

Waste & Resource Recovery Management Strategy 2021-2026



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1. Introduction

1.1 Background

This Waste and Resource Recovery Management Strategy 2020-2025 has been prepared following a review of the Council's previous Waste Management Strategy 2015-2020. The previous strategy was adopted in 2015 and spanned a period in Australia's waste and resource recovery history which saw significant and long-term changes to the sector.

The banning of recycling exports to China, long-term stockpiling of municipal commingled recycling, closure of major Victorian recycling facilities and capacity issues within the recycling and reprocessing industry within Australia have placed significant pressure on local government to provide sustainable services to their communities. These issues have highlighted the fragility of our waste and recycling systems, our over-reliance on landfills and the need for a strategy that is built on the principles of education, transparency, resilience and sustainability.

As a consequence, several major changes have taken place in the Council's management and operation of waste and resource recovery services. Council responded to the recycling crisis by introducing a four-bin waste collection service at the start of February 2020. The four bin system enables a new food organics garden organics (FOGO) service and the separation of glass from the commingled recycling bin.

Other significant changes include the following:

- E-waste landfill ban – in July 2019 all e-waste was banned from landfill which saw the cost of managing e-waste significantly increase
- Increasing cost of landfill – EPA landfill levy is continuously rising and predicted to rise significantly shortly
- Container deposit scheme (CDS) – the commitment by the Victorian state government of a CDS by 2023
- Changes to State and Federal waste policies.

The update of the previous Strategy is a timely opportunity to review Council's current position on waste and resource recovery. It better aligns Council with current industry and community trends and needs, as well as providing a clear direction for Council's future waste and resource recovery activities.

1.2 Updating the Strategy

The waste strategy review is important to ensure that the Waste Management and Resource Recovery Strategy 2021-2025 (new Strategy) aligns with contemporary industry and community trends and needs.

The new strategy looks at where we are currently at the end of the 2015-2020 strategy and looks forward to where we want to be in five years. It will provide direction for Council's future waste management and resource recovery activities and services to ensure that the Macedon Ranges Shire is well placed as we move into the 2021-2025 period.

The updates to the Strategy comprise of the following:

Where previous actions are still relevant and further progress or improvements could be made, the strategy picks up where the previous strategy left off. For example, diversion of waste from landfills is still a major focus of the new strategy. Despite significant progress in this area, the strategy recognises that there are still improvements that can be made.

The strategy incorporates several new focus areas:

- Waste Avoidance & Minimisation;
- Resource Recovery;
- Waste Education and Behaviour Change; and
- Circular Economy.

These areas of focus better align the council's strategic goals with both the waste hierarchy and recent state policy objectives, as well as recognising the importance of education in changing waste management attitudes and behaviours.

Updated objectives and goals to reflect progress made to date and align with the current service provision, industry changes, new state policy and circular economy principles.

1.3 Purpose

Waste and resource recovery services impact on the entire community and make up nearly 10% of Council's total annual operational budget. The environmental impacts of collecting, transporting, processing of resources and disposing of waste are a significant part of Council's carbon footprint.

The Waste and Resource Recovery Management Strategy has been developed to provide sustainable solutions for the collection, disposal and resource recovery from waste generated within our community.

The strategy builds on the principals of the previous strategy. It contains measurable targets and actions to be undertaken by Council over the next five years.

2. Vision, Objectives, Principles and Goals

2.1 Vision

The vision for waste and resource recovery remains the same:

The Macedon Ranges Shire Council provides leadership and empowers the community to create a sustainable future by avoiding and reducing waste, and increasing the reuse and recovery of material resources for improved productivity and environmental protection.

2.2 Objectives

The objectives for this Waste Management Strategy are to:

1. Deliver affordable, efficient, sustainable and coordinated waste and resource recovery systems and services
2. Inform and empower the community to reduce waste, increase reuse and maximise resource recovery
3. Protect the amenity of townships and landscapes for current and future generations through clean and litter-free spaces
4. Contribute towards a circular economy through sustainable procurement and local solutions for reuse, recovery and end markets for materials

These four objectives align with the Council Plan as well as the aims and objectives of the Recycling Victoria Policy and the National Waste Policy.

2.3 Principles

The following underlying principles will help to guide the implementation of this Waste Management Strategy to meet the strategic objectives.

- Aligning with state and national policy by investigating local options for processing and reusing our resources and contribute towards the circular economy shift. E.g.
 - Local processing of organics
 - Reuse of glass in local civil infrastructure projects
- Build community's trust in recycling through transparency regarding end destinations of waste streams and recyclability of individual items
- Provide education to engage, inform and empower the community to minimise waste and increase resource recovery.

- Continue the phase-out of non-recyclable packaging and other items including single-use plastics and so-called 'biodegradable' plastics.
- Waste is a shared responsibility – greater community accountability for responsible waste management.
- Consider waste reduction in all Council activities (procurement, contracts, events, construction, operations, etc.)

2.4 Goals

Goals are intended to enable ongoing measurement of progress towards the vision and objectives throughout the life of the strategy. In preparing this strategy the goals set in the previous strategy have been assessed and updated to reflect the progress made in the 2015-2020 period.

The following table lists the goals set in the previous strategy (2015-2020), the current status of each goal and updated goals for the 2020-2025 period.

