

VISION

Yarra is a sustainable city. We will rethink and redefine how we consume materials. We recognise that avoiding and reducing waste will increase the availability of resources for current and future citizens.

OBJECTIVES

1. Valuing our 'Waste' as a resource.

We will engage the Yarra community through targeted and tailored education programs to be mindful of their consumption to rethink and put value on how they manage resources and generate waste.

Pathways

- *Develop a Sustainable Consumption program to influence the culture of how the Yarra community buys and uses products.*
- *Explore the refurbishment of furniture for reuse.*
- *Investigate alternative funding streams for waste related capital projects.*
- *Communicate the value of compost as a reuse of organic materials and a valuable resource for urban agriculture.*

2. Delivering high quality and accessible waste collection services

Yarra provides a range of services to its community. We will continue to deliver these in a manner that is sustainable, accessible and innovative. We will monitor these services and respond to new trends, opportunities and community needs.

Pathways

- *Commence the process of tendering for the domestic waste contract.*
- *Continue to innovate to improve waste management.*
- *Collect and analyse data to assist in delivering services.*
- *Reduce costs and emissions associated with waste disposal.*
- *Continue to work towards eliminating organics from the waste stream.*
- *Improve and offer new waste approaches for commercial properties.*

3. Creating pride of place through clean and litter free public spaces.

Yarra's public spaces including parks, streets and laneways are valued and loved by our community. We will work in partnership with the community to ensure these spaces provide a cleaner, more welcoming and safer environment for a range of uses.

Pathways

- *Reduce the amount of dumped garbage and litter in Yarra creating a cleaner, more welcoming and safer place.*
- *Provide consistent, high quality public place infrastructure.*
- *Reduce litter loads to Yarra's waterways through business and Community actions.*

4. Ensuring Yarra has the right waste infrastructure and technology to meet its targets.

Yarra requires contemporary adaptable waste infrastructure to service the changing needs of our community. We will seek opportunities for technological and infrastructure innovation in order to improve our services to the community.

Pathways

- *Develop and implement programs to bring all bin infrastructure to common standard.*
- *Investigate and implement the most appropriate technology for processing waste in Yarra's local communities.*

5. Educate, collaborate and advocate for better 'Waste' outcomes.

Yarra is part of a broader community. We will collaborate with a range of partners to advocate for improved opportunities to develop new consumption behaviours that seek to gain better value from and minimise the creation of waste.

Pathways

- *Lobby for better distribution of EPA levy to local government.*
- *Lobby stakeholders to achieve reduced resource consumption and decrease waste production on a state level.*
- *Explore options of using incentives and disincentives to encourage new consumption behaviours that seek to minimise the creation of waste*
- *Investigate options for food waste avoidance, collection and management.*
- *Lobby for regional and combined waste minimisation and recycling approaches for inner-city councils.*

3. Targets and Measures

As part of the development of the Yarra Environment Strategy 2013-2017 (YES) a number of waste targets established and endorsed by Council in 2013. These targets have been considered in developing the Yarra Waste and Resource Recovery Strategy.

Indicator	Baseline measurement 2014	June 2017 target	June 2020 target
Household * (based on audit of 300 single dwelling properties & 150 MUD Units)			
Single dwelling household organic garbage to landfill	45.4% of kerbside waste collection	44% of kerbside waste collection	42% of kerbside waste collection
Single dwelling household recycling contamination	10.4% contamination rate by weight	7.5% contamination rate by weight	5.0% contamination rate by weight
Multi-unit dwelling household recycling contamination	24.5% contamination rate by weight	21.6% contamination rate by weight	19.1% contamination rate by weight
Commercial** (based on audit of 240 properties)			
Increased recycling yield from commercial properties	7.9 kg/property/week	10 % increase	20% increase
Commercial recycling contamination	11.6% contamination rate by weight	10% contamination rate by weight	8% contamination rate by weight
Council Staffed Facilities (based on audit of 3 town halls)			
Garbage to landfill from Council staffed properties Tonnes / EFT / week	0.62kg/EFT/week	5% reduction	10% reduction

* Household includes waste collected from single dwellings, and multi-unit dwellings. A growing number of Yarra residents now live in developments that utilise a private waste collection service.

** It is noted that the number of commercial properties serviced by Yarra has been steadily increasing.

ACTIONS

Prioritisation Assessment:

A Triple Bottom Line priority matrix was developed using these categories:

1. ENVIRONMENT
 - (a) Is this consistent with the Waste Hierarchy? (0 – No , 1 – Yes)
 - (b) Does it comply with State and National Policy? (0 – No , 1 – Yes)
 - (c) Does it help us rethink *Waste* as a resource? (0 – No , 1 – Yes)
 - (d) Does it reducing our Carbon Foot print? (0 – No , 1 – Yes)

2. SOCIAL
 - (a) Does it Engagement/Integration with Community? (0 – No , 1 – Yes)
 - (b) Does it improve our environmental performance and education the community? (0 – No , 1 – Yes)
 - (c) Does it create localized jobs? (0 – No , 1 – Yes)
 - (d) Does it reduce future service costs? (0 – No , 1 – Yes)

3. ECONOMIC
 - (a) Is it a less than 10 year payback? (0 – No , 1 – Yes)
 - (b) Does it optimise risk sharing? (0 – No , 1 – Yes)
 - (c) Is there delivery certainty? (0 – No , 1 – Yes)
 - (d) Are there opportunities for Grants and/or Partnerships? (0 – No , 1 – Yes)

If the action scored:

Low - 1,2,3,4,5 or 6

Med - 7,8 or 9

High - 10,11 or 12

High actions will be the priority and delivered ahead of medium or low priority actions.

Objective 1: Valuing our 'Waste' as resources

We will engage the Yarra community through targeted and tailored education programs to be mindful of their consumption to rethink and put value on how they manage resources and generate waste.

Pathways

- *Develop a Sustainable Consumption program to influence the culture of how the Yarra community buys and uses products.*
- *Explore the refurbishment of hard waste for reuse.*
- *Investigate alternative funding streams for waste related capital projects.*
- *Investigate options for food waste avoidance, collection and management.*
- *Communicate the value of compost as a reuse of organic materials and a valuable source of fertility for urban agriculture*

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
1.1.1	<p>All Community</p> <p>Year 1</p> <p>Evaluate and review <i>Food Know How*</i> program</p> <p>Year 2</p> <p>If proving successful, deliver expanded program based on learnings.</p>	<p>Lead: Waste Minimisation</p> <p>Support: Engineering Operations</p>	<p>Priority: High</p> <p>Year: 2-4</p> <p>Resources: \$50,000 pa</p> <p>Estimated payback period 8 years</p>
1.1.2	<p>Support the community to better understand the need and ability to act more sustainably and overcome cultural norms surrounding consumption</p>	<p>Lead: Environmental Management</p> <p>Support: Waste Minimisation</p>	<p>Priority: Medium</p> <p>Year: 2-4</p> <p>Resources: 0.2EFT</p>
1.1.3	<p>Develop and pilot an innovative approach to communications and engagement to encourage greater waste avoidance and resource recovery. For example <i>Put in Your Bin and Win*</i> program.</p>	<p>Lead: Waste Minimisation</p> <p>Support: Environmental Management & Communications</p>	<p>Priority: High</p> <p>Year: 1-4</p> <p>Resources: Current Resources</p> <p>No payback period</p>
1.1.4	<p>Develop a program to recycle soft plastics. Maximise the opportunity to recover soft plastics within the kerbside recycling collection service contract.</p>	<p>Lead: Waste Minimisation</p> <p>Support: Engineering Operations</p>	<p>Priority: Low</p> <p>Year: 2-4</p> <p>Resources: \$10,000 pa</p> <p>No payback period</p>

Refer to glossary in appendix 4

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources	
1.1.5	Trial a program to repair and reuse Hard Waste* such as tables, chairs and beds in partnership with organisations such as the Men's Shed, Urban Bush Carpenters or Fix It.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 2-4 Resources: Current Resources No payback period	
1.2.1	Commercial/ business	Develop and trial a program to maximise the diversion of food waste from cafes which currently using the kerb side waste collection service. This could be user pays model.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$25,000 pa Estimated payback period 10 years
1.2.2	Develop and trial a Plastic bag minimisation program in partnership with a trader group. For example Bridge Road.	Lead: Waste Minimisation Support: Economic Development	Priority: Low Year: 1-4 Resources: \$10,000 + 0.1 EFT No payback period	
1.2.3	Develop and promote a network of businesses that reduces consumption of new goods - e.g. second hand, op shops, repairs, recycled timber, freecycle, Gumtree etc.,	Lead: Waste Minimisation Support: Economic Development	Priority: High Year: 2-3 Resources: \$8,000 pa Estimated payback period 5 years	
1.3.1	Multi-Unit Developments	Support the community to better understand the need and ability to act more sustainably and overcome cultural norms surrounding consumption in existing high/medium density housing development.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 2-4 Resources: 0.2 EFT Estimated payback period 7 years
1.3.2	Review and Evaluate <i>MUD Resource Recovery</i> * program and deliver expanded program based on reducing waste to landfill, improving resource recovery, increasing recycling yields and participation.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 1-4 Resources: Current Resources Estimated payback period 1 years	
1.4.1	Council Operations	Investigate expanding the recycling drop off service for items such as household batteries, fluorescent globes, plastic bags and electronic waste to more locations such as town halls, leisure centres.	Lead: Waste Minimisation Support: Engineering Operations & Access Yarra	Priority: Low Year: 2-4 Resources: \$4,000 pa No payback period

Objective 2: Delivering high quality and accessible waste collection services

Yarra provides a range of services to its community. We will continue to deliver these in a manner that is sustainable, accessible and innovative. We will monitor these services and respond to new trends and opportunities and community needs.

