Climate Emergency Plan

Town of Victoria Park

Project No: EP19-121

Prepared for Town of Victoria Park
July 2021

Acknowledgement of the Town of Victoria Park's Traditional Owners

The Town acknowledges the traditional custodians of this land, the Whadjuk people of the Noongar nation, and respect past, present and emerging Leaders, their continuing cultural heritage, beliefs, and relationship with the land, which continues to be important today.

The intimate relationship with their lands and the natural world makes them ideal custodians of the landscapes and ecosystems that are also central to efforts to limit climate change and adapt to its effects.

We thank them for the contribution made to life in the Town of Victoria Park and to this region.

Executive Summary

The Town of Victoria Park (the Town) recognises the climate emergency that is facing our planet. A climate emergency declaration is a global movement identifying we collectively need to radically reduce our carbon emissions to prevent significant climate change and be ready to respond to the immediate changes to our climate. In 2018 the Council declared a climate emergency. This Climate Emergency Plan prepared by Emerge Associates on behalf of the Town is crucial in moving the Town to becoming carbon neutral and providing the community and businesses with support and advice to urgently address their carbon footprint.

The aim of the Climate Emergency Plan is:

* Note our initial projections estimate that we can achieve a 49% reduction in emissions through the actions in the Climate Emergency Plan.

The Climate Emergency Plan includes three core components:

- Council Action Plan– How the council can take direct actions to reduce their carbon impact (mitigation) and adapt to the immediate impacts of climate change within the Perth context whilst providing support for the community and businesses to reduce their own carbon footprint.
- Community Action Plan – Provides the community information on the average emissions profile for Australian households and how they can calculate their own footprint, ways residents are already reducing their emissions, and steps for individuals and households to reduce their emissions.
- Business Action Plan – Provides the Town's local businesses with information on sources of large emissions in business and how they can calculate their own footprints as an organisation, information on what Australian business is already doing to reduce their emissions, and steps on how they can reduce their organisation's emissions.

The development of the Climate Emergency Plan involved:

1. calculating the Town's current emissions,
2. inputs and feedback from council members,
3. input from the community through workshops and surveys,
4. review of data from the Town's existing planning documents,
5. documentation of a roadmap that will guide the Town towards a zero carbon future by 2030.

The Council Action Plan identified eight priorities to guide the Town's carbon reduction and adaptation actions.

Priority Areas	Carbon Footprint	Carbon Reduction / Climate Resilience Target	Cost Impact	Cost saving opportunity
1 **Embed a low carbon culture**	This is a governance priority so has no direct carbon footprint.	This is a governance priority so while it will result in carbon reduction, no specific target is associated with this priority.	The total new cost of actions in this priority is up to $228,000 plus officer time.	Reduced carbon emissions which lead to reduced non-renewable electricity costs and dependence.
2 **Reduce emissions of facilities and assets**	The estimated carbon footprint for facilities and assets is 15%	The KPI for this priority is a 10% reduction in emissions for facilities and assets, equivalent to a 1% reduction in the Town's emissions.	The total new cost of actions in this priority is up to $2.891 million plus officer time and additional actions required following energy audits.	Significant electricity cost savings (25-50% for lighting alone).
3 **Reduce waste emissions**	The estimated carbon footprint for waste is 85% of which the Town is responsible for 0.84%.	The KPI for this priority 50% reduction in waste by 2030, equivalent to a 42% reduction in the Town's emissions.	The total new cost of actions in this priority is up to $3.61 million and aligned with the delivery of the Strategic Waste Management Plan.	Significant landfill levy savings, estimated $340,000 per annum (after first 10 years of operation).
4 **Switch to low carbon and renewables**	The estimated carbon footprint for facilities and assets is 15%	The KPI for this priority 50% reduction in emissions for facilities and assets, equivalent to a 5% reduction in the Town's emissions. Note, our aspirational target is 100% dependent on the findings of future studies.	The total new cost of actions in this priority is up to $1.687 million plus officer time.	Significant electricity and petrol cost savings e.g. $36,000 per annum for Aqualife facility (payback period of 3 years)
5 **Respond to immediate climate change impacts**	This is a climate resilience priority so has no direct carbon footprint.	To improve the resilience of the Town's assets and infrastructure.	The total new cost of actions in this priority is up to $5,000 plus officer time. Several actions to improve our climate resilience are already costed as part of other budgets.	Reduced costs for upfront climate change impacts e.g. reduced recovery costs following emergency climate events or sea level rise.

