



Image source: Mansfield Shire Council Council website

Mansfield Shire Council

# Climate Action Plan

**Prepared for**  
Mansfield Shire Council

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Ironbark has been operating since 2005 and brings together a wealth of technical and financial analysis, maintenance and implementation experience in the areas of building energy and water efficiency, public lighting and data management. We pride ourselves on supporting our clients to achieve real action regarding the sustainable management of their operations.



Ironbark are a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.

#### Our Mission

The Ironbark mission is to achieve real action on sustainability for councils and their communities.

# Contents

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1. Executive Summary	4
1.1 Zero Net Emissions 2025 for Council Operations	5
1.2 An Active and Supportive Partner in Community Climate Action	8
2. Introduction	11
2.1 Plan Objectives	12
3. Background	13
3.1 Mansfield Shire Council Climate Action to Date	13
4. Corporate Emissions	15
4.1 Council's Corporate Emissions Inventory	15
4.2 Council's Emissions Projections to 2030/31	16
4.3 Corporate Emissions Target	17
4.4 Corporate Action Plan	18
4.5 Council Actions to Reduce Corporate Emissions	21
4.5.1 Renewable Power Purchase	21
4.5.2 Solar and Energy Efficient Facilities	22
4.5.3 Street Lighting Upgrades	23
4.5.4 Low Emissions Fleet Transition	25
4.5.5 Offsets	27
4.5.6 Summary of Council's Actions	28
5. Community Emissions	29
5.1 Mansfield Shire Community Emissions Profile	29
5.2 Target Setting in the Community Context	30
5.3 A Changing Climate for Mansfield	30
5.4 Council's Role in Reducing Community Emissions	31
5.4.1 Transport	33
5.4.2 Residential and Commercial Energy	35
5.4.3 Agriculture	36
5.4.4 Land Use	37
5.4.5 Waste	38
6. Monitoring, Evaluation, Review and Learning (MERL)	39
	40

# Tables

---

Table 1: Summary of corporate emissions reduction actions	7
Table 2: Community emissions reduction action areas	10
Table 3: Impact of 100% renewable energy power purchase agreement	21
Table 4: Impact of actions for solar and energy efficiency in buildings	23
Table 5: Impact of actions for public lighting	24
Table 6: Summary of Council's Corporate Action Plan	28
Table 7: Council support for community transport emissions reduction	33-34
Table 8: Council support for community energy emissions reduction	35
Table 9: Council support for community agriculture emissions reduction	36
Table 10: Council support for community land use emissions reduction	37
Table 11: Council support for community land use emissions reduction	38

# Figures

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Figure 1: Emissions profile by sector 2018/19	5
Figure 2: Emissions Reduction Pathway for Mansfield	6
Figure 3: Mansfield Shire 2018/19 community emissions profile (source: Snapshot)	8
Figure 4: Emissions Reduction Hierarchy	12
Figure 5. Strategic context of Council's upcoming Climate Action Plan	14
Figure 6: Emissions profile by sector 2018/19	15
Figure 7: Business-as-usual corporate GHG emissions projection to 2030	16
Figure 8: Zero net emissions cash flow pathway	19
Figure 9: Emissions reduction pathway for Mansfield	20
Figure 10: Mansfield Shire 2018/19 community emissions profile (source: Snapshot)	28

# Attribution

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# 1. Executive Summary

Mansfield Shire Council (Council) acknowledges that climate change is a threat to our community's way of life. In response, Council has passed a Councillor initiated resolution to develop a Mansfield Shire Climate Action Plan as outlined in Mansfield Shire's Environment Strategy 2019-2023. In doing so, Mansfield Shire Council has made a firm commitment to mitigate the impacts of climate change within Council's own operations and to support the community to reduce municipal greenhouse gas emissions and adapt to a changing climate.

Mansfield Shire Council  
will be:

Zero Net Emissions by  
2025 for Council's  
Corporate Operations

An Active and Supportive  
Partner in Community  
Climate Action

## Development of the Plan

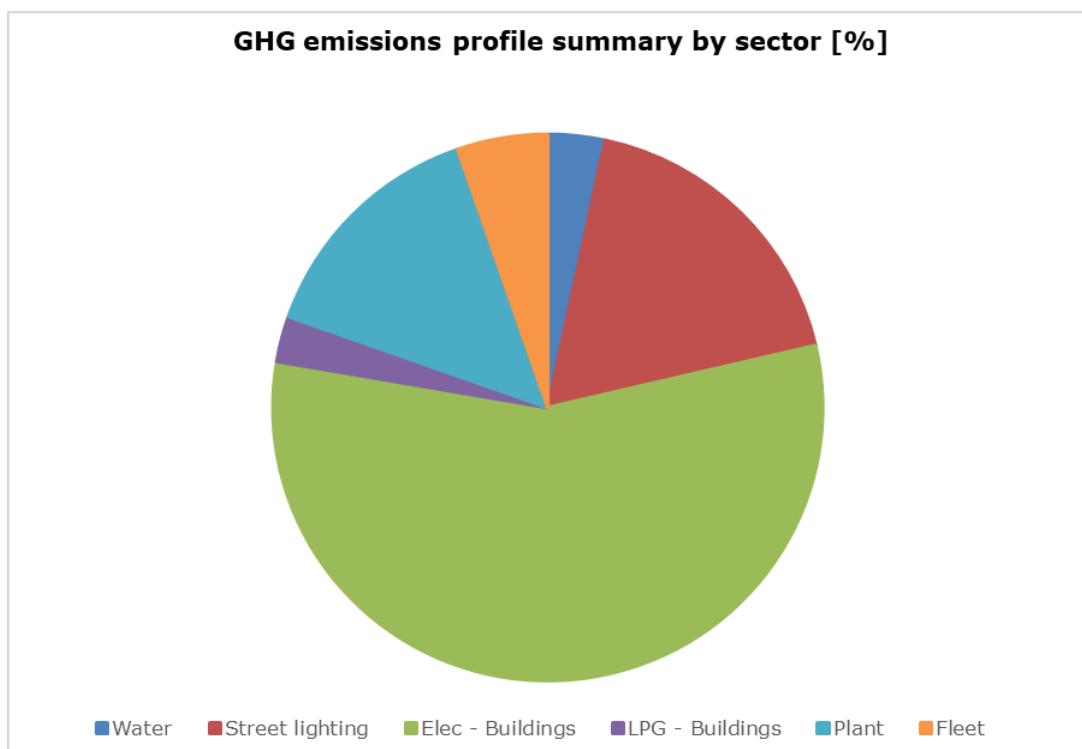
This Climate Action Plan has been developed by Ironbark Sustainability in close collaboration with Mansfield Shire Council staff and Councillors, with input from the Community Vision 2040 consultation and Renewable Energy Mansfield.

## 1.1 Zero Net Emissions 2025 for Council Operations

Mansfield Shire Council has committed to achieving zero net emissions for Council's corporate operations by 2025. This target is in line with international climate science and will ensure Mansfield Shire Council is making a fair contribution towards Australia meeting its emissions reduction obligations under the Paris Agreement<sup>1</sup>. This ambitious but achievable target positions Mansfield Shire Council as leader in local government corporate climate action not only within the Hume region but also within Victoria and Australia. Through this target Council is sending a strong message to the Mansfield community and to others in the local, state and federal government that urgent climate action is required, and that Mansfield Shire Council is committed to play its part in this transition.

### Mansfield Shire Corporate Emissions

In 2018/19, Council corporate activities generated 1,033 tCO<sub>2</sub>e. The majority of Council's measured emissions come from electricity use in buildings (56%) followed by street lighting (18%), then plant (14%). Fleet, water, liquified petroleum gas (LPG) account for 5%, 4% and 3% respectively.



**Figure 1: Emissions profile by sector 2018/19**

1. At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Australian Government signed an international agreement between 195 countries to keep any temperature rise "well below 2°C", and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels as outlined by the Fifth Assessment Report from the Intergovernmental Panel on Climate Change (IPCC).

## A Zero Net Emissions Pathway for Mansfield Shire Council

This Action Plan outlines the pathway for Council to reach zero net emissions by 2023 across Council's operations. This will be achieved through a combination of emissions reduction measures in the following areas and the purchase of carbon offsets. The actions included within the plan have been identified through cost benefit analysis as the most cost effective for Council, resulting not only in significant emissions reductions but also notable costs savings for Council to 2030 and beyond. A summary of actions and their impact can be seen in Table 1 and Figure 2 below.