Table 1 – Goals

Goals	Baseline position (2015)	Current position (2020)	Updated goal 2020-2025
1. A shift from the current upward trend in quantity of waste to landfill, to a decrease in the quantity per household	(Indicative) upward trend in quantity of waste to landfill per household with a baseline figure to be determined by audits of bins in 2015	The quantity of waste per household that is sent to landfill has decreased from 505 kg per household in 2015/16 to 429 kg in 2019/20. A decrease of over 15%. Further improvements are expected with the expansion of the FOGO service to the remaining areas of the shire.	Continue to reduce the quantity of waste to landfill per household through waste reduction and greater resource recovery
2. A decrease in the contamination rate in bins for general waste, garden organics and	Baseline contamination rates are to be determined by audits of bins in	Kerbside bin audits in December 2018 found that the recycling contamination rate was 16.9% by weight. Further work to be	A decrease in the contamination rate in bins for recycling and glass. Maintain a low contamination rate in the FOGO bin.

Goals	Baseline position (2015)	Current Position (2020)	Updated goal 2020-2025
recyclable materials	kerbside collection services in 2015	done to reduce contamination and improve quality of recyclables.	
3. Council has reliable data on quantities, emissions, costs and benefits of waste and recycling systems	Incomplete and unreliable data regarding Council contractors and services and manual information systems	All major contracts have mandatory monthly and annual reporting requirements. Data is collected on all material streams used for annual reporting, measuring performance and predicting future service needs.	Council has reliable data on quantities, emissions, costs and benefits of waste and recycling systems and uses it to guide future service planning, contracts and operational improvements.
4. Council is a leader in the community with regard to waste and recycling	Uncertainty in council waste and recycling performance trends, habits and costs	Council is demonstrating leadership in resource recovery having implemented its four-bin service ahead of the state government's kerbside reform initiative. Council's annual Environmental Report contains performance metrics on waste and recycling.	Council is a leader in the community with regard to waste and recycling and the circular economy
5. Community and keynote events to adopt best practice waste and resource management	Unmeasured quantities of waste and recycling and litter are generated at	New event bins for the four waste streams: FOGO, recycling, glass and general waste are now available for all public events to facilitate best practice	Reduce waste generated at public events and achieve greater recovery of resources

Goals	Baseline position (2015)	Current Position (2020)	Updated goal 2020- 2025
	public events and in public places. A baseline figure on waste generation at a key event will be determined in 2015	separation and resource recovery in line with the kerbside system.	
6. Local community and businesses have identified and implemented improved material efficiency and resource exchange opportunities	Unmapped and unmeasured costs and opportunities for resource reuse and improved productivity in industry sectors	Several feasibility studies undertaken on opportunities for increased resource recovery in local industry sectors. Further work required to assess and develop preferred options.	Local community and businesses have identified and implemented improved material efficiency and resource exchange opportunities

3. Strategic Framework

This section outlines relevant external policies and legislation that impact current and future waste and resource recovery activities, as well as relevant council policies and plans.

Waste policy reform at both a state and federal level has seen a renewed focus on the circular economy, the development of local markets for recycled products and restrictions on offshore processing of materials. This has led to an increased need for additional localised capacity for the processing of recyclable materials as well as organics.

3.1 Waste Management Hierarchy

The waste hierarchy shown in Figure 1 continues to form a fundamental element to guiding Council's future approach to waste management.

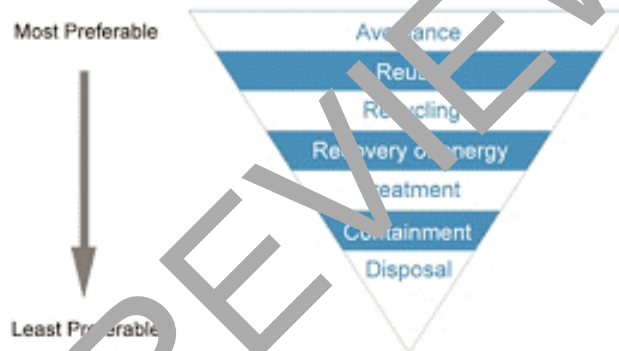


Figure 1 – Waste Management Hierarchy (source: EPA Victoria)

3.2 National Waste Policy: Less Waste, More Resources (2018)

The 2018 National Waste Policy provides a framework for collective action by businesses, governments, communities and individuals until 2030.

The policy identifies five overarching principles underpinning waste management in a circular economy. These include:

- Avoid waste
- Improve resource recovery
- Increase the use of recycled material and build demand and markets for recycled products
- Better manage material flows to benefit human health, the environment and the economy

- Improve information to support innovation, guide investment and enable informed consumer decisions.

3.3 Recycling Victoria: a new economy

Recycling Victoria is the state's circular economy policy and 10-year action plan to transform the recycling sector. The policy is built on four overarching goals: 'Design to last, repair and recycle'; 'Use products to create more value'; 'Recycle more resources'; and 'Reduce harm from waste and pollution'.

The policy will see several major changes to the way Victoria manages its waste including the following:

- By 2030 a new 4-bin waste and recycling system will be standard for households across the state.
- Victoria will have its own container deposit scheme by 2022-23.
- \$100 million investment in waste and resource recovery infrastructure to build local processing/ treatment capacity and drive innovation and new technologies.
- Regulation of the waste and recycling sector as an essential service with a new waste and recycling Act overseen by a new waste authority.

3.4 Statewide Waste and Resource Recovery Infrastructure Plan

The Statewide Waste and Resource Recovery Infrastructure Plan (SWRRIP) is Victoria's roadmap to guide planning and investment in waste and resource recovery infrastructure to 2040. Through identifying infrastructure needs across the state the SWRRIP is intended to guide investment decisions made by the waste and resource recovery industry, local and state governments, and to influence land use planning, transport and broader environmental policy.

3.5 MRSC's Council Plan 2017-2027

One of several key Council Plan priorities of particular relevance to the Waste and Resource Recovery Strategy is to 'Protect the natural environment'. The Plan states that 'We will protect our natural environment through proactive environmental planning, advocacy and policy to address climate change, support biodiversity, enhance water catchment quality and manage waste as a resource'.