Pathways

- Continue to innovate to improve waste management.
- Collect and analyse data to assist in delivering services.
- Reduce costs and emissions associated with waste disposal.
- Continue to work towards eliminate organics from the waste stream.
- Improve and offer new waste approaches for commercial properties.

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
2.0	All of Council Complete tendering for the new waste contract. Contract approved by Council.	Lead: Engineering Operations Support: Waste Minimisation	Priority: High Year: 1 Resources: Current Resources
2.1.1	Increase capacity of recycling drop off points around the municipality to meet the needs of community. This includes : <ul style="list-style-type: none"> • Upgrade existing 24 hour drop off point • Mobile Cardboard Trailers • Public Place Recycling – Community Hub 	Lead: Engineering Operations Support: Waste Minimisation	Priority: Medium Year: 2-4 Resources: \$24,000 +0.5EFT No payback period
2.2.1	Multi – unit development Develop and trial a program to work with real estate agents and body corporates to reduce waste to landfill through improved resource recovery, increasing recycling yields and onsite food organic recycling. For example at sites with incorrect bin ratios and low recycling participation rates.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$10,000 + 0.2 EFT pa Estimated payback period 4 years
2.2.2	Establish a process whereby residents of existing Multi Unit Developments with VCAT conditions for private waste services can have the Body Corporate develop a Waste Management Plan to access Councils services. The process	Lead: Engineering Operations Support: Waste Minimisation & Statutory Planning	Priority: Medium Year: 1-3 Resources: Current Resources No payback period

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
	ensures that where possible residents have equal access to Council's Waste and Recycling Services.		
2.3.1	Public Housing Develop a program in partnership with the Department of Housing to improve education, engagement and recycling collection services at low rise public housing properties. For example Richmond High Rise Estate.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$10,000 + 0.2EFTpa Estimated payback period 3.6 years
2.4.1	Commercial/ Business Investigate, in partnership with a traders' association using one waste management contractor in the street (rather than multiple contractors). This could include collection of recycling, organics and/or residual, to increase diversion of waste from landfill.	Lead: Waste Minimisation Support: Engineering Operations & Economic Development	Priority: Medium Year: 1-4 (a new precinct pa) Resources: Current Budget No payback period
2.5.1	Council Operations Develop and trial a program, in partnership with charities, to repair appliances and furniture and provide these items to communities in need.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 2-4 Resources: \$25,000 + 0.2 EFT pa No payback period
2.5.2	Complete a service and financial benchmarking study into Waste Management best practices data systems, and implement improvements to Council's systems to assist in future planning and service delivery. (E.g. GPS systems for programming and monitoring routing and servicing).	Lead: Engineering Operations Support: Waste Minimisation	Priority: Medium Year: 1 - 4 Resources: \$10,000 No payback period
2.5.3	Complete a review of opportunities to inform the development of a new kerbside waste contract specification, and ensure that enhancements are responsive to industry innovations, technology trends and incentives for achieving firm and successive Waste minimisation targets.	Lead: Engineering Operations Support: Waste Minimisation	Priority: High Year: 1-2 Resources: Current Resources Estimated payback period 1 year
2.5.4	Ensure that all new and revised Council contracts have a waste minimisation clause e.g. Cleaning contract, building contract.	Lead: Waste Minimisation	Priority: High Year: 1-4 Resources: Current Resources Estimated payback period 1 years
2.5.5	Promote council innovation around waste minimisation and recycling. This includes incentives to promote education and engagement with service contracts. (<i>Put in Your Bin and Win</i> *)	Lead: Engineering Operations Support: Waste Minimisation & Communications	Priority: Medium Year: 1-4 Resources: Current Resources

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
	program, A-Z Waste Guides, bin sticker programs, school education).		Estimated payback period 1 years
2.5.6	Conduct statistically significant waste audits every second year to evaluate the effectiveness of initiatives, and report on targets. (The audits will include single dwellings; MUD; Businesses; Public Housing; and Council Buildings).	Lead: Waste Minimisation Support: Engineering Operations	Priority: Low Year: 1&3 Resources: Current Resources No payback period

Objective 3: Creating pride of place through clean and litter free public spaces

Yarra's public spaces including parks, streets and laneways are valued and loved by our community. We will work in partnership with the community to ensure these spaces provide a clean, welcoming and safe environment for a range of uses.

Pathway

- Reduce the amount of dumped garbage and litter in Yarra creating a clean, welcoming and safe place.
- Provide consistent, high quality public place infrastructure.
- Reduce litter loads to Yarra's waterways through business and Community action.

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources	
3.1.1	Open Space/ streets	Review and replace signage on bins in parks and streets to ensure information is consistent and correct.	Lead: Waste Minimisation Support: Engineering Operations & Open Space.	Priority: Medium Year: 1-4 Resources: Current Resources No payback period
3.1.2		Continue to review and update bin infrastructure and community engagement with residents and visitors, to increase recycling, better manage waste and reduce litter volumes entering stormwater drains.	Lead: Waste Minimisation Support: Engineering Operations & Open Space	Priority: Medium Year: 1 -4 Resources: Current Resources No payback period
3.1.3		Participate in the "Business" Clean-up Australia Day* program.	Lead: Waste Minimisation Support: Environmental Management	Priority: Low Year: 2-4 Resources: \$5,000 pa No payback period
3.1.4		Develop a Dumped Rubbish/Litter reduction program, integrating infrastructure, education and enforcement.	Lead: Engineering Operations Support: Waste Minimisation & Open Space	Priority: High Year: 2-4 Resources: 1 EFT pa Estimated payback period 1years, 3 months
3.1.5		Develop and deliver targeted waste stream education/ engagement programs, using the Litter Task Force forum, to focus on problem materials such as cigarette butts, dog poo, glass bottle tops and syringe litter in open spaces.	Lead: Waste Minimisation Support: Open Space	Priority: Medium Year: 1-4 Resources: Current Resources (Grants from Melbourne Water) No payback period

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources	
3.1.6	Trial and evaluate the use of an art piece, to promote a sense of place and better waste management at a park.	Lead: Arts, Culture and Venues Support: Waste Minimisation	Priority: Low Year: 2-4 Resources: \$10,000 pa No payback period	
3.2.1	Commercial/ Business	Develop and implement a robust engagement program with businesses and their local communities to reduce the oils and litter load entering stormwater drains, for example install a barges or litter trap as an education tool.	Lead: Waste Minimisation Support: Local Laws, Engineering Operations, Environmental Health Officers, Economic Development & Open Space	Priority: Medium Year: 1-4 (new precinct pa) Resources: Current budget (Grant from Melbourne Water and Australian Packaging Covenant) No payback period
3.3.1	Council Operations	Review construction management plans for new developments to ensure waste minimisation and litter management is included.	Lead: Construction Management Support: Waste Minimisation	Priority: Medium Year: 2 Resources: Current Resources No payback period
3.3.2		Identify other opportunities to include litter reduction in Council Local Laws.	Lead: Local Laws Support: Waste Minimisation & Engineering Operations	Priority: Low Year: 2 Resources: Current Resources No payback period

Objective 4 Ensuring Yarra has the right waste infrastructure and technology to meet its targets

Yarra requires contemporary adaptable waste infrastructure to service the changing needs of our community. We will seek opportunities for technological and infrastructure innovation in order to improve our services to the community.