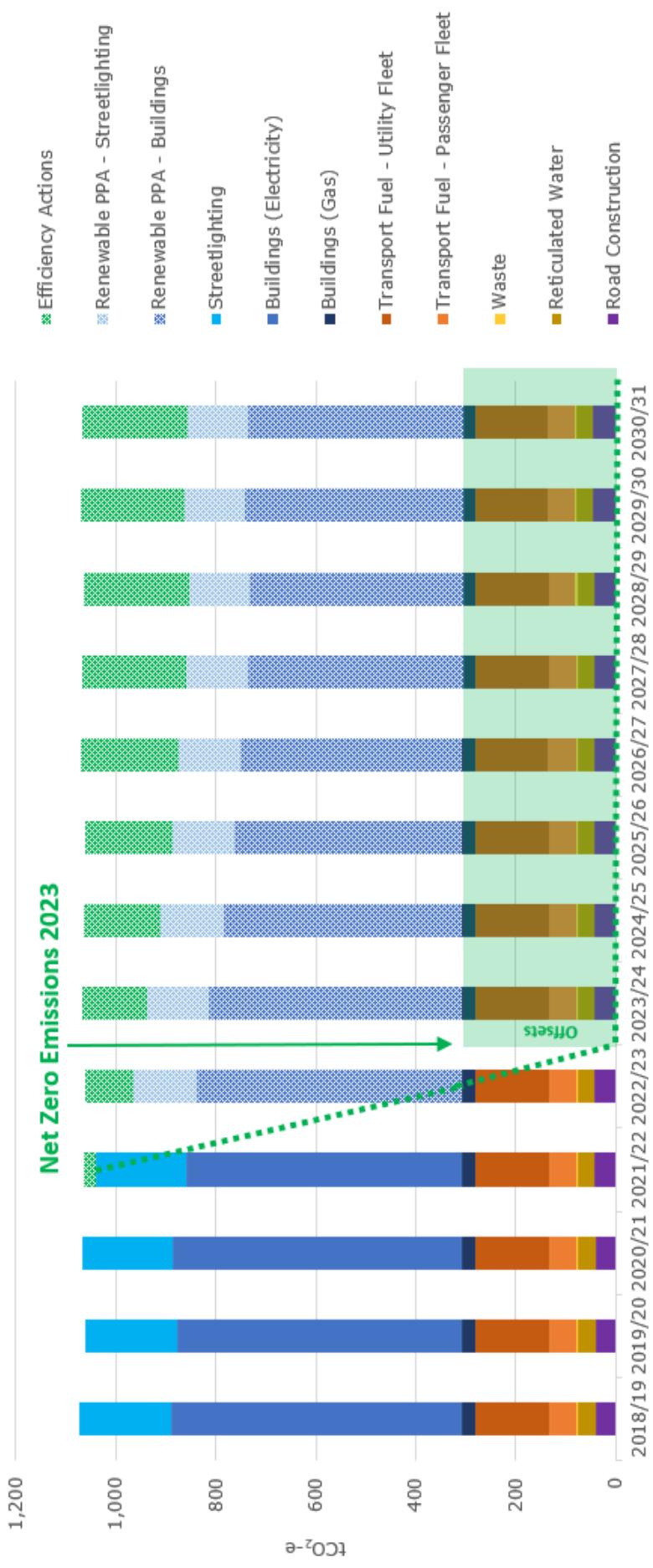


Figure 2: GHG emissions reduction pathway to zero net emissions 2023 including reductions from Actions, Renewable PPA, and Offsets

## Key Actions

The key corporate action areas identified are:

- Renewable Power Purchase -100% Renewable Electricity by 2025
- Solar and Energy Efficient Buildings
- Street Lighting Upgrades
- Fleet Transition to Low Emission Vehicles
- Purchase of offsets to cover remaining emissions at 2025

This plan will see net zero emissions by 2025 and all emissions reduction actions implemented by 2032 with average annual savings in the region of \$75k and 1,160 tCO<sub>2</sub>e. The cost to implement the plan will be \$5k per annum plus current budgets and external funding.

**Table 1: Summary of corporate emissions reduction actions**

Action	Cost to 2032	Average Annual Savings	Timing
100% Renewable Electricity Purchase	Costs comparable to non-renewable electricity contract	580 tCO <sub>2</sub> e	1-2 years at next contract renewal
Solar PV on Council Buildings	\$120k To be funded from existing solar and energy efficiency budget of \$43 k per annum	80 tCO <sub>2</sub> e \$20k	By 2032
Energy Efficient Facilities	\$300k To be funded from existing solar and energy efficiency budget of \$43 k per annum	140 tCO <sub>2</sub> e \$30k	By 2032
Street Lighting Upgrades	\$140k	50 tCO <sub>2</sub> e \$25k	By June 2025
Purchase of Offsets	\$5k p.a. at 2025	310 tCO <sub>2</sub> e	2025 onwards
Summary	Solar and energy efficiency works covered by existing budgets.  A combination of additional Council budget and external funding required for street lighting.  \$5k p.a in addition to current budgets to cover offsets.	\$75k 1,160 tCO <sub>2</sub> e*	Net Zero by 2025 All actions implemented by 2032

\*This is the total of the average annual savings for all actions. Once offsets are being purchased from 2025 the annual savings will be equal to Council's inventory for that year.

## 1.2 An Active and Supportive Partner in Community Climate Action

### Mansfield Shire Community Emissions

The Mansfield Shire local government area released approximately 244 kt CO<sub>2</sub>e for the 2018/19 period (Figure 3). The largest source of emissions is the agricultural sector, responsible for generating 41% of municipal emissions with energy consumption, and transport emissions both accounting for 29%.

This Climate Action Plan outlines Council's role in supporting community climate action across these key sectors. Through regional collaboration, educational resources, signposting to funding, and letters of support Council will support systemic and lasting change for the Mansfield Shire.

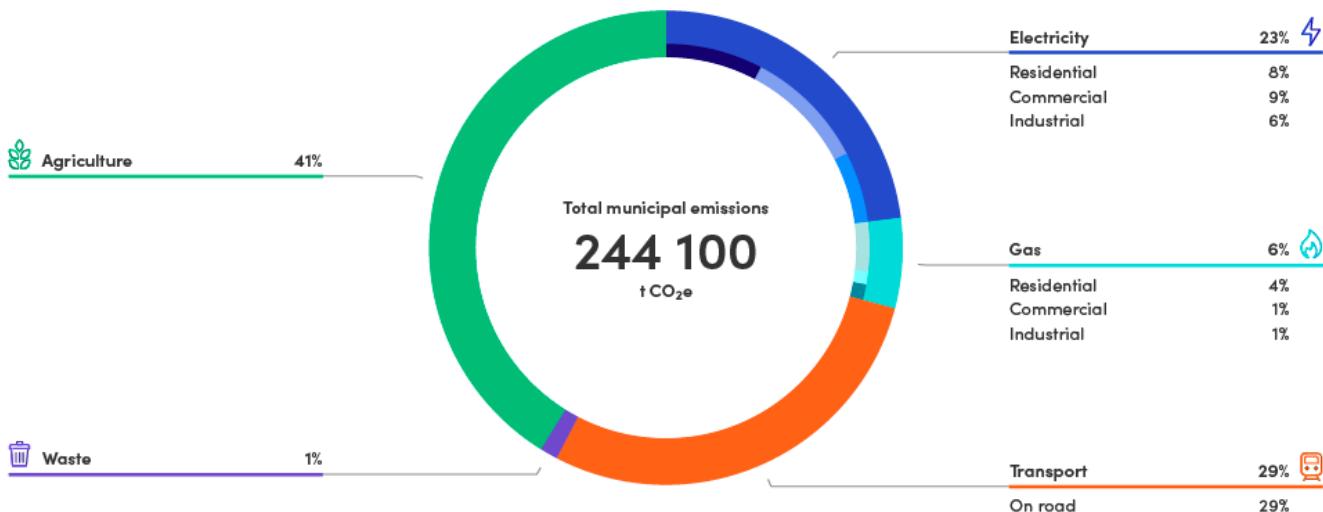


Figure 3: Mansfield Shire 2018/19 community emissions profile (source: Snapshot)

## Key Areas for Community Climate Action for Mansfield

Climate change impacts are already being felt within the Mansfield community and Mansfield Shire has an active and growing community of climate concerned residents and businesses. According to CSIRO and the Bureau of Meteorology, climate change will result in a warmer and dryer future for the Mansfield region. By as soon as 2030, less frosts and a greater number of extreme heat days are predicted. Storms are forecast to be more intense and more frequent, placing additional pressure on stormwater infrastructure. The bushfire season will be longer with more high and extreme fire danger days.<sup>2</sup>

As a local government, Mansfield Shire Council has an important role in supporting the community through the low emissions transition, and in adapting and developing resilience to local climate change impacts. Achieving community emissions reductions at the scale needed will require significant action from all sectors of the Mansfield community as well as from the state and federal government. Council will leverage its position to support the community on three levels:

- 1 Ensuring local service and infrastructure provision is supportive of emissions reduction initiatives. This may include integrating climate change as a consideration in planning and waste services through to supporting local community groups who are applying for funding to reduce emissions.
- 2 Working at the regional level to deliver low emissions transitions in a strategic manner, such as the roll out of electric vehicle charging infrastructure and exploration of low emissions agriculture.
- 3 Providing a voice for the community at the state and national government level to drive action towards a more supportive policy environment for climate change mitigation and adaptation.

Community climate action areas and interventions have been identified and summarised Table 2 below. Moving forward Council is committed to engaging with and supporting community climate action and will be responsive to community advocacy, initiatives, and proposals as they arise.

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2. Mansfield Shire Council, Sustainable Development & Climate Change, Accessed 20/10/2021:  
<https://www.mansfield.vic.gov.au/residents/community/environment-and-sustainability/sustainable-development-climate-change>

**Table 2: Community emissions reduction action areas**

Action area	Council intervention
Transport (29% of total community emissions)	
	Expand the Electric Vehicle charging network
	Improve sustainable transport infrastructure
	Promote sustainable transport options
Residential and Commercial Energy (22% of total community emissions)	
	Planning for low emissions buildings
	Support and advocacy for community energy
Agriculture and Land Use (41% of total community emissions)	
	Support and promote innovation in the agricultural sector
	Local food production and sustainable diets
	Improve tree cover on Council and Private Land
Waste (1% of total community emissions)	
	Food organics and garden organics (FOGO) collection service

## 2. Introduction

Within the Victorian Local Government Act 2020, an overarching governance principle is ‘the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks, is to be promoted’. This establishes a requirement for councils to consider and reduce the greenhouse gas emissions (emissions) of both their own operations and the whole municipality.

A Climate Action Background Paper was initially developed, with the support of Ironbark Sustainability, to identify opportunities for Council to make a fair contribution to reducing and offsetting Council’s own share of emissions, whilst also supporting the community to reduce theirs. Feedback on this paper from councillors and Council staff and from the community through the Have Your Say forum and via email, Council’s website and social media have been collated to inform this Climate Action Plan.