3.6 Loddon Mallee Regional Waste and Resource Recovery Group

The Loddon Mallee Waste and Resource Recovery Group (LMWRRG) is a Statutory Authority established under the Environment Protection Act 1970 (the EP Act) and one of seven groups across regional Victoria.

The key role of the Group is to support its eight member councils of City of Greater Bendigo, Buloke, Gannawarra, Loddon, Mount Alexander, Macedon Ranges Shire Councils, Mildura and Swan Hill Rural City Councils to minimise waste going to landfill and increase the reuse and recycling of waste materials.

The LMWRRG is responsible for facilitating a coordinated approach to the planning and delivery of infrastructure and services for the region, ensuring that infrastructure is aligned to Victorian Government policy.

3.6.1 Loddon Mallee Waste and Resource Recovery Implementation Plan

The Loddon Mallee Waste and Resource Recovery Implementation Plan (regional implementation plan) sets out how the waste and resource recovery infrastructure needs of the Loddon Mallee region will be met up to 2026. The plan includes strategic directions related to educating the community to reduce waste generation, enabling beneficial use of organics, increasing reuse and recovery rates across the region and encouraging innovation and research to develop new waste management solutions.

3.6.2 Loddon Mallee Regional Organics Strategy 2019-25

The Regional Organics Strategy sets out a vision of zero organics to landfill through reducing food waste, maximising diversion of organics from households and industry and providing the necessary processing facilities and end markets throughout the region.

4. Waste Avoidance

Waste avoidance is a key focus of the Strategy. Reducing the amount of waste produced is the most effective means of reducing both the cost and environmental impact associated with the collection, treatment, processing and/or disposal of that waste material. This is reflected in the waste management hierarchy which places waste avoidance above all other management options. The strategy therefore seeks to provide the community with the necessary information and resources to avoid waste generation as far as possible through education and by demonstrating leadership in using resources more efficiently and reducing the environmental impacts of waste.

4.1 Where are we now?

Since the development of the previous strategy several key pieces of work have been completed in the area of waste avoidance.

4.1.1 Implementation of fortnightly general waste service and weekly FOGO service

Industry best practice and extensive research into human behaviour have both shown that restricting the capacity of the general waste bin coupled with a separate organics and recycling service reduces the amount of general waste produced by the community. Conversely, providing over-sized bins or more regular collections for general waste dis-incentivises efforts to recycle and results in higher per-household waste generation.

In February 2020, Council rolled-out fortnightly garbage and weekly FOGO service to approximately three quarters of its residents. The result has been a 32% decrease in per household general waste¹. Further reductions are anticipated as the service is rolled out to the remaining areas of the shire in 2021.

4.1.2 Zero Waste Trailer

The Zero Waste Trailer is the result of a 'Wash Against Waste' initiative undertaken in collaboration with the Macedon Ranges Sustainability Group. The trailer will be made available to event organisers who wish to reduce waste at their events. By providing reusable crockery and cutlery at events, the amount of disposable packaging can be significantly reduced, particularly single-use plastics.

The trailer has been completed and will be made available to event organisers when pandemic restrictions allow.

¹ Average monthly waste per household over 5 months post-FOGO service vs. 5 months pre-FOGO service

4.1.3 Towards Zero Single-Use Plastics Study and Action Plan

Throughout 2019-2020 an internal study was undertaken on the use of single-use plastics within MRSC operations to better understand the quantity and types of single-use plastic items purchased, used and disposed of as a result of MRSC's day-to-day operations. The study was undertaken by MRSC's Resource Recovery team in consultation with representatives across all Council departments to aid in the development of an action plan.

While all departments across Council generate some level of single-use plastic waste, this investigation focussed on identifying the avoidable, unnecessary and replaceable single-use plastic items used across Council. Departments that were thought to generate higher amounts of single use plastic waste were identified and targeted.

A key part of the study was to undertake an audit of single-use plastics however, due to the risks involved with handling waste and disruptions to normal staff working arrangements during the current COVID-19 pandemic, a weight based audit of single-use plastic and a staff survey was postponed. These tasks will be undertaken when it is appropriate and safe to do so and as such form part of the action plan.

4.2 Issues and Opportunities

Improving policies - Development of a single-use plastics policy and development of a sustainable procurement policy.

Improving waste management at Council facilities - Provide best practice infrastructure across all Council offices and facilities to support the four-bin system as many locations have only single stream disposal options. Explore waste stream solutions for example introduction of TerraCycle boxes for used stationary.

Reducing single-use plastic at events - Providing the four-bin collection service to events run in the shire to promote better sorting and recycling while increasing waste diversion. This would enable compostable packaging to be provided by vendors. The Wash Against Waste trailer will also assist with reducing reliance on single-use plastic at events.

Reducing sales of single-use plastics at Council facilities - Council currently sells a number of single-use plastic products across its facilities for example; water bottles and coffee cups. By switching to more sustainable alternatives we can avoid these problematic items and lead by example in the community.

Staff behaviour change campaign - Staff waste disposal behaviour has shown to be one of the biggest areas of single-use plastic generation across Council, a targeted behaviour change campaign such as Plastic Free July would reduce waste and encourage better habits in the workplace and home.

Increased business engagement

Develop a targeted business campaign for example 'Waste Wise Business' or 'Proudly Plastic Free' campaign that assists businesses with reducing plastic, adopting more environmentally friendly practices that is promoted to the community and celebrated by Council.