Pathway

- *Develop and implement programs to bring all bin infrastructure to standard.*
- *Investigate and implement the most appropriate technology for processing waste in Yarra's local communities.*

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
4.1.1 All community	Review the existing waste reduction program at major festivals and events and include steps to ensure continuous improvement as well as promotion of Yarra's leadership role.	Lead: Waste Minimisation Support: Engineering Operations & Arts and Culture	Priority: Medium Year: 2-4 Resources: \$12,000 pa No payback period
4.1.2	Review the existing waste reduction program at school fetes and include steps to ensure continuous improvement as well as promotion of Yarra's leadership role.	Lead: Waste Minimisation Support: Engineering Operations & Arts and Culture	Priority: Medium Year: 2-4 Resources: \$3,000 pa No payback period
4.1.3	Investigate and trial an end of street, communal or shared waste service, including food waste, recycling and residual waste. If it is successful, expand to a second site in year 2.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 2-4 Resources: \$6,000 + 0.2 EFT pa
4.1.4	Review the existing at-call services especially with respect to issues during Autumn leaf peak periods. Consider receptacle types, including Mobile Garbage bins, and user pay options. Develop a business case for procurement and funding.	Lead: Engineering Operations Support: Waste Minimisation	Priority: Medium Year: 3-4 Resources: \$10,000 No payback period
4.2.1 Commercial/ business	Rollout <i>Red Bin Lid Change Over Program*</i> specifically for commercial businesses. Deliver an education and engagement program based on reducing waste to landfill, improving resource recovery, increasing recycling yields and participation. Review commercial collection route planning and services in main shopping centre precincts.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 1-4 Resources: Current Resources Estimated payback period 4 years

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources	
4.2.3	Investigate and pilot technology to process food waste as an extension of the <i>Food Know How*</i> Program in shopping strips, to reduce food waste going to landfill.	Lead: Waste Minimisation	Priority: Medium Year: 2-4 Resources: \$42,000 pa Estimated payback period 10 years	
4.3.1	Multi-unit development	Develop and implement a staged program to bring all bin stock to standard, making sure MUD's have equal access to recycling service. For example at sites with incorrect bin ratios and low recycling participation rates.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 1-4 Resources: Current Resources No payback period
4.3.2	Investigate and trial an option for diverting food waste from one or more MUD sites, either on or off site recycling.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$35,000 pa Estimated payback period 8 years	
4.4.1	Public Housing	Develop and implement a staged program to make sure low rise public housing estates have the correct bin ratios and access to recycling services.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$8,000pa Estimated payback period 4 years
4.4.2	Explore and trial a new model to increase recycling in high rise developments. For example taking all material to a material recovery facility.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2-4 Resources: \$35,000 + 0.3 EFT Estimated payback period 10 years	
4.5.1	Open Space/ streets	Develop and implement a staged program to bring all bin infrastructure, in parks and sporting clubs, to standard. Continue education and engagement with these groups.	Lead: Waste Minimisation Support: Open Space	Priority: High Year: 1- 4 Resources: Current Resources Estimated payback period 2 years

Objective 5 Educate, collaborate and advocate for better waste outcomes

Yarra is part of a broader community. We will collaborate with a range of partners to advocate for improved opportunities to rethink consumption behaviour and the production and management of our waste.

Pathways

- *Lobby for better distribution of EPA levy to local government.*
- *Lobby all stakeholders to achieve reduced resource consumption and decrease waste production on a state level.*
- *Explore opportunities to receive funding to deliver programs.*
- *Explore options of using incentives and disincentives to encourage new consumption behaviours that seek to minimise the creation of waste*
- *Investigate options for food waste avoidance, collection and management.*
- *Lobby for regional and combined waste minimisation and recycling approaches for inner-city councils.*

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
5.1.1	All Community Advocate for national solutions to problematic wastes with producers contributing to a National Scheme. (E.g. packaging, paint - cradle to grave and hazardous wastes).	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 1-2 Resources: Current Resources No payback period
5.1.2	Provide a report to Council outlining the current pros and cons of the potential introduction of Container Deposit Legislation with a view to advocating the key messages to the State Government.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Low Year: 1-2 Resources: Current Resources No payback period
5.1.3	Lobby Sustainability Victoria and the Environment Minister to encourage reduced resource consumption and to decrease waste production throughout Victoria.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 1-2 Resources: Current Resources No payback period
5.1.4	Explore opportunities to deliver collaborative projects with other councils on topics such as MUD recycling campaigns, food avoidance and litter prevention.	Lead: Waste Minimisation	Priority: High Year: 1-4 Resources: Current Resources No payback period

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
5.1.5	Continue to encourage community to recycle correctly through the roll out the example <i>Put in Your Bin and Win*</i> program in collaboration with waste contractor. (Included in waste contract).	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 1-4 Resources: Current Resources Estimated payback period 1 year
5.1.6	Develop a trial program in partnership with Friends Of/Resident Groups/Rotary Clubs to engage residents to better protect their local environment, minimise litter and waste, and increase recycling.	Lead: Waste Minimisation	Priority: Low Year: 2-4 Resources: \$4,000 pa No payback period
5.1.7	Investigate and develop and, if funded, trial an incentive program to reduce waste generation behaviour, improving resource recovery, increasing recycling yields and participation, including a review of service standards.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 1-4 Resources: \$10,000 + 0.2 EFT pa Estimated payback period 4 years
5.1.8	Develop a program to reduce volume/ weight of waste per household through the reduction of food waste in garbage. For example expansion of <i>Food Know How*</i> Program.	Lead: Waste Minimisation Support: Engineering Operations	Priority: High Year: 2 - 4 Resources: \$30,000 Estimated payback period 10 years
5.1.9	Work in partnership with the MWMG and the Inner Cluster of Metropolitan Councils to provide sustainable organic and kerbside residual waste processing facilities with commercial waste capacity to service Inner metropolitan Councils.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 1-4 Resources: Current Resources No payback period
5.2.1	Public housing Advocate to DHS and Minister for Housing for better resource recovery services for high rise residents to ensure the residents receive the same quality waste service as the rest of the community.	Lead: Waste Minimisation Support: Engineering Operations	Priority: Medium Year: 1-4 Resources: Current Resources No payback period
5.3.1	Commercial/ Business Consider the introduction of waste management plans for all new commercial developments, to improve their resource recovery and waste minimisation.	Lead: Waste Minimisation Support: Strategic Planning, Engineering Operations	Priority: Medium Year: 1-4 Resources: Current Resources No payback period

Sector	Deliverable	Lead and support unit	Priority/Possible Additional Resources
	Year 3-4 Trial one or more development sites which looks at all possible diversion opportunities e.g. food organics.		
5.3.2	Advocate for a state wide approach on plastic bag minimisation programs.	Lead: Waste Minimisation	Priority: Medium Year: 1-4 Resources: Current Resources No payback period
5.3.3	Promote and provide in-kind support to existing organisations and businesses that support the recovery and reuse of food through “food rescue” programs.	Lead: Waste Minimisation	Priority: Medium Year: 2-4 Resources: Current Resources No payback period
5.4.1	Council Operation Investigate the possibility of using a Local Law to make it illegal to dispose of paint and building materials in domestic bins.	Lead: Local Laws Support: Waste Minimisation, Engineering Operations	Priority: Low Year: 2 Resources: Current Resources No payback period
5.4.2	Work in partnership with the MWMG and the Inner Cluster of Metropolitan Councils to provide sustainable organic and kerbside residual waste processing facilities with commercial waste capacity to service inner metropolitan councils.	Lead: Engineering Operations Support: Waste Minimisation	Priority: Medium Year: 1-4 Resources: Current Resources No payback period

Appendix 1: Policy Context

The Yarra Waste and Resource Recovery Strategy has been developed within the context of Federal and State policies and strategies. Aligning the Yarra Waste and Resource Recovery Strategy with companion policies and plans ensures Yarra is part of an integrated approach to waste both in Victoria and within the Australian context.

POLICY CONTEXT - COMMONWEALTH

National Waste Policy: Less Waste and More Resources 2009

The *National Waste Policy: Less Waste and More Resources* is a collaborative approach to managing waste across Australia. The policy sets Australia's waste management and resource recovery direction to 2020. Product stewardship is a priority under the policy and will help to increase resource recovery rates.

The following six areas have been identified under the policy to deliver economic, environmental and social benefits in regards to waste management:

- Taking responsibility
- Improving the market
- Pursuing sustainability
- Reducing hazard and risk
- Tailoring solutions
- Providing the evidence

Carbon Pricing Mechanism

The Australian carbon pricing mechanism started on 1 July 2012 under the Clean Energy Act 2011. The mechanism applies to a landfill facility emitting more than 25,000 tonnes of carbon dioxide equivalent a year. The carbon price has contractual implications for Council procurement of services and for industry and council service providers. At this stage, it is not possible to quantify any impacts that the carbon price may be having on diverting waste away from Melbourne's landfills. Due to a change in Federal Government in late 2013 the current status of Carbon Pricing is unknown. However at this point landfill is still attracting a carbon price.

Container deposit legislation

The Federal Government has considered container deposit legislation (CDL).

In September 2013 the Environment and Communications Legislation Committee (the ECL committee) demonstrated its support for improving the reuse and recycling of waste materials; however, it has been unable to determine or quantify the benefits of the model proposed in the CDL Bill without further data. It is also not clear whether, even if the CDL Bill were to achieve improved recycling levels, that it would do so at the least cost to the community.

The ECL committee recommended further analysis of container deposit schemes ensuring that any further modeling draws on data derived from existing schemes and includes consideration of the model outlined in this Bill. The committee recommended that the Bill not be passed at that time.

The Victorian Government has indicated it will consider supporting a national CDL scheme if it is created.

POLICY CONTEXT – STATE

Plan Melbourne

Plan Melbourne is the State Government’s vision for the future of Melbourne to 2050. It aims to respond to the challenges of population growth, driving economic prosperity and livability, while protecting the environment and heritage.

The plan is designed to provide an integrated approach to planning and development that includes land use, transport, and social and community infrastructure.

