



**Macedon
Ranges**
Shire Council

**Strategic Planning
& Environment**

Annual Environment Report 2023/2024



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Acknowledgement of Country

Macedon Ranges Shire Council acknowledges the Dja Dja Wurrung, Taungurung and Wurundjeri Woi-wurrung Peoples as the Traditional Owners and Custodians of this land and waterways. Council recognises their living cultures and ongoing connection to Country and pays respect to their Elders past, present and emerging.

Council also acknowledges local Aboriginal and/or Torres Strait Islander residents of Macedon Ranges for their ongoing contribution to the diverse culture of our community.

Image credit Andrew Dilley: Sun Orchid

Introduction

Council adopted its first Environment Strategy in June 2016, which provided an umbrella policy framework for its work in environmental management. An annual environment report has been produced since then, to track progress towards achieving the listed actions, and to account for changes in legislation and policy.

A refreshed version of the Environment Strategy was adopted in October 2021 that outlines future directions and actions across the themes:

- Climate Emergency
- Biodiversity
- Water
- Waste

Council will continue to publish an annual environment report based on the revised indicators included in the refreshed Environment Strategy.

This report monitors outcomes and outputs against the Environment Strategy 2021 and progress towards achieving zero net emissions from Council operations by 2030. It also summarises the progress of the implementation of the Biodiversity Strategy 2018, Roadside Conservation Management Plan 2021 and various management plans for Council managed reserves.

The Environment Strategy is next due for review in 2026.



Theme 1: Climate Emergency

Highlights

- Adopted the Macedon Ranges Climate Emergency Plan 2023-2030.
- Introduced a Climate Impact Assessment into Council reporting templates and project management system.
- Introduced an organisational staff training module on climate change.
- Participated in the Macedon Ranges Youth Summit and secured grant funding to establish a Youth Climate Network.
- Secured staff resources to coordinate climate emergency preparedness programs and community-led recovery planning.
- Introduced a Community Climate Action Grants program to provide financial support to grassroots groups enacting climate action projects and Cool Changes Community Action Plans.
- Established a collaborative community and Council governance model to guide the formation of a Climate Emergency Working Group.
- Commenced Phase 2 of the Community Carbon Pilot project, led by the North Central Catchment Management Authority.

Indicator 1: Greenhouse gas emissions from Council operations

1.1 Total Council emissions

Counting Down to Zero

On 14 December 2022, Council adopted Counting Down to Zero, a guide for meeting its target of zero net emissions for its operations by 2030. Recognising that Council can increase its accountability for emissions associated with delivering its services, the target was framed as:

Zero Net Emissions for Council operations by 30 June 2030, from the baseline of 3,260.6* tonnes CO₂-e at 30 June 2022.

****or as retrospectively amended to account for additional indirect sources of greenhouse gas emissions.***

The baseline figure included emissions Council is directly responsible for generating in undertaking its operations, and one source of emissions that Council is indirectly responsible for, namely contracted services for the collection and transportation of different waste streams from across the shire to their receiving points (estimated for 2021-2022).

At the time the target was set, it was noted that the baseline figure would be amended over time, as information about other indirect sources of emissions associated with Council operations become available and can be included in Council's greenhouse gas emissions inventory, and as carbon accounting methods are refined.

In compiling this report, raw data from Council's kerbside waste collection providers was accessed for the financial years 2021-2022, 2022-2023, and 2023-2024. The data showed that the estimate used in the baseline figure was significantly lower than the actual amount produced.

The 2022 baseline figure also excluded electricity as a source of greenhouse emissions, as almost all of Council's electricity is sourced through a Power Purchase Agreement for 100 per cent renewable energy, the Victorian Energy Collaboration (VECO), which commenced on 1 July 2021. In 2023-2024, Council became aware of some sites that are not included in this agreement, as they are on an unmetered supply contract, and therefore 'non-contestable'. The relatively low amount of estimated electricity usage at these sites (mostly security lights) corresponds to approximately 30 tonnes CO₂-e¹ per year, as noted on invoices.

Annual emissions reported for waste generated at Council work sites remains at a nominated 50 tonnes CO₂-e, as amounts of different waste streams at Council work sites is not collected separately from the kerbside collection service.

The nominal amount of greenhouse gas emissions associated with mixed fuel use, for example kerosene and oils mostly used at Council's depot, is also estimated, based on the size of heavy vehicle plant.

¹ Carbon dioxide equivalent or CO₂e means the number of metric tons of CO₂ emissions with the same global warming potential as one metric ton of another greenhouse gas

The Counting Down to Zero Plan is due to be reviewed in early 2025. Council will reconsider the inclusion of different sources of emissions associated with its operations as part of the review and revise the baseline figure accordingly.

At the time of writing, a revised baseline figure for Council-generated emissions in 2021-2022 that includes emissions associated with contracted waste management services, and emissions associated with unmetered electricity accounts would be 67,421 tonnes CO₂-e.

Table 1 below shows the emissions from different sources over the past three years, based on more accurate data that has recently become available. Based on the current emissions inventory, there has only been a slight decrease in the tonnes of CO₂-e generated by council's operations. Council needs to make a concerted effort to reduce emissions generated from its use of fossil fuels over the coming years, to minimise the need for purchasing offsets to reach and maintain the zero net emissions target.

Council also needs to decide the best course of action for offsetting emissions associated with waste management services when reviewing Counting Down to Zero in 2024/2025.

Source of greenhouse gas emissions	Tonnes CO ₂ -e		
	2021-2022	2022-2023	2023-2024
Electricity (estimate)	30	30	30
Mains + LPG (bottled) gas*	838.5	804.5	732.3
Diesel	1,343.8	1,319.6	1,213.5
Unleaded petrol	146.7	217.9	206.5
Mixed fuel (estimate)	5	5	5
Waste at worksites (estimate)	50	50	50
Subtotal	2,414	2,427	2,237.3
Contracted waste services	65,007	61,444	63,639
TOTAL	67,421	63,871	65,876.3

Note: The emissions reported for electricity, gas, diesel and unleaded petrol are Scope 1² (directly associated with consumption of fossil fuel, excluding indirect or supply chain emissions). Emissions from contracted waste services are considered Scope 3².

Table 1: Emissions from Council operations for 2021-2022, 2022-2023 and 2023-2024 (tonnes CO₂-e by source). *Estimates are included due to incomplete gas usage data in 2023-2024.

1.2 Council emissions from electricity

As noted above, the Victorian Energy Collaboration (VECO) enables Council to source its electricity requirements as 100 per cent renewable energy, effectively meaning that there are no emissions associated with electricity usage at Council managed facilities (scope 2 emissions²). The exception relates to 16 sites on unmetered electricity supply, mostly individual security lights, which are ineligible for inclusion in the contract through VECO. Electricity usage for these sites is estimated based on hours of operation and wattage of lights, corresponding to an average of approximately 1.85 tonnes CO₂-e per year per site, or almost 30 tonnes CO₂-e total. Council is currently investigating whether supply to three of the sites can be amended and the accounts transferred to the Power Purchase Agreement contract through VECO.

The Power Purchase Agreement for renewable energy is no reason for Council to stop investing in energy efficiency or working to reduce electricity consumption. Council still needs to pay for electricity, and any costs avoided can be allocated to ongoing investment in assets to improve their environmental performance.

Improvements in energy efficiency can be measured through Council's total consumption of electricity.

Consumption data accessed on 5 August 2024 indicates that in 2023-2024, Council used approximately 3,058 MWh to power its buildings and streetlights, compared to 3,330MWh in 2022-2023. The reported decrease will need to be revisited in the 2024-2025 Annual Environment Report to account for invoices for the 2023-2024 financial year which had not been received by Council at the time of writing.

Figure 1 shows the change in electricity usage for streetlights compared to all other powered assets (combined), in kWh, since 2021-2022. It excludes electricity use at a few unmetered sites, although as noted above, an estimated 30 tonnes CO₂-e is attributed to these sites in the emissions profile.

² Scope 1 (direct) emissions are those that Council is directly responsible for generating, through use of fossil fuels (for example, fuel for fleet and gas for boilers).

Scope 2 (indirect) emissions that are released outside of Council from the use of purchased energy.

Scope 3 (broader indirect) emissions are those that Council is less directly responsible for generating, through use of fossil fuels associated with delivery of services (for example, transport and disposal of waste, employees' travel outside of fleet, use of paper for printing) or emissions associated with transmission of energy from point of production to point of consumption.

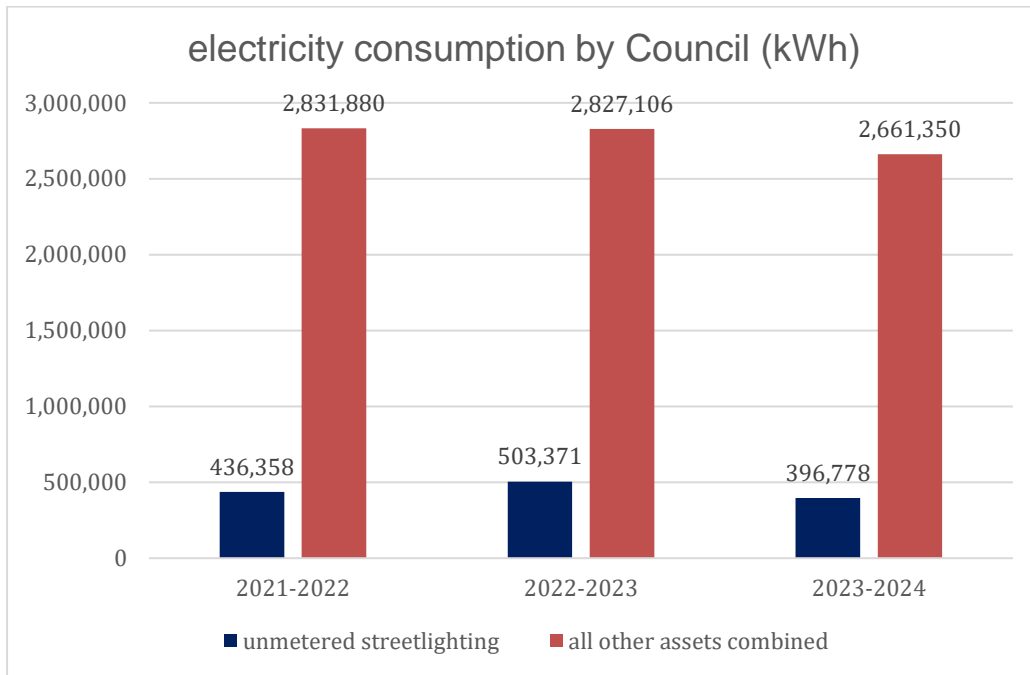


Figure 1: *Electricity consumption by Council, 2021-2022, 2022-2023, and 2023-2024* (kWh)*

1.3 Council emissions from fuel

In 2023-2024, emissions associated with both the use of unleaded petrol for fleet vehicles and heavy vehicles and with use of diesel for fleet and plant decreased slightly from 2022-2023 (Figure 2).

While Council will be able to work to reduce emissions from the use of unleaded fuel, reducing emissions from the use of diesel presents a greater challenge into the future.

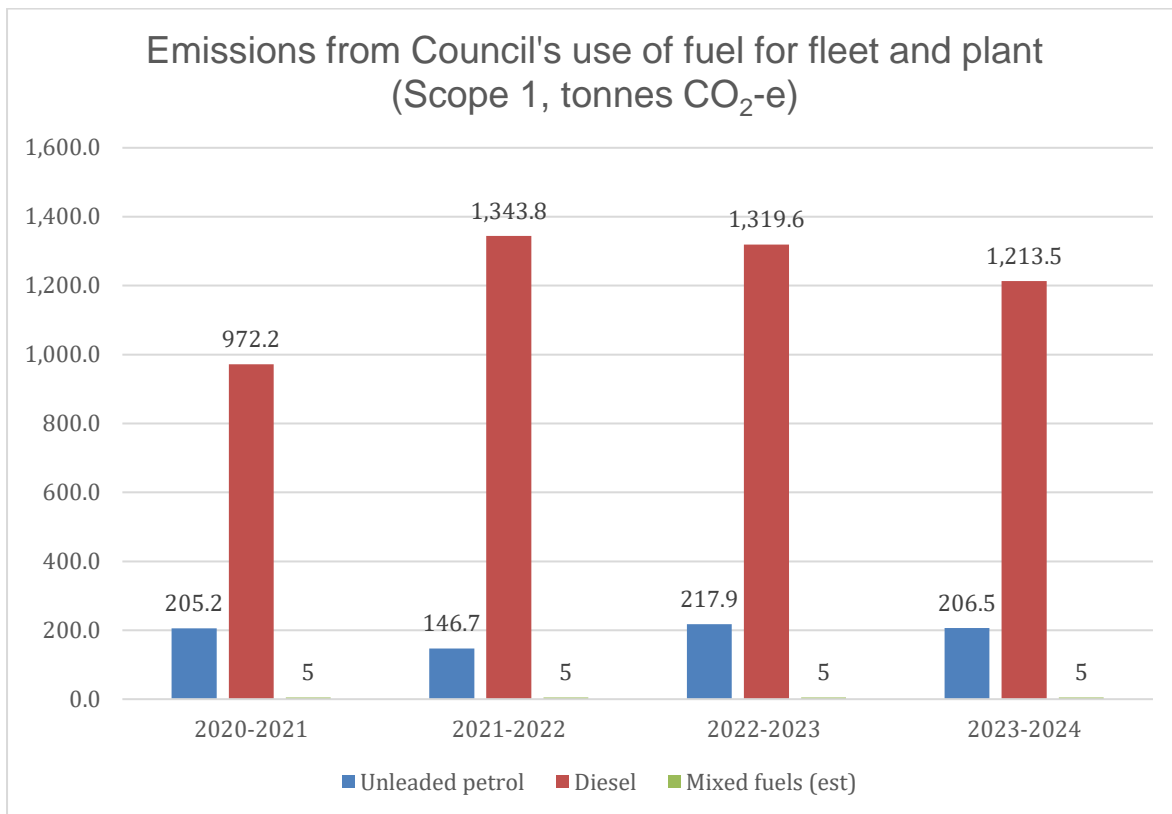


Figure 2: Emissions from Council's use of fuel for fleet and heavy vehicles (plant)

1.4 Council emissions from mains gas and LPG

In 2023-2024, Council's use of mains gas resulted in 732.3 tonnes CO₂-e of greenhouse gas emissions, a decrease from the 804.5 tonnes CO₂-e reported for 2022-2023 (figure 3). The figure for 2023-2024 includes some estimated data for mains gas for May and June, as not all invoices showing actual consumption had been received at the time of writing.