4.3 Recommendations

1. Roll-out weekly FOGO and fortnightly general waste service to remaining areas of the shire
2. Implement shire-wide education campaign, focussing on waste minimisation and leveraging off state provided material
3. Audit of single-use plastics across council operations and events within the shire to establish a baseline and then reduce organisational use of single use plastics.
4. Implement the Towards Zero Single-Use Plastics Action Plan
5. Development of a Single-use Plastic Policy and include references in the Procurement Policy
6. Develop communications and education campaign targeting single use plastic usage by the community and business

5. Resource Recovery

For the purposes of this strategy, resource recovery encompasses the three tiers of the waste hierarchy: reuse, recycle and recover. After waste avoidance and reduction, resource recovery is the next preferred management option and ensures that materials with an inherent value are recovered to be reused, recycled or processed into a useable product.

The result of successful resource recovery practices is the diversion of resources from landfill. Landfill diversion can be measured by the proportion of all waste generated that is either recovered for reuse or recycled into other products rather than disposed to landfill.

5.1 Where are we now?

5.1.1 Kerbside Collection

Council's kerbside collection service has undergone significant changes since the development of the previous strategy.

In February 2020, Council began to a shire-wide four (4) bin collection system. All residential and commercial properties receiving the kerbside service now have a glass-only bin:

The four-bin collection system includes:

- A weekly food organics garden organics (FOGO) service collected in a 240L bin with lime green lid;
- A fortnightly recycling service collected in a 240L bin with yellow lid;
- A four-weekly glass-only service collected in a 140L bin with purple lid; and
- A fortnightly general waste service collected in a 140L bin with red lid².

The full service expansion will be achieved in 2021 when the FOGO service is expanded to the remaining areas of the shire. The four-bin collection system includes services for rubbish, recycling, glass-only (glass) and food organics and garden organics (FOGO) collection. Council's objective is to minimise the amount of recoverable materials going to landfill by providing a comprehensive best value waste collection service to ratepayers and by supporting the community in waste minimisation.

² Note: some older bins have a dark green lid. These will be phased out through the bin replacement program.

Diversion from Landfill

Figure 3 compares the monthly landfill diversion rates over the previous three financial years. Prior to the start of the new four-bin service model, the 2019/20 diversion rate was tracking slightly below the 2017/18 and 2018/19 figures. This occurred as a result of the need to landfill significant quantities of kerbside comingled recyclables following the closure of SKM in July 2019.

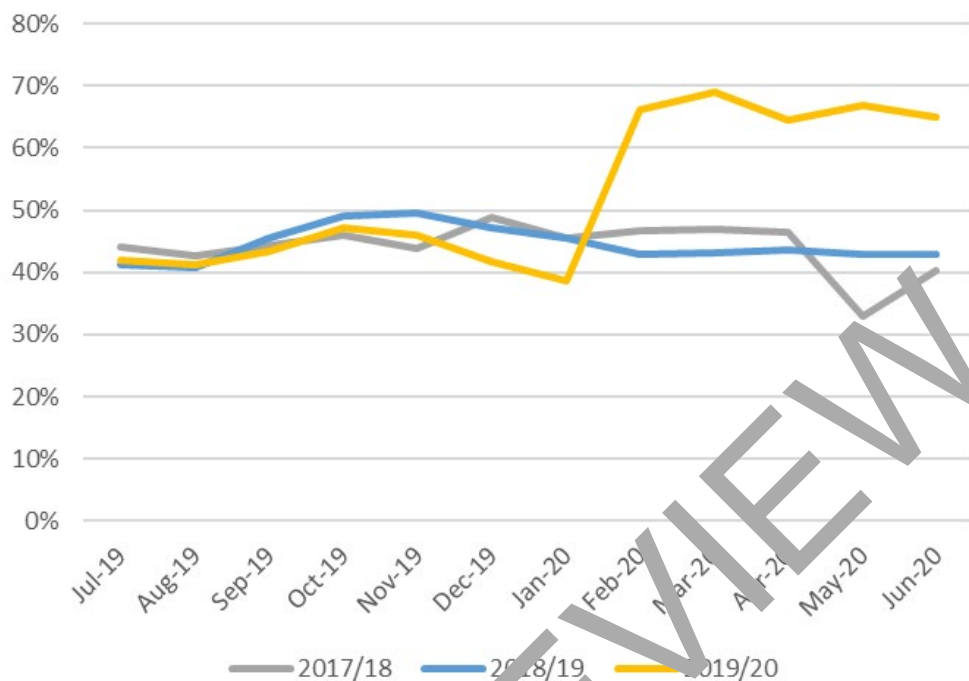


Figure 2 - Landfill diversion per year (2017/18 to 2019/20)

Since implementing the four-bin kerbside collection service, the shire's monthly landfill diversion rate increased from 39% in January 2020 to 65% (or greater) each successive month, peaking at 69% in March 2020. This is significantly higher than the average Victorian municipal diversion rate of 41% recorded for 2017/18³. Further improvements are anticipated as the four-bin service is rolled-out to the remaining areas of the shire.

Contamination of bins

Contamination of bins is an ongoing issue that can only be improved by providing the community with clear and consistent information combined with a targeted and ongoing education and behavioural change campaign.

Contamination is measured by the quantity of materials as a percentage by weight that does not belong in a particular bin. The most recent kerbside bin audit in December 2018 found that the contamination rate for the recycling bin was 16.9% by weight[1]. This was slightly above the state

³ Victoria Recycling Industry Annual Report 2017–18

average of 14.8%. Since implementing the four bin collection service the contamination rates are monitored through bin inspections and contractor reports. Recycling contamination has been reported to be as high as 30%^[2] in some areas highlighting the importance of a focused education campaign to improve people's recycling habits.