Specifically relevant to waste, Plan Melbourne aims to:

1. Establish Melbourne’s long-term needs for waste management sites.
2. Protect waste management and resource recovery facilities from urban encroachment and assess opportunities for new waste facilities to meet the needs of medium-and higher-density developments.
3. Establish our city’s long-term needs for waste management sites.
4. Develop new waste systems to meet the logistical challenges of Medium and High Developments.

Of particular relevance to the Yarra Waste and Resource Recovery Strategy, the Plan Melbourne actions include:

- Investigate and encourage precinct-wide innovations in waste management and recycling;
- Ensure the new ‘good planning guide’ better defines the need for, and provision of, waste infrastructure for all multi-unit residential developments; and
- Review and streamline regulations and planning provisions for waste and recycling storage and collection in apartment buildings.

Getting Full Value: Victoria’s Waste and Resource Recovery Policy

Victoria’s *Getting Full Value: Victoria’s Waste and Resource Recovery Policy* was released in April 2013. The policy aims to establish the right mix of infrastructure in the right places to minimise health and environmental challenges while maximising resource recovery.

The policy sets out the following vision for waste management in Victoria.

Victoria has an integrated, statewide waste management and resource recovery system that provides an essential community service by protecting the environment and public health, maximising the productive value of resources and minimising long term costs to households, industry and government.

Four policy objectives have been identified to build the vision:

1. Economic prosperity;
2. Integrate efficient waste and resource recovery systems;
3. Public health and wellbeing; and
4. Environmental protection.

This is supported by six goals:

1. Assist Victorians to reduce the waste they generate and save Victorians money through efficient use of resources;
2. Facilitate strong markets for recovered resources;
3. Facilitate a Victorian waste and resource recovery system that maximises the economic value of waste;
4. Resource the environmental and public health risks of waste;
5. Reduce illegal dumping and littering; and
6. Reform and strengthen the way institutions work and are governed to efficiently implement waste policy.

Getting Full Value provided for the development of the following plans:

- Draft - Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) for Victoria – released Sept 2013; and
- Draft - Metropolitan Waste and Resource Recovery Strategic Plan (MWRRSP) for Melbourne – released Sept 2013.

Draft - Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP)

The draft SWRRIP was released in September 2013 for consultation. The final SWRRIP will be released in 2014.

The SWRRIP provides 30 year road map for government and industry investment opportunities to improve Victoria's waste management and resource recovery infrastructure network. It aims to and help Victoria realise its vision to maximise the productive value of resources. This will be achieved by developing the right conditions for resource recovery markets to grow and mature in Victoria and create the environment in which industry can invest with certainty. SWRRIP recognises that current thinking about waste management is moving away from seeing waste as 'something to be thrown away', and moving instead towards seeing waste as a resource from which maximum value should be extracted. SWRRIP also maps the long-term trends in waste generation, and population and waste infrastructure at a statewide level.

The SWRRIP details four goals as provided below. Each goal is supported by a series of actions.

1. Facilitate efficient markets by consolidating material streams to establish economies of scale that attract industry investment.
2. Maximise the recovery of valuable resources from waste streams.

3. Support the Getting Full Value action to facilitate the long-term purpose of landfills to only receive treated residual waste.
4. Provide industry, local government, metropolitan and regional Waste Management Groups and other government agencies with information and guidance to inform planning at the state, regional and local levels.

Of particular relevance to the development of the new Yarra Waste and Resource Recovery Strategy, the draft SWRRIP identifies major opportunities to increase the recovery of valuable materials from the waste stream.

These include:

- Increased recovery of garden and food organics;
- Improved source separation to increase recovery rates of paper, cardboard and timber;
- Increased recovery of glass (to reduce glass fines) and tyres; and
- Increased recovery of and plastics (particularly film plastics).

Metropolitan Waste and Resource Recovery Strategic Plan (MWRRSP)

To support the objectives of the SWRRIP the draft MWRRSP identifies the specific waste and resource recovery infrastructure required for metropolitan Melbourne over the next ten years. MWRRSP details a range of market-based actions and solutions needed to secure infrastructure investment in the waste disposal and resource recovery sector.

The City of Yarra found the MWRRSP to lack consideration of emerging issues and trends of inner city councils. Key issues raised in Yarra's response to the draft MWRRSP include:

- Lack of focus on infrastructure for waste avoidance rather than just resource recovery.
- MWMG appears silent on the need to address toxic household chemicals. Household chemicals should be collected under product stewardship arrangements or Landfill levy.
- The outline of metropolitan wide education campaigns should be strengthened and be more specific. Education requires greater resourcing in communities with a significant multicultural make-up.

POLICY CONTEXT – YARRA

Council Plan

The Council Plan 2013-17 is a strategic document that puts forward a medium to long-term vision for how Council will respond to the opportunities and challenges facing Yarra over the next four years.

It provides guidance on how Council will work to improve the amenity of residents, manage the challenges presented by population growth, provide support to vulnerable community members, protect and enhance Yarra's heritage and culture and continue to reduce the city's environmental footprint.

Waste sits across all five strategic objectives, which the Council Plan focuses on:

1. Celebrating Yarra's uniqueness;
2. Supporting Yarra's community;
3. Making Yarra more liveable;
4. Ensuring a sustainable Yarra; and
5. Leading Local Government.

Municipal Strategic Statement 2009

There are two key areas in the Municipal Strategic Statement (MSS) where waste is considered.

ENVIRONMENTAL SUSTAINABILITY

- There is a critical need to reduce greenhouse gas emissions and improve air quality, minimise water use, protect important vegetation and waterways, and reduce waste.

Objective 34: To promote ecologically sustainable development.

- Strategy 34.1 Encourage new development to incorporate environmentally sustainable design measures in the areas of energy and water efficiency, greenhouse gas emissions, passive solar design, natural ventilation, stormwater reduction and management, solar access, orientation and layout of development, building materials and waste minimisation.

The MSS is being reviewed in 2014-15.

Municipal Public Health and Wellbeing Plan 2013-2017

The Yarra Municipal Public Health and Wellbeing Plan (MPHWP) is a strategic document that sets the health priorities for the municipality and informs Council actions to improve the health and wellbeing of residents.

A key element of the plan is the importance of health promoting environments. Health promoting environments encourage people to use public open space, which increases social interaction and physical activity, in environments that are welcoming and feel safe. This can be achieved, in part, by ensuring open space is cleaner, has less litter and is well maintained.

Yarra Environment Strategy 2013 - 2017

The Yarra Environment Strategy (YES) outlines a four-year vision in which *“Yarra is a resilient and sustainable city where current and future populations enjoy a high quality of life within our fair share of the earth's resources, whilst ensuring we co-exist harmoniously with the natural environment.”*

The Yarra Environment Strategy proposes an innovative mix of leadership and collaboration, direct action and advocacy, consultation and education and recognises waste as an environmental focus under the strategy. YES establishes an aim to reduce waste to landfill through changed community behaviours and tailored / easy to use infrastructure.

Actions in the Yarra Environment Strategy which relate to the Yarra Waste and Resource Recovery Strategy are:

- Focus on reduction of food waste to landfill;
- Regional waste minimisation action and partnerships;
- Support and connect neighbours to take collective action for sustainable consumption and lifestyles;
- Waste Wise Council infrastructure and staff education;
- Develop a network of local hubs to disseminate sustainability information and support;
- Supporting Sustainable Schools;
- Establish Yarra River environs awareness campaign;
- Supporting reduction in litter loads to Yarra's waterways through business and community action;
- Strengthening partnerships and support for sustainable business operations; and
- Sustainable Catering and Events.

Existing Waste Strategy Review

The previous Yarra Waste Management Strategy 2009 - 2013 (YWMS) was developed in 2009 through extensive consultation with the community and with internal and external stakeholders. It was adopted by Council in December 2009. The YWMS reflects Government policies at the time, in particular Victoria's Towards Zero Waste Strategy (TZW) 2005.

Yarra set a target resource recovery rate of 57% by 2014, and has currently achieved a rate of 40%. Contributing factors to why only 40% diversion has been achieved include:

- Kerbside Services data also includes Multi Unit Developments, Commercial Properties, Council Operations and events;
- historically, due to previous service arrangements, a greater number of waste bins have been issued than recycling bins;
- increasing presentation of garbage bins each week (bin numbers are increasing);
- organics, being such a large proportion of the waste stream, require time for residents to change practices;

- A reduction in the volume of paper presented to the recycling stream has reduced the overall weight of the recyclables generated. This is a trend also common across other municipalities; and
- Many recyclable products are becoming lighter; the volume of paper waste has reduced while electronic waste has increased. The amount of garbage waste has not reduced at the same rate (rates based on per household or per business).