While Council's use of gas decreased in 2023-2024, use of cylinder LPG gas increased, resulting in over 8.5 tonnes CO₂-e (compared to 1.5 tonnes CO₂-e estimated for 2022-2023), bringing the total amount of emissions from use of gas to 732.3 tonnes CO₂-e. The increase in use of cylinder LPG is partly due to additional sites being identified as being serviced by cylinder LPG.

The implementation of the Counting Down to Zero Plan will see emissions from gas consumption for Council operations decrease in coming years. The greatest impact will be from converting gas boilers at the two aquatic centres to electric heat pumps, reducing emissions by approximately 790 tonnes CO₂-e per year from the 2022 baseline figure.

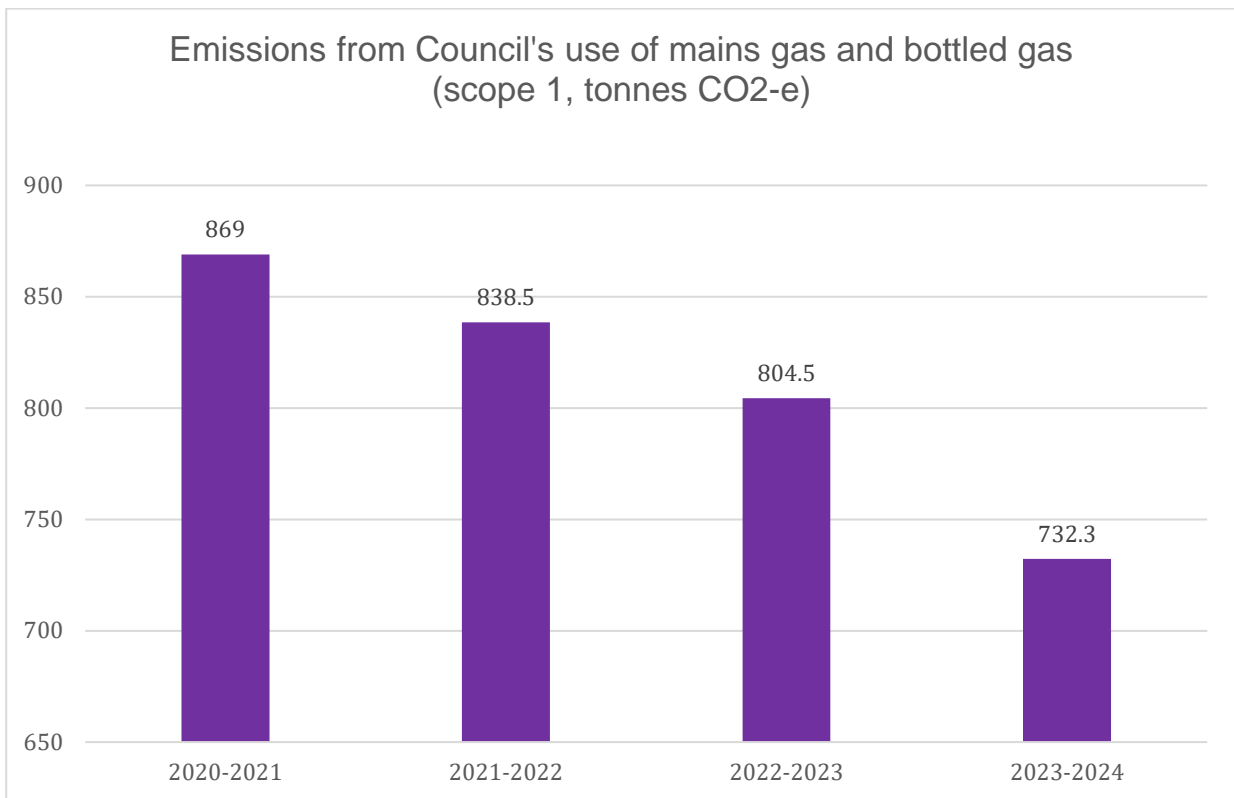


Figure 3: Emissions from Council’s use of mains gas and bottled gas (LPG)

1.5 Emissions from collection and transportation of waste streams by contracted services

Council engages contractors to collect and transport various waste streams from across the shire. Council first reported on this indirect (Scope 3) source of emissions in 2021-2022 and incorporated the corresponding 780 tonnes CO₂-e into its emissions profile and baseline. However, the data used at the time was incomplete, and involved several assumptions.

More accurate reporting from contractors for the kerbside collection service over the past three years means that the data is now more reliable.

However, some assumptions and estimates are still involved regarding emissions associated with transport of waste from our transfer stations and public place bins to the receiving points. As it is difficult to obtain an accurate figure for this source of emissions, they are calculated based on distances travelled, vehicle type, fuel type, and fuel consumption, using published coefficients in calculations. They do not account for emissions due to differing weights in empty, partially and fully loaded trucks.

Figure 4 shows emissions from contracted waste services for 2021-2022, 2022-2023, (both amended from figures reported in previous annual Environment reports) and 2023-2024. The data shows the high number of emissions associated with management of waste from the 21,480 properties in the shire receiving the four-bin collection service.



Figure 4: Emissions associated with contracted waste management services 2021-2022, 2022-2023 and 2023-2024

1.6 Council emissions from kerbside waste

Council currently does not account for emissions associated from the disposal of the four streams of kerbside waste, as the waste is generated by the community and waste management facilities are located outside of the shire. Emissions associated with the collection and transportation of kerbside waste from contracted services commissioned by Council are reported in section 1.5.

Indicator 2: Greenhouse gas emissions across the shire

2.1 Total community emissions

Snapshot Climate provides the most reliable and readily available source of data regarding sources of emissions from across the shire. The data was compiled by consultants Ironbark Sustainability working with Beyond Zero Emissions, through analysing multiple primary sources of data for 2021/2022, in accordance with the Global Protocol for community-scale greenhouse gas inventories. The data shown is the most recent available and has been updated since last year's environment report.

Snapshot Climate estimates that total emissions for Macedon Ranges Shire was 547,000 tonnes CO₂-e for 2021/2022. More recent data is not yet available.

Figure 5 shows emissions by source (center ring) and sector (outer ring). Table 2 shows the breakdown for emissions and associated percentage of contributions.

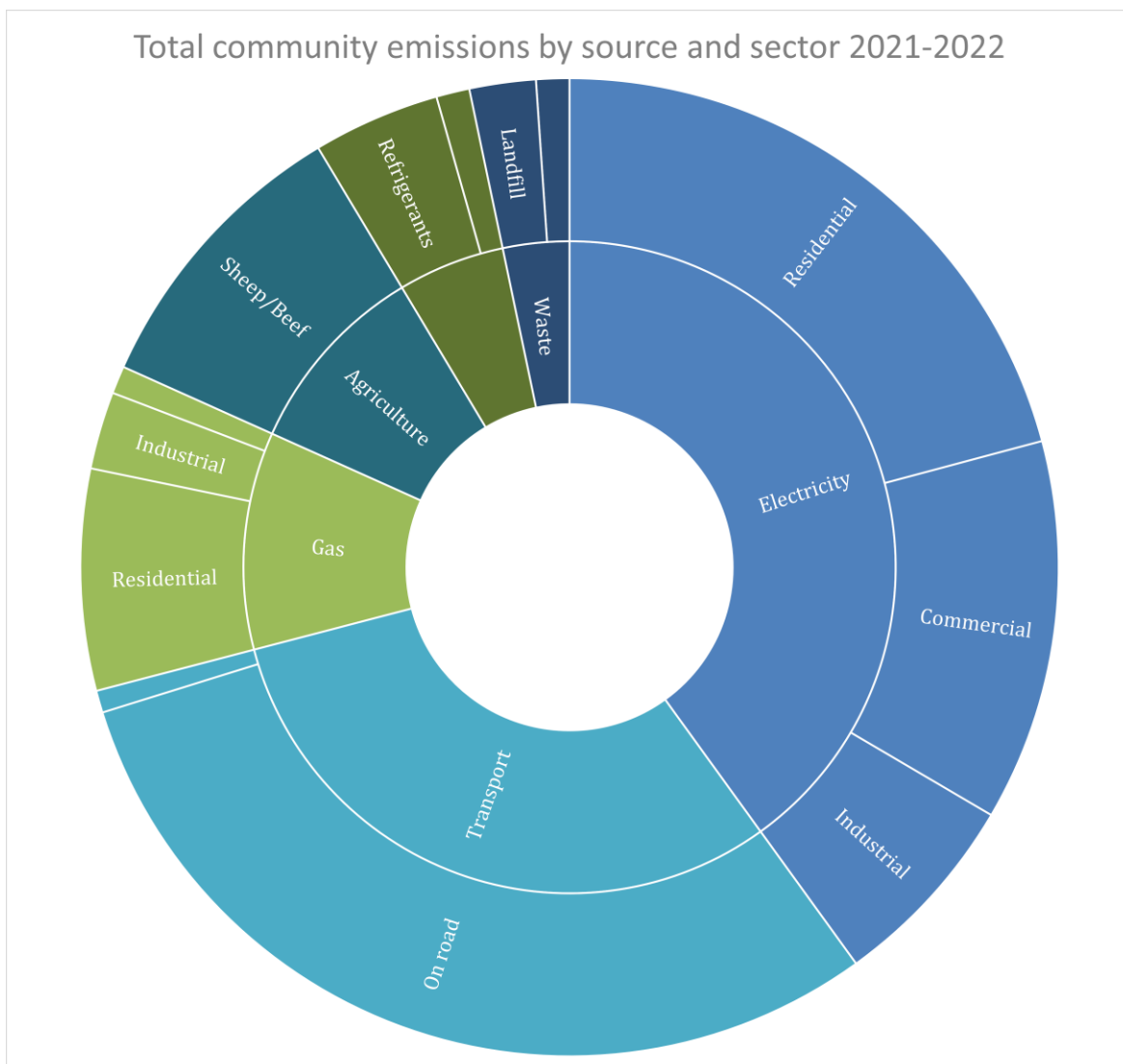


Figure 5: Total municipal emissions by source and sector 2021-2022
Source: snapshotclimate.com.au

Macedon Ranges Shire Community Emissions 2020-2021			
Source	Sector	Emissions (tonnes CO2e)	%
Electricity	Residential	114000	21%
	Commercial	69000	13%
	Industrial	36000	7%
Gas	Residential	40000	7%
	Commercial	5000	1%
	Industrial	14000	3%
Transport	On road	165000	30%
	Rail	4000	1%
	Domestic air travel		0%
Waste	Landfill	12000	2%
	Water	6000	1%
Industrial Process and Product Use	Industrial Processes	6000	1%
	Refrigerants	23000	4%
Agriculture	Sheep/Beef	53000	10%
	Total	547000	100%

Table 2: Breakdown of emissions by source and sector in 2021-2022 and contributing percentage. Source: *snapshotclimate.com.au*

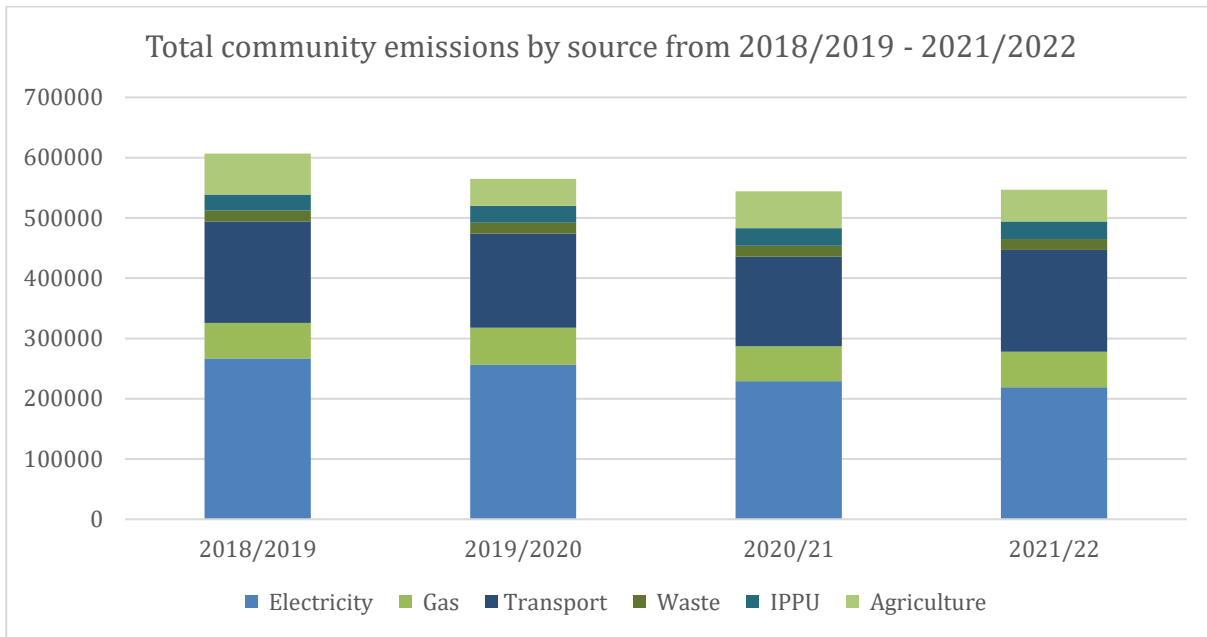


Figure 6: Community emissions by source 2018-2019 to 2020-2021. Source: *snapshotclimate.com.au*

Figure 6 shows community emissions did not differ too much in 2023-24 compared to 2022-2023.

Snapshot Climate continues to improve its data collection methods, and all previous financial year data sources are updated with latest methodology to enable consistency in comparison.

2.2 Community stationary emissions (electricity and gas)

Emissions associated with electricity use across the residential, commercial and industrial sectors represents the highest source of emissions throughout the shire.

Table 3 shows total stationary emissions (electricity and gas) from residential, commercial and industrial sectors. The residential sector presents the highest total of emissions from electricity and gas use with 154,000 tonnes CO₂-e, equating to approximately 28 per cent of the Shire’s total emissions. The commercial sector represents 14 per cent of shire emissions and the industrial sectors accounts for a further ten per cent.