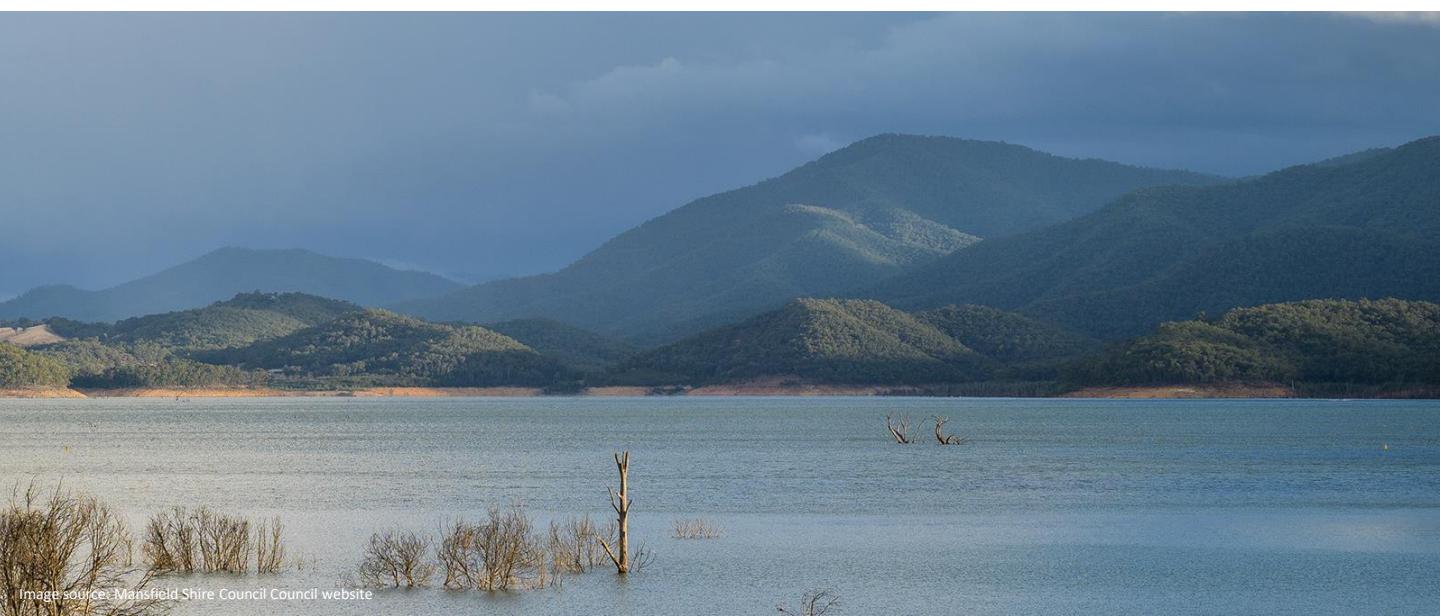
This Plan outlines best practice approaches, trends and opportunities for Council to reduce greenhouse gas emissions (emissions), both in their own operations and throughout the community. It establishes a timeline for Council’s corporate emissions<sup>3</sup> and identifies opportunities within, but not limited to, the following key areas of Council’s operations: energy efficiency improvements in buildings; renewable energy generation; low emissions technology upgrades in buildings and fleet; renewable energy power purchase; and options for offsetting remaining emissions to achieve net zero emissions status.

The Plan also outlines and summarises Council’s potential role for a wide range of interventions to drive community climate action across the key community emissions sectors in Mansfield. The Plan seeks to leverage the existing capacity and resources of Council to support the community in establishing and furthering local climate initiatives.

Whilst there is a particular focus on climate change mitigation (avoiding catastrophic climate change), several of the potential actions will also assist the local government area (LGA) to adapt to a changing climate.

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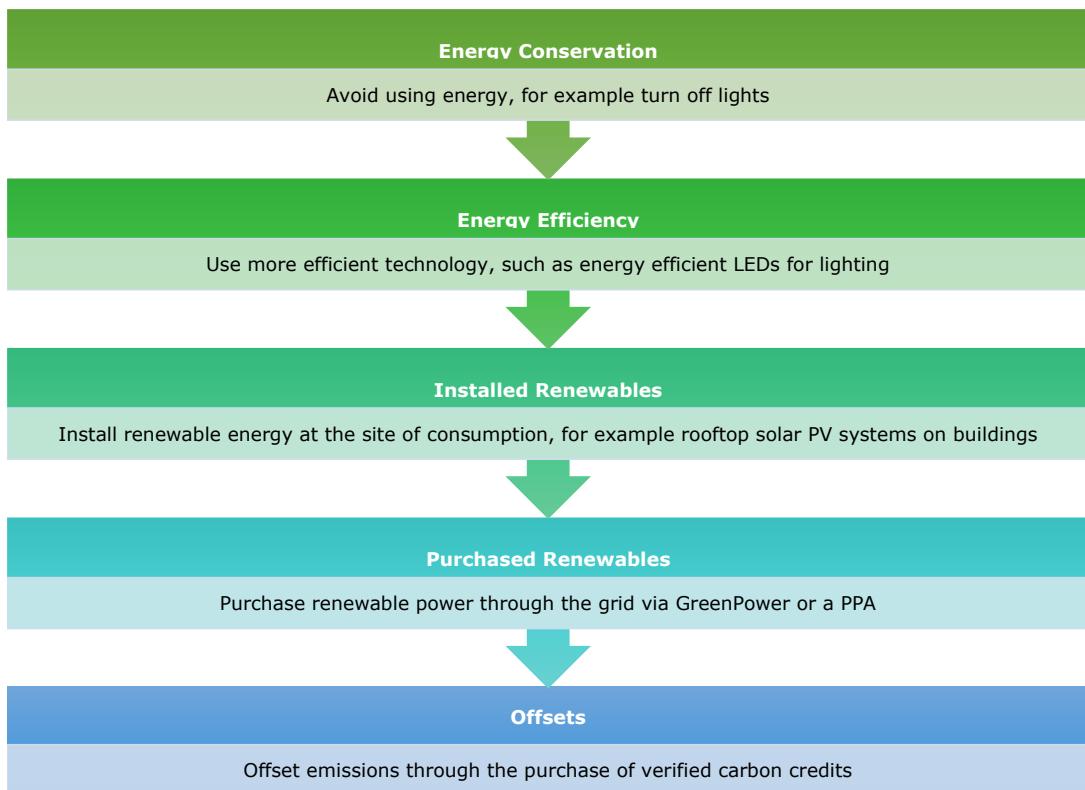
3. Corporate emissions are those generated by Council activities..



## 2.1 Plan Objectives

Through implementing the Climate Action Plan, Council will:

- Demonstrate leadership to the community in emissions reductions and climate change management
- Implement projects that demonstrate cost-savings and good value to Council operations
- Support, advocate and assist the broader community to implement climate action and emissions reduction projects
- Participate in collaborative efforts for emissions reduction initiatives with regional council groups, State Government and other key stakeholders where strategic alignment, efficiency, or an opportunity to play a leadership role is demonstrated.
- Follow the emissions reduction hierarchy, as outlined at Figure 4



**Figure 4: Emissions Reduction Hierarchy**

## 3. Background

### 3.1 Mansfield Shire Council Climate Action to Date

To date, Mansfield Shire Council have undertaken several successful emissions reduction projects.

#### Regional Action

As an active member of the Goulburn Murray Climate Alliance (GMCA), Mansfield Shire Council is raising awareness and building the capacity of the region to mitigate and adapt to the impacts of climate change through wide reaching regional projects.

A notable achievement of the GBGA is the Climate Smart Agriculture Development Project, which models the impacts of climate change and identifies ways to continue productivity in the region – information which can be made publicly available.



**climate smart  
agricultural  
development  
project**

The GBGA Watts Working Better program saw the energy efficient retrofit of Mansfield streetlights. Other GBGA programs include Charging the Regions electric vehicle study, sustainability training programs and carbon crunching councils. As Mansfield Shire Council is a smaller shire than others involved in GBGA, there has been limited resources to make a full commitment to all these projects.

Another key regional project Council is involved in is the Climate Ready Hume program.

Led by the State Government, the program outlines the climate risks for the region including extreme heat, harsher fire weather, less rainfall and more frequent and heavy downpours.

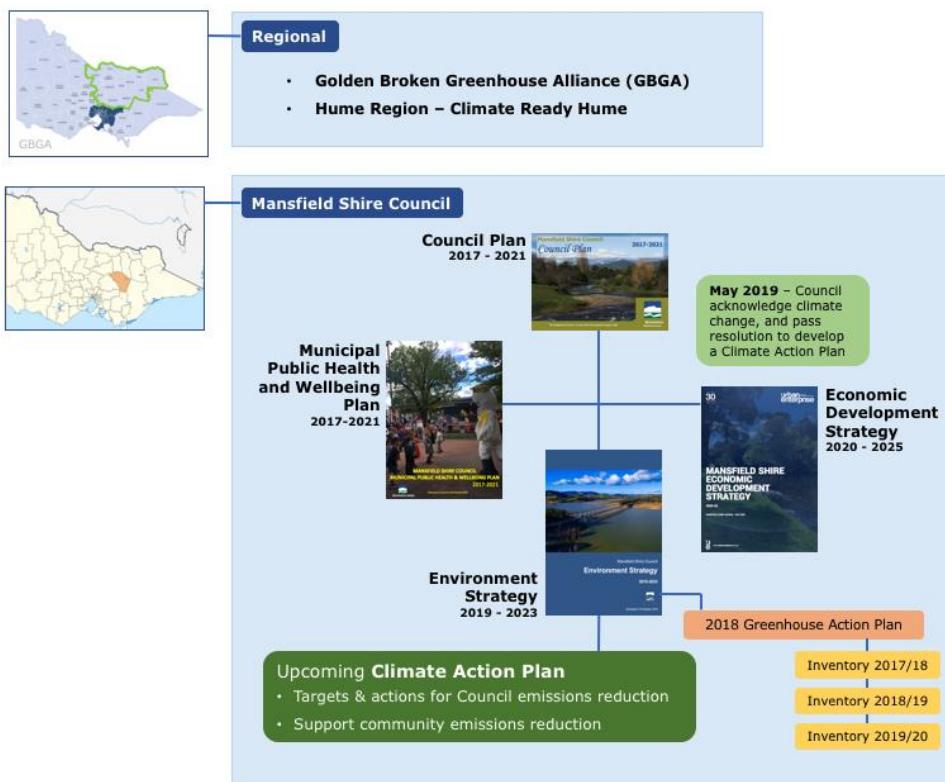
Presented alongside these risks are a variety of region-specific actions to be considered, which can enable the region to take advantage of opportunities and reduce the negative impacts of climate change.