A detailed review of the current Yarra Waste Management Strategy has been completed. The following overview has been drawn from that review. The YWMS provided the foundation for a number of achievements including:

- Improved resource recovery and landfill diversion outcomes through the design and implementation of innovative programs;
- Increased community participation in waste minimisation through targeted programs such as *Food Know How** and multi-unit development recycling programs;
- Implementation of a 24-hour recycling drop off centre at Clifton Hill that is receiving a range of reusable and recyclable materials such as polystyrene, steel objects, e-waste, clothing and toys;
- Public Place recycling of street litter bins being promoted via signage and localised drop off points for paper and cardboard;
- Successful promotion of the Sustainability Victoria's Detox Your Home residential drop off held at the Clifton Hill Works Depot in October 2010 which received a total of over 20 tonne of materials;
- Council's internal construction and demolition activities for building projects and road construction/maintenance recorded significant amounts of materials that were reused and recycled. The Victoria Park re-development diverted 6,146 tonnes of construction materials such as concrete, bricks, timber and steel for reuse and recycling;
- Increased level of participation of Green Waste* and Hard Waste* services and a greater volume collected.
- Support and expansion of compost mates that included Neighbourhood Orchards and holding the "Compost Composium" event. Neighbourhood Orchard was recognised by the Keep Australia Beautiful Awards as the "Best Community Action in Victoria";
- Implementation of waste diversion including organics at City of Yarra's major events including Fiesta, Lunar Festival and Gleadell Street Market.
- Engaging schools to boost recycling infrastructure, awareness and involvement in programs; and
- Working with businesses through the Lower Yarra Litter Strategy to develop their understanding of protecting stormwater, improving recycling, and extending that culture to nearby Edinburgh Gardens.

The review also identified a number of areas for improvement including:

- Lack of efficient and accurate tools for capturing and recording of data to monitor and evaluate actions;
- Lack of tools and programs to respond to and deter illegal dumping;
- Recycling in parks and sporting clubs requires further work;
- A lack of success in improving recycling outcomes across existing multi-unit developments;
- The need to ensure infrastructure is available to respond to growing population and economic activity. This includes the need to change and expand services to meet the growth;
- A need to better engage in recycling in public housing; and
- The need to develop suitable options for managing organics in multi-unit developments and smaller residences, which may not suit on-site composting systems.

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Appendix 2: Community and Stakeholder Engagement

An overview of Yarra Community

The City of Yarra is an inner metropolitan Council, 3 kilometres north-east of the central business district of Melbourne.

Yarra includes the suburbs of Abbotsford, Burnley, Clifton Hill, Collingwood, Fitzroy, North Carlton, North Fitzroy, Richmond and the southern portions of Alphington and Fairfield. In June 2012 the Estimated Residential Population of the City of Yarra was 80,607. The local economy is supported by some 8,720 businesses.

The city now known as Yarra was mostly settled from around the 1840s, with the population growing quickly due to economic growth associated with the 1850s gold rush. Yarra suburbs were developed as a mix of industry and housing. Much of the original housing was in the form of small terraced 'workers cottages' built directly onto the streets with small back yards. As industry moved away from the inner city many of the old industrial areas were redeveloped into medium and high-density housing. Yarra is also home to three high-rise public housing estates as well as a number of low-rise public housing developments.

This mix of housing makes Yarra residents far more likely to live in high or medium density housing than in other parts of metropolitan Melbourne. Over 52% of the Yarra population lives in medium density housing and over 26% live in high density with only 20% living in separate houses.

The Yarra community has experienced sustained growth since the 1980's. The population is forecast to continue to grow to 88,188 in 2016 and around 96,000 in 2021.

2011		2016		2021		2031	
Residents	Dwellings	Residents	Dwellings	Residents	Dwellings	Residents	Dwellings
79,013	37,182	88,188	41,921	95,909	46,103	110,512	53,757

Table 2 - Population and Dwelling Estimates

Yarra is particularly popular with young people with a greater percentage of people aged 18 years to 24 years living in Yarra than the Greater Melbourne average. The Yarra community is also particularly transient with 46.6% of the population moving between 2006 and 2011.

People in Yarra are far more likely to be renting (49%) than in Greater Melbourne (26%). In addition 10.8% of the Yarra population lives in social housing which is almost four times the Greater Melbourne average of 2.9%.

Yarra has slightly fewer residents who were born overseas (29%) than greater Melbourne (31.4%) although almost a fifth of Yarra residents come from countries where English is not the first language, and almost a quarter speak a language other than English at home.

The top five ancestries nominated by residents in Yarra were English, Australian, Irish, Scottish and Italian. There is a large community of people with Vietnamese ancestry in Yarra. Emerging, although small, population groups in Yarra include people from Indonesia, Turkey, Singapore, Somalia, Croatia, Sri Lanka, Poland, Netherlands, Egypt, South Korea, Macedonia, Colombia, Eritrea, Spain, Chile, Taiwan, Malta, Iran and Lebanon.

Data in this section has been sourced from to 2011 Australian Bureau of Statistic Census 2011 as provided on the id consulting website <http://profile.id.com.au/yarra> . Additional forecasting was sourced from <http://forecast.id.com.au/yarra>.

Consultation and Engagement

Consultation for the Yarra Waste and Resource Recovery Strategy commenced in early 2013. The consultation was undertaken as part of the Yarra Environment Strategy and as a result is focused on waste in the environmental context. The results of this consultation were reviewed and a consultation plan developed to engage a broad section of the Yarra community.

Consultation for the Yarra Waste and Resource Recovery Strategy has included:

1. A review of previous consultation in relation to waste including the Yarra Environment Strategy consultations and the results of community wide surveys;
2. Face to face interviews at Gleadell Street Market, Victoria Gardens and North Carlton;
3. A focus group with people living in public housing;
4. On-line consultation through 'Bang the Table';
5. Interviews with industry and government key stakeholders;
6. A series of focus groups, workshops and one-on-one interviews with staff and Councilors from Yarra City Council; and
7. Consultation with children attending children's services in the City of Yarra.

Key Messages – Overall

The consultation and engagement for the Yarra Waste and Resource Recovery Strategy was completed using a range of techniques, talking to a variety of community, staff and industry professionals over more than a year. The results of this engagement showed considerable consistency in relation to views on waste.

Issues that were identified by both staff and community were:

- Waste is an environmental issue;
- Reduction in litter and dumped rubbish is important;
- Education and engagement is essential;
- Multi-unit developments and managing their requirements is an emerging issue;
- Finding local solutions is important particularly to kitchen waste issue; and

- Ensuring the correct infrastructure is available is essential.

Key Messages - Survey

Face to face surveys were conducted at three locations in the City of Yarra; a total of 75 people were interviewed. The questions were broad in nature aiming to understand community perceptions of waste.

The vast majority of people interviewed (97%) felt that waste was an environment issues. The majority of people 72% believed that everyone (purchaser, manufacturer, government) was responsible for waste while a further 26% believed they were personally responsible for waste.

The majority of people (73%) believed that waste was a potential resource with reusing items, composting and using waste to make energy the most popular ideas for utilising waste as a resource.

When asked to nominate what makes up the majority of their waste, people nominated food packaging and other packaging as the most prevalent items.

Key Messages – Broad Consultation

The results of the broad community engagement indicated that community members believed that waste is part of a broader issue relating to consumption and behaviour. There was an emphasis on the importance of education and engagement at all levels of the community. In addition there was recognition that infrastructure is required to support any change in behaviour.

Some key issues to emerge for consultation include:

- Consumption and avoidance – the impact consumption patterns have on waste. The need for attitude/ behaviour change particularly in relation to waste reduction;
- The importance of litter reduction – education, infrastructure and compliance;
- Engagement, education and communication with the community. This needs to be targeted to areas where needs have been identified such as multi-unit developments, businesses and litter reduction;
- Planning and Infrastructure – particularly in relation to the changing face of Yarra and the increase of multi-unit developments. There is a need to work with planning and developers to ensure sustainable solutions;
- Local solutions – particularly relating to organic waste including garden waste but to other areas of waste too;
- Monitoring and compliance;
- Advocacy and partnerships – to improve outcome for Yarra; and
- The need for relevant targets.

Children's Consultation

Consultation with children was completed with a group of four and five year old children at a long day care service in Yarra. The children showed a keen interest and good knowledge of waste. Their general understanding of the term 'waste' incorporated anything that was not used carefully such as leaving taps and lights on. They also indicated that broken or old toys should not be discarded but mended or given away and that buying too many books was not necessary as books can be borrowed from the library.

The children were concerned about litter particularly in the ocean and the impact on wildlife.

Key messages staff engagement

Staff from across the Yarra City Council were engaged in discussions about waste both as part of the consultation for the Yarra Environment Strategy and as part of targeted workshops directly related to the development of the Yarra Waste and Resource Recovery Strategy. Issues raised included:

- Education and engagement – including key messages;
- Precinct approach to waste management;
- The impact on Yarra of increasing population particularly multi-unit developments;
- Dumped rubbish and how to manage it;
- The impact of a new State policy;
- Waste diversion – getting to it before it becomes waste; and
- Infrastructure – the importance of ensuring it meets the changing needs.