	Electricity (t CO ₂ -e)	Gas (t CO ₂ -e)	Total (t CO ₂ -e)	Total (t CO ₂ -e)
Residential	114,000	40,000	154,000	308,000
Commercial	69,000	5,000	74,000	148,000
Industrial	36,000	14,000	50,000	100,000
Total	219,000	59,000	278,000	556,000

Table 3: Community emissions from electricity and gas use across the residential, commercial and industrial sectors

2.3 Community emissions from transport

Community emissions from transport is the second highest source of emissions in Macedon Ranges Shire, equating to approximately 169,000 tonnes CO₂-e and roughly 31 per cent of the shire’s total emissions. This is an increase of 20,000 tonnes CO₂-e on the previous year.

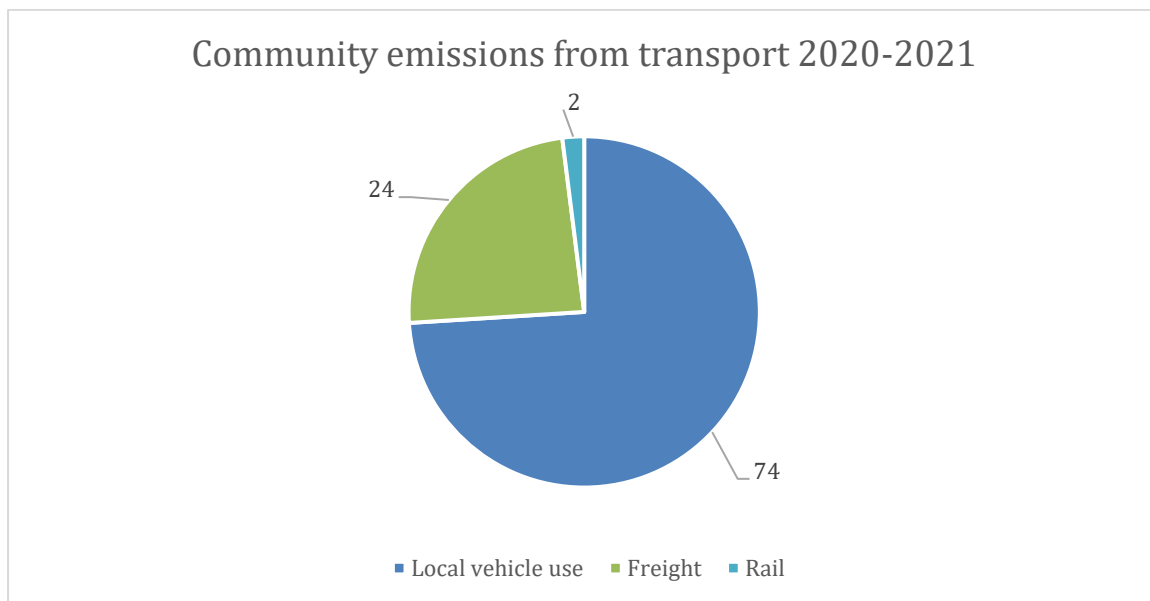


Figure 7: Breakdown of community emissions from transport by source.

Indicator 3: Extent of the shire's transition to sustainable transport

3.1 Extent of the shire's cycling network (on-road)

In 2023-24, an additional 13 kilometres of on-road cycle path were constructed (predominately on Black Forest Drive, Macedon), increasing the total of on-road cycling tracks within the shire to approximately 23 kilometres. A further 1.6 kilometres of shared paths were constructed and approximately 240 meters of off-road paths constructed.

Macedon Ranges Shared Trails Project

Work has progressed on the \$12.24 million Macedon Ranges Shared Trails Project that will deliver approximately 24 kilometres of trail for walking, running, low-volume cycling and commuting. The trail will extend from Woodend in the north to Riddells Creek in the south and will be constructed in several stages.

In 2023-2024, the balance of Stage 1A was completed and construction commenced on a further 1.5km section of stage 1B from Woodend to the intersection of Bawdens Road and Plants Lane. The project has a number of complexities and stakeholders and is expected to be completed by December 2025 subject to approvals and weather. The Macedon Ranges Shared Trails Project is supported by the Victorian Government through the Crisis Committee of Cabinet – Infrastructure Stimulus Fund.



A constructed section of Stage 1A of the Macedon Ranges Shared Trail in Woodend

3.2 Extent of the shire's walking network

In 2023-2024, Council added 16.5 kilometres of footpath in the shire, taking the total distance of footpaths maintained by Council to 260.5 kilometres. Different surfaces (concrete, sealed, paved, or more natural surfaces like gravel and sand) require differing levels of maintenance to ensure people can safely enjoy the health and environmental benefits of walking.

The increase in walking infrastructure is shown below in Figure 8. Council also maintains 70 footbridges, an increase of three since 2022-2023.

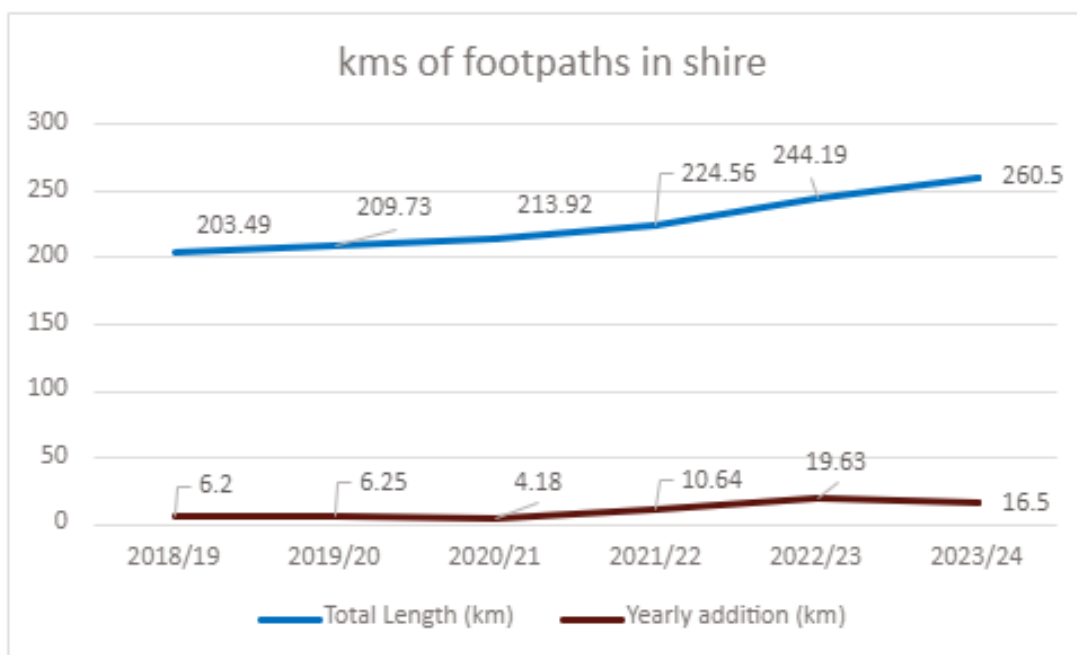


Figure 8: Kilometres of footpaths in the shire

3.3 Number of public electric vehicle charging stations in the shire

There are six public universal electric vehicle charging stations in the shire. Two are located in Kyneton, and one each in Woodend, Macedon, Lancefield and Romsey (newly installed at the Romsey Ecotherapy Park). Council is continuing to seek funding for charging stations in Malmsbury, Gisborne and Riddells Creek to ensure regional electric vehicle connectivity.

There are additional charging stations located on private land but available for public use in Kyneton and Gisborne.

3.4 Use of public electric vehicle charging stations

Total electricity use in 2023-2024 across five active electric vehicle charging stations (excluding the charging station recently installed at Romsey Therapy Park) was 145,713.5KWh. The charge provided equates to approximately 11,772 tonnes CO₂-e emissions avoided from a standard internal combustion engine vehicle.

Electricity consumption at each of the five charging sessions across the shire for each month in 2023-2024 is shown in Figure 9.

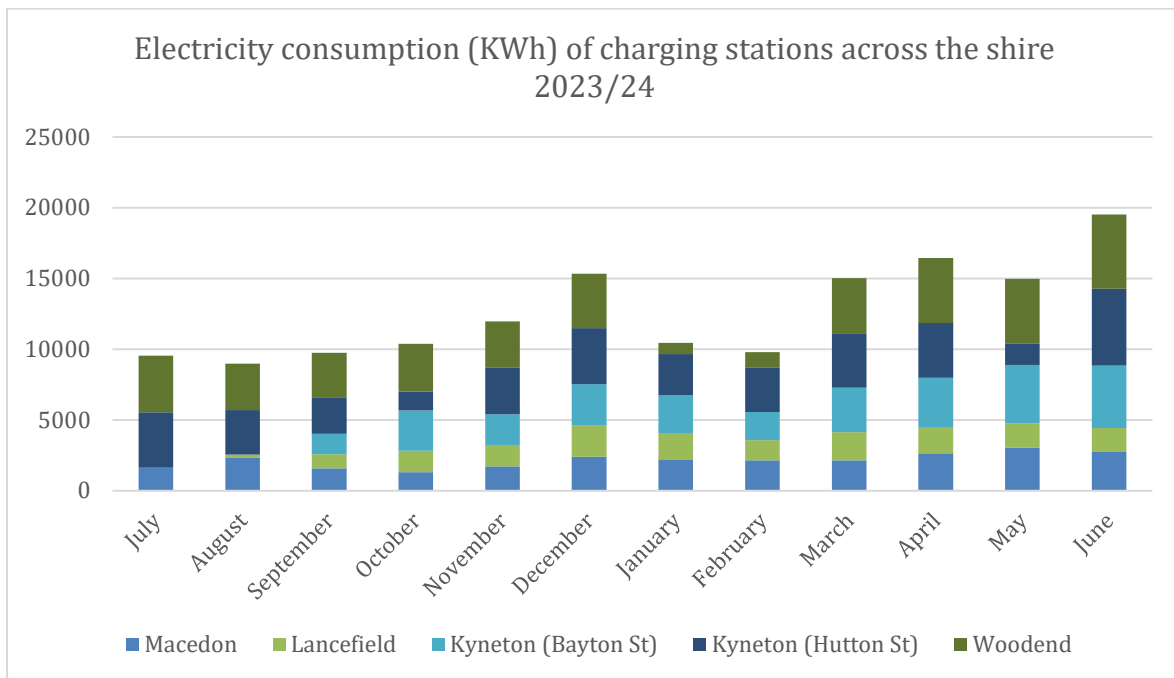


Figure 9: Electricity consumption (KWh) of charging stations across the shire 2023-2024

Approximate savings in greenhouse gas emissions through usage of the five charging stations is shown in Figure 10. The kilograms CO₂-e (kg CO₂-e) saved by replacing internal combustion engine vehicles compares the kilograms of CO₂-e emitted based on average state GreenPower energy generation, and the average internal combustion engine kg CO₂-e output per unit of energy generated.

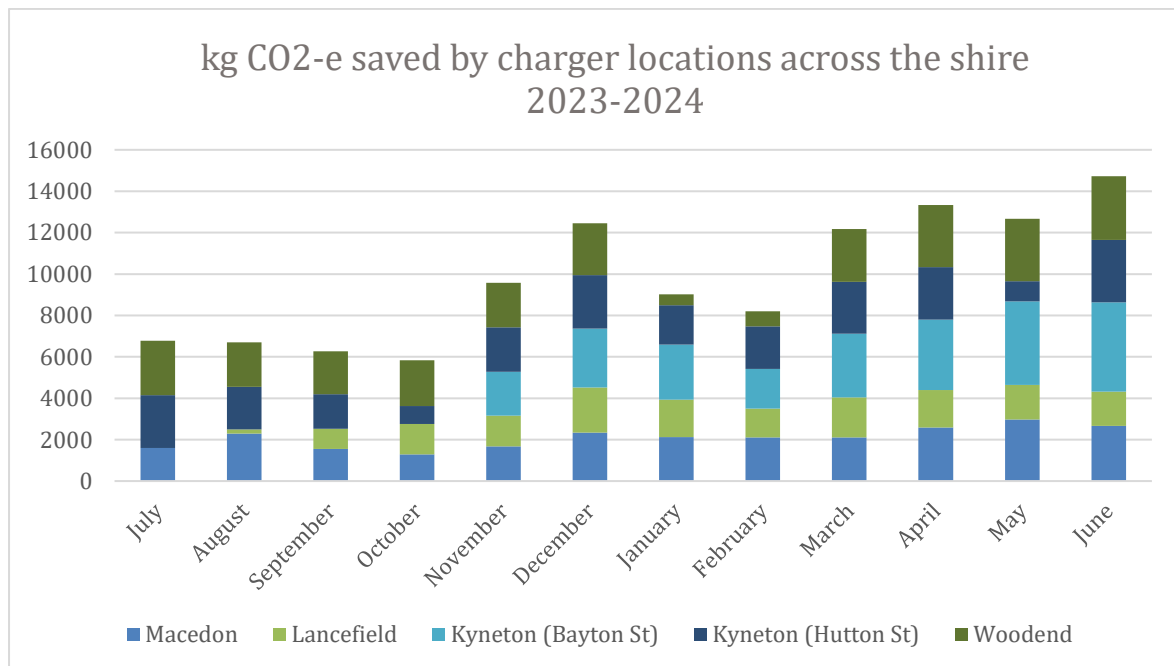


Figure 10: kg CO₂-e saved by use of charging stations across the shire

3.5 Number of electric vehicles registered in the shire

Data collected by the Australian Automobile Association shows approximately two per cent of vehicles registered in the shire to be classified as 'battery electric vehicles' or 'plug-in hybrid vehicles'. This equates to roughly 554 low-emissions vehicles registered in the shire. This is the first time that this data has been made available and included in this report.

Vehicle type	Number
Internal Combustion Engine	35,796
Battery Electric Vehicle	123
Hybrid/PHEV (Plug-in Hybrid electric vehicle)	431
Total	36,350

Table 4. Source: Australian Automobile Association: EV Index

3.6 Number of electric vehicles in Council fleet

A breakdown of Councils passenger fleet vehicles by fuel type is shown below.

Fuel Type	Quantity	Percentage
Unleaded	24	22.0%
Diesel	62	56.9%
Hybrid	20	18.3%
EV	3	2.8%
Total	109	100%

Table 5. Council's passenger fleet

Indicator 4: Community climate change action

4.1 Rooftop solar

According to the Australian Photovoltaic Institute (APVI), there were 8,730 rooftop solar systems generating approximately 56,070kW of electricity within the shire as of 31 March, 2024. This equates to 37.9 per cent of rooftops, approximately 9.6 per cent higher than the state average of 28.3 per cent.

The upward trend in rooftop solar installation is shown in Figure 11. This data is for rooftop solar systems only, not solar arrays installed at ground level.