There has been some confusion in recent years regarding what items are recyclable and those that are not, particularly for the wide range of plastic items and composite packaging materials. The Council's latest waste management guide, issued to residents at the start of 2020, aims to provide clear and simple information on what items belong in each kerbside bin. A bin inspection program and recycling campaign have also commenced in 2020 which has seen positive results in reducing the number of contaminated recycling bins. The new Waste Compliance Officer position will further progress the bin inspection program and undertake targeted community education activities to further improve the quality of kerbside recyclables.

Contamination of the FOGO bin has been consistently low at less than 1% indicating that people are using the service as intended.

5.1.2 Hard Waste

Council does not operate a hard waste collection service and does not plan to introduce a hard waste service in the near future.

Councils that do provide hard waste collections report the following issues:

- Increased dumping of waste on kerbsides outside of scheduled collections.
- Scavenging of valuable and reusable items prior to collection
- High cost of collection (labour, fleet and disposal costs)
- Ratepayers subsidising a costly service that is only used by a small percentage of the community (after a high uptake for the initial collection the service usage decreases)

The transfer stations provide a location for the community to take their hard rubbish for disposal in a more equitable user-pays basis.

5.1.3 Transfer Stations

Council owns and operates three transfer stations located in Romsey, Kyneton and Woodend. The Kyneton transfer station operates a resale shop (tip shop) for sale of recovered items to the public. There are also plans to establish a similar tip shop at the Romsey transfer station in the 2020/21 financial year focusing on recovery of waste building materials for resale.

5.1.4 Waste Management at Council Facilities

Four-bin sorting stations are ready to be installed at each of Council's offices and several other operational facilities. This will enable staff and other users of council facilities to separate waste into the four streams in line with the four-bin kerbside system. Installation was planned for June

2020 but was delayed due to limited access to facilities during the COVID-19 pandemic. Roll-out of sorting stations will be a priority action following the easing of restrictions.

5.2 Issues and Opportunities

Soft plastics – Soft plastics are currently accepted at several supermarket chains that are affiliated with the RedCycle program. RedCycle collect post-consumer soft plastic and supply to a number of manufacturers that are producing recycled products such as park benches, wheel stops and bollards as well as high grade asphalt additive for road construction. Whilst RedCycle provides a convenient drop-off location for most residential customers it does not cater for larger quantities of soft plastic generated through farming (e.g. bale wrap) or other businesses within the shire. Council receives regular enquiries from small business operators and farmers asking where they might take large quantities of plastic film. There is opportunity to explore further options for recovery of soft plastics from these sources.

Staffing levels and capacity - Council's transfer stations are currently operated by one attendant at each site. On Monday-Friday the Team Leader is also available to assist the attendant as he floats between sites. On weekends however, by far the busiest time of the week, the attendant is on their own to operate the site.

The number of customers at the transfer stations has increased significantly (20% increase in 2019/20 compared to the previous financial year) and more so in recent months, largely as a result of the pandemic. The high number of customers and increased traffic has resulted in a number of challenges for the attendants, due to the fact that they are unable to monitor customer movements. Additional resourcing, particularly at weekends, would enable attendants to more closely monitor and advise customers and improve recovery of resources. A review of staffing levels is required to match the demand on the transfer stations and to provide a more efficient and effective service. Any additional costs would need to be considered in the fee for attending the transfer station.

Green waste – residential customers are currently able to drop off domestic quantities of green waste for free at the transfer stations at all times of the year. This encourages good fire prevention and provides an alternative to burning off. The downside to this arrangement is the increasingly high quantities of green waste received at the transfer stations and the high cost associated with mulching the material. Despite some revenue from mulch sales and deliveries, this is not enough to cover the high annual processing costs. There is an opportunity to review pricing options to ensure that costs are recovered whilst still providing a cost-effective solution for residents to manage their green waste. A more balanced arrangement could be to provide a free drop-off service during the bushfire season (late spring to end of summer) and charge a fee for the remainder of the year.

5.3 Recommendations

1. Explore market options for collection and processing of soft plastics from transfer stations
2. Review transfer station staffing levels to meet increasing customer demand
3. Review green waste pricing structure to reduce ongoing costs
4. Use bin audit data to target areas for educational campaigns to reduce contamination, increase landfill diversion and reduce disposal costs

PREVIEW

6. Waste Education and Behaviour Change

6.1 Where are we now?

Council's first Waste Education officer commenced work with the Resource Recovery team in 2019. The new role is a vital step towards improving the level of community engagement and education on waste and recycling issues and promoting better use of council's waste services.

It will be important to build on the progress made over the past 12 months in developing and implementing the Let's Get Sorted campaign to support the new four-bin system. A supplementary Waste and Resource Recovery Education Plan will be developed to guide the implementation of the waste education actions set out in the strategy.

6.1.1 Let's Get Sorted – Kerbside Education Campaign

To support the change in waste and recycling services and the introduction of FOGO, Council launched the *Let's get sorted* waste education campaign in January 2020. The campaign aimed to inform residents of the four bin system changes and provide education on what should and should not go in each bin, all while empowering the community to take action in sorting their waste.

Materials were developed following state wide best practice recommendations to support the campaign including the following:

- A new waste and recycling guide – *Let's get sorted*.
- FOGO user guide for household and customised user guide for hospitality businesses.
- Corflute signs, pop up banners and practical activities for face-to-face engagements.
- Website updates, social media campaigns and updates.

6.1.2 Face-to-face engagement activities

In the lead up to the four bin system and during the launch phase, the resource recovery team attended numerous community events and held pop-up information stalls across the larger townships. These events provided an opportunity to share information, gather feedback and engage face-to-face with the community.

Events have included an open day at the council depot, attendance at fayres, festivals and agricultural shows and a number of information sessions.