Priority Areas	Carbon Footprint	Carbon Reduction / Climate Resilience Target	Cost Impact	Cost saving opportunity
6 **Support and educate our community**	This is a community priority so has no direct carbon footprint related to the Town's organisational emissions.	To assist the community in reducing their own carbon footprint and improving climate resilience.	The total new cost of actions in this priority is up to $20,000 plus officer time.	Significant electricity and petrol cost savings for the residents and community.
7 **Support and educate our businesses**	This is a business priority so has no direct carbon footprint related to the Town's organisational emissions.	To assist local businesses in reducing their own carbon footprint and improving climate resilience.	The total new cost of actions in this priority is up to $10,000 plus officer time, with several of the costs in the previous priority also linked to this priority.	Significant electricity, petrol, and landfill levy cost savings for local businesses.
8 **Offset residual emissions**	This is a priority related to offsetting the residual carbon footprint. The informal offset from the Town's urban forest is equivalent to a ~6% saving on our carbon footprint.	The carbon reduction offset priority is intended to offset any residual emissions. This is estimated to be 51% of the Town's emissions in 2030.	The total new cost of actions in this priority is up to $95,400 based on the assumption that offsets commence from 2030.	-

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Abbreviation Tables

Table A1: Abbreviations

Organisations	
ARENA	Australian Renewable Energy Agency
BUF	Building Upgrade Finance
CEM	Circular Economy Model
CFCs	Chlorofluorocarbons
CFL	Compact Fluorescent Lamps
CH_4	Methane
CO_2	Carbon dioxide
CO_2-e	Carbon dioxide equivalent
EER	Energy Efficiency Rating
EPA	Environmental Protection Authority
EPCs	Energy performance contracting
FOGO	Food Organics and Garden Organics
GBCA	Green Building Council of Australia
HFCs	Hydrofluorocarbons
LED	Light Emitting Diode
LGs	Local Governments
N_2O	Nitrous oxide
NABERS	National Australian Built Environment Rating System
NCOS	National Carbon Offset Standard
NF_3	Nitrogen trifluoride
NGER	National Greenhouse and Energy Reporting
PFCs	Perfluorocarbons
PPA	Power Purchase Agreement
PV	Photovoltaic
SF_6	Sulfur hexafluoride
SSWFW	Southern and South Western Flatlands West
ToVP	Town of Victoria Park
TPS	Town Planning Scheme
WALGA	Western Australia Local Government Association

1 Introduction

Following in the footsteps of national and international jurisdictions, the Town of Victoria Park (the Town) Council declared a 'Climate Emergency' in 2018. The Town is only one of only a few Western Australian councils to have adopted a declaration of emergency.

This declaration means we acknowledge that the climate is changing rapidly, and to ensure we play our role in the global response, we need to:

- Rapidly reduce our emissions within an emergency timeframe (mitigation)
- Be ready and able to respond to the immediate impacts of climate change (adaptation).

This Climate Emergency Plan introduces both a carbon reduction strategy to achieve a zero-carbon outcome and an action plan to implement immediate adaptation actions required.

1.1 Our Aim

Our aim of the Climate Emergency Plan is:

* Note our initial projections estimate that we can achieve a 49% reduction in emissions through the actions in the Climate Emergency Plan.

1.2 Why is this important?

With accelerations in global temperature rise, increased during 2015-2019 (set to be the warmest five-year period on record according to the World Meteorological Organisation (WMO)) and increased greenhouse gas concentrations to record levels, the Town accepts and understand the urgency to become a zero-carbon precinct by 2030. We also acknowledge that there is 'international scientific consensus … that climate change is occurring, and human activities are the dominant cause'

(WALGA 2018). The impacts associated with human induced climate change will have an effect on the Town including:

- Higher risk of bushfire events during summer
- More consecutive hot days and heat waves
- Lower average rainfall
- Increased intensity of storms and extreme weather events

Climate Change was identified as one of seven global future megatrends that will affect the Town. This identified further impacts to the Town, including:

- Infrastructure failure: A changing climate will mean increased risks to major infrastructure due to natural events such as floods, storms, and heat waves. These impacts may potentially disrupt transport and utility infrastructure and cause damage to private and public assets.
- Swan River: A significant portion of the Swan River passes through the Town. This means the Town will need to plan for and respond to watercourse damage, drought, acid sulfate soils and potential flooding.
- Loss of ecosystems and public open space: A changing climate may mean that the Town's flora and fauna within its bushland areas may be lost.
- Population health: Increasing temperatures combined with the potential for an increased urban heat island effect could make things harder for elderly people.

The Town, therefore, recognises the need to demonstrate leadership as a local government to reduce carbon emissions within the region and reduce the adverse impacts of climate change for its residents and the associated environment.

Carbon management will be an essential tool to reduce the overall carbon footprint of the Town's emissions to contribute to combatting human induced climate change both now and for the Town's future. The value of calculating the Town's total carbon emissions has identified infrastructure and facilities with the greatest emission percentage. With efforts to reducing carbon contribution, the Town will see anticipated financial savings opportunities in the realm of renewables and strategic waste opportunities. The Town will also provide support, guidance and education for residents and businesses to take part in social responsibility.