## Local Action

At a local level, there are key plans and strategies that reflect Council's ongoing commitment to climate action. In 2018 Council developed a corporate Greenhouse Action Plan that profiled corporate emissions and outlined avenues for reducing emissions. Since then, Council has continued to document and compare annual emissions over time.

The Council Plan (2017-21), the Health and Wellbeing Plan, the Economic Development Strategy and the Environment Strategy all support the development of this Climate Action Plan (see Figure 5). The Council Plan recognises the impacts and opportunities presented by climate change, and acknowledges the very real need to build community capacity in order to respond effectively. Both the Health and Wellbeing Plan and the Economic Development Plan commit to ensuring the resilience of residents, businesses and the wider community through support from Council.



**Figure 5: Strategic context of Council's upcoming Climate Action Plan**

Notable projects already achieved under the mantle of Council's Environment Strategy include solar photovoltaic system installations at Council sites including a 25kW system at the Shire Offices, a transition away from gas heating, setting of high environmentally sustainable design standards for the Mansfield Station Precinct Activation Project, support for the planting of urban tree coverage and advocating for public infrastructure investment such as electric vehicle charging stations and cycle and pedestrian paths. Council also supports community led climate initiatives such as Renewable Energy Mansfield and Up2Us Landcare Alliance with advice, in-kind support and letters of support for grant applications.<sup>4</sup>

4. Mansfield Shire Council Environment Strategy 2019-2023.

## 4. Corporate Emissions

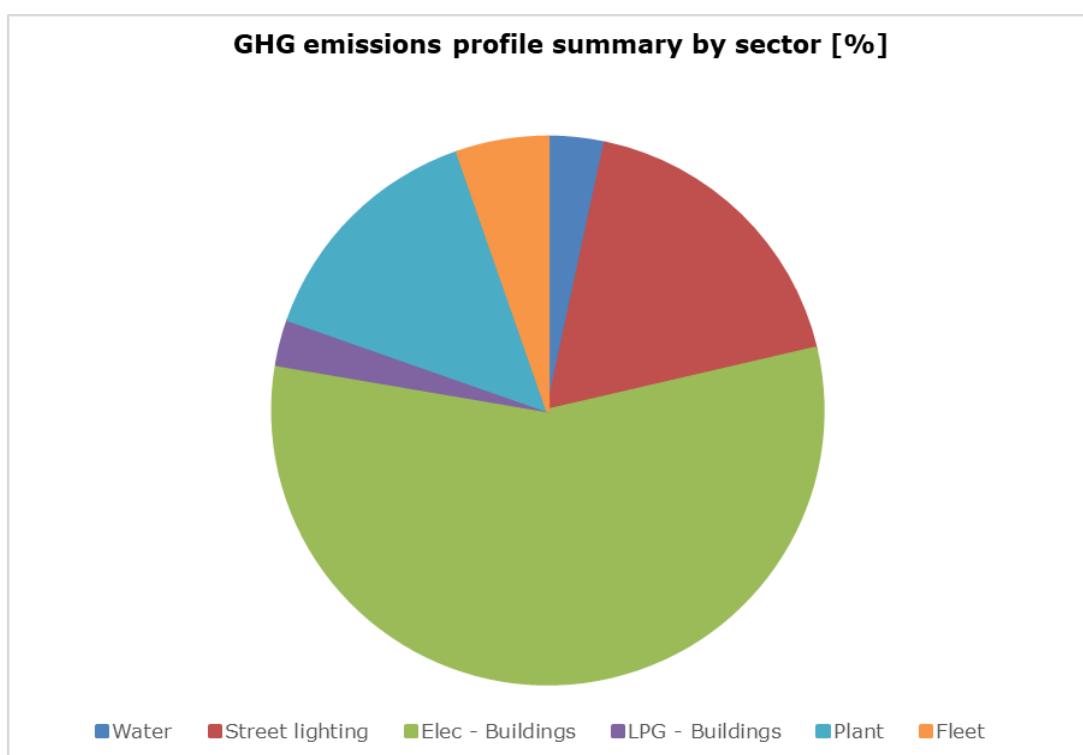
### 4.1 Council's Corporate Emissions Inventory

Council's corporate emissions are those resulting from Council's own operations. Council has undertaken corporate emissions inventories since the 2016/17 financial year (FY).

#### 2018/19 Corporate Emissions Inventory Results

Council has decided that emissions from 2018/19 provides the best representation of Council's current baseline operational emissions. The Covid-19 pandemic in early 2020 and the consequential temporary closure of several Council services and facilities made 2019/20 emissions data less reflective of a typical year's emissions.

In 2018/19, Council corporate activities generated 1033 tCO<sub>2</sub>e of GHG (CO<sub>2</sub>-e). Figure 6 provides a visual breakdown of emissions by sector. The majority of Council's measured emissions come from electricity use in buildings (56%) which includes Council's own corporate electricity consumption, as well as consumption by community and commercial organisations utilising Council-owned assets. The second most significant emissions source is street lighting (18%), then Council's plant which includes diesel and gasoline (14%). Emissions from fleet (5%), water (4%) and LPG for buildings (3%) are relatively minor.



**Figure 6: Emissions profile by sector 2018/19**

## 4.2 Council's Emissions Projections to 2030/31

The business as usual (BaU) trajectory for Mansfield Shire Council's corporate emissions has been modelled to provide an understanding of the impacts of planned works within Council, as well as external factors that may affect the corporate emissions profile.

The modelling indicates that overall emissions will likely remain stable over the next decade<sup>5</sup>. Modest growth in Council services will be countered by decreases in the emissions intensity of grid supplied electricity and standardised improvements to energy efficiency in buildings and vehicle design. While the impacts of new buildings have been incorporated into the projection, significant increases in these areas are not expected at this point. However, if population growth occurs at a higher rate than projected, it is likely that business as usual emissions will increase as Council services grow.<sup>6</sup>

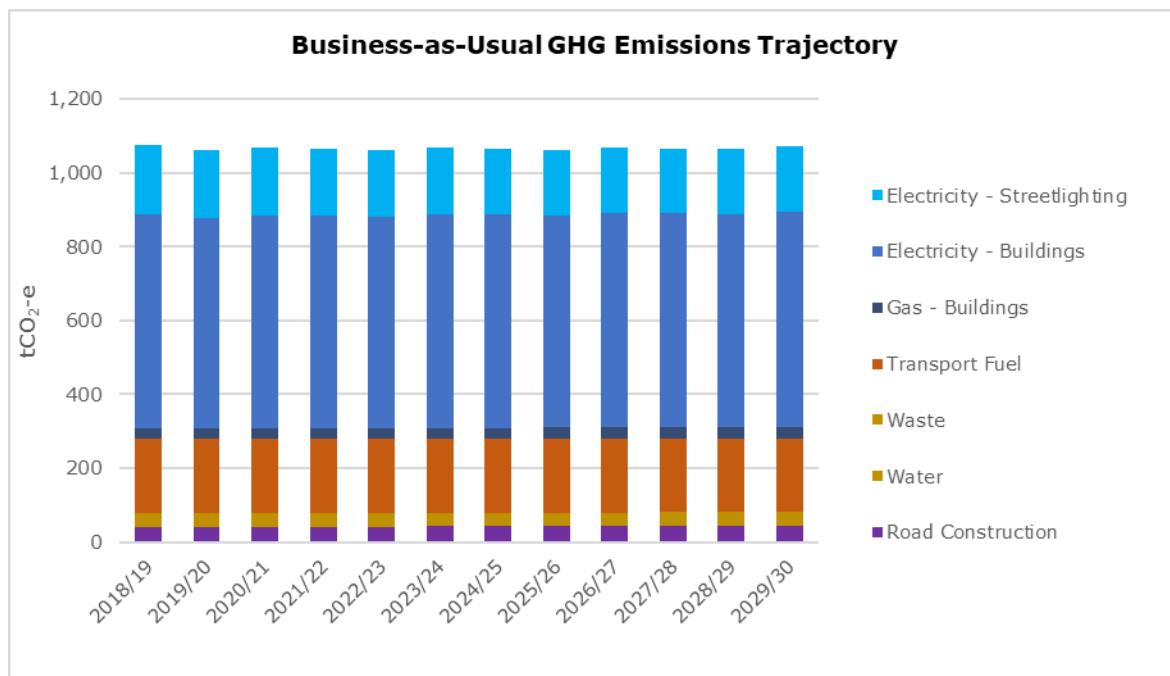


Figure 7: Business-as-usual corporate GHG emissions projection to 2030

5. Based on a 1.1% annual increase in population projected to 2036, Mansfield Shire Economic Development Strategy 2020-2025, p1:  
<https://www.mansfield.vic.gov.au/sites/default/files/largefiles/Mansfield%20Shire%20Economic%20Development%20Strategy%202020-25.pdf>

6. Note that for the purpose of the action planning emissions from road construction have been estimated and included in the emissions projections. This emissions source is likely to be integrated into future inventories so inclusion at this point presents the most reliable picture of emissions moving forward.

## 4.3 Corporate Emissions Target

### Council's Science Derived Target

In becoming a signatory to the Paris Agreement, Australia now has a limited, established carbon budget within which to operate in order to meet its commitment to reduce carbon emissions and limit global warming to “well below 2°C above pre-industrial levels”<sup>7</sup>.

In developing the Climate Action Plan a carbon budget has been calculated for Council’s operations based on the national carbon budget as outlined by the IPCC. The zero net emissions 2025 target set by Mansfield Shire Council is done so within the framework of this carbon budget with the foundational objective being for Council to make a fair contribution towards limiting global temperature rises and the severe impacts this may bring. In short, this Plan enables Council to stay within the carbon budget set by the SDT.