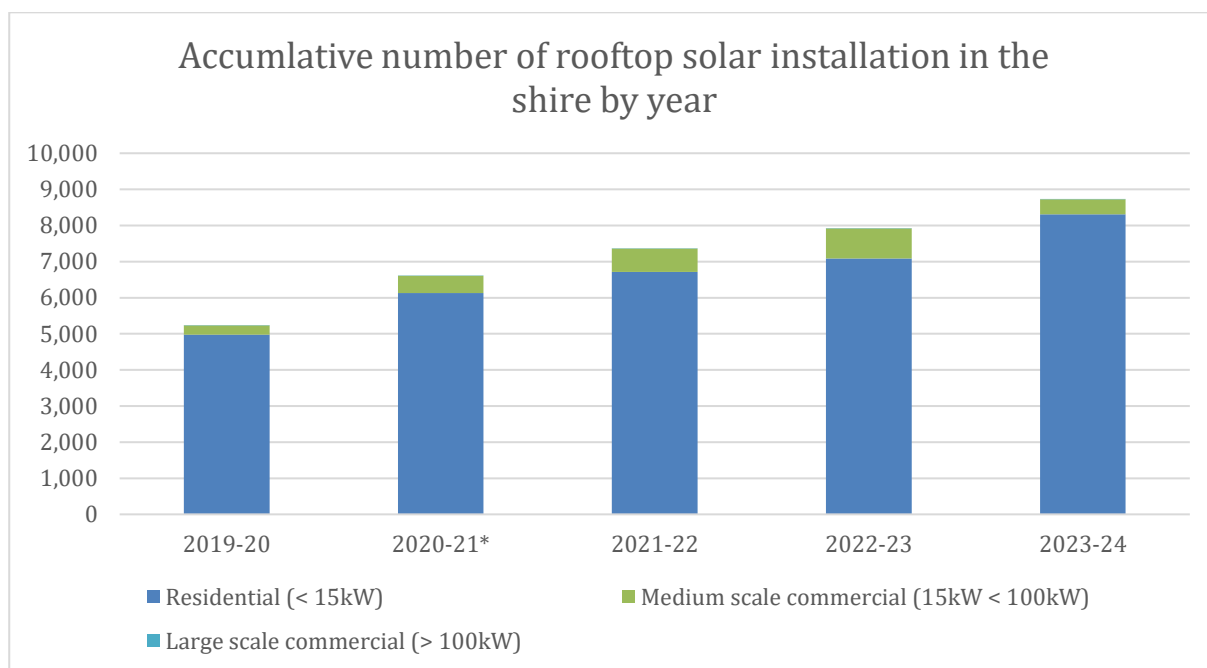


Figure 11: Roof top solar systems in the shire. Source: Australian Photovoltaic Institute, Solar PV Status

Note: After 2022, all systems below 15kW are classified as residential, and those greater than or equal to 15kW are classified as commercial PV systems. Power stations are solar system above 100kW.

4.2 Community climate initiatives

Electrify 3442

The new community group 'Electrify 3442' was established after being one of ten successful applicants across Australia to participate in the 'Electrify My Community' program facilitated by Rewire Australia.

The group aims to progress the electrification of homes and businesses in the 3442 postcode through education and pathway programs to increase energy efficient lifestyles (including home appliances, solar and batteries and electric vehicles).

This is a project of the Macedon Ranges Sustainability Group's Renewable Energy Action Group. Council staff participate as a working group member.

Go Renewable Energy Group

This community group continues to connect residents interested in solar, battery, electric hot water heat pumps and reverse cycle air conditioning with trusted installers in the region.

To date, the Go Renewable Energy Group has assisted in approximately \$500,000 worth of energy efficiency upgrades to homes in the shire.

This group was established through Council's Cool Changes program and Council continues to provide in-kind support to the initiative.

This is a project of the Macedon Ranges Sustainability Group's Renewable Energy Action Group.

Riddells Creek Cool Changes

This community group continues to progress sustainability and environmental actions as outlined in the Riddells Creek Community Climate Action Plan.

The 'Swampy Business' action group was successful in a Community Funding Scheme grant application to advance initial design work for redeveloping a local drainage basin into a community and biodiversity 'hub'.

The inaugural 'Enviro Energy Expo' was successfully hosted with 100's of dedicated volunteering hours. The event proved successful with over 300 residents attending informative talks and stalls. The group will continue to host this exhibition in the future.

Produce swaps

"Swaps" for locally grown produce continue to provide accessibility to fresh fruit and vegetables in Macedon, Woodend and Kyneton.

Community climate resilience strengthening

Council's Emergency Management and Recovery unit continues to provide opportunities for community members to strengthen their resilience to climate events.

A program that facilitates the creation of community-led 72-hour plans in Riddells Creek, Woodend and Darrweit Guim commenced in 2023-2024. This program is due to expand into Lancefield, Romsey, Kyneton and Bullengarook.

Innovative engagement tools such as the 'emergency response marquee', designed to simulate how to respond during an emergency, and distribution of the Birdie's Tree Storybook to local kindergartens focused on supporting the resilience of the shire's children.

Theme 2: Biodiversity

Highlights

Biodiversity monitoring

- Completed Bird Blitz surveys, nestbox checks, Koala count and spotlighting monitoring events with the community.
- Community surveys identified an increase in Clover Glycine (*Glycine latrobeana*) at Bald Hill and Black Hill Reserves.
- Slender Tick Trefoil (*Desmodium varians*) population increase recorded at Bald Hill Reserve.

Plans and assessments

- Completed the Environment Management Plan and Infrastructure Management Plan for Stanley Park.
- Completed a Cultural Heritage assessment, artefact collection and burial at Barringo Reserve.

Healthy Landscapes – Practical Regenerative Agricultural Communities Program

- The program was awarded the Highly Commended award at the 2024 LGPro awards
- Growing the Community event at Kyneton Town Hall attracted 140 people

Environment Reserves

- Installed canopy rope bridges at Hanging Rock Reserve for arboreal animal habitat connecting Smokers Creek to the summit as part of the June 2021 storm recovery works.
- Djandak (Dja Dja Wurrung) and BIIK CLM (Taungurung) teams engaged in on-ground works
- Implemented the Kangaroo Ushering Methodology Manual for special events at Hanging Rock Reserve
- Delivered ecological burns at Malmsbury Common and Hanging Rock Reserve and a Traditional Owner-led cultural burn at Woodend Grassland.

Community involvement

- 502 participants across 36 biodiversity focussed community engagement events.
- 221 new subscribers added to Environment eNews, bringing the total to 1876 subscribers.
- Delivered the Nature Stewards to 10 participants from the Shire.
- Launched the fifth Nature Guide of the series 'Grasses of Central Victoria'.

Vegetation protection

- Provided environment responses to 290 planning permit referrals ensuring the removal of native vegetation is kept to a minimum.

Indicator 1: Biodiversity across the shire

1.1 Presence and abundance of biodiversity indicator species

Biodiversity Monitoring Program

Council's Biodiversity Monitoring Program assesses how Council is tracking against the five objectives in the Biodiversity Strategy 2018. Four species have been selected as indicators of broader ecosystem health – the Brush-tailed Phascogale, Powerful Owl, Greater Glider and the Brown Treecreeper.

Council undertakes the following activities to monitor these species:

Monitoring activity	No. sites	Target species
Nest box checks	48 sites	Brush-tailed Phascogale
Bird Blitz surveys	84 sites	Woodland birds
Spotlight surveys	16 sites	Brush-tailed Phascogale, Greater Glider and Powerful Owl

Table 6: Biodiversity Monitoring Program

Monitoring sites have been selected based on a stratification of Council's six biolink areas. Additional monitoring activities also occur on an ad hoc or site-specific basis to monitor the presence and population health of a particular species, such as Koalas on Hanging Rock in November 2023. Nest box checks will resume in March 2025.

Bird Blitz surveys

The 2023 Bird Blitz was the fifth year of the bird monitoring program. Twenty birding volunteers and Council staff successfully monitored almost all 84 sites across Council's roadsides and reserves. This year had a somewhat different format – with bird leaders and volunteers, and walks, and workshops – but all in all 64 people participated – with plenty of budding birdwatchers introduced to this wonderful hobby.

Surveying 80 sites across the region would not be possible without the help of Council's volunteers – especially the bird leaders who undertake several sites, or even a whole biolink, or lead a small team. Council would particularly like to thank Sue Boekel, Tony Mew, Mark Buckby, Ian Temby, Murray Haby and Jen Firestone for their bird survey contributions.

2023 Bird Blitz results

After a wet winter, bird activity during October monitoring events was high, with many observations of nesting birds. Abundant summer migrant species recorded included Sacred Kingfishers, Cuckoos, Whistlers and a Rufous Fantail. Other notable sightings included Little Lorikeet at the Cobaws, White-winged Triller at Bald Hill Reserve and the region's first record of a Common Cicadabird on Mount Macedon. Brown Treecreepers were recorded in three

biolinks, the most ever recorded since Bird Blitz monitoring began. Introduced birds were recorded at all biolink areas.

Biolink	Threatened Species	Introduced Species
Cobaw	Brown-headed Honeyeater Brown Treecreeper, Eastern Great Egret	European Starling, Common Myna
Kyneton Woodlands	-	Common Blackbird
Macedon	-	Common Blackbird
Mount William	-	Common Blackbird, Common Myna
Riddell	Gang-gang Cockatoo	Common Blackbird, European Starling
Upper Coliban	Brown-headed Honeyeater	Common Blackbird
Wombat Pyrete	Brown Treecreeper	Common Myna

Table 7: Threatened species and introduced birds recorded during the 2023 Bird Blitz throughout October 2023

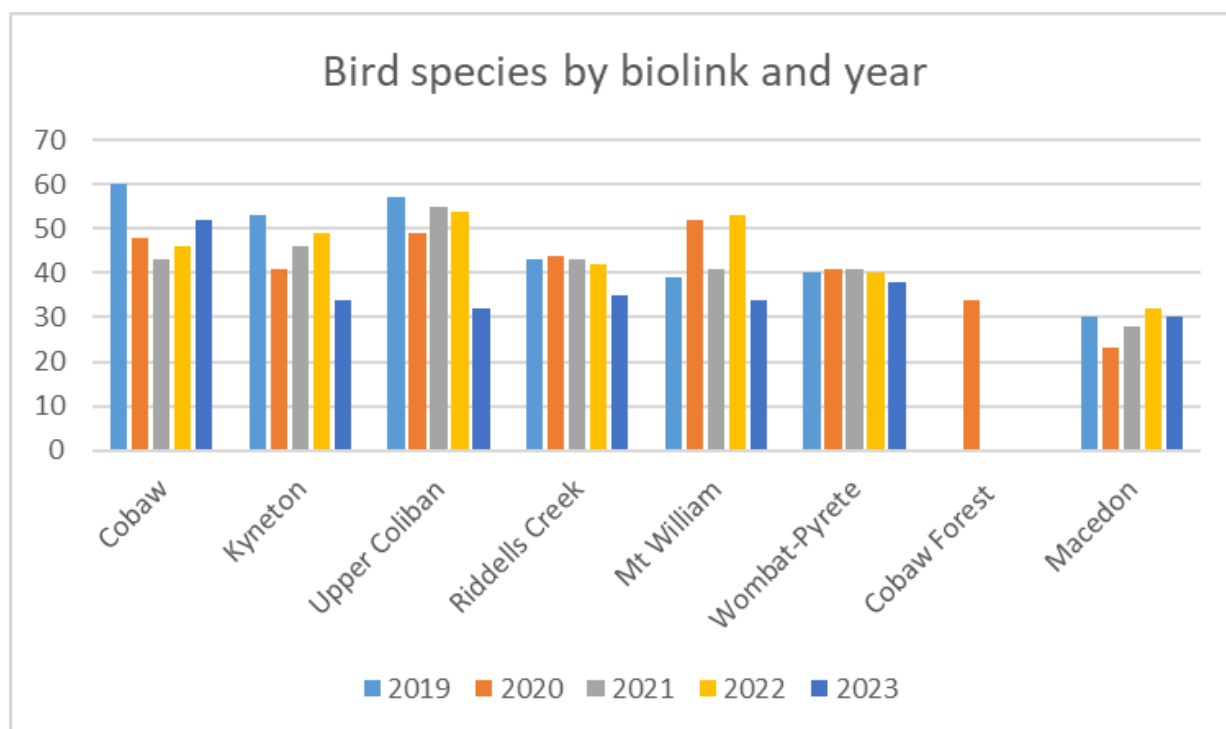


Figure 12: Number of bird species recorded during the annual Bird Blitz events by biolink

A series of bird walks for beginners along Jacksons Creek attracted 5-10 participants a month and is a great way to introduce people to the birds we share our lives with – magpies, herons, ducks and the smaller bush birds.



Enthusiastic birdwatchers attended the Birding for Beginners workshop on Sunday 15 October at the beautiful Woodend Five Mile Creek.

Spotlighting Program

In April and May 2024, the Environment Unit held spotlighting events in five of our six biolink areas and recorded 52 individuals of 7 species. Common Ringtail Possums were found across all surveyed biolinks. Ringtails are an important prey species for one of the indicator species, the Powerful Owl.