The Town also recognises the significant social and economic benefit of reducing our emissions and becoming more carbon resilient. The reduction of emissions leads to health benefits from reduced pollution, economic benefits from switching to greener energy sources and health and wellbeing benefits from using more active transport. The resilience against climate impacts will also help ensure that our organisation and our community are able to respond to the changes in climate, reducing the economic impact and social disruption as a result of significant events.

Overall, the Town's carbon emissions are a small part of Australia's overall carbon footprint. However, we know that each organisation and individual have a role to play in reducing their emissions profile and the Town are supportive of Australian local government authorities, business and the community more broadly in taking collective action. We aim to lead by example in reducing our impact. Together we can contribute to the overall reduction in Australia's carbon emissions and avoiding significant changes to our climate.

1.3 Scope of this Plan

This Climate Emergency Plan includes the following structure:

- **Introduction** including the aim of the Climate Emergency Plan and highlighting why this is important.
- **Background and context** including how the Climate Emergency Plan sits within the Town's framework and relevant State and Federal policies.
- **Community Feedback** including the findings from the community survey and face to face consultation.
- **Our framework** including key principles, carbon hierarchy and climate resilience.
- **Measuring our emissions** including the Town's baseline emissions.
- **Action Plan** separated into three parts:

Council Action Plan	Community Action Plan	Business Action Plan
The Council Action Plan relates to what the Town can do to: • Take direct action for emissions generated by the Town. • Take direct action to respond to immediate climate change impacts. • Provide support and education for community and businesses to reduce their own carbon footprint.	The Community Action Plan provides the community: • Information on the average emissions profile for Australian households and how they can calculate their carbon footprint. • Information on what residents are already doing to reduce their emissions. • Steps on how individuals and households can reduce their emissions.	The Business Action Plan provides local businesses: • Information on the drivers behind large emissions in business and how their organisation can calculate their carbon footprint. • Information on what Australian business is already doing to reduce their emissions. • Steps on how businesses can reduce their emissions.

- **Monitoring and report**
- **Terminology**

2 Background and Context

2.1 Role of the Climate Emergency Plan in the Town's framework

The Climate Emergency Plan is an important document in the existing strategic framework for the Town. The following diagram illustrates how the Climate Emergency Plan sits within the framework and its connection to other key strategic documents. The Environmental Plan (which sits above the Climate Emergency Plan) is underpinned by the Town's Strategic Community Plan 2013-2028. Several other strategic documents have informed this Climate Emergency Plan.

Plate 1: Town of Victoria Park - Strategic framework

The Climate Emergency Plan sits under the Environmental Plan and has been informed by the following strategies and plans:

- Strategic Waste Management Plan
- Urban Forest Strategy
- Integrated Movement Network Strategy
- Local Planning Strategy
- Public Open Space Strategy
- Asset Management Plans

2.2 Current Planning Framework

2.2.1 State Government

The State Government of Western Australia released a greenhouse gas policy in August 2019 targeted towards projects assessed by the Environmental Protection Authority (EPA). The policy supports proponents of projects that emit significant emissions through the development of greenhouse gas management plans in order to implement energy efficient measures for climate

change mitigation. The state government are therefore committed to working with all sectors of the WA economy to achieve a net zero emissions outcome by 2050 with these plans detailing efforts to achieve this target. The government intend to approach this target for projects through flexible solutions involving innovation, new technologies and new opportunities within the state to reduce emissions. Independent recommendations by the EPA are made for major projects involving greenhouse gas emissions to the Minister for the Environment, who will refer to this policy when considering the conditions under which major projects are approved (Government of Western Australia, n.d.).

The state government have acknowledged the rising challenges that climate change pose to Western Australia including vulnerabilities to extreme weather events as a result of higher average temperatures and a steady decline in rainfall. The state government realise the need to incorporate the Western Australian community to determine how as a state, we can move forward to address the risks and seize the opportunities that climate change poses through adaptation and mitigation. In response, the WA government issued the Climate Change in Western Australia Issues paper in September 2019, seeking feedback from the community to shape the State's Climate Policy to transition to a resilient, low carbon economy. The government understand the State's responsibility to seize opportunities to invest and support in new industries, technologies, emerging markets and changing consumer preferences. Hence, this paper provides input to an envisaged roadmap for the state to adopt a long-term approach towards climate change, supporting effective adaptation for industry and businesses, whilst mitigating emissions through low carbon solutions. (Government of Western Australia, 2019).