### Council's Net Zero Emissions Commitment

Mansfield Shire Council has committed to achieving zero net emissions for Council’s corporate operations by 2025. This target will ensure Mansfield Shire Council contributes its share of the emissions reductions required for Australia to meet its emissions reduction obligations under the Paris Agreement. This ambitious but achievable target positions Mansfield Shire Council as leader in local government corporate climate action not only within the Hume region but also within Victoria.

*It would be very exciting to see Mansfield Shire lead the way in a commitment to zero emissions in an ambitious time frame. As a small (but growing) Shire, surely we have the ability to make this happen.*

Community member Jimmy C via Have your say on climate action, 03/9/21

Council has listened to the community and made the decision to take strong and urgent action in committing to a Net Zero Emissions target by 2025. This target will support Council to frame emissions reduction actions and ensure appropriate budget and resource allocations are available. Through this target Council is sending a strong message to the Mansfield community and to others in the local, state and federal government that urgent climate action is required, and that Mansfield Shire Council is committed to play its part in this transition.

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7. United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015

## 4.4 Corporate Action Plan

Council will pursue a balanced approach to achieve its net zero target by selecting high impact emissions reduction actions implemented alongside 100% renewables power. This pathway takes advantage of the most cost effective and strategic opportunities available to Council (the “low hanging fruit”) to improve energy efficiency and reduce reliance on fossil fuels while leveraging the PPA to meet the majority of Council’s emissions reduction requirements. The select actions modelled in this pathway are outlined in the following sections alongside indicative costs and emissions and cost savings. A core objective of the pathway is to deliver significant emissions savings within the existing budget and resource constraints of Council.

Benefits to this pathway include:

- Total upfront costs for Council are reduced.
- Costs are spread out over a longer period which will reduce the annual budget pressure required to meet the target in the short to medium term.
- Select actions have been chosen to maximise resource efficiency impact and enhance visibility of Council’s climate change mitigation actions within the community.

Figure 9 illustrates how Mansfield will achieve Zero Net Emissions 2025 through a combination of energy efficiency measures in Council facilities and street lighting, installation of solar PV on Council buildings, and 100% renewable electricity for buildings and street lighting through a PPA.

### Financing the Pathway to Net Zero

Energy efficiency and solar works for facilities will be funded through a combination of the existing budget already allocated for solar installations, modest additional funding (around \$5k per annum) to be recouped in savings, and external funding sources where available. To fund the implementation of the energy efficiency and solar actions within the corporate emissions reduction Action Plan Council will:

- Maintain the existing budget allocation of \$43k per annum for solar panels on Council buildings to 2032.
- Expand the scope of this existing budget to cover all emission reduction actions outlined within this plan.
- Establish a revolving energy fund so savings generated from energy efficiency measures can supplement the existing budget if required.
- Take advantage of external funding streams, grants or rebates that may become available.

Council will seek external funding to cover a proportion of the costs associated with streetlighting upgrades. Potential funding streams include:

- Victorian Energy Efficiency Certificates (VEEEC) – initial analysis based on the streetlight inventory detailed in Appendix A indicates council could recoup around \$50k in VEEC rebates.
- Ausnet - funding from Ausnet for street lighting LED upgrades for Mansfield will be just under \$13k. This is ready to be paid for by council in 2025. Co-ordination is through the MAV Street lighting program and with GMCA.

Figure 8 illustrates the projected cashflow for implementing the corporate emissions reduction actions within this Plan. An initial investment period will be required, most notable will be the street lighting upgrade in 2025. However, analysis shows that Council should begin generating net savings from around 2027/28.

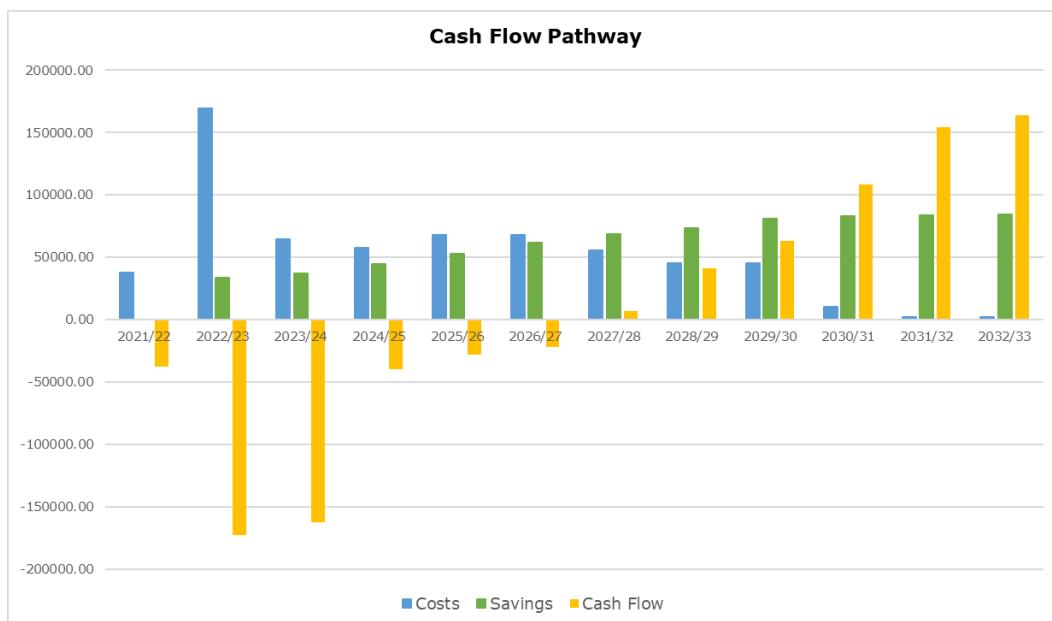


Figure 8: Zero net emissions cash flow pathway

## A Zero Net Emissions Pathway for Mansfield Shire Council

This Action Plan outlines the pathway for Council to reach zero net emissions by 2023 across Council's operations. This will be achieved through a combination of emissions reduction measures in the following areas and the purchase of carbon offsets. The actions included within the plan have been identified through cost benefit analysis as the most cost effective for Council, resulting not only in significant emissions reductions but also notable costs savings for Council to 2030 and beyond.

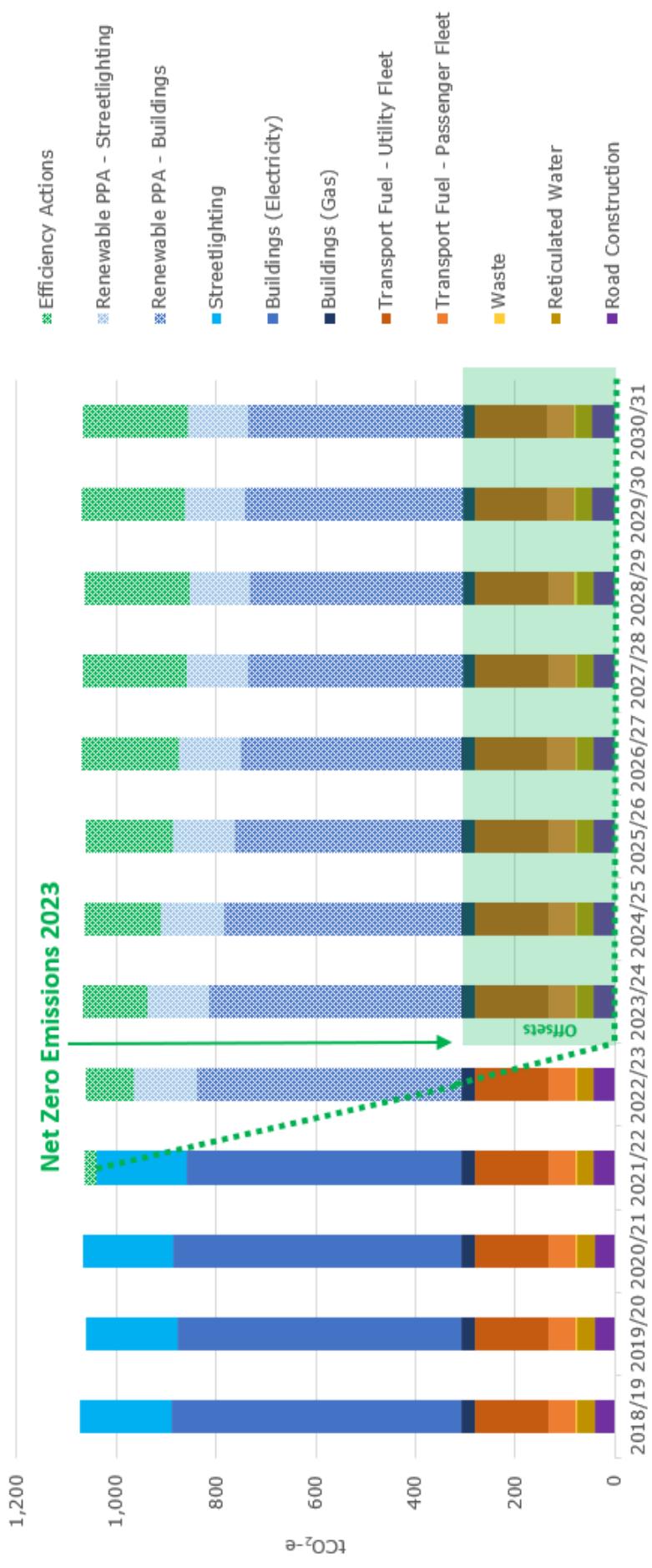


Figure 9: GHG emissions reduction pathway to zero net emissions 2023 including reductions from Actions, Renewable PPA, and Offsets

## 4.5 Council Actions to Reduce Corporate Emissions

This section outlines the key actions to be undertaken by Council to achieve the goal, targets and objectives outlined in this plan. The actions have been broken out into action areas, as follows:

- Renewable Power Purchase -100% Renewable Electricity
- Energy Efficient Buildings and Solar PV
- Street Lighting Upgrades
- Fleet Transition
- Purchase of Offsets

### 4.5.1 Renewable Power Purchase

As the foundational element of the action plan pathway, Council will sign up to 100% renewable electricity by 2025. This will be achieved through a power purchase agreement (PPA). As of July 2022, when existing energy contracts with Procurement Australia expire Council will sign up to a renewable power purchase scheme. An example of such a scheme is the Victorian Energy Collaboration (VECO) which is the largest emissions reduction project ever undertaken by the local government sector in Australia. 46 Victorian Councils have pooled their electricity needs into one long-term contract with Red Energy which provides the VECO group with renewable energy generated from wind farms here in Victoria.