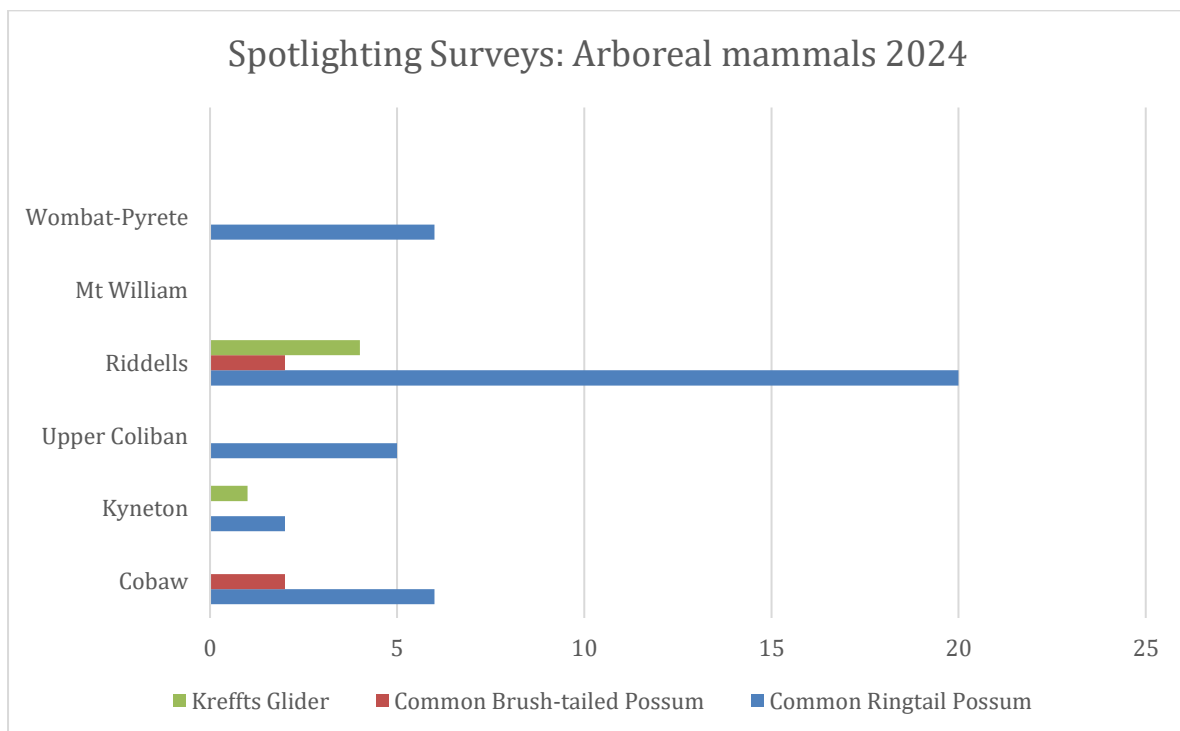


Figure 13: Species and numbers of mammals observed by biolink area

Koala Count

On Friday 10 November, 12 budding koala surveyors met at Hanging Rock Reserve to count koalas over a two-hour period.

Simon Purves, Tanya Loos and Kimberley Cook from the Environment team led the group to the summit of Hanging Rock on the lookout for koalas. The group spotted one koala halfway up the track sitting high in a Manna Gum, which was recorded on the iNaturalist app.



*Hanging Rock Koala Count,
November 2023*

Indicator 2: Conservation value of Council managed land

2.1 Roadside Conservation

Roadside weed control program

The 2023-2024 Annual Roadside Weed Program treated 199 sites across the Macedon Ranges Shire equating to 1.4 hectares. Most roadside reserves were targeted for spot-spraying noxious weeds with some sites receiving follow-up treatments from previous years. This year's roadside weed program experienced unexpected early warm weather which contributed to an increase weed growth. An overall reduction in weed infestations on treated roadsides was recorded.

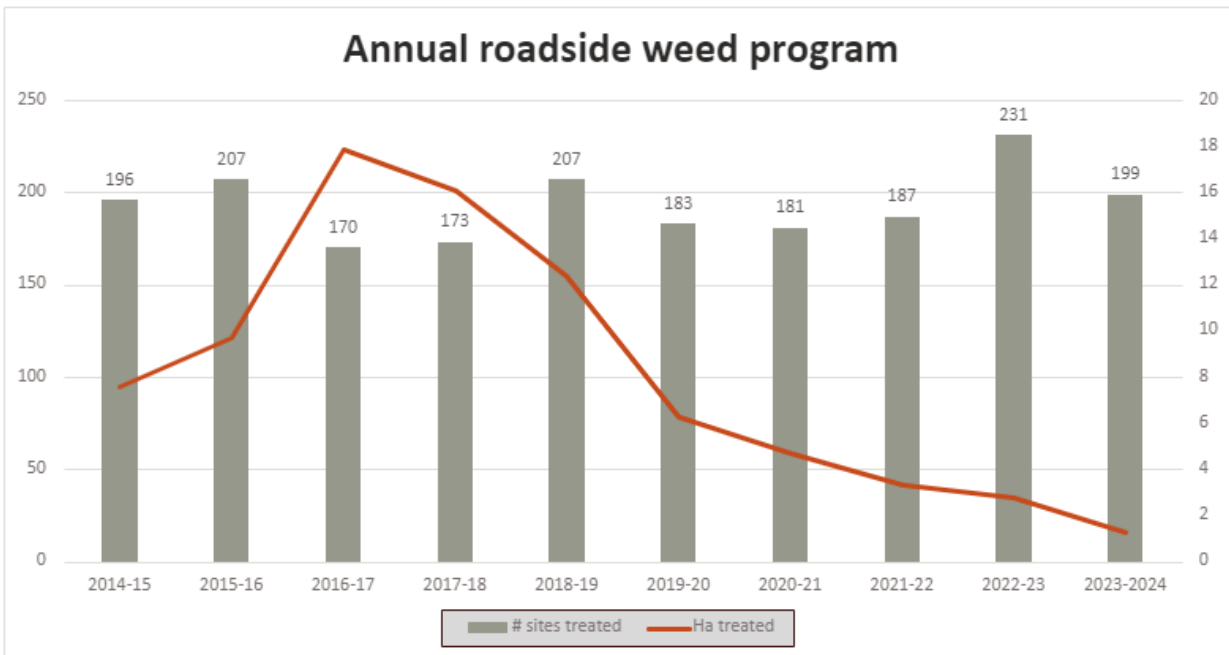


Figure 14: Roadside weed control program, 2014/2015 to 2023/2024

Roadside Conservation Management Plan

As part of Council's Roadside Conservation Management Plan 2021 (RCMP), the installation of conservation guideposts began this year on roadsides with high conservation value. This initiative, along with the release of the Ute Guide for Council staff and contractors, aims to highlight areas with significant vegetation in the Macedon Ranges and support informed decision-making over their management.

Additionally, this initiative encourages healthy discussion within the community about Council's role in protecting biodiversity, conservation, and the wellbeing of the community.



Conservation guidepost

Targeted weeds

To reduce fuel loads and fire risk, roadsides including Three Chain Road, Kyneton-Springhill Road, and Cheveley Road (pictured below) have been treated this year. A mixture of control methods, such as grooming noxious weed infestations and targeted spot spraying in challenging areas on critical roads, has achieved great results. These targeted treatment programs are the result of internal discussions with the fire prevention team and coordinated efforts with Regional Roads Victoria to mitigate fire risks and protect conservation values on rural roadsides.



Cheveley Road, Woodend North, before and after gorse treatment.

2.2 Conservation value of bushland and conservation reserves

Council has continued to control and eradicate invasive weeds and monitor and manage indigenous flora in Bushland and Conservation Reserves. Works have included the protection and monitoring of rare and significant flora species, such as Clover Glycine (*Glycine latrobeana*) found at Bald Hill Reserve.

Environment Reserve activities undertaken in 2023-24 include:

Stanley Park - Waterway works in partnership with Melbourne Water to eradicate high threat weeds.

Stanley Park - Environmental Management Plan and Infrastructure Management Plan adopted.

Black Hill Reserve - Track repair works undertaken on the northern base-circuit track, ridge track and eastern base circuit loop track at Black Hill Reserve. Significant washouts from several high rainfall events have been arrested and trip hazards mitigated. 70% of the tracks are now repaired.

Malmsbury Common – Delivered an ecological burn of a long unburnt escarpment in the northern grassland areas. All aspects in this area have had fire reintroduced to assist in the recovery of the native grassland values.

Hanging Rock Reserve - Planted 6,316 trees, shrubs, grasses & sedges throughout the core conservation and connectivity zones. The connectivity zones and tree protection areas were expanded throughout the recreation zone utilizing logs and mulch from storm recovery.

Hanging Rock Reserve - Completed the woody weed control programs across the reserve, completed stage 2 of erosion control on the summit and Smokers Creek, mapped rabbit warrens and completed fumigation program throughout the core conservation zones.

Bald Hill Reserve - Supported Friends of Bald Hill to develop and install interpretative signs and wayfinding markers and Taungurung Welcome sign.

Hobbs Road (Bullengarook Tip Site), Kyneton and Lancefield Capping Sites - Completed woody weed works for the Waste Team.

Hobbs Road Reserve - Completed repairs of damaged fences and weed eradication works.

Post Office Creek and Campaspe River - Council has delivered 400m of full Willow removal and 10km of Willow retreatment works from Carlsruhe to Kyneton in partnership with the North Central CMA with flood recovery funding.

European Wasps - Hives located on the Campaspe River, Coliban River and Post Office Creek were treated totalling 87 and benefiting native pollinators, local businesses and the wider community.

Installation of Canopy Rope Bridges for Habitat at Hanging Rock Reserve

Canopy Rope Bridges for Habitat were recently installed in Hanging Rock Reserve, providing an important habitat link between Smokers Creek and the summit while new trees regenerate, after the area was impacted by the June 2021 storm.

These bridges provide a means of reconnecting habitat and reducing road mortality for arboreal mammal species. They will also form part of the fauna monitoring program undertaken annually, with the potential installation of remote wildlife cameras and visitor interpretive signage.

Free 'Building Canopy Rope Bridges for Habitat' workshops have been held over the past 18 months, hosted by experienced fauna ecologists, Dr Joanne Isaac and Alana Begg from Ecology and Restoration Australia. Attendees, including community members, youths from Malmsbury Youth Justice Centre and Council staff, worked together to create over 80m of bridges.

Council's Conservation Reserves Officer and Community Recovery Officer helped facilitate the building of the rope bridges and assisted the arborists on the day of installation.

These hands-on events were sponsored by the Department of Energy, Environment and Climate Action (DEECA) and Macedon Ranges Shire Council.



Flora monitoring

In 2023-2024, flora surveys were completed across 20 fixed monitoring plots in Barringo Reserve, Old Ashbourne Road, and Hobbs Road Reserve. Bullengarook Tip Site (Hobbs Road) had transect surveys completed to monitor capping cover and species diversity.

Fixed monitoring plots provide an opportunity to closely monitor incremental changes overtime, forming a longitudinal data set, which will inform adaptive management of the bushland reserve assets. These will complement the existing fauna monitoring to increase our understanding of how environments are changing. Initial surveys focus on establishing a baseline over successive years. Once baselines have been established, plots are resurveyed every 5 years to monitor for change.

It should be noted that during 2023, the La Niña weakened but weather was still cool and wet resulting in reduced vegetation growth.

Reserve	Flora monitoring activities
Bullengarook Capping / Tip Site	<p>Wallaby Grass (<i>Rytidosperma pilosum</i> and <i>setaceum</i>) remains the dominant native cover, with 11 per cent of total cover across the site. The main exotic cover, at 16 per cent, is still Brown-top Bent Grass (<i>Agrostis capillaris</i>).</p> <p>Total vascular plant cover on the site is 49 per cent, which is low. However, with the abundance healthy soil crust organisms on the bare sections enhances resilience to problems such as erosion.</p> <p>The run of wet years (2020-2022) was broken in 2023: spring started with a record warm and dry September. While summer saw significant rainfall, vegetation cover at the time of the survey reflects the very dry start to spring, particularly the decrease in annual species and the increase in cryptogams/bare soil. Grazing by herbivores (mostly macropods) is probably also a significant factor, as they can access the site by slipping under a gate.</p>
Old Ashbourne Road Reserve	<p>The number of indigenous species increased in all quadrats surveyed, some significantly, between the 2022 and 2023 survey.</p> <p>The general pattern through the reserve is of more species-rich habitat in the upper (southern) section of the reserve, while the lower (wetter, deeper soils) section at the lower (northern) end of the reserve has more exotic species (proportionately) and fewer indigenous species.</p> <p>Significant weed species remain present throughout the reserve, as indicated in the quadrats. Blackberry, English Broom and Gorse were the main woody weeds found. The most widespread invasive species is Sweet Vernal Grass which was found in all quadrats and is a minor to medium threat weed.</p>

Barringo Reserves	This is the first time flora surveys have been conducted at Barringo Reserve. Species richness of indigenous plants was overall quite high, but variable.
Hobbs Road Reserve	This was the first such survey undertaken in the Hobbs Road Reserve and the initial result shows low numbers of exotic species and quite variable indigenous species richness. Exotic species present included English Broom (Weed of National Significance) in one quadrat but generally, weeds were in low numbers, with few species found. Sweet Vernal Grass was the most common, a potentially quite invasive species in damper and more fertile environments but not likely to become a serious problem in this reserve.

Table 8: Highlights of flora monitoring in Bushland Reserves

Environment Reserve – Tree Management Program

Council's Environment Team annually assesses trees in nominated areas in environmental reserves as part of the Tree Management Program.

Inspections focus on high target areas such as paths, shelters, seats, and play spaces.

The primary focus for tree inspections is to identify risk to the public within target areas and provide recommendations for risk mitigation, whilst ensuring vegetation values are protected.

In 2023/2024 an arboriculture consultant was engaged to assess tree risks located in environment reserves in Macedon and Gisborne and provide recommendations to address risk to the community, enhance environmental values and timelines to complete recommended works.

2023/2024 Tree Management Program

Reserve	Assessment
Bruce Street 3 & 4	247 trees assessed with 1 tree determined as requiring urgent removal, 3 trees presenting as high risk & 68 as medium risk
Tony Clarke 2 Bushland Reserve	52 trees assessed with 12 trees determined as medium risk
Rotary Park Reserve	42 trees assessed with 2 trees determined as high risk and 2 as medium risk.
All programmed risk mitigation works were completed in June 2024	

Table 9. 2023-2024 Tree Management activities in Council's environmental reserves

2.3 Weeds and pest animal management

Weed control

34 reserves and 199 roadsides and open spaces were treated for noxious weeds over 2023/2024 in addition to the annual weed control program at Hanging Rock Reserve.

Reserve	Reported increase	Reported decline
Black Hill Reserve	Sweet Vernal	Blackberry
	Sallow Wattle	Gorse
Bald Hill Reserve	Sweet Vernal	Horehound
		Gorse
Mt Gisborne Reserve		Blackberry
Malmsbury Common	Brown-top Bent Grass	Phalaris
		Gorse
		Blackberry
Woodend Five Mile Creek	English Ivy	Blackberry and Hawthorn
Mt Aitken Reserve		Artichoke Thistle, Serrated
		Tussock and Horehound
Marsh Court Reserve		Gorse
Campaspe River and Post Office Creek		Willow, Hawthorn and Poplar

Table 10: Summary of weed impacts in Bushland Reserves

Pest Animal control

Rabbit management was undertaken at Hanging Rock Reserve, Djirri Djirri Waterway Reserve and Mount Gisborne. European Wasps were treated at Malmsbury Common, Campaspe River, Post Office Creek, Bald Hill Reserve Stanley Park and Bunjil Creek.