In 2012, the state government released a Climate Change Strategy, 'Adapting to our Changing Climate.' This strategy highlights the key challenges climate change poses and includes a high-level strategic framework for agencies to create responses for climate change adaptation for implementation in relevant sectors (Government of Western Australia, n.d.). The strategy outlines that the bulk of mitigation policy will occur at a national level, given the position the state falls under for overall national targets. However, the state acknowledges and sees the need for 'complementary action' to assist in the overall national mitigation effort. Overall, the strategy highlights the necessity for Western Australians to adapt in order to avoid or minimise the impacts of climate change to ensure the wellbeing of the community, the environment, and the economy (Government of Western Australia, 2012). The following areas have been highlighted within the strategy of where adaption will be needed;

- Water supplies,
- The agricultural sector,
- Buildings, transport infrastructure, such as roads and rail, and critical infrastructure that supply energy and water, health, and communication services,
- Health, social and emergency management service systems,
- Industries,
- Communities, and,
- Management of our natural environment

In 2019, the Chief Health Officer was appointed by the State Government to hold a Climate Health WA Inquiry. The purpose of the inquiry was to 'review the current planning and response capacity of

the health system in relation to the health impacts of climate change and make recommendations for improvement with respect to climate change mitigation and public health adaptation strategies' (Department of Health 2019). The inquiry provided several recommendations applicable to local government including the consideration of adaptation measures as well as more state-based health responses in emergency situations.

2.2.2 Local Government

At a local level, the Town has continued ongoing commitment to climate change adaptation, and in 2012 signed the WALGA Declaration on Climate Change. In 2016 the Town developed a Climate Change Adaptation Plan, which identified 71 adaptation actions to address risks associated with the Town's services. Some of the actions include climate resilience of essential infrastructure, water and energy efficiency and sustainable design issues.

This Climate Emergency Plan builds on the four-stage process that was used to develop the 2016 Climate Change Adaptation Plan, which reflects the principles of the Australian Standard AS5334 - 2013 (Climate change adaptation for settlements and infrastructure and its predecessor guidance document Climate Change Impacts and Risk Management: A Guide for Business and Government).

This four-stage process included:

- Identification of climate change scenarios and developing workshop issues paper,
- Identification and assessment of risks,
- Defining potential adaptation responses, and
- Developing Climate Change Adaptation Plan.

3 Community Feedback

To support the preparation of the Climate Emergency Plan, we held a community survey through the Town's Your Thoughts platform and a face-to-face workshop with community members. The engagement was focused on community ideas to support the carbon reduction strategies for the Town in achieving a zero carbon outcome by 2030. The participants represented people who live and work in the Town as well as students and regular visitors.

Key survey feedback:

Greater than 75% of the community rated the following climate change actions as either 'important' or 'very important'

Participants identified that businesses need to be on board to achieve a carbon neutral outcome by 2030

Participants highlighted the importance of community education on climate change and energy efficiency

We asked participants about their big idea to achieve our zero-carbon goal. Here's what they said:

"We need dedicated and protected **cycle lanes and car free zones.**"

"Switch to **renewable** energy."

"Work with community groups (existing and emerging) to begin to put **meaningful resilience** and **regenerative strategies** in place."

"**Local recycling solutions,** raising awareness and sustainable purchasing."

"Make the Town **waste-free.**"

"**Plant more trees,** bushes (and) protect the existing trees."

"**Utilising Indigenous perspectives** in combatting climate change."

"Look at providing **electric car re-charging stations** in anticipation of increased take up of electric cars, and maybe even buy some as fleet cars."

"**Community education** but also guidelines & support so everyone can do what they can."

"**Phase out all gas connections** to public buildings, private residences and businesses, replace with renewable electricity."

"Support initiatives to **retrofit energy efficiency** in households."

The following questions were also asked as part of the consultation:

What should the Town be doing to respond to the immediate impacts of climate change?	What should the Town do in the waste space?	What help do you need to reduce your carbon footprint?
Collaborating with businesses Scenario planning for extreme weather and increased temperatures Natural land management options alongside hard engineering solutions Take adaptive measures to deal with impacts Prepare for the impacts of rising sea levels along our river frontage Appoint climate committee Urban greening **Tree canopy minimum 20%** Ongoing community involvement	Incentivising reusable packaging for businesses Less consumption Smaller household bins Circular economy model Divert food waste from grocery stores to homeless people Waste education / workshops / webinars **Composting / FOGO**	Green waste / third bin option Information app Community bicycles No help. I am doing my part thanks Incentives for home insulation **Increased safety public transport** Incentives for light coloured roof surfaces / tiles

The Community Workshop held in July 2020 included a passionate group of community members. At this workshop we shared the eight priorities under the Council Action Plan and conducted a brainstorming session to identify actions under each priority. Some of the key feedback that helped inform this strategy included:

- Preparing an emergency response strategy for the council to initiate during climate related events.
- Working with an organisation to deliver a low carbon schools' program with local schools.
- Enabling the distribution of rates and community information through digital platforms.
- Ensuring that the catering and materials for all community events preference minimal waste and uses local produces.

The draft Climate Emergency Plan was also advertised for public comment with several changes to the Climate Emergency Plan as a result of the valuable feedback we received.