This action alone will net an average annual impact of 580 tCO<sub>2</sub>e per annum resulting in a reduction of around 60% of total emissions by June 2025 and all within Council's current budgets.

**Table 3: Impact of 100% renewable energy power purchase agreement**

Action	Emissions Savings (tCO <sub>2</sub> e/year)	Cost (\$)	Net Savings over Lifetime of Investment (\$)
100% Renewable Electricity Purchase	-580 tCO <sub>2</sub> e	Costs comparable to a non-renewable contract	No additional savings

## 4.5.2 Solar and Energy Efficient Facilities

There three major areas identified to reduce emissions in Council's facilities and buildings. These include:

- Energy efficiency actions including both dedicated efficiency works and equipment specifications for equipment upgrades
- Sustainable Design Policy (or guidelines) for new buildings and upgrades
- Rooftop solar on viable Council sites

The capital cost over 10 years to implement this program amounts to \$470k (to 2032) with 200 tCO<sub>2</sub>e per annum saved. Funding available through Council's current ongoing budget until 2032 is \$430k + external funding as available. The average annual savings once all measures have been implemented will be \$50k per annum. Works will be spread over the period to 2032 to ensure an even annual budget demand.

### Energy Efficiency for Facilities

In 2018 Council participated in the SV Local Government Energy Savers Program (LGES). Through this program detailed energy audits were conducted, resulting in specific recommendations for reducing energy consumption from key sites. Council will build on the energy efficiency opportunity assessments already carried out to develop a schedule of energy efficiency works across key sites. The works will cover the following building groups:

**Energy efficiency measures – Large Facility** – Council will implement a program of energy efficiency works at Council sites with an annual consumption >10,000 kwh per annum. This excludes the Swimming Pool which is assessed separately. Savings and costs in Table 4 are based on savings opportunities identified through Type 1 audits at buildings of similar type and energy demand at other councils. Significant Heating, Ventilation, and Air Conditioning (HVAC) works have been implemented at the Mansfield Shire Council Offices, savings exclude HVAC actions at this site.

**Energy efficiency measures – Small Facility** – Council will implement a program of energy efficiency works at Council sites with an annual consumption 1,000-10,000 kwh per annum as per council audits previously conducted through LGES. It is expected that by making simple upgrades such as gap sealing and lighting upgrades, savings of up to 20% of emissions per site could be generated. Works at small sites may be integrated into general maintenance plans to reduce implementation costs.

**Energy efficiency measures – Large Facility (Swimming Pool only)** - Council will implement a program of energy efficiency works at the Mansfield Swimming Pool as per council audits previously conducted through LGES.

## Ecological Sustainable Design (ESD) Policy

Ensuring that energy efficiency is considered at the design stage of any new buildings or major renovations is crucial. This will be achieved through the development of an Ecologically Sustainable Design (ESD) Policy for Council by 2026. Features of this Policy may include minimum NABERs ratings for all new buildings and renewals, and supporting a transition away from natural gas or LPG in buildings.

## Onsite Solar for Council Buildings

Installing solar photovoltaics (PV) at the point of use, for example on the rooftop of a building, presents a simple opportunity for reducing emissions and generating clean, cheap energy. Due to the costs savings resulting from reduced grid-purchased energy, these projects typically have favourable payback periods.

Council will look to install around 80kW of rooftop solar capacity across viable sites. Feasibility studies will be carried at potential sites to ensure investments are only made where the business case is favorable. As part of the solar PV assessments Council may wish to assess the feasibility of solar hot water heating.

Table 4 outlines the predicted impact of actions addressing energy efficiency in Council buildings. The GHG impact is calculated per year, while the capital cost and cost savings are calculated over the lifetime of the investment.

**Table 4: Impact of actions for solar and energy efficiency in buildings**

Action	Emissions Savings (tCO <sub>2</sub> e/year)	Cost (\$)	Net Savings over Lifetime of Investment (\$)
Energy efficiency for the Aquatic Centre only	30tCO <sub>2</sub> e/year	\$60,000	\$50,000
Energy efficiency measures – Large and Small Facilities (>1,000 kWh/annum)	70tCO <sub>2</sub> e/year	\$160,000	\$30,000
ESD Policy*	40tCO <sub>2</sub> e/year	\$80,000	\$320,000
80kw Solar PV on select facilities **	80tCO <sub>2</sub> e/year	\$120,000	\$360,000

\* Costs, savings and emissions savings are calculated for buildings developed or renewed to the period of FY 2030/31 only. Cost savings are calculated for a 40 year lifespan.

\*\* Costs do not include maintenance costs of approximately \$2,000 per annum over 25 years

## 4.5.3 Street Lighting Upgrades

In 2015 Council replaced roughly 320 of its existing minor road mercury vapor street lights to T5 fluorescent as part of the Watts Working Better street light replacement program, in what was Council's largest ever emissions reduction project. Street Lighting bulk changes are a low-risk opportunity to make significant energy and cost savings within Council. The changeover of Mercury Vapour (MV) lamps is also a compliance issue as these lamps are being discontinued and is therefore a priority for Council.

Based on Council's lighting data there are 207 residential and major road lights that need replacing. Of these lights 95 are cost-shared with VicRoads and 113 are wholly funded by Council. Changing over these lights to LED presents opportunity for emissions savings as well as consistency across Council assets. Implementation of this action will net an average annual impact of 50 tCO<sub>2</sub>e per annum resulting in a 5% reduction in total emissions by June 2025.

While the Capital Cost of funding this action is \$140k, if packaged up with a larger project and included under the capital works budget, there are external funding options available. These include:

- Victorian Energy Efficiency Certificates (VEEC) – initial analysis based on the streetlight inventory detailed in Appendix A indicates council could recoup around \$50k in VEEC rebates.
- Ausnet - funding from Ausnet for street lighting LED upgrades for Mansfield will be just under \$13k. This is ready to be paid for by council in 2025. Co-ordination is through the MAV Street lighting program and with GMCA.

**Table 5: Impact of actions for public lighting**

Action	Emissions Savings (tCO <sub>2</sub> e/year)	Cost (\$)	Net Savings over Lifetime of Investment (\$)
Bulk replacement of 207 residential and major road lights with LEDs	50tCO <sub>2</sub> e	\$140,000	\$355,000

## 4.5.4 Low Emissions Fleet Transition

Replacing an internal combustion engine vehicle with an electric vehicle (EV) can dramatically reduce greenhouse gas emissions and overall operational cost over the course of the vehicle's lifetime. Moreover, EVs have no exhaust emissions, which brings health and other environmental benefits to the broader community.

### Mitigating Risk

As of June 2020, more than 14 countries have proposed banning the sale of Internal Combustion Engine passenger vehicles and over 20 cities around the world have proposed banning ICE passenger vehicles within their city centres<sup>8</sup>. Timelines range from 2025 to 2040 but the direction of change is clear. While Australia has not yet set any targets for banning the sale of ICE vehicles, both national and international pressure is mounting, and it is likely that similar targets will come into effect within the next decade. Regardless of whether such targets are adopted in Australia, there will nonetheless be a shift in international markets and car manufacturing away from ICE and towards EV.

Mansfield manages a large vehicle fleet. It is therefore critical that Council acknowledges the implications of these trends and incorporates them into a Sustainable Fleet Strategy. As well as demonstrating leadership within the region, taking a proactive approach to transitioning away from ICE vehicles will mitigate the real risk to Council of locking in an obsolete fleet. It will also enable Council to manage the transition strategically, allowing for the costs of vehicles and charging infrastructure to be spread over a number of years.

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8. International Energy Agency (IEA), Clean Energy Ministerial, and Electric Vehicles Initiative (EVI) (June 2020). And "Global EV Outlook 2020: Enterign the decade of electric drive?". IEA Publications. Retrieved 15 June 2020. See Table 2.1



## Sustainable Fleet strategy

Council will continue to work with the Goulburn Murray Climate Alliance (GMCA) at the regional level to ensure an appropriate transition to low emissions transport across the region. Through participation in projects such as the GMCA's Electric Vehicle Study Council will learn from others in the region and ensure the fleet transition is rolled out in a strategic and cost effective way.

As an initial step Council intends to scope out the objectives of a Sustainable Fleet Strategy for Mansfield Shire Council. It is expected that the Sustainable Fleet Strategy would include:

- Setting a trajectory for Council to significantly reduce fleet emissions
- Integration of vehicle emissions within procurement criteria to ensure low emission replacement vehicles are selected where possible
- Piloting of electric passenger vehicles and heavy vehicles such as garbage trucks
- Installation of charging infrastructure at Council
- Goal of transition to a majority electric vehicle fleet once this is financially viable

EVs for passenger vehicles are expected to reach cost parity around 2025 and there may also be funding available for supporting EV infrastructure and pilots. The transition will begin with pilots and then accelerate towards 2032 as electric vehicles become financially viable and the charging network expands.

The emissions impact of the Strategy has not been modelled as part of this iteration of the Climate Action Plan. Assessment of the impact of transport actions will be carried as part of the strategy development process. However, since fleet makes up a total of 19% of emissions it is likely the implementation of the Strategy will have a significant impact on Council's emissions.



## 4.5.5 Offsets

Since it is currently not possible for Council to eliminate 100% of its emissions through efficiency and renewable power, offsets will be necessary to achieve net zero emissions status by 2025. Under this plan offsets will be purchased from 2025 onwards and will typically cost \$5k per annum with annual saving of 310 tCO<sub>2</sub>e.