Two Rabbit Control Workshops were held in Kerrie and Romsey aimed at addressing the growing concern of rabbit populations in the shire.

Presenter Tim Bloomfield from the Victorian Rabbit Action Networks and Roadside conservation provided attendees with valuable knowledge about rabbit behaviour and offered practical strategies for effective management. Participants gained a deeper understanding of the challenges posed by rabbit infestations and learned best practices for control and mitigation.

The events serve as a platform for residents to share experiences and foster a sense of community collaboration in addressing this pressing issue.



Romsey rabbit control workshop participants at Palmer Street

2.4 Ecological and cultural burns

Ecological and Traditional Owner-led burns totalling four hectares were completed in Malmsbury Common, Hanging Rock Reserve and Woodend Grassland, during autumn 2024.

While these planned burns moderate fuel loads, their primary focus is promoting abundance and diversity of flora and fauna, connection to land, and promoting reconciliation and healing for First Nation's people and their communities.

Council's Ecological and Cultural Planned Burn Program continues to deliver positive environmental outcomes and increasingly supports First Nation's stewardship of council managed areas.

The burn program and its planning is a collaboration between local volunteers, community and contractors to work together to deliver the program.



Djandak Wi-led cultural burn, Woodend Grassland



Ecological burn, Hanging Rock Reserve



Ecological burn, – Malmsbury Common escarpment



Ecological burn, Malmsbury Common escarpment

2.5 Plans and assessments

A number of plans and assessments were completed in 2023-24. These include:

Stanley Park Environmental Management Plan (EMP) and Infrastructure Management Plan (IMP)

The preparation and endorsement of both the Environmental Management Plan (EMP) in December 2023 and the Infrastructure Management Plan in June 2024 are important documents to guide conservation and future management of this Macedon reserve.

Barringo Reserve Cultural Heritage Assessment

This work confirmed that this site in New Gisborne is rich in artefacts and a significant site for Wurundjeri Woi-wurrung. Work continued to protect these cultural values in 2023/2024.

EMP and Master Plan audits

The Environment team completed audits of existing plans for bushlands reserves following 5 and 10 years since their endorsement. Plans for Gisborne Marshland and Magnet Hill Reserve, Black Hill Reserve and Malmsbury Common were all audited in 2023/24 in consultation with friends of groups and stakeholders.

Indicator 3: Community involvement in conservation

3.1 Participation in land management workshops

In 2023-24, Council continued to deliver the Healthy Landscapes – Practical Regenerative Agricultural Communities program in collaboration with Hepburn Shire, the City of Greater Bendigo, Melbourne Water and the North Central Catchment Management Authority.

In 2023-24, the Healthy Landscapes program delivered the popular Holistic Grazing Management Course to 18 properties and the Small Property Management course to a further 20 properties. The Growing the Community event at the Kyneton Town Hall in May 2024, brought together 140 attendees for an inspirational evening showcasing local voices on their journey in improving their property and gave participants the opportunity to connect with like-minded people.



Growing the Community event at the Kyneton Town Hall, May 2024

Engagement Event	Target	Delivered in 2023/2024
Property visits	40	41
Revisited properties	20	15
Discussion groups	100 attendees across 7 events	3 equine farm walks, 37 participants 7 discussion groups - 91 participants
Field Days	4 field days, 100 attendees	5 events – 101 participants
Cultural engagement	3 events	2 stand-alone events, 46 participants 1 Welcome to Country at Growing the Community event - 140 participants
Webinars	4 webinars, 100 participants	5 webinars, 81 participants
Courses	38 properties	38 properties
Total participation	Approx. 800 people registered for Healthy Landscapes events in 2023/24	

Table 11: Engagement activities for Healthy Landscapes Program 2023/2024

3.2 Attendance at biodiversity events

Council continued to broaden engagement to inspire the local community into taking environmental action throughout 2023-24. This was achieved through knowledge sharing to empower Landcare, environment groups and residents to increase their understanding and skills to take action in their own patch.

Council was involved in the delivery of approximately 30 biodiversity-focussed events to over 500 participants throughout 2023/2024.

Events included:

- Fauna monitoring, nestbox checks and spotlighting.

- Flora surveys, wildflower walks at Black Hill and Bald Hill Reserve and large tree surveys.
- Assisting environment group grant recipients with plant preparation and revegetation events.

In addition, Environment team staff provided much in-kind support to community groups, environment groups and schools. They also supported the Health and Wellbeing program at Kyneton Botanic Gardens with Royal Botanic Gardens Victoria and the Trees for Schools program with Greater Western Water.

Activity	Participants
Large tree and hollow surveys	44
Creatures of the night spotlighting events x3	52
Flora field days and surveys	57
Fauna monitoring events and webinars	Events: 97+ participants Webinars: 40+ participants

Table 12: Biodiversity focussed events 2023-24



Large tree and hollow survey at Ashbourne Reserve (left) and Bald Hill Reserve (right)

3.3 Health and activity of Landcare and Friends Groups

Landcare, Friends of and environment groups are asked to answer a “health check” question as part of the Environment Group Support Grant process. In the 2023-2024 grant round, 17 groups applied for funding and completed the group “health check” survey. Figure 15 below shows the health check results compared to data collected during the 2022-2023 grant application round.

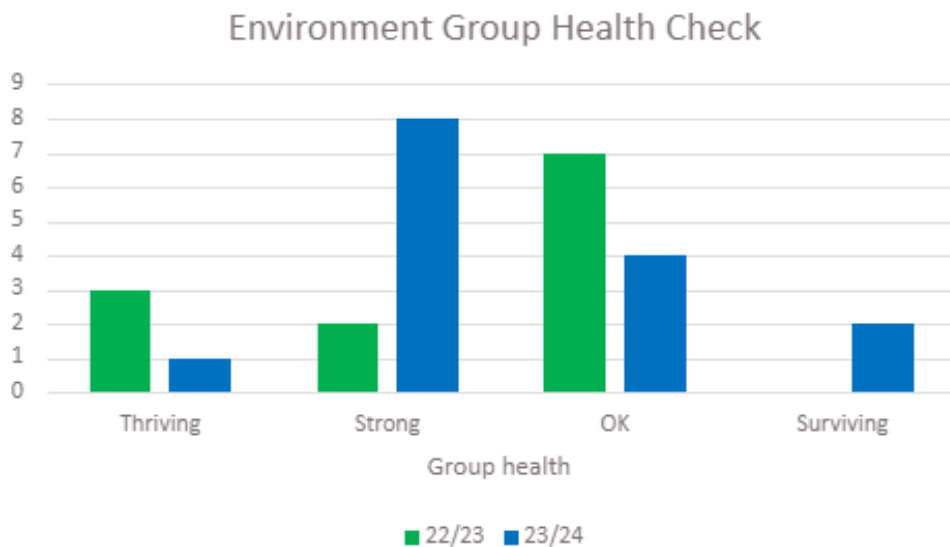


Figure 15: 2023-24 Landcare Group Health Check

Nature Stewards

In autumn 2024, Council, in collaboration with Hepburn and Mitchell Shires, successfully delivered the Nature Stewards Program. This enriching 10-week course offered extensive knowledge on a variety of topics, such as flora and fauna, conservation and land management, climate, water and soils, and the wisdom of Traditional Owner communities.

A total of 27 participants from the three local government areas, including 10 from the Macedon Ranges, took part in the program. Course fees were subsidised for all participants from their respective council areas.



Nature Stewards participants receive their certificates on graduation day

Nature guides

In October 2023, Council launched the fifth of a series of nature guides to the community. *The Grasses of Central Victoria* guide is an easy reference booklet for beginners to use in the farm paddock or local bushland reserves. The guide includes over 80 species with images and descriptive text to help everyone on their way to becoming a local expert.

A flyer with a QR was created and shared across the community to promote all five guides, and to offer them in hard or soft copy. The QR code allows the guides to be downloaded directly to a device to use in the field without the need for Wi-Fi or a phone signal.

During the 2023/24 period, the QR code has been scanned 174 times, with the following reads online:

Grasses Guide: 2,153 reads online / 341 downloads

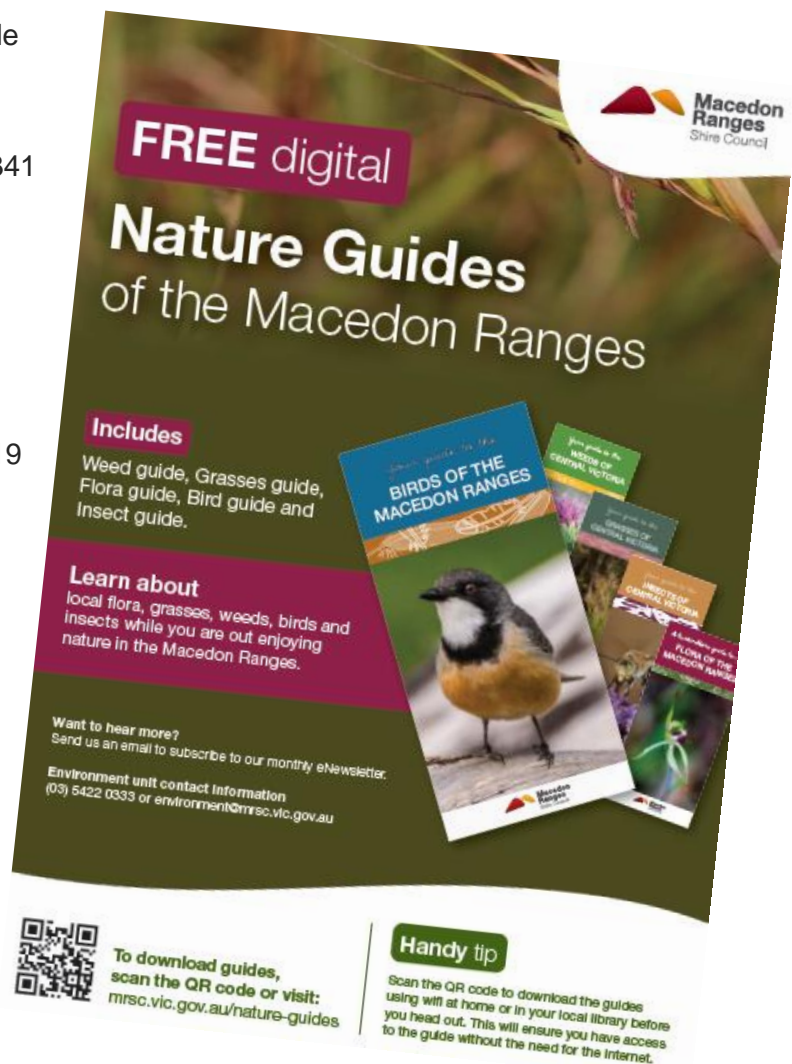
Birds Guide: 946 reads online / 121 downloads

Flora Guide: 1,331 reads online / 109 downloads

Insects Guide: 2,874 reads online / 219 downloads

Weeds Guide: 521 reads online / 78 downloads

Definition of 'reads online': Reads are counted when someone opens your content and either performs an action (by flipping the page, zooming, etc.) or stays for more than two seconds.



Webpage Views

Macedon Ranges Shire Council's Environment Strategy website had 197 views for the 2023/2024 financial year.

Theme 3: Water

Highlights

- Partnered with North Central CMA in the delivering State Government Flood Recovery funded waterway works on the Campaspe River, Kyneton.
- Restoration works on the Bunjil Creek in Gisborne as part of the Regional Roads Victoria project in partnership with Council.
- Revegetation along waterways saw the planting of nearly 9,000 indigenous plants along Smokers Creek, Hanging Rock Reserve and other Council managed reserves.
- Supporting, in partnership with Melbourne Water, the Water Sensitive Urban Design Officer in Council. This role is reviewing Council's current practices and storm water assets, developing a Storm Water Management Strategy and will oversee the first year of implementation. The role will also ensure water sensitive urban design is planned for in future subdivisions and enhance Council's internal skills and knowledge about the design, construction and maintenance of water sensitive urban design assets.
- Continued involvement in the Healthy Coliban Catchment Project including supporting community and landholder engagement.

Indicator 1: Water consumption from Council operations

1.1 Consumption of potable water

Council used approximately 78,377kL of potable water in 2023-2024, an increase of almost 10,000kL from the 68,476kL used in 2022-2023. At the time of writing, data regarding potable water consumption was incomplete for the 2023-2024 financial year, so the figure reported here includes some estimated and averaged data for some sites. The increase in water consumption may be partly due to a dry summer, and partly due to increased services, for example, the new sports precinct.

The most significant increase in water usage was recorded for the saleyards at Kyneton. At over 35,800kL, it's almost double the volume used in 2022-2023, and over five times the amount of water used at the Kyneton Sports and Aquatic Centre.

1.2 Consumption of recycled water

In 2023-2024, Council used an estimated 51,364kL of recycled water, about 20,000kL more than the volume used in 2022-2023, but about 12,000kL less than the volumes used in the prior two financial years. At the time of writing, not all data was available for consumption of recycled water, so the volumes recorded here include some estimated data – in particular, volumes used at three key sites in Kyneton include estimated data for the fourth quarter of 2023-2024 (Kyneton Botanic Gardens, Kyneton Showgrounds, and Barkly Square).

The increase in usage can be partly attributed to a dry summer. Additionally, works at individual sites may influence fluctuations in water usage data, for example, the establishment of new turf at Barkly Square, and the installation of a new irrigation system at Gisborne Botanic Gardens.

Figure 16 below shows the amounts and sources of water used by Council over the past four years to deliver its operations and services.