4 Our Framework

4.1 Key Principles

This Climate Emergency Plan has been established utilising the following four key principles:

1. **Leadership:** Demonstrate leadership by reducing emissions generated by Town facilities, assets and operations and improving our resilience to the changes in climate.
2. **Economic value:** Prioritise actions that achieve both an economic benefit and emissions reduction outcome and improved climate resilience.
3. **Strategic Partnerships:** Utilise local and regional organisations and stakeholders to contribute to the Town's emissions reductions and climate resilience as well as emissions of our local community and businesses.
4. **Knowledge and Transparency:** Through the implementation of the Climate Emergency Plan improve our knowledge of emissions data and be transparent about our progress.

4.2 Economic Argument

While the reduction in carbon emissions and improved climate resilience is recognised as an important part of contributing to global carbon emissions reductions and adapting to the changing climate, implementation of these measures also has a positive economic impact on the Town's long term operations. Several actions proposed in this Climate Emergency Plan result in ongoing cost savings for the Town, for example:

- The implementation of energy efficiency measures for lighting both in facilities and assets will create reduced electricity costs (see Priority Area 2). Previous examples implemented by the Town indicate:
  - A 30-50% saving in lighting costs by switching the LEDs within facilities with an estimated payback period of 4-8 years.
  - A 25-50% saving in costs by switching to LED street, park and carpark lighting with an estimated saving of $118 per light per annum.
- The implementation of a Food Organic Garden Organic (FOGO) waste collection service (see Priority Area 3) is expected to save $340,000 per annum realised after the first 10 years of operation. This is a result of the savings in landfill levies because of the reduction in waste.
- The implementation of renewable power generation for council facilities (see Priority Area 4) will result in a reduction in electricity costs. The recent installation of a 100kW system at the Town's Aqualife Facility is estimated to save approximately $36,000 per annum in electricity bills and is estimated to have a payback period of under 3 years.

Based on this, actions in the Climate Emergency Plan have prioritised outcomes that also create an economic benefit to the Town. The cost savings as a result of the implementation of the Climate Emergency Plan will be captured and communicated in future revisions to the Climate Emergency Plan.

4.3 Carbon hierarchy

In formulating the priorities and actions for the Climate Emergency Plan, we have utilized the 'carbon hierarchy'. Similar to the waste hierarchy, the 'carbon hierarchy' focuses on avoiding and reducing emissions first, then sourcing energy from cleaner alternatives, then offsetting.

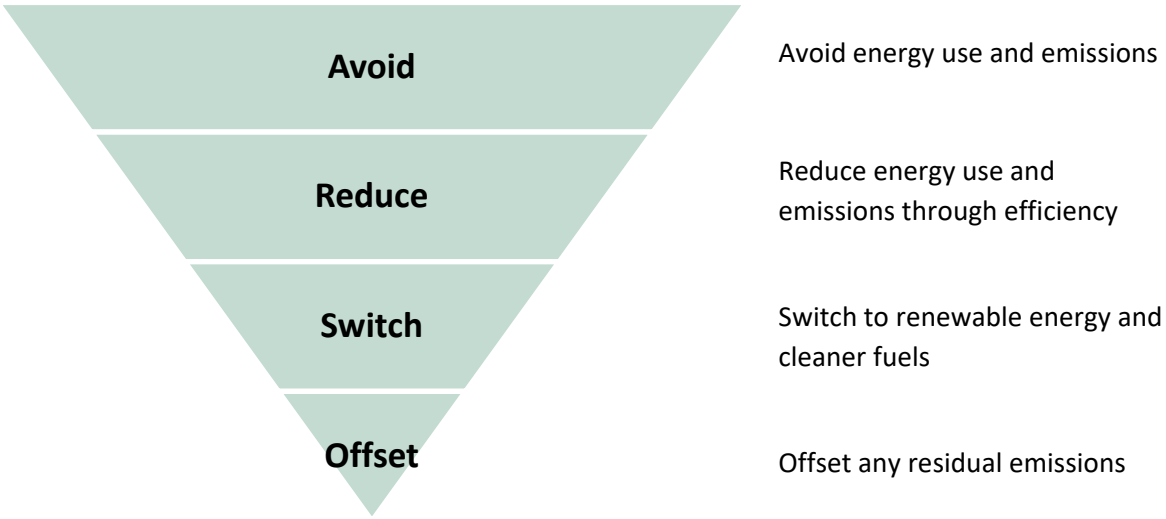


Plate 2: Carbon hierarchy

4.4 Climate resilience

Climate resilience refers to building our Town's resilience to immediate climate change impacts. The climate change projections most relevant for the Town fall within the Southern and South Western Flatlands West (SSWFW) cluster, as designated by the Bureau of Meteorology. Based on the research outlined in the *Climate Change in Australia Projections Cluster Report – Southern and South Western Flatlands* (Pandora Hope et al. 2015) the types of impacts Perth will likely see in the next ten to fifty years are identified in the following table.