### Purchasing Offsets

When offsetting carbon emissions there are a number of options available. The most common way to offset emissions is to purchase carbon offsets. To ensure Council is purchasing verified offsets from reputable providers, Council will adhere to the guidelines for offset purchase as outlined by the Climate Active national carbon neutral scheme.

Council intends to purchase a combination of Australia (Australian Carbon Credit Units (ACCUs)) offsets and offsets that are generated by international projects such as Verified Carbon Offsets (VCUs). This blended approach will enable Council to prioritise Australian offsets projects which are more costly, while ensuring that the annual budget of \$5,000 is not exceeded<sup>9</sup>.

### Generating Offsets

As a rural council, Mansfield Shire Council has the unique opportunity to collaborate with the local farming sector to initiate an agriculture-based carbon sequestration or emissions reduction project. In the future instead of purchasing offsets from outside of the municipality it may be possible to work with other stakeholders within the community to establish an Emissions Reduction Fund project and self-generate accredited offsets within the municipality. These offsets could then be purchased by Council with any surplus going to the marketplace.

Setting up a local project would require significant resources from Council to initiate and manage, and is not an action within this plan. However, such collaborative partnerships with the farming community will be invaluable in addressing climate change moving forward. Council will remain open to exploring this option within future iterations of the action plan and as opportunities within the community arise.

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9. According to the latest quotes from offset brokers, spot prices for ACCUs had reached on average \$18 compared to around \$3.50 for VCUs

## 4.5.6 Summary of Council's Actions

This plan will see net zero emissions by 2025 and all emissions reduction actions implemented by 2032 with total annual savings in the region of 75k and 1,160 tCO<sub>2</sub>e. The cost to implement the plan will be \$5k per annum plus current budgets and external funding. A summary of actions and their impact can be seen in Table 6 below.

**Table 6: Summary of Council's Corporate Action Plan**

Action	Cost to 2032	Average Annual Savings	Timing
100% Renewable Electricity Purchase	Costs comparable to non-renewable electricity contract	580 tCO <sub>2</sub> e	1-2 years at next contract renewal
Solar PV on Council Buildings	\$120k To be funded from existing solar and energy efficiency budget of \$43 k per annum	80 tCO <sub>2</sub> e \$20k	By 2032
Energy Efficient Facilities	\$300k To be funded from existing solar and energy efficiency budget of \$43 k per annum	140 tCO <sub>2</sub> e \$30k	By 2032
Street Lighting Upgrades	\$140k	50 tCO <sub>2</sub> e \$25k	By June 2025
Purchase of Offsets	\$5k p.a. at 2025	310 tCO <sub>2</sub> e	2025 onwards
Summary	Solar and energy efficiency works covered by existing budgets.  A combination of additional Council budget and external funding required for street lighting.  \$5k p.a in addition to current budgets to cover offsets.	\$75k 1,160 tCO <sub>2</sub> e*	Net Zero by 2025 All actions implemented by 2032

\*This is the total of the average annual savings for all actions. Once offsets are being purchased from 2025 the annual savings will be equal to Council's inventory for that year.

## 5. Community Emissions

For Council, the abatement of community emissions differs from corporate emissions in that with corporate emissions, Council has direct control through their actions to reduce emissions. With community emissions, Council only has a limited amount of control and influence over many of the emissions sources. This section outlines and summarises Council's potential role for a range of interventions to support community climate action.

### 5.1 Mansfield Shire Community Emissions Profile

As seen in Figure 10, the Mansfield Shire local government area released approximately 244 kt CO<sub>2</sub>e for the 2018/19 period in total. The largest source of emissions in Mansfield Shire is the agricultural sector, responsible for generating 41% of total emissions for the municipality. This is significant, and it needs to be noted that there are additional emissions from the agriculture sector that are captured in other sections of the profile. For example, use of farm machinery is captured in transportation for tractor fuel use and stationary energy for farm electricity use. The second highest source of emissions is on-road transportation, accounting for 29% of emissions.

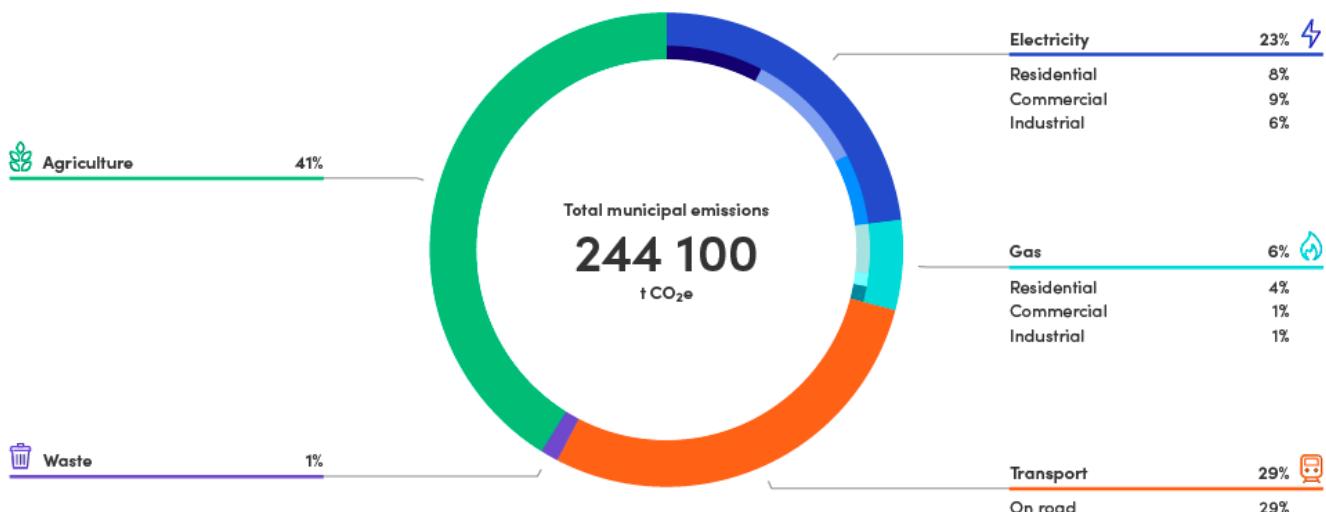


Figure 10: Mansfield Shire 2018/19 community emissions profile (source: Snapshot)

The residential sector is the third largest source of emissions accounting for 12% of the total emissions, followed by the commercial sector (10% of the total emissions) and the industrial sector (7% of the total emissions). Emissions from the residential and commercial sectors result from electricity and gas consumed by buildings and facilities within the municipality. Emissions resulting from waste are relatively minor (1% of total emissions).

It is important to note that Council only has a limited amount of control and influence over many of the community emissions sources. While Council can advocate and assist the broader community to implement climate action projects, a cross-sectoral approach – with residents, business and other levels of government – is required for substantial emissions reductions throughout the municipality.

## 5.2 Target Setting in the Community Context

Mansfield Shire Council's priority within this action plan is in outlining concrete actions which will generate measurable emissions reductions in the areas in which Council has significant control and influence. Therefore, Council has not established and adopted an emissions reduction target for the Mansfield community as part of this Action Plan. Victorian councils are leading the way in setting community emissions reduction targets (33% as opposed to the Australian average of 10%) and are also leading the way in terms of undertaking actions to reduce community emissions (68% as opposed to the Australian average of 25%). Council will review the value of a community emissions target for Mansfield Shire at the next iteration of the Climate Action Plan.

## 5.3 A Changing Climate for Mansfield

Climate change impacts are already being felt within the Mansfield community and Mansfield Shire has an active and growing community of climate concerned residents and businesses. According to CSIRO and the Bureau of Meteorology, climate change will result in a warmer and dryer future for the Mansfield region. By as soon as 2030, less frosts and a greater number of extreme heat days are predicted. Storms are forecast to be more intense and more frequent, placing additional pressure on stormwater infrastructure. The bushfire season will be longer with more high and extreme fire danger days<sup>10</sup>.

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10. Mansfield Shire Council, Sustainable Development & Climate Change, Accessed 20/10/2021:  
<https://www.mansfield.vic.gov.au/residents/community/environment-and-sustainability/sustainable-development-climate-change>

## 5.4 Council's Role in Reducing Community Emissions

As a local government Mansfield Shire Council has an important role in supporting the community through the low emissions transition, and in adapting and developing resilience to local climate change impacts. Local governments are often the first to respond to localised climate change impacts. Their strong connections to the community and local knowledge mean they have a tangible sense of what climate change will mean for their community. This generates the urgency to act. Council's equally strong connection to state and federal government presents the opportunity to advocate for climate action on behalf of the community.

Achieving community emissions reductions at the scale needed will require significant action from all sectors of the Mansfield community as well as from the state and federal government. One of the most vital roles councils can play is that of leaders in the community and the region. Council can set an example through their own operations, and encourage community and cohort councils can follow suit. This Action Plan outlines how Council will leverage its position to support community emissions reduction on three levels:

- 1** Ensuring local service and infrastructure provision is supportive of emissions reduction initiatives. This may include integrating climate change as a consideration in planning and waste services through to supporting local community groups who are applying for funding to reduce emissions.
- 2** Working at the regional level to deliver low emissions transitions in a strategic manner, such as the roll out of electric vehicle charging infrastructure and exploration of low emissions agriculture.
- 3** Providing a voice for the community at the state and national government level to drive action towards a more supportive policy environment for climate change mitigation and adaptation.

This section outlines the community emissions reduction action areas and Council interventions identified to drive community climate action. Key sectors are:

- Transport
- Residential and Commercial Energy
- Agriculture
- Land Use
- Waste

For each action area identified, a set of key interventions have been selected. The interventions outlined in the Action Plan aim to offer support that is valuable to the community, and which leverages Council's strengths and available resources. Implementation of the Action Plan will require climate considerations to be embedded into several Council processes such as planning, community engagement, and waste management. It is however intended that the actions within the community section of this Action Plan will be incorporated into existing roles and budgets.