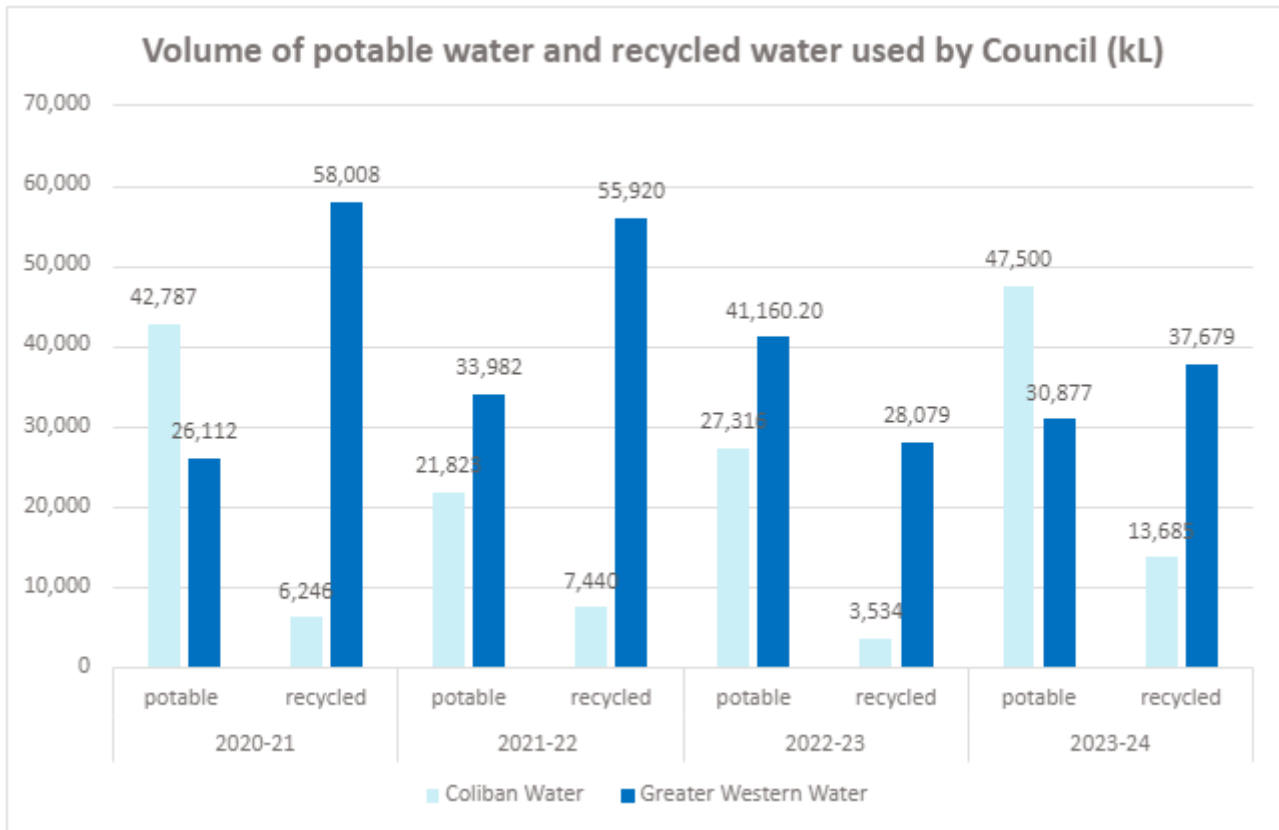


Figure 16: Volume and source of water used by Council from 2020-2021 to 2023-2024.

Indicator 2: Extent of waterway restoration works conducted

2.1 Weed control on waterways

In 2023-2024 Council delivered weed control programs on six waterway reserves as guided by the Environmental Works Plans for Waterways - Port Phillip & Westernport catchments. High threat weeds including Blackberry, Broom, Gorse, Willow, Pine and Elm have been targeted and will be monitored as part of the ongoing waterways maintenance program. The table below outlines weed control on Council managed waterway reserves during 2023-2024.

Waterway	Reserve	Locality	Comments
Jacksons Creek	Rotary Park Waterway Reserve	Gisborne	Woody weed removal program: Follow up Blackberry, Broom, & remove Elm trees
Railway Creek	Waterfalls Rd Reserve	Macedon	Woody weed removal program: Follow up Blackberry, Gorse, & Hawthorn
Riddells Creek & Railway Creek	Tony Clarke Bushland Reserve 1 & 2	Macedon	Follow up Blackberry, Broom & Gorse, remove Large-leaf Cotoneaster, Bluebell Creeper, Japanese Honeysuckle & Pines
Riddells Creek	Nursery Road Waterway Reserve	Macedon	Woody weed control program targeting: Blackberry, Gorse, Broom & Pines
Deep Creek	Three Chain Road Waterway Reserve	Newham	Woody weed control program targeting: Broom, Gorse, Blackberry, & willow.
Dry Creek	Kathryn Court Waterway Reserve	Riddells Creek	Follow up Blackberry, Broom & Gorse, remove Elms & Poplars
Boyd Creek	Boyd Creek Waterway Reserve-Lobbs Bridge	Darraweit Guim	Woody weed control program targeting: Broome, Gorse & Blackberry
Riddells Creek Tributary	Bruce Street 3 & 4	Macedon	Woody weed control program targeting: Broom, Gorse, & Blackberry
Bunjil Creek	Bunjil 05, 08 & 10	Gisborne	Woody weed removal program: Blackberry, Broom, & Japanese Honeysuckle
Jacksons Creek	Jacksons Creek A, B, C & D	Gisborne	Melbourne Water Capital maintenance & weed control program

Romsey Five Mile Creek	Lions Park to Couzens Lane	Romsey	Melbourne Water Capital maintenance & weed control program
Woodend Five Mile Creek	Woodend 5MCK	Woodend	Woody Weed Eradication / Support for Woodend Landcare. Blackberries, Gorse, Broom, English Ivy
Campaspe River	Jennings Street to Mollison Street Bridge (west side of the river)	Kyneton	Woody Weed Eradication / Support for the Campaspe River & Land Management Group (CR&LMG). Manual removal of Willow, Hawthorn and Gorse – Spraying Blackberry
Campaspe River	Edgecombe Street (extension) to Mollison Street Bridge (west side of the river)	Kyneton	Woody Weed Eradication / Support for the Campaspe River & Land Management Group (CR&LMG). Manual removal of Willow, Poplar, Hawthorn – Spraying Blackberry and Gorse.

Table 13: *Weed control conducted along Council managed waterway reserves in 2023-24*

2.2 Revegetation along waterways

Bunjil Creek is located in Gisborne and is a tributary of Jacksons Creek, extending approximately 4.2km from its origin at the summit of Mount Gisborne. A Landscape Plan was completed for the restoration of Bunjil Creek from Melbourne Road to Jacksons Creek guided by the Environmental Management Plan (EMP) for Bunjil Creek.

Revegetation and enhancement of this portion of the waterway was undertaken in 2023 and is establishing well.

These works formed part of the community contribution from the Department of Transport works to upgrade a major intersection just outside of the project area. Consultants in collaboration with the community, Melbourne Water, Regional Roads Victoria and Council developed a detailed Landscape Plan that defined areas for restoration, including weed control and revegetation. Experienced environmental contractors completed the first year of maintenance with one further year of maintenance remaining as part of project delivery.

A summary of plants planted as part of revegetation works on waterways in 2023/2024 is listed in table 14.



Bunjil Creek waterway restoration works, Gisborne

Waterway	Locality	No. plants	Comments
Dry Creek	Kathryn Crt Waterway Reserve	676	MRSC Waterway Program.
Deep Creek	3 Chain Road Reserve, Newham	326	MRSC Waterway Program.
Jacksons Creek	Gisborne Rotary Park	592	MRSC Waterway Program.
Riddells & Railway Creek	Tony Clarke Reserve, Macedon	490	MRSC Waterway Program.
Smokers Creek	Hanging Rock Reserve	6,316	Hanging Rock EMP priority action.
Bunjil Creek	Gisborne		This project has completed the 1 st year of maintenance with 1 year remaining.
Jacksons Creek	Jacksons Creek A, B, C & D	-	Melbourne Water Capital Works planting is completed and now in the maintenance stage.

Table 14: *Revegetation conducted along Council managed waterway reserves*



Revegetation along Kathryn Court Waterway Reserve in Riddells Creek

2.3 A Healthy Coliban Catchment

North Central CMA, Coliban Water, and Dja Dja Wurrung Traditional Owners continue to implement A Healthy Coliban Catchment, a 20-year plan to improve the health of the upper sections of the Coliban River and its tributaries. The aim of this project is to protect the Coliban River as a source of quality drinking water and by doing so, improve habitat connectivity, boost sustainable land use practices, and work with the community to further build cultural and recreational values.

Efforts as part of the plan include 300 kilometers of fencing to control stock access to waterways, allowing for protection of riparian areas and the natural revegetation of riverbanks. Other works include the removal of invasive willows and woody weeds, and planting of native vegetation. Project partners are working with local government, landholders, and community groups on a range of voluntary actions.

North Central WaterWatch currently supports volunteers and Djandak staff to regularly monitor the health of Upper Coliban Catchment. Data collected by these citizen science activities provide an important baseline by which to monitor changes in water quality over the life of the plan. In spring 2023-2024, citizen scientists took water samples from monitoring sites in the upper Coliban Catchment and sent them to be analysed for the presence of environmental DNA (eDNA) of Platypus and River Blackfish.

Platypus eDNA was detected at three sites along the Little Coliban River and at one site on the Coliban River above the Upper Coliban Reservoir. The endangered River Blackfish was detected on the Coliban River at Wheatsheaf.

Theme 4: Waste and resource recovery

Highlights

- A decrease in average amounts of waste / serviced property for all waste streams except FOGO, in Council's kerbside collection service
- 56 waste education sessions and workshops delivered to over 1,360 participants (online and in-person)
- Re-opening of a refurbished tip shop at the Kyneton resource recovery facility and establishment of a tip shop at the Romsey resource recovery facility
- Introduction of a textile collection and recycling service at the resource recovery facilities in Romsey, Kyneton and Woodend
- Establishment of a shire-wide soft plastics recycling program in July 2024, after a successful trial conducted in Romsey
- The award-winning storm-waste processing facility at Romsey closes after more than two years in operation, during which over 16,000 tonnes of woody debris from storms in June and October in 2021 were processed and re-purposed

Introduction

Council adopted the Waste and Resource Recovery Management Strategy 2021-2026 at its Scheduled Council Meeting in December 2021 and has been working to consolidate and improve many innovative waste recovery operations since then.

The four-bin kerbside collection service has been fully operational since July 2021, making Macedon Ranges Shire Council a leader in waste management and resource recovery. Council continues to demonstrate leadership in resource recovery, for example, through its soft plastics recycling program, receiving expanded polystyrene at its resource recovery facilities, and commencing a textile recycling program in September 2023.

To align with the strategic direction and operational programs of Council, the reference to transfer stations in previous reports has been replaced with the term "resource recovery facility" in this report. Additionally, the title of this chapter has been amended to "Waste and Resource Recovery".

Indicator 1: Waste diverted from landfill in the community

1.1 Waste received at resource recovery facilities

Total waste received at resource recovery facilities

In 2023-2024, almost 9,920 tonnes of waste (combined weight of paper and cardboard, aluminium and steel, comingled recycling, glass and e-waste) was received at Council's resource recovery facilities, in addition to oil, tyres, mattresses and garden waste. Table 15 shows that this total figure is a slight increase from 2022-2023.

Table 15 also shows that of all waste streams processed at the facilities, there is a marked decrease in the amount of oil. It should be noted that the figures may not be completely accurate, as storage tanks for oil are emptied when required, rather than to align with reporting periods for the financial year.

Waste transferred to landfill

The total amount of waste diverted from landfill through recovery in 2023-2024 increased by about 364 tonnes compared to 2022-2023, but in terms of percentage of total amount received at the resource recovery facilities, there was a decrease of 2.8 per cent. In other words, the proportion of "waste" recovered from everything brought into the resource recovery facilities in 2023-2024 was less than in 2022-2023 (for the five waste streams measured in tonnes).

Glass and E-waste

The amount of glass deposited at resource recovery facilities continues to trend downwards, as too, the amount of e-waste, with about half the amount in 2023-2024 compared to 2020-2021. This may partly be due to a decreased demand for electronic equipment as people have returned to working in offices since the peak pandemic years. Other reasons may be a reluctance to replace electronic goods given increasing costs for all goods and services, and / or an increase in repair services for electronic goods.

Polystyrene

Council introduced a collection service for polystyrene in May 2023. During the 2023-2024 financial year, approximately 700m³ of polystyrene was diverted from landfill and collected by a company called Ecycle Solutions, where it gets densified and turned into picture frames and skirting boards. Although residents can drop off polystyrene free of charge at the three resource recovery facilities, it still provides a cost saving to Council when compared to being disposed in landfill.

Textiles

Council commenced a textile collection service for textiles at each of its three resource recovery facilities in September 2023. A total of 35,218 kilograms of textiles had been collected for recycling as at end June 2024 (20,762 kilograms from Woodend, 7,433 kilograms from Romsey, and 7,023 kilograms from Kyneton). Textiles are transported to Malaysia for processing and recycling.

Waste stream	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Unit
Paper and cardboard	319.8	220.8	256.84	278.99	268.2	284	tonnes
Aluminium and steel	1,709.5	1,683.9	1,729.00	1,959.4	1,786.3	1,630.5	tonnes
Comingled recycling	149.6	122.1	83.9	79.3	78	81.3	tonnes
e-waste	118.8	146.2	105.35	87.8	82.5	54.6	tonnes
Glass	unknown	197.56	166.96	142.3	123.5	115.3	tonnes
Garden Waste	22,605	34,186	38,512	39,411	49,793	54,802	cubic meters
Oil	22,200	13,800	20,550	24,052	19,040	14,600	litres
Tyres	1,102	1,821	3,046	2,005	2,642	2,243	number
Mattresses	1,447	1,861	2,583	2,447	2,009	2,080	number
Total diverted from landfill (excluding garden waste, oil, tyres and mattresses)	2,297.8	2,566.9	2,342.0	2,547.8	2,338.6	2,165.7	tonnes
% diverted from landfill	37.80	44.80	28.80	28.80	26.02	23.48	%
Total disposed to landfill	3,789	3,162.8	5,789.6	6,286	6,650.2	7,054.2	tonnes
Total (all items)	6,086.8	5,729.7	8,131.6	8,833.9	8,988.8	9,219.9	tonnes
(excluding garden waste, oil, tyres and mattresses)							

Table 15: Waste received at Council's resource recovery facilities

1.2 Sales at Kyneton Tip Shop

Sales at the Kyneton tip shop in 2023-2024 were generally lower for all categories when compared with 2022-2023 sales, except for bicycles and DVDs / CDs (table 16). The reduction in sales is likely due to the tip shop being closed from February 2023 for operational and safety reasons.

The refurbished Kyneton tip shop re-opened in December 2023. An additional tip shop has been established at Romsey, and was officially opened on 19 July 2024, following the “soft” opening in December 2023. Works at both sites were enabled through a grant from the Circular Economy Councils Fund.

Table 17 shows sales from the new Romsey tip shop since it commenced operation in December 2023.