6.1.3 Online Engagement

Online education campaigns are an essential component of the education strategy. These have been particularly useful when face-to-face engagement opportunities are limited. A range of digital initiatives have been implemented to gather community feedback and provide education opportunities:

- Ongoing service change updates through the MRSC website and social media platforms.
- A business waste and recycling survey.
- Production of a FOGO Video with the Mayor
- International Compost Awareness week campaign and competition.
- Back to Earth campaign and school competitions (currently on hold due to COVID-19 pandemic).
- Updates to council's website including Waste Reduction tips for households, Business waste and Recycling information and how to responsibly manage waste such as donating to op shops
- Introduction of a Quarterly Waste e-Newsletter.

6.2 Issues and Opportunities

Continue existing education campaign on kerbside reform - Ongoing delivery of the Let's get sorted education campaign to support the shire-wide roll out of the four bin system by 2025 to support increased resource recovery, reduced waste to landfill and reduced contamination levels.

Face-to-face education - Re-establish in face-to-face education opportunities at community events and public places when appropriate to do so including increased engagement with businesses, schools and early learning centres.

Online education - Continue development of website resources and activities, whilst exploring and introducing new digital engagement opportunities such as webinars, online workshops and videos.

Behaviour change - Implement community and staff waste reduction behaviour change initiatives such as Plastic Free July and recognised national campaigns such as Clean Up Australia Day, International Compost Week and National Recycling Week that address littering and waste minimisation.

6.3 Recommendations

1. Develop and implement a shire-wide education and behaviour change campaign focussing on:
 - waste reduction
 - problem wastes (e.g. nappies, soft plastics, composite packaging)
 - reducing contamination

2. Deliver a staff education and behaviour change campaign to reduce waste and increase resource recovery at council workplaces and facilities
3. Engage with business, schools, community groups to understand their waste and resource recovery requirements and deliver tailored education programs
Information will inform a commercial collection service review.
4. Develop communications and education campaign targeting single use plastic usage by the community and businesses
5. Implement Towards Zero single-use plastics education campaign

PREVIEW

7. Circular Economy

A circular economy can be defined as one that:

‘Continually seeks to reduce the environmental impacts of production and consumption, while enabling economic growth through more productive use of natural resources’ and ‘transforms our linear economy mindset—take, use and throw away’ – Recycling Victoria

The circular economy is illustrated in Figure 3.

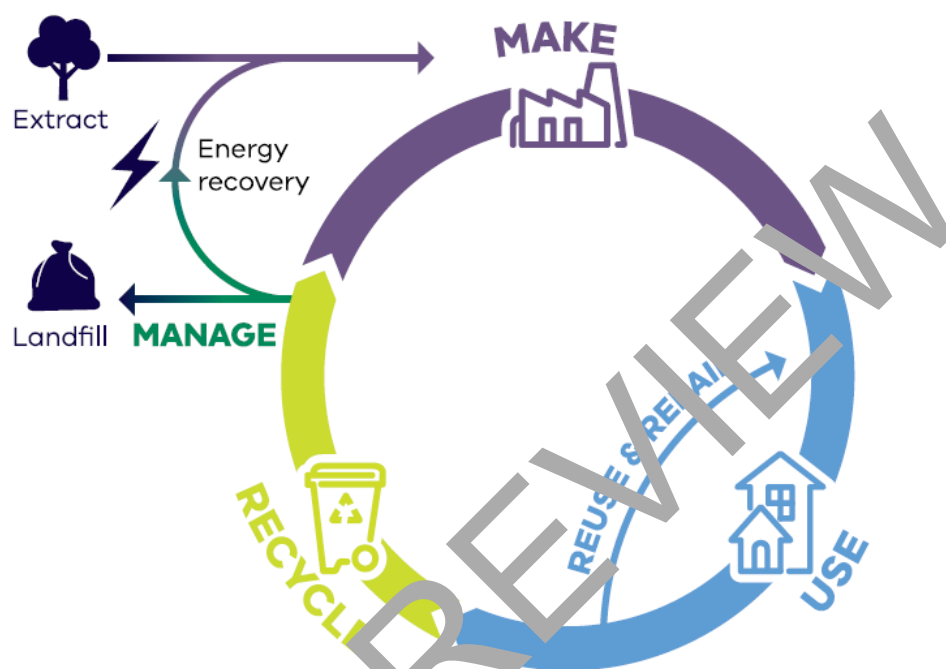


Figure 3 – The Circular Economy (Source: Recycling Victoria Policy, 2020)

Applying the circular economy principals to a local government context means developing a Waste Management Strategy that achieves the following goals:

- Generate more value from waste by improving the separation of recyclable materials and diverting more valuable resources from landfill
- Identifying and supporting the development of local markets for recovered materials
- Enable the community to make informed choices when purchasing goods through education programs and supporting the ‘reuse and repair’ economy (see Waste Avoidance on page 12)
- Develop and/or advocate for development of new, improved recycling and waste treatment infrastructure that extracts the full value from waste materials

7.1 Where are we now?

The state government's *Recycling Victoria (2020): A New Economy* is Victoria's circular economy policy and 10-year action plan to transform the recycling sector. The policy is built on four overarching goals: 'Design to last, repair and recycle'; 'Use products to create more value'; 'Recycle more resources'; and 'Reduce harm from waste and pollution'.

Of most relevance to local government is the policy's objective of kerbside reform which will see a standardised 4-bin waste and recycling system for households across the state by 2030.

Macedon Ranges Shire Council is one of several Councils currently leading the state in achieving the policy's kerbside reform objectives, having implemented the kerbside glass and FOGO collection in 2020, and is well positioned to progress towards a localised circular economy for the organics and glass materials streams. The next step will be to further investigate local processing options for these waste streams.

In early 2020, Council undertook two separate studies into the feasibility of establishing local processing facilities for organic waste and the kerbside glass-only stream.