Table 1: Climate change projections relevant for the Town under RCP8.5 emissions scenario

Climate variables		2030	2070
Annual Daily Average Temperature	Maximum	+1°C	+ 2.1°C
Annual Extreme Temperature	Average of longest run of days in each year with maximum temperature more than 30°C	+1.7 days (from 8 to 9.7 days)	+5.5 days (from 8 to 13.5 days)
	Average number of days over 35°C	+9 days (from 28 to 37 days)	n/a*
Rainfall	Average annual - winter and spring	5 to 15% drier	15% drier
	Rainfall events – intensity	Increase	
Sea Level Rise	Mean (at Fremantle)	0.12 m	0.45m

Climate variables		2030	2070
Wind Speed	Annual change	Low to no change	
Cyclone activity	Frequency	Increasingly lower	
	Intensity	Higher intensity	
Annual Average Relative Humidity	Change from 1995	1 to 10% less humid	1 to 10% less humid

** Note only 2090 data available, which projects average number of days over 35°C to increase from 28 to 63 days.*

5 Measuring our emissions

Information on the Town's energy use, waste profile and other key data was provided to an external consultancy (Emerge Associates) to calculate the Town's greenhouse gas baseline emissions. The methods used to prepare the baseline emissions calculations were aligned with national standards. A baseline inventory of emission sources and rates was created utilising the data currently available from the Town. The inventory will be continually updated and expanded as the Town develops its data capture processes; in turn, the accuracy of the calculated baseline greenhouse gas emission figure will improve. While recognising that a lack of data may influence the calculations, the Town adopted the precautionary principle, as defined in the *Environmental Protection Act 1986*, in that it decided that a lack of certainty was not a reason to prevent taking action.

5.1 Scope of emissions

The greenhouse gas emissions included in the calculations comprise several gases including Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O). Combined, these gases contribute to the greenhouse effect that is creating changes to our climate. The greenhouse gasses have been converted to carbon dioxide equivalent or CO_2-e which is a standardized method of communicating quantities of greenhouse gases based on their global warming potential.

The global standard for reporting the release of these gases is as direct and indirect emissions.

- Direct emissions refer to sources that are owned and controlled by the Town.
- Indirect emissions are as a result of activities undertaken by the Town but occur at sources owned and controlled by an external entity.

Further, direct and indirect emissions are grouped into three scopes illustrated in **Plate 3**. For the Town, these are:

- Scope 1: All direct emissions from owned or controlled sources of the council
- Scope 2: Indirect emissions from the use of purchased energy (e.g. electricity)
- Scope 3: Other indirect emissions (excluded from scope 2) from the production of purchased materials or services

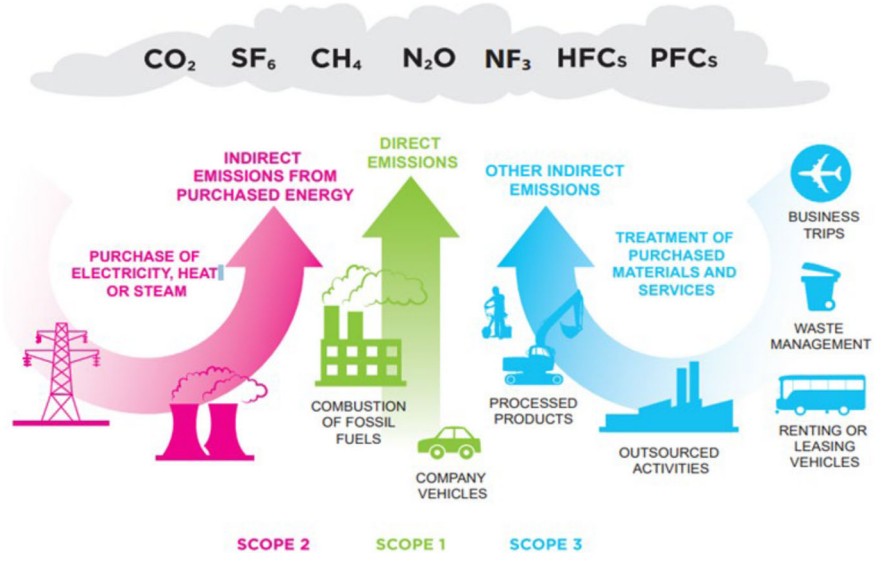


Plate 3: Scope of emissions. Source from NC State University 2020

5.2 Baseline findings

The total CO_2 emissions for the Town as represented by the column graph total **23,799 tonnes CO_2-e per annum** based on FY19. The graph shown in **Plate 4** shows Council's scope 1, 2 and 3 emissions across various sources (mainly electricity, fuel – petrol and diesel, tonnes of waste, aviation fuel and gas).