Category	2020-21		2021-22		2022-23		2023-24	
	Qty	Revenue	Qty	Revenue	Qty	Revenue	Qty	Revenue
Bicycles	79	\$437	76	\$650	40	\$280	78	\$770
Books	2	\$4	1	\$2	4	\$8	1	\$1
DVDs & CDs	35	\$303	21	\$192	26	\$210	78	\$854
Electrical	58	\$377	48	\$290	33	\$179	6	\$55
Furniture	48	\$515	72	\$755	29	\$289	23	\$240
Lawn Mowers	4	\$31	5	\$52	6	\$91	3	\$65
Miscellaneous	108	\$658	185	\$1257	203	\$1,936	132	\$890
Steel	169	\$1,366	100	\$878	77	\$986	29	\$307
Toys	6	\$28	2	\$4	3	\$20	0	\$0
Revenue (inc GST)		\$4,090		\$4,080		\$3,999		\$3,182

Table 16: Sales from Kyneton Tip Shop

Category	Dec 2023-June 2024	
	Qty	Revenue
Bicycles	2	\$15
Books	0	\$0
DVDs & CDs	80	\$1030
Electrical	20	\$173
Furniture	13	\$220
Lawn Mowers	19	\$450
Miscellaneous	71	\$828
Steel	37	\$455
Toys	1	\$5
Revenue (inc GST)		\$3,176

Table 17: Sales from Romsey Tip Shop

Council will explore partnering with the Repair Café in Woodend to increase resource recovery from tip shops in the coming year.

1.3 Resource Recovery from Council’s kerbside collection service

Council’s award winning four bin kerbside collection service enables resource recovery to be maximised across the shire. All residents in the shire have been able to separate food and garden organics from general waste since July 2021, and separate glass from other recyclable materials since February 2019, thereby diverting waste from landfill through resource recovery at the individual household level. Low contamination rates in each waste stream mean that there is little rejection at receiving points, and resource recovery is maximised.

Waste stream	2018-2019		2019-2020		2020-21		2021-22		2022-23		2023-24	
	Total weight (tonnes)	Weight / serviced property (kg)	Total weight (tonnes)	Weight / serviced property (kg)	Total weight (tonnes)	Weight / serviced property (kg)	Total weight (tonnes)	Weight / serviced property (kg)	Total weight (tonnes)	Weight / serviced property (kg)	Total weight (tonnes)	Weight / serviced property (kg)
General waste	9,222	484	8,351	428	7,170	345	6,366	316	5,889	282	6,076.	278
Green waste / FOGO	2,969	267	5,259	365	8,505	586	10,816	534	10,185	488	10,999	512
Re-cyclable materials	4,509	237	3,503	180	2,716	132	2,875	142	3,001	145	2,971.5	138
Glass			832	43	1,903	92	1,955	96	1,762	85	1,557.8	72
Total	16,701	988	17,945	1,016	20,293	1,155	22,012	1,087	20,837	1,000		

Table 17: Amounts (tonnes) / waste stream from kerbside collection service (total and per serviced property)

Table 17 above shows that in 2023-2024, there was a slight increase in the total amount of general waste and Food Organics Garden Organics (FOGO) collected, and a slight decrease in the total amount of comingled recyclable materials and glass collected, from the 21,480 serviced properties in the shire (including council facilities). Compared to 2022-2023 figures, there was a decrease in the average amounts per serviced property for all waste streams except FOGO. Given this decrease occurred while an additional 625 properties received the kerbside collection service, the data suggests that residents are generating less “waste”, perhaps through the influence of Council’s waste education programs and activities, and waste minimisation projects within the community.

Trends in amounts of “waste” for each stream are shown in Figure 17 (total amounts) and Figure 18 (average amount / serviced property).

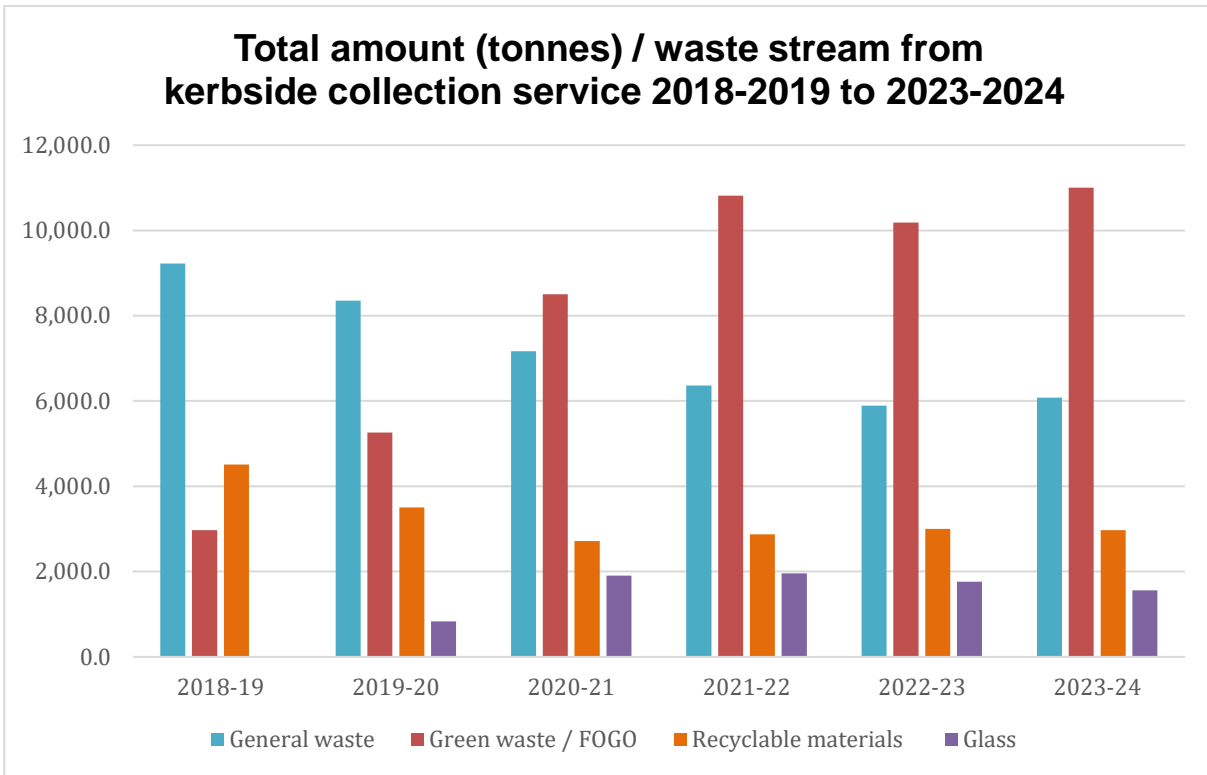


Figure 17: Total amount / waste stream collected from 2018-2019 to 2023-2024.

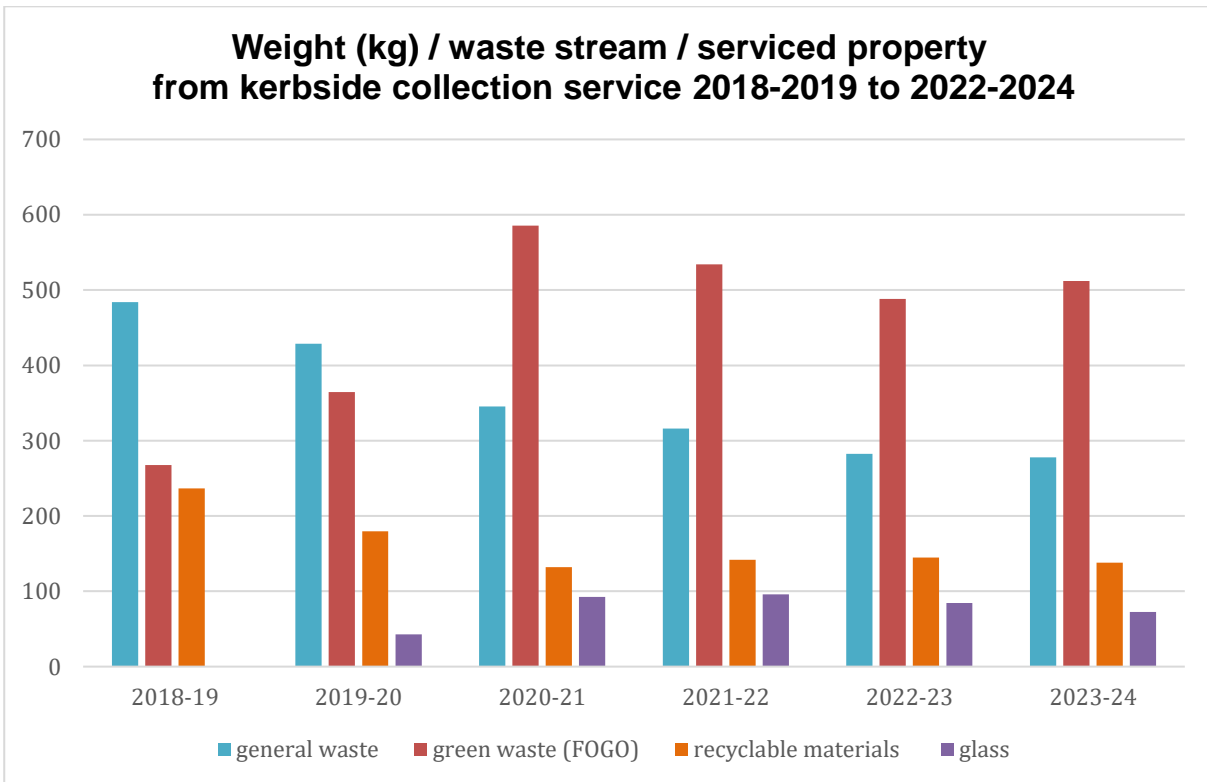


Figure 18: (Averaged) weight /waste stream/ serviced property 2018-2019 to 2023-2024

1.3 Waste from public places and events

Bins for recyclable materials are located in some parks, sports grounds, and townships throughout the shire. High contamination rates mean that everything deposited into public place bins is taken to landfill. Council aims to raise awareness about best practice waste management in public places and expand the service in the future. The high level of tourism and community sport and associated through traffic presents a challenge to Council in managing a public place recycling system to ensure it is used correctly by both residents and visitors.

Indicator 2: Resource efficiency within Council operations

2.1 Waste collected from Council facilities

Waste from Council facilities is collected as a part of Council's general kerbside collection service, meaning data regarding amounts of waste generated at council facilities is not available (except as the averaged amounts per serviced properties reported above). Given that it is not feasible to separately measure the amounts of waste generated at council facilities through current contracted services, this indicator will not be reported on in the future.

2.2 Paper use

In 2023-2024, Council's total use of paper decreased slightly from 2022-2023. Data on paper usage is limited to A4 And A3 sized sheets ordered direct from the supplier through Council's purchasing system and does not capture paper for special uses or paper purchased by individual staff.

While this indicator is a material measure for a key office resource, in future it may be more meaningful to include the amount of greenhouse gas emissions associated with the paper use in council's emissions profile, in place of this indicator. Amending the indicator will enable paper usage to be addressed in context of the adopted target for zero net emissions by 2030.

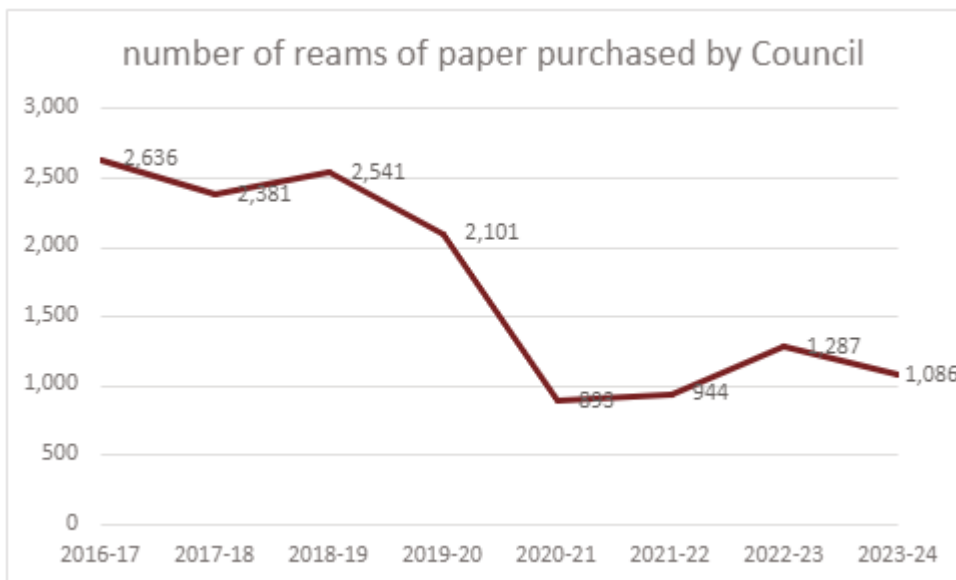


Figure 19: Council's use of paper over time

Indicator 3: Community engagement with waste education

3.1 Number of waste education events hosted by Council

In 2023-2024, Council's waste education officers (one shared position) hosted 56 waste education sessions and workshops, in-person and online, which were attended by over 1,360 people. This is a marked increase from the 33 workshops and 840 attendees reported for 2022-2023. Many sessions were delivered in response to requests from kindergartens, primary schools, secondary schools, and community groups. Council also co-hosted workshops about its rebate for reusable nappies, and attended the Kyneton and Lancefield agricultural shows, the Riddells Creek Enviro Energy Expo, and the Malmsbury Fayre.

Another avenue for encouraging correct waste management practices has been the Waste App, which was installed close to 900 times in the first quarter of 2023-2024, for a total of 10,769 installations.

A key focus for 2023-2024 was the development of a Waste Education Action Plan, which was endorsed by Council in early 2024, and the production of five short videos on correct practices to maximise the benefits of Council's waste management and resource recovery services. Key priorities for the coming year are to continue working with local schools and kindergartens to foster good recycling habits, to continue to support local businesses and community groups in their efforts to reduce waste and recycle more, to finalise the waste education videos and publish these on Council's social media platforms and website and to continue to support staff to reduce waste at council work sites.

3.2 Use of the Wash Against Waste Trailer

In 2023-2024, the Wash Against Waste trailer (managed by the Macedon Ranges Sustainability Group, with support from Council) was operated by volunteers at 39 events, including regular use at the monthly Woodend, Malmsbury and Lancefield farmer's markets. The Sustainability Group receives positive feedback about the operation of the trailer, as well as requests from other councils and community groups for advice regarding establishment and maintenance of the trailer.



Wash Against Waste volunteers at the Malmsbury Village Fayre, 28 April 2024.