INDUSTRY CONTEXT - STAKEHOLDER ENGAGEMENT

State Government Departments and Authorities

Discussions with EPA Victoria and Sustainability Victoria identified the following priorities and issues:

- Waste generation is increasing. There is a need to minimise the amount of waste being produced and the amount of waste being sent to landfill;
- Landfill space is running out and becoming an increasing concern. This can be managed to some degree by the new Government strategic plans however councils need to play key role in minimising the size of the landfill waste stream and increasing resource recovery;
- A greater emphasis needs to be placed on understanding the flows of materials and how to reduce the amount of recyclable and recoverable materials entering landfill;
- There is a greater need to know more about what materials are entering landfill, rather than the source. In the past councils and Government have focused on the source rather than the materials. Understanding the materials entering landfill can be achieved through landfill audits which are both difficult and expensive or through kerbside bin audits which offer a more cost effective option;
- It would be preferable that councils undertake annual waste stream audits however unless any significant education programs have been undertaken annual

audits may be pointless. In which case, audits every two years would be desirable; and

- Kerbside bin audits should consider all sources of waste generation within the municipality – not just households.

Metropolitan Waste Management Group

Metropolitan Waste Management Group (MWMG) identified the following key trends and issues facing Melbourne Local Government Councils:

- Increase in waste generation due to population growth;
- Expectation growing on waste system quality and quantity;
- Increase housing density, vertical living;
- Culturally and Linguistically Diverse (CALD) community;
- Not having a transfer station;
- System changes for Hard Waste collection e.g. Transport if you don't have a car; and
- Increase in illegal dumping.

MWMG has also identified that Yarra is a leader responding to a number of these trends and issues.

Other Local Government

Other inner city Local Government Councils identified the following priorities and issues:

- Multi-unit developments (including high rise apartments) – engaging, infrastructure servicing, monitoring;
- Public housing – establishing sustainable ongoing programs to improve resource recovery in public housing and to identify opportunities to leverage off recycling programs implemented by other councils such as Moonee Valley;
- Illegal dumping and litter hot spots;
- Understanding the reasons for and impact of changes in the size and composition of waste streams;
- Understanding and responding to the needs of CALD communities. Ensuring at the same time, that the objectives of waste management strategies and targeted programs are achievable;
- Organics - Reducing organic waste and supporting locally based compost programs and diversion technologies and processing;
- The ability to transition pilot programs into ongoing operational aspects of Council's waste management services;
- Information and resource sharing and collaboration of projections between Councils could be improved;
- Identifying the right infrastructure and service requirements to best meet waste stream needs; and
- Product stewardship.

Appendix 3: The Waste Context

SERVICE DELIVERY

Yarra City Council provides a range of services for its community. These include kerbside collections of waste and recycling, hard rubbish and green (garden) waste collections and managing waste removal from public open spaces. Yarra also provides a 24 hour drop off facility for items that are not currently recyclable through the kerbside collections. Further details of these services are provided below. Currently, due to contract arrangements it is not possible to access data of tonne per sector. This data is important for understanding the waste stream and responding accordingly. Ensuring accurate and useful data will be an action in the new strategy.

Kerbside Collection

Bins for kerbside collection are provided by Council, at a one off fee to new residential developments. Replacements for lost or stolen bins are supplied at no charge.

Multi-Unit Development (MUD) properties such as flats and apartments, are provided with multiple garbage (landfill) and recycling bins, based on an assessment of needs at the property.

Domestic (Residential) Garbage Waste Collection

Domestic garbage is collected from the kerbside of residential properties weekly.

An 80-litre bin is provided to single dwellings for storage and presentation of garbage. The collection encompasses only residual garbage.

Domestic Recyclables Collection

Domestic recyclable materials are collected from the kerbside of residential properties weekly.

A 120-litre bin is provided to single dwellings for storage and presentation of co-mingled recycling. The collection encompasses a standard range of paper, cardboard, glass, plastics, aluminium, milk and juice cartons, and steel products that are viable as re-use materials.

Commercial

(Non- Residential) Garbage Waste Collection

Council provides each commercial tenement, on request, with bins from 80 litres up to 240 litres for weekly clearance of domestic-type garbage from lunchrooms.

The City of Yarra does not undertake the collection of business specific trade and commercial waste. This is due to significant variations in type and quantity of waste generated from the variety of businesses operations which requires specialist,

flexible and more frequent services best provided by the many private waste collection companies.

Commercial Recyclable Collection

The City of Yarra provides each commercial tenement, on request, with a maximum of 2 x 240 litre recycling bins for a weekly recycling service, as an extension to the residential kerbside collection service.

The service is for domestic-type recyclable materials but does not accommodate materials generated from core business activities.

Ministry of Housing High Rise Buildings Garbage and Recycling Collection

Council provides a regular clearance of domestic waste from the twelve Office of Housing high rise towers in Yarra.

The developments have a unique garbage waste disposal chute and hopper system. The hopper is cleared from the ground level, by use of an open truck.

Recycling services are available at the bottom of each tower on Collingwood, Fitzroy and Richmond estates.

Council has worked closely with Department of Human Services to conduct education programs for residents at the estates, with an aim to increase resource recovery rates and reduce the level of contamination recycling stream.

Dumped Waste

Illegal dumping is the deliberate or unauthorised dumping, tipping or burying of waste on land that is not licensed or fit to accept that waste. Waste dumped near residential properties or in parks and other open spaces can contribute to an unsightly environment that looks and feels unsafe.

A considerable amount of dumped waste is frequently reported across the City of Yarra but rarely is any regulatory action taken. Dumped waste is quickly removed by Yarra's well-established Litter Response Team.

Litter

Council uses a variety of methods to keep local roads and streets clean including an extensive street sweeping program.

Yarra's in-house Litter Response Team has scheduled litter collection areas, which are cleaned daily. They also respond to any dumped rubbish call outs in their designated areas.

Council's street cleaning services empty street litter bins, and clean the main shopping strips daily. Material deposited in street litter bins is collected and taken to the Visy MRF at Laverton for recycling. An opportunity exists for Council to better promote that waste from its street litter bins is recycled.

Hard and Green Waste Collections

In 2008 Council moved to an "at-call" booking system for hard and green waste collection to all residential properties throughout the City.

The system allows for unlimited collections of green waste and two hard waste collections annually per dwelling.

Green waste is transported to a Green Waste Recycling Facility. The Green Waste Recycling Facility currently only processes garden waste. In the near future an in-vessel composting technology facility will become available to process food waste in addition to garden waste. This would require Yarra to have a third bin and therefore does not provide the solution for Yarra, which runs a two-bin system.

In analysing the content of the City of Yarra garbage bins, it is evident that the quantity of green (garden) waste in the bins (6.3%) would not warrant the addition of a green waste bin.

Hard waste collected from properties is then sorted with the recoverable items saved or recycled. The non-recoverable or non-recyclable items are disposed of at landfill.

24 hour Recycling Drop off Point

A 24-hour recycling drop off point was established at Clifton Hill to receive a range of goods that cannot be recycled through the current domestic recycling service.

An extensive range of items are accepted at the drop off point including E-waste, electrical equipment, fluorescent tubes and light bulbs, household batteries, mobile phones and accessories, polystyrene, clothing, cling wrap, scrap metals.

Cardboard Drop off Points

The previous Waste Management Plan identified large amounts of recyclable cardboard waste being generated across the City that was not being recycled. In response, Council established four cardboard drop-off points around the municipality.

EMERGING ISSUES

Multi-unit developments

Managing waste from multi-unit developments provides particular challenges; waste management staff have indicated that insufficient or incorrect infrastructure reduce the capacity to recycle. In addition consultations with residents have indicated a desire to reduce food waste going to landfill, but the inability to use systems like composting or work farms due to lack of suitable space.

Programs are now in place to improve the resource recovery rates and reduce contamination through targeted education and a review of bin infrastructure in a small number of multi-unit developments.

Procedures are also in place to improve the decision making processes associated with bin infrastructure at the planning stages of new multi-unit developments.

These initiatives are working well to improve resource recovery rates and the quality of recycling. However there is no strategy for working with the large number of older multi-unit developments which may not have the correct bin stock to meet the recycling needs in particular of residents.

Public Housing - High Rise /Low Rise

The City of Yarra is home to a high proportion of residents living with socio-economic disadvantage, in what is an otherwise relatively affluent municipality. These pockets of disadvantage tend to be clustered around the three high-rise public housing estates as well as some smaller low-rise estates.

Despite previous programs to increase recycling, considerable opportunities exist to improve resource recovery rates at public housing.

The development of the new action plan in particular will support initiatives to implement or improve recycling at public housing precincts.

Business Sector

A targeted business waste and recycling program conducted during 2011-2013 across the Swan Street and Bridge Road precincts established a number of issues. These include:

- High resource loss in the garbage stream;
- High contamination in the recycling stream;
- Low participation rates in recycling;
- Large number of stolen bins being used by businesses; and
- Little behavioral change was achieved despite provision of targeted education and new bin infrastructure.

The outcomes of the program demonstrate a significant opportunity to work with Yarra's business sector to improve resource recovery outcomes.