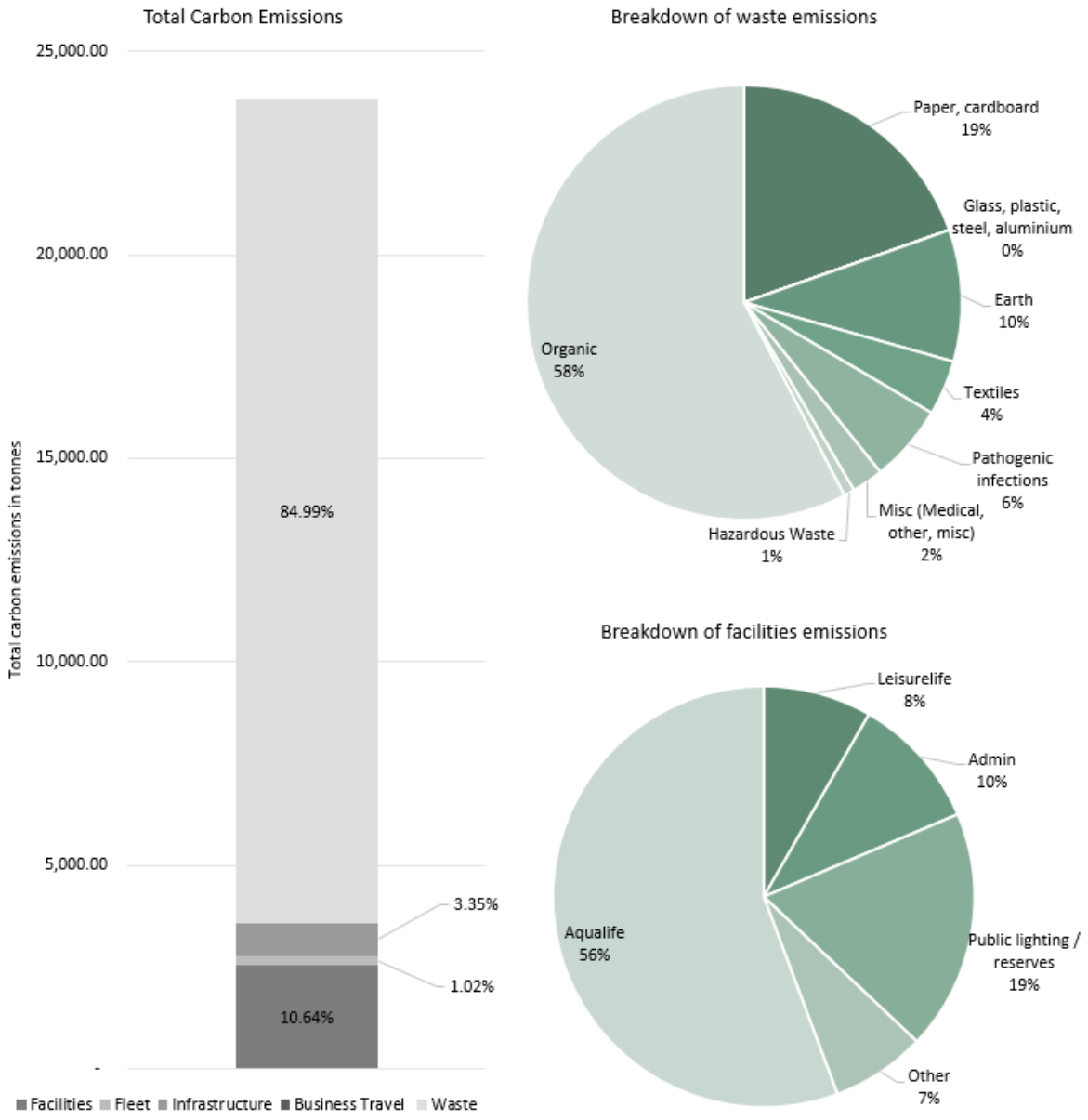


Plate 4: Baseline emissions by percentage - Total, Facilities and Waste

- The business travel accounts for such a small percentage it is not shown in the bar graph
- Waste, although the highest emitter by sector, this calculation accounts for all waste managed by the Town and includes the waste emissions from waste produced by the community and organisations. The Town as an organisation is estimated to be responsible for approximately 1% of the total waste footprint.
- Glass, plastic, steel and aluminium although a contributor of waste, do not produce carbon once in landfill so therefore not illustrated on the waste graph
- Other Facilities includes sporting fields, community facilities, buildings, streetscapes and others not defined.

The total emissions by percentage were calculated across facilities, fleet, waste and infrastructure. CO_2 emissions from council facilities were found to be responsible for the second largest amount of emissions – 10.6% or **2,532 tonnes CO_2-e**. Within this sector, Aqualife was the main source of emissions as indicated by the facilities pie chart. The key findings from the baseline inventory indicate that waste collected by the council contributed to the largest percentage of emissions – 85% or **20,226 tonnes CO_2-e.** Organic waste (49%) was found to be the main source of emissions as shown by the waste graph above. This large waste footprint is because the Town's emissions profile also includes any household or business that use the Town's waste services for landfill collection. The Town as an organisation is estimated to be responsible for approximately 1% of the total waste footprint, with the remainder coming from households and businesses. This is illustrated in the pie graph below.