## 5.4.1 Transport

Transport makes up 29% of total community emissions. Transport is an essential part of life for Mansfield residents, businesses and visitors to the area. It is therefore critical to ensure that the appropriate information and infrastructure is made available as transport modes shift away from internal combustion engine vehicles to electric vehicles (EVs), active and public transport. A strategic approach to electric vehicle charging infrastructure will facilitate tourism and support local businesses as well as signalling to residents that EVs are a viable option within Mansfield.

Transitioning away from internal combustion engine (ICE) vehicles not only reduces emissions from the transport sector, but also reduces air pollution and encourages physical activity. Therefore, this action area provides great health co-benefits for the community and aligns with Mansfield's Health and Wellbeing Plan. Table 7 outlines Council's support in this area and provides an overview of relevant stakeholders and collaboration opportunities.

**Table 7: Council support for community transport emissions reduction**

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
Transport (29% of total community emissions)		
Expand the Electric Vehicle charging network	<ul style="list-style-type: none"> <li>• Collaborate at the regional level through continued participation in the Goulburn Murray Climate Alliance (GMCA). Programs such as Charging the Regions which are aimed as supporting local governments understand their role in providing or facilitating public electric vehicle charging infrastructure.</li> <li>• Incorporate EV charging infrastructure considerations into strategic planning and planning regulations where appropriate. Active engagement by Council at this stage will ensure the electric vehicle charging network for Mansfield is developed strategically and in the best interests of the Shire.</li> </ul>	<ul style="list-style-type: none"> <li>• Goulburn Murray Climate Alliance (GMCA), Electric Vehicle Council, Victorian Government, charging stations businesses (e.g. Chargefox), developers of planned developments within the municipality.</li> </ul>

Table 7: Council support for community transport emissions reduction cont.

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
Transport (29% of total community emissions)		
Improve sustainable transport infrastructure	<ul style="list-style-type: none"> <li>Continue to invest in cycling and walking infrastructure as part of Council's Capital Works plan to ensure safe and convenient active transport options for residents.</li> <li>Advocate to key stakeholders for more resources to be devoted to the implementation of linking bike paths and for investment in public infrastructure that facilitates a future low carbon economy, such as electric vehicle charging stations, bicycle and walking paths and provision for better public transport.</li> </ul>	<ul style="list-style-type: none"> <li>Public Transport Victoria (PTV), VicRoads, Vic Department of Transport</li> </ul>
Promote sustainable transport options	<ul style="list-style-type: none"> <li>Educate residents and visitors on sustainable transport options within Mansfield Shire and the benefits of active and public transport for the community through Council's website.</li> </ul>	<ul style="list-style-type: none"> <li>There are several programs for schools including Bike Ed run by VicRoads. Walk to School (Victorian Health initiative)</li> </ul>

## 5.4.2 Residential and Commercial Energy

Residential and Commercial Energy represents 22% of total community emissions. The long lifespan of buildings means that sites being developed now are essentially locking in community emissions for a number of decades. Improvements to the way in which new developments are built now will have a significant impact on Mansfield's community emissions in the future. In addition, environmentally sustainable design (ESD) not only reduces emissions, but also provides affordable living outcomes through reduced utility bills and improved comfort levels benefiting the community more widely.

Council's current Environmental Strategy encourages the community to plan future building designs to reach a 7-star energy rating or above. Council will continue to stay abreast of best practice in low-emissions development and seek to drive the bar higher than the National Construction Code requires through education and engagement with developers. Table 8 outlines Council's support in this area and provides an overview of relevant stakeholders and collaboration opportunities.

**Table 8: Council support for community energy emissions reduction**

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
Residential and Commercial Energy (22% of total community emissions)		
Planning for low emissions buildings	<ul style="list-style-type: none"> <li>Ensure rigorous and consistent implementation of existing ESD regulations across the Shire through engagement and training with planning teams within Council.</li> <li>Encourage voluntary uptake of higher building standards by engaging with developers during the planning stages and providing guidance on best practice in low-emissions development.</li> <li>Providing education to the community and to the building industry active within Mansfield Council can encourage low emissions building development.</li> </ul>	<ul style="list-style-type: none"> <li>Developers active in the municipality and region.</li> <li>The Council Alliance for the Sustainable Built Environment (CASBE) has useful educational resources such as the CASBE SDAPP framework which covers both residential and commercial buildings.</li> </ul>
Support and advocacy for community energy	<ul style="list-style-type: none"> <li>Support community energy projects within Mansfield through education on funding opportunities, providing letters of support for grant applications, and providing a supportive planning environment.</li> </ul>	<ul style="list-style-type: none"> <li>Local community climate and renewable energy groups.</li> </ul>

## 5.4.3 Agriculture

Agriculture and Land Use account for 41% of total community emissions. As a rural community there is a high level of community interest in this area, as seen in feedback on the Have Your Say Forum. There are several emerging opportunities for emissions reduction and sequestration in the agricultural sector, with a number of dedicated industry associations and research organisations driving important work in this field. Council's role is to support the local agricultural sector in participating in the projects and pilots being delivered by these organisations and to access government funding where applicable.

Linked to the local agricultural sector there is an active and thriving local food industry within Mansfield. By making simple switches to diets such as including grass fed (non-feed lot meat), and actively supporting local regenerative producers, emissions from agriculture can be reduced. Council can educate local residents about the power of sustainable food choices in reducing emissions and supporting the local economy.

**Table 9: Council support for community agriculture emissions reduction**

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
<b>Agriculture and Land Use (41% of total community emissions)</b>		
Support and promote innovation in the agricultural sector	<ul style="list-style-type: none"> <li>Support and promote the work of dedicated industry organisations through memberships to GMCA and by promoting local workshops and events on low emissions and climate resilient agriculture.</li> <li>Promote funding opportunities in the low-emissions agriculture and land use sector and support access to this funding where relevant.</li> </ul>	<ul style="list-style-type: none"> <li>Developers active in the municipality and region.</li> <li>The Council Alliance for the Sustainable Built Environment (CASBE) has useful educational resources such as the CASBE SDAPP framework which covers both residential and commercial buildings.</li> </ul>
Local food production and sustainable diets	<ul style="list-style-type: none"> <li>Promoting or facilitating events such as farmers markets and local producer events.</li> <li>Signposting the community to organisations such as food co-ops, and veggie box services.</li> <li>Educating the community and visitors on healthy, local and climate aware diets.</li> <li>Use of local food in Council food service outlets where feasible.</li> </ul>	<ul style="list-style-type: none"> <li>Local community climate and renewable energy groups.</li> </ul>

## 5.4.4 Land Use

Agriculture and Land Use account for 41% of total community emissions. Trees and other vegetation regulate the local climate by shading streets, parks and buildings. Increasing the shire's tree canopy will therefore help to reduce the effects of climate change on the health of the Mansfield community.

The Have Your Say forum demonstrates that there is considerable community interest in seeing tree cover increased in the Shire, and in the protection of existing native vegetation. Council can leverage its role in strategic land use planning to enhance resilience through improved zoning and overlay controls. There are also opportunities to contribute to sustainability objectives, environmental conservation and economic development, as well as indirect benefits to community health and wellbeing through strategic land use planning. This action area aligns with Mansfield's Climate Adaptation and Health Plan and aspects of the State Government's Climate Ready Victoria (Hume) initiative.

**Table 10: Council support for community land use emissions reduction**

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
<b>Agriculture and Land Use (41% of total community emissions)</b>		
Improve tree cover on Council and Private Land	<ul style="list-style-type: none"> <li>• Increase urban tree cover in Mansfield by setting a target for connected tree canopy cover along all urban streets.</li> <li>• Incorporate additional diverse and resilient tree cover into strategic planning.</li> <li>• Increase rural road tree planting though working with local landcare and community groups to implement.</li> <li>• Plant a diversity of trees to ensure climate, pest and disease resilience and prioritise plantings to areas of need.</li> </ul>	<ul style="list-style-type: none"> <li>• Council Strategic planning team.</li> <li>• Developers active in the municipality and region.</li> <li>• Up2Us</li> <li>• Victorian (or National) Farmers Federation</li> </ul>

## 5.4.5 Waste

Waste contributes to 1% of total community emissions. Council's Waste Strategy Plan outlines a plan to implement FOGO collection by 2024. Crucial to the success of the FOGO collection service will be education and engagement with the community on the impacts of waste and the importance of every household's contribution in decreasing the amount of organics going to landfill.

Council will ensure resources are available to support the successful implementation of the FOGO collection and maximise the emissions reduction potential of this action. Additionally, Council will require all local events to be 'Waste Wise' events by 2025 as a way of encouraging community and visitor engagement with sustainable waste practices and ensuring events have a positive impact on the Mansfield community.

**Table 11: Council support for community land use emissions reduction**

Action area	Council intervention	Relevant stakeholders and collaboration opportunities
<b>Waste (1% of total community emissions)</b>		
Food organics and garden organics (FOGO) collection service	<ul style="list-style-type: none"> <li>Set up FOGO collection for households as per Council's Waste Strategy Plan.</li> <li>Educate the community on the FOGO service to encourage high uptake of the service and decrease organic waste going to landfill. This education aspect will be included as a core element of the new Project Officer Waste and Resource Recovery role to be created in 2022.</li> <li>Require all local events to be 'Waste Wise' events by 2025.</li> </ul>	<ul style="list-style-type: none"> <li>Council waste officer.</li> <li>Organic waste service providers (e.g. Cleanaway).</li> <li>Local event organisers.</li> </ul>

## 6. Monitoring, Evaluation, Review and Learning (MERL)

Mansfield Shire Council understands the opportunities presented by MERL and will ensure it is incorporated as an essential component to any climate change mitigation program implemented by Council. By subjecting emissions reductions programs to close monitoring, Council can learn whether specific actions and interventions are effective and redirect course if necessary. This provides confidence that resources are being used effectively to achieve the planned outcome.

Mansfield takes a collaborative approach and lessons learnt, both positive and negative, can be shared with other Councils via networks such as the GMCA to support the broader regional and national efforts to tackle climate change and to celebrate success.





Image source: Mansfield Shire Council Council website

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