7.1.1 Organics Processing

Material collected through Councils kerbside FOGO service is bulk hauled to a composting facility in Stanhope, Victoria where it is processed into compost. The facility is approximately 120 km from the shire and requires a 4-hour round trip with each load.

Given the increase in organic material being collected through the FOGO collection service, council commenced investigating alternative options for management and processing of organic material. A feasibility study was prepared in 2020 by the Resource Recovery unit to explore options.

Consultants conducted a review of the feasibility study to assess the adequacy of the characterisation of potential technologies and options for management and processing of its organic waste. They also provided guidance on any regulatory and planning considerations associated with siting of a facility.

The feasibility study has identified several options to pursue regarding future management of organics that align with circular economy principles, these are:

- Commence recovery of compost material processed at Stanhope for use within the shire
- Explore haulage options for composted FOGO material
- Explore optimisation and improvement of current and future contractual arrangements for FOGO processing and end product access under BAU

- Engage with and determine appetite of neighbouring council, regional, commercial and/or state and federal government stakeholders to partner in a new local and/or regionally scaled organics processing solutions
- Pursue development of a co-owned business case with key partners to determine commitment to collaboratively procure and/or co-investment in the most appropriate long term solution

Several loads of compost have been transported back to the shire for use by council's parks and gardens team with some success. Further investigation into both council's ongoing need for compost and interest amongst the community to purchase compost is needed before an ongoing back-hauling arrangement is established.

7.1.2 Glass Recycling

Glass collected through the kerbside glass-only service is currently taken to a processor where it is crushed for use as an aggregate in construction projects such as road base, bedding material and concrete.

In conjunction with the roll-out of the glass collection service a study into local glass processing opportunities was undertaken in early 2020. Consultants undertook the study that identified and assessed options for the future management of source-separated glass recovered by MRSC via glass-only kerbside collection and community drop-off facilities.

The report investigated both container-to-container recycling options and alternative uses in infrastructure construction and recommended the following actions to develop opportunities for local glass processing:

- Seek expressions of interest from suppliers of glass processing equipment and contract services for the provision of equipment or contract services for the management of source-separated glass. Existing operators at Tylden and Monegeetta should be invited to submit an expression of interest.
- Seek expressions of interest from glass manufacturers and beneficiation facilities for the receipt of source-separated glass.
- Use information received through the expressions of interest processes to identify the most cost-effective options for future glass management.
- Develop opportunities to seek external funding support for infrastructure for the transport and processing of glass within Macedon Ranges Shire.
- Consult the community and EPA Victoria about the appropriateness of proposed glass recovery options in any proposed location, and modify proposals where possible to accommodate concerns,

Due to the current limitations associated with glass container-to-container recycling this option will be sidelined until market conditions make this option viable. The more immediate option is to

establish a glass crushing operation within the shire and utilise the crushed material in local infrastructure construction such as roads and footpaths. Council has recently commenced a new contract for its quarry operations at Monegeetta including options for glass crushing at the quarry. Further work is required to establish a glass storage area at the quarry and ensure all legislative and permitting requirements are met prior to commencing this option.

7.2 Issues and Opportunities

Closing the loop on organics - The efficiencies gained through back-loading the FOGO trucks make the buy-back option a cost-effective method of sourcing compost at a reduced cost for use in parks and gardens, road maintenance and landfill rehabilitation works. Community consultation would also be necessary to assess the level of interest in purchasing compost and to determine a price point for resale.

Sustainable procurement processes- Sustainable procurement takes into account the full life cycle of goods and services. This ensures that purchasing decisions are based on a wider range of factors in addition to the upfront costs such as environmental and social risks and benefits, and broader social and environmental implications. Council's Procurement Policy currently includes environmental and social factors but it is at the discretion of officers as to how heavily these factors are weighted in tendering processes. By incorporating sustainability-related targets into council's purchasing processes council can help to drive the circular economy.

7.3 Recommendations

1. Establish a continued back-hauling arrangement for recovery of compost material from Stanhope for use within the shire
2. Explore options for local and/or regional partnerships for scaled organics processing solutions
3. Develop a business case for local organics processing solution
4. Establish a closed-loop glass collection, processing and reuse option within the shire
5. Develop a Sustainable Procurement Policy or alternatively incorporate sustainable procurement principles into Council's existing Procurement Policy.

8. Litter and Illegal Dumping

8.1 Where are we now?

Litter and illegal dumping of waste remain ongoing issues for Council despite recent measures taken to identify frequent littering and dumping 'hotspots' and installation of a number of cameras.

Littering and dumping incidents are responded to by council's Resource Recovery unit and, where sufficient evidence is obtained, prosecutions carried out by the Local Laws team.

Incidents of illegal dumping and littering are recorded and data is used to assess locations for camera installation. Information such as location, date, type of waste and quantity are recorded in Sustainability Victoria's state-wide 'DumpInData' database.

Council needs to move from its current reactive approach of reactively cleaning up sites to a preventative course of action.

Council installed twelve cameras in 2018, funded through a grant from Sustainability Victoria, as well as signage to deter illegal dumping and monitor known hotspots. Due to the time required to monitor camera footage a dedicated Waste Compliance Officer position was created in the 2020/21 budget to be responsible for monitoring cameras and supplying evidence for prosecuting offenders.

Council also provides assistance to charity stores and op-shops by supplying anti-dumping signage warning of the consequences of dumping items not suitable for re-sale.

The pre-strategy community survey results placed litter and illegal dumping as a key community concern.