Food Organics

Food organics is a major contributor to the Yarra waste stream (52.6%), and one where additional effort is believed to make a large difference. As well as reducing waste to landfill and associated costs to Council, this will significantly reduce greenhouse gas emissions, and has the potential to create a valuable resource (compost) at a household, neighbourhood, or regional scale.

In response to this issue the City of Yarra, Cultivating Community and the Metropolitan Waste Management Group have developed '*Food Know How**', which aims to reduce the amount of food waste in the garbage bins of the average Yarra household, café, and business and influence long-term food waste behaviour change.

*Food Know How** aims to help households, cafes and offices in the City of Yarra to avoid and recycle food waste through strategies such as menu and meal planning, using leftovers, and tips about smart shopping and food storage, as well as composting and worm farming.

New technologies

The Yarra Waste and Resource Recovery Strategy provides Council with an opportunity to make informed decisions and take a course of action today that will make significant impacts on the amount of waste sent to landfill.

The City of Yarra will take advantage of new advances in resource recovery and waste management as they emerge to ensure that best fit solutions are operating and providing benefits to its community.

Advancements in technology will also play a large role in providing better waste management solutions, particularly for improved sorting and treatment processes.

For example, there has been significant effort in recent years, largely driven by increasing landfill costs, to develop Alternative Resource Recovery Treatment (ARRT) facilities that process municipal waste (from the garbage bin). These facilities sort waste into various streams for treatment. Recyclables and green and food organics are removed from the rubbish so as they can be treated for reuse. Any residual waste remaining is then taken to landfill.

There are still many challenges associated with resource recovery from waste, be that by mechanical, biological or thermal means. Hurdles include problems associated with non-homogenous waste stock, technological risks, product quality control, high costs, uncertain markets, and more. Notwithstanding, the potential incorporation of ARRT facilities as waste processing facilities in Victoria could significantly increase the quantities of material recovered from the waste stream. Their ability to process garden and food organic material would divert significant quantities of waste from landfill.

Recycle bins should still be used, as separation at source will remain the most efficient method for recycling.

The highest barrier for commissioning new technologies such as an ARRT is the cost. It is also worth noting that most technologies operate at the bottom of the waste hierarchy and over time the policies and programs may limit the amount of material available for recovery technologies. Companies that invest significant funds into infrastructure are not likely or willing to abandon their investment as the waste and resources emphasis moves further up the hierarchy.

Yarra's recent performance

This section has been developed using the best data available at the time. It is recognised that there are a number of issues in relation to these data. Collecting and understanding useful data is recognised as key to good service planning and delivery and projects are currently underway to improve the quality and relevance of data collected.

The kerbside garbage waste and recycling collection service component of the Municipal Waste Stream in 2012/13 averaged a total landfill diversion rate of 39.2%. This is below the target of 57%, and shows an unfavourable reducing trend. The landfill diversion rates for the two-bin kerbside garbage and recycling services are detailed below in Table 3 parts i-vi. This anomaly is occurring in most councils in Melbourne. Analysis suggests this is due to the changing composition of the recycling stream including a reduction of newspapers and the light weighting of packaging. The rejected waste generated per person per year is decreasing.

Table 3 – Yarra's Kerbside collection statistics for 2009 – 2013 part i

Kerbside Collection Stream	Unit	2009/10 (Adjusted)	2010/11 (Actual)	2011/12 (Actual)	2012/13 (Actual)
Garbage	kg/pp/wk*	3.31	3.50	3.46	3.33
Recyclables	kg/pp/wk	2.39	2.43	2.34	2.07
Green Organic	kg/pp/wk	0.06	0.08	0.10	0.07
Total Garbage	tonnes/yr	13,653	14,360	14,507	14,468
Total Recycled	tonnes/yr	9,873	10,103	9,492	9,023
Total Green Waste	tonnes/yr	229	373	302	306
Total Waste	tonnes/yr	23,755	24,836	24,301	23,797
Diversion Rate	%	42.5	42.2	40.3	39.2
Target	%	43.0	45.0	46.0	47.0

* In this table kerbside include waste collected from single dwellings, multi-unit developments, commercial properties, sporting clubs and Council Buildings

* kg/pp/wk – kilograms per person per week

Table 3 – Yarra’s Kerbside collection statistics for 2009 – 2013 part ii

Infrastructure type	Residual waste			
	2009/10	2010/11	2011/12	2012/13
Annual service cost*	\$1,825,629	\$2,218,476	\$2,583,411	\$2,675,989
Tonnes collected	13,653	14,360	14,507	14,468
Total population**	78,521	79,015	80,686	83,593
Cost per tonne	\$133.72	\$154.49	\$178.08	\$184.96
Cost per person	\$23.25	\$28.08	\$32.02	\$32.01
Yield per person(kg)	173.9	181.7	179.8	173.1

* Includes tipping fees

** Australian Bureau of Statistics Data

Table 3 – Yarra’s Kerbside collection statistics for 2009 – 2013 part iii

Infrastructure type	Commingled recyclables ²			
	2009/10	2010/11	2011/12	2012/13
Annual service cost ¹	\$1,131,278	\$1,139,589	\$1,205,909	\$1,274,501
Tonnes collected	9,873	10,103	9,492	9,023
Total population**	78,521	79,015	80,686	83,593
Cost per tonne	\$114.58	\$112.80	\$127.04	\$141.25
Cost per person	\$14.41	\$14.42	\$14.95	\$15.25
Yield per person(kg)	125.7	127.9	117.6	107.9

1. Annual service cost for commingled recyclables is based on the total service cost minus Rebate/tonne.
2. Around 5% of material placed in commingled bin is contaminated and must be disposed to landfill.

** Australian Bureau of Statistics Data

Table 3 – Yarra’s Kerbside collection statistics for 2009 – 2013 part iv

Infrastructure type	Green organic			
	2009/10	2010/11	2011/12	2012/13
Annual service cost*	\$145,699	\$187,589	\$159,291	\$153,802
Tonnes collected	229	373	302	306
Total population**	78,521	79,015	80,686	83,593
Cost per tonne	\$636.24	\$502.92	\$527.45	\$502.62
Cost per person	\$1.86	\$2.37	\$1.97	\$1.84
Yield per person(kg)	2.9	4.7	3.7	3.7

* Includes tipping fees

** Australian Bureau of Statistics Data

Table 3 – Yarra’s Kerbside collection statistics for 2009 – 2013 part v

Infrastructure type	Hard Waste			
	2009/10	2010/11	2011/12	2012/13
Annual service cost	\$325,201	\$477,631	\$544,813	\$383,636
Tonnes collected	2,874	3,410	2,817	2,396
Tonnes recycled/recovered	707	1,156	745	809
Tonnes to landfill	2,167	2,254	2,072	1,587
Recycling/recovery cost ³	\$104,219	\$200,925	\$248,342	\$160,484
Total population**	78,521	79,015	80,686	83,593
Cost per tonne	\$113.15	\$140.07	\$193.40	\$160.12
Cost per person	\$4.14	\$6.04	\$6.75	\$4.59
Yield per person(kg)	36.6	43.2	34.9	28.7

1. Recycling/recovery cost for Hard Waste is included in the total Hard Waste Annual service cost.

** Australian Bureau of Statistics Data

Table 3 – Yarra’s Kerbside collection statistics for 2009 – 2013 part vi

Infrastructure type	Total			
	2009/10	2010/11	2011/12	2012/13
Annual service cost	\$3,427,807	\$4,023,285	\$4,493,424	\$4,487,928
Tonnes collected	26,629	28,246	27,118	26,193
Total population**	78,521	79,015	80,686	83,593
Cost per tonne	\$128.72	\$142.44	\$165.70	\$171.34
Cost per person	\$43.65	\$50.92	\$55.69	\$53.69
Yield per person(kg)	339.1	357.5	336.1	313.3

** Australian Bureau of Statistics Data

NOTE: At this point, due to the way the contract is set up, and therefore waste is collected, we are unable to provide data of tonne per sector. This will be an action delivered in this strategy.

Estimated Waste Trends to 2020

The estimated waste trend shows garbage waste and green organics tonnes increasing, but recycling and hard waste tonnes going down. The financial impact includes increased landfill costs and reduced income from recyclables.