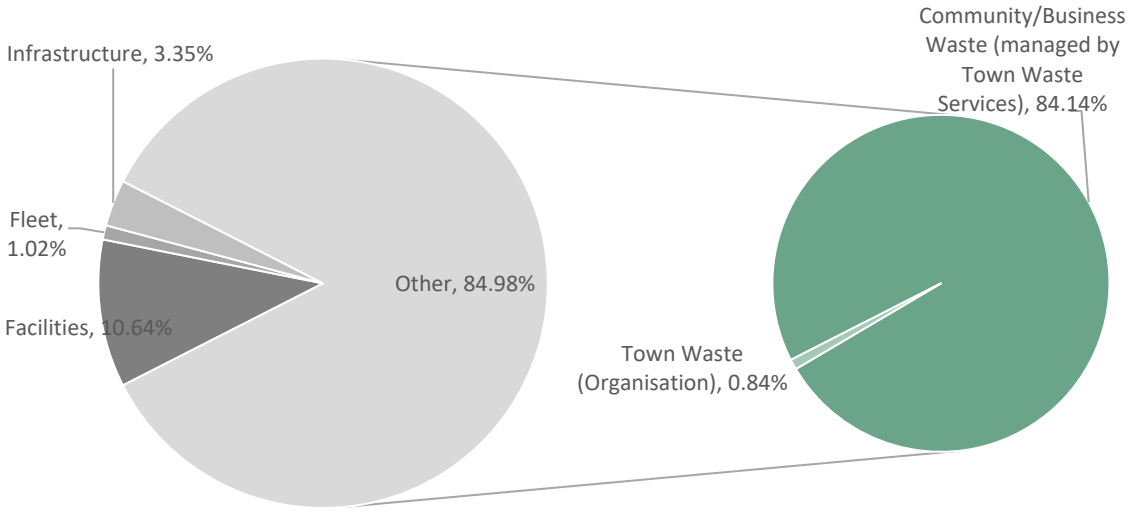


Plate 5: Waste segmentation within baseline emissions

Emissions calculation is a subjective exercise based on the availability of information and conversion factors. The calculation method adopted was based on the National Greenhouse Accounts Factor (Department of the Environment, 2015) which provides conversion factors for different types of emissions. This was supported by emissions conversion factors provided by organisations providing products and services to the Town.

When calculating the baseline emissions for fleet, all employee commuting has not been included in the scope 3 calculations unless employees were utilising a council provided vehicle. Public transport and private vehicle use for council meetings were not included given the limited information provided for calculation. Leased facilities have also been excluded from the baseline calculations unless there is a component of the activity that generates emissions that are paid for by Council. The organic waste diversion at the Neerabup Resource Recovery Facility may result in emissions reductions however this has not been included in the calculations due to limited information regarding the volume of the Town's waste contributing to this diversion. Additionally, with no information available on purchased goods and services and contracted or leased services, these emissions have not been included in the baseline calculations for the Town.

5.3 How do we compare?

Based on a desktop review of other councils that have undertaken carbon footprint calculations, the Town's baseline emissions profile is very similar to other similarly sized local government areas. However, it is a challenge to accurately compare due to variability in the type of facilities, population, and geographic size of each council.

There is also a lot of variability in carbon calculations, specifically what scope of emissions are included. The Town included the waste emissions for all waste collected by the Town's Waste Services. Although the Town generates approximately 1% of this total waste footprint, as the Town manages and disposes of community and business waste using the Town's waste services, all waste emissions were therefore considered the responsibility of the Town. In other local government areas this approach may be different and therefore the total emissions profile would be adjusted accordingly.

6 Council Action Plan

In the preparation of the Climate Emergency Plan we have identified eight priority areas. These priority areas have been summarised below. Each priority area includes several actions, with associated carbon saving, responsibility, timeframe and estimated budget cost.

Priority Area 1	**Embed a low carbon culture**	Embed a low carbon culture into the decision-making framework
Priority Area 2	**Reduce emissions of facilities and assets**	Reduce the emissions of all Town of Victoria Park facilities and assets through better energy management and energy efficiency measures
Priority Area 3	**Reduce waste emissions**	Reduce the emissions generated from the Town of Victoria Park waste through better waste management and education
Priority Area 4	**Switch to low carbon and renewables**	Switch to low carbon or renewable fuels and energy for the Town of Victoria Park's fleet and facilities
Priority Area 5	**Respond to immediate climate change impacts**	Respond to immediate climate change impacts, improving the resilience of the Town and its people
Priority Area 6	**Support and educate our community**	Support our community to reduce their household emissions
Priority Area 7	**Support and educate our businesses**	Support our businesses to reduce their emissions
Priority Area 8	**Offset residual emissions**	Offset residual emissions through sequestration within the