8.2 Issues and Opportunities

Strategic approach to managing litter and dumping – through better use of data obtained through cameras and online database council will be in a position to proactively manage littering and illegal dumping within the shire

Community engagement - engaging with the community on the issue of illegal dumping will create a sense of collaboration on this issue

8.3 Recommendations

1. Develop a Littering and Illegal Dumping Management Plan to proactively address the issues of littering and illegal dumping
2. Utilise data obtained on dumping incidents to better plan for and proactively manage dumping

3. Undertake a community anti-littering campaign targeting problem areas and encouraging the community to report littering
4. Review numbers and locations of public place bins to assess need for additional bins in problem areas
5. Continue to support op-shops in managing dumping of non-resalable waste items at charity bins and stores

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9. Action Plan 2020-2025

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
Waste Avoidance					
1. Roll-out weekly FOGO and fortnightly general waste service to remaining areas of the shire	Q3 FY2020-21	Within existing budget for FY2020-21	Resource Recovery Unit	1	1, 4
2. Implement shire-wide education campaign on waste minimisation	2021-2025	In-house	Resource Recovery Unit Waste Education Officer	2	1, 4
3. Audit of single-use plastics across council operations and events within the shire to establish a baseline	Q3 FY2020-21	\$20,000 - \$30,000	Resource Recovery Unit	1	1, 5
4. Implement Towards Zero Single-Use Plastics Action Plan	Ongoing	Several actions with varying costs	Resource Recovery Unit Various departments	2	1, 3, 5

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
5. Development of a Single-use Plastic Policy and a Sustainable Procurement Policy	2021	In-house	Resource Recovery Unit Governance Team	1, 2	1, 4
6. Develop communications and education campaign targeting single use plastic usage by the community and business	2021	In-house	Waste Education Officer	1, 2	1, 4
Resource Recovery					
1. Explore market options for collection and processing of soft plastics from transfer stations. Trial collection and collect data on quantity and quality of material to determine ongoing viability.	2020 2021-22	\$5,000 - \$10,000	Resource Recovery Unit	1, 4	1, 6

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
2. Review transfer station staffing levels to meet increasing customer demand.	2021	In-house Additional staff costs to be determined	Resource Recovery Unit PCP team	1	1
3. Review green waste pricing structure to reduce ongoing costs. Trial preferred pricing structure, monitor and collect data for further review and evaluation.	2021 2021-2022	In-house Potential for cost saving	Resource Recovery Unit Finance team	1	3
4. Use bin audit data to target areas for educational campaigns to reduce contamination, increase landfill diversion and reduce disposal costs	Commenced in 2020 (ongoing)	In-house (see Waste Education for campaign budget)	Resource Recovery Unit	1, 2	3

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
Waste Education					
1. Develop and implement a shire-wide education and behaviour change campaign focussing on: - waste reduction - problem wastes (e.g. nappies, soft plastics, composite packaging) - reducing contamination	2020-2025	In-house \$20,000 currently in annual budget for printed education materials and graphic design	Resource Recovery Unit Waste Education Officer	1, 2	1, 2, 4
2. Deliver a staff education and behaviour change campaign to reduce waste and increase resource recovery at council workplaces and facilities	Commenced in 2020 - ongoing	In-house	Waste Education Officer	2	1, 4
3. Engage with business, schools, community groups to understand their waste and resource recovery requirements and deliver tailored education programs.			Resource Recovery Unit Waste Education Officer	2	1, 4, 6

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
4. Develop communications and education campaign targeting single use plastic usage by the community and businesses	2021	In-house	Resource Recovery Unit Waste Education Officer	2	1, 4, 6
5. Implement Towards Zero single-use plastics education campaign	2021 - 2025	In-house (\$10,000-\$15,000 for collateral)	Waste Education Officer	2	1, 4, 5
Circular Economy					
1. Establish a continued back-hauling arrangement for recovery of compost material from Stanhope for use within the shire. Consult community on demand for compost. Review internal usage requirements.	2021	In-house Haulage cost dependent on quantity to be determined through demand analysis	Resource Recovery Unit	1, 4	1, 4

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
2. Explore options for local and/or regional partnerships for scaled organics processing solutions. Develop business case for recommended option	2022-23	\$50,000 - \$80,000	Resource Recovery Unit	4	1, 4, 6
3. Establish a closed-loop glass collection, processing and reuse option within the shire	2021-22	In-house \$20,000 - \$30,000 consultant fees	Engineering and Resource Recovery Department	1, 4	1, 4
4. Develop a Sustainable Procurement Policy or alternatively incorporate sustainable procurement principles into Councils existing Procurement Policy.	2021	In-house External consultant fees \$10,000 - \$15,000	Governance team Finance team Environment team Resource Recovery	4	3, 6

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
Littering and Illegal Dumping					
1. Develop a Littering and Illegal Dumping Management Plan to proactively address the issues of littering and illegal dumping	2021	In-house	Resource Recovery Unit	1, 3	1, 4
2. Utilise data obtained on dumping incidents to better plan for and proactively manage dumping	2021 - ongoing	In-house	Resource Recovery Unit	3	1, 3, 4
3. Undertake a community anti-littering campaign targeting problem areas and encouraging the community to report littering	2021 - ongoing	In-house \$25,000 - \$30,000 communications budget	Resource Recovery Unit Communications Team	2, 3	1, 4
4. Review numbers and locations of public place bins to assess need for additional bins in problem areas	Ongoing	In-house	Resource Recovery Unit	1, 3	1

Recommendation	Timeframe	Indicative Cost	Responsibility	Relevant Objective	Relevant Goals
5. Continue to support op-shops in managing dumping of non-resalable waste items at charity bins and stores	Commenced in 2020 (ongoing)	In-house Increase in disposal costs may require additional budget – to be reviewed.	Resource Recovery Unit Economic Development	2, 3	1, 4, 6

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