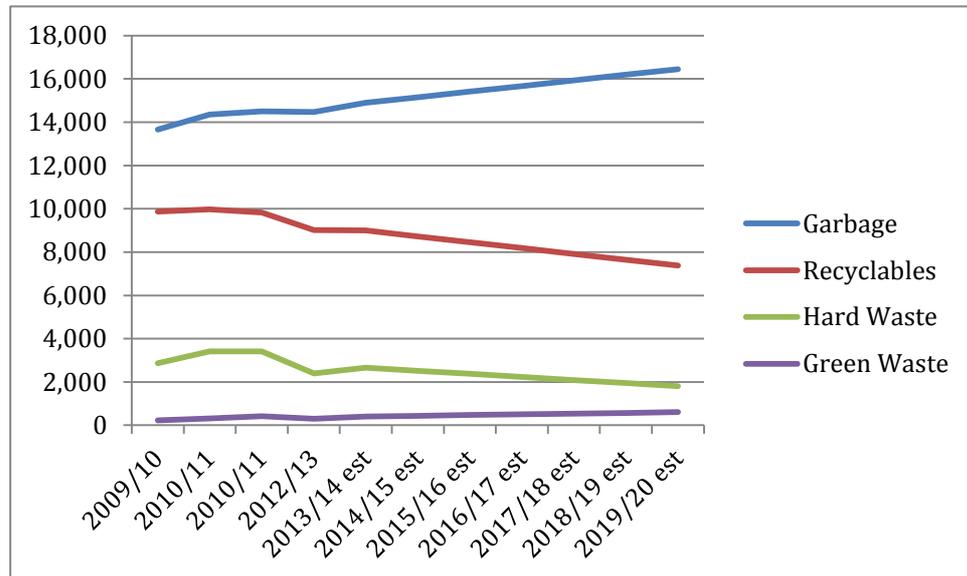


Figure 1 Estimated Trends to 2020

Breakdown of Household Garbage

The domestic kerbside waste stream audit conducted during 2011 provided the following snapshot of Yarra's garbage waste stream. Approximately 25% of the garbage stream was potentially recyclable through the kerbside recycling collection and a further 59% is potentially recoverable through organics processing.

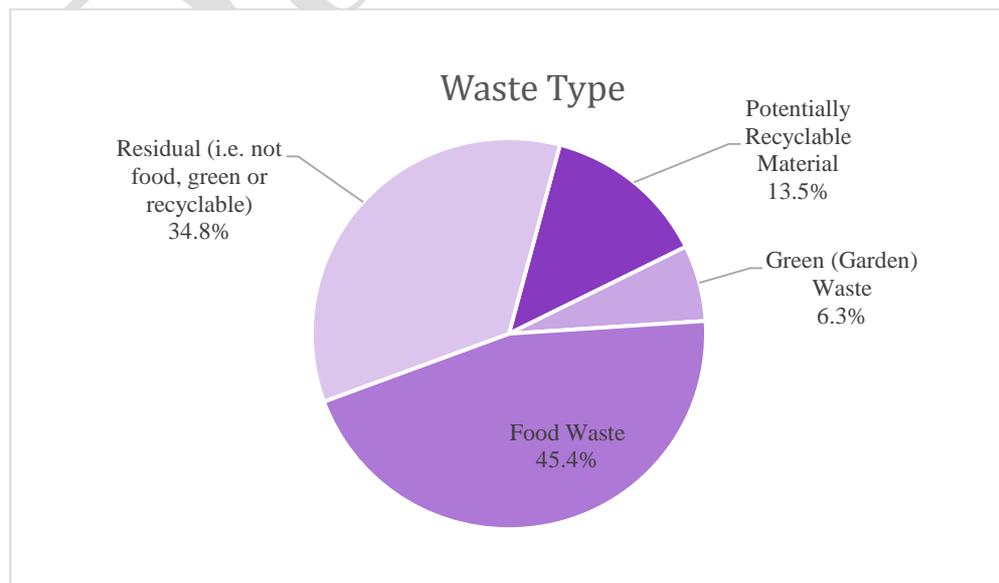


Figure 2 Breakdown of household garbage

Waste Type (%age)	1994 (*)	1996 (*)	2003 (**)	2011(***)
Potentially Recyclable Material	25.1	18.5	15.0	15.8
Green (Garden) Waste	4.8	3.3	10.0	7.0
Food Waste	37.5	49.9	45.0	52.6
Residual (i.e. not food, green or recyclable)	32.6	28.3	30.0	24.7
Total (%age)	100.0	100.0	100.0	100.0

Table 4 - Breakdown of household Garbage

* LRRRA (V) Recycling Audit and Garbage Analysis Report 1994, 1996.

** Yarra City Council 2003 Domestic Garbage and Recycling Report – Audit undertaken by Wastemin P/L (300 households, 50 MUD's)

*** Yarra City Council 2011 Garbage Audit – Audit undertaken by All Environmental Concepts (300bins)

DRAFT

Appendix 4: Glossary

This is a list of the main items and concepts discussed in the Yarra Waste and Resource Recovery Strategy. For a more comprehensive listing of terms and acronyms please refer to 'A Taste of Waste – Things to Know About Waste and Resource Recovery' produced by the Victorian State

Government: <http://www.mwmg.vic.gov.au/images/documents/atow%20webinteractive2.pdf>

Term	Definition
<i>Advanced resource recovery technology (ARRT)</i>	These are a facility which treats a material stream which under normal circumstances would be sent to landfill. They are designed to treat non-source separated, highly contaminated material streams.
<i>Alternative waste technologies (AWTs)</i>	These are a facility which treats a material stream which under normal circumstances would be sent to landfill. They are designed to treat non-source separated, highly contaminated material streams.
<i>CALD communities</i>	Culturally and linguistically diverse residents. Yarra has a high CALD population with 25% of Yarra residents speaking a language other than English at home.
<i>Chain of production</i>	The process required to convert raw materials into usable products.
<i>Contamination</i>	A substance of matter that has adverse impact on recycling, on the ability to process one type of material into another product.
<i>EED Planning Policy</i>	Environmentally efficient design requirements
<i>Hard waste</i>	Is the term applied to household garbage that is not usually accepted into mobile garbage bins by Council, e.g. fridges, mattresses, couches, appliances.
<i>Kerbside collection</i>	This is a service provided by Council to collect waste and commingled recyclable materials from residential properties (excludes hard waste). An at-call green waste kerbside collection service is provided to residents in the City of Yarra.
<i>Landfill</i>	A site for disposal of waste.
<i>Litter</i>	Is a form of pollution, considered the most visible; is anything left where it is not meant to be.
<i>Material recovery facilities (MRFs)</i>	Is a specialised plant that receives, separates and prepares recyclable materials for sale to end-user manufacturers.
<i>Multi-unit development</i>	Is the use of land for residential developments with more than one dwelling. These usually consist of flats, units or apartments. Often referred to as MUDs.
<i>Organics</i>	Is a generic term for a range of products manufactured from compostable organic materials (garden organics, food organics, residual wood and timber, biosolids, and agricultural organics).

Term	Definition
Product stewardship	A policy approach that ensures all those involved in the life cycle of a product share responsibility for reducing its health, economic and/or environmental impacts.
Public housing	An affordable housing managed and operated by the Housing Commission of Victoria.
Recycling	Is a term that may be used to cover a wide range of activities, including collection, sorting, reprocessing and manufacturing into new products.
Resource recovery	Is the process of retaining matter or energy from discarded materials.
Soft plastics	Any plastics that can be easily scrunched into a ball or broken when crushed by hand and includes bread, pasta, chip and lollie packets, biscuit packs and trays and old 'green bags' ¹
Sustainable consumption	The use of goods and services that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations. ²
Waste	Anything that is no longer valued by its owner for use or sale and which is, or will be, discarded.
Waste collection service	Council provides a weekly recycling and waste collection service for local residents. For a one-off fee, businesses can also receive this collection service
Waste hierarchy	A concept promoting waste avoidance ahead of recycling and disposal, often referred to in community education as 'reduce reuse recycle'. The waste hierarchy is recognised in the <i>Environment Protection Act 1970</i> , promoting management of wastes in the order of preference: avoidance, reuse, recycling, recovery of energy, treatment, containment and disposal.
Waste minimisation	The concept of, and strategies for, waste generation to be kept to a minimum level in order to divert materials from landfill and thereby reduce the requirements for waste collection, handling and disposal to landfill.

¹ <http://recyclingweek.planetark.org/recycling-info/softplastics.cfm>

² Symposium: Sustainable Consumption. Oslo, Norway; 19-20 January 1994

Program Definitions*

Programs	Definition
<i>Food Know How</i>	This is a food waste reduction program helping households, cafes and offices in the City of Yarra to avoid and recycle food waste through strategies such as menu and meal planning, using leftovers, and tips about smart shopping and food storage, as well as composting and worm farming.
<i>Put in your Bin and Win</i>	Is a program to educate residents about putting the right things in their recycling bins, and to celebrate doing that. Residents can win a movie voucher for two if our roving guide finds their bins are looking good. The campaign is promoted by twitter, on the website, in the local newspaper and Facebook.
<i>Improving Resource Recovery at Multi Unit Developments (MUD's) Program</i>	This program aims to overcome the barriers of having communal large bins in a remote bin room, that look like they'll take anything; and residents that continually move in and out. The campaign includes getting the right number of recycling bins in each MUD, and robust education and engagement so the residents own the recycling- right culture. The campaign is seeing major turnarounds in recycling - the engagement needs to be refreshed continually to capture new residents moving in.
<i>Business Clean Up Australia Day</i>	Is a day of targeted campaigning to encourage and support businesses to get their bins in order, adopt a recycling right culture, and be part of what is seen as the norm in the business area, so increasing recycling, and reducing waste.
<i>The Red Lid Bin Program</i>	This program covers both educating businesses about recycling right and minimising waste, and supplying them with an easily identifiable bin with a red lid. The red lid means the bin can be picked up by a special run for businesses, streamlining Yarra's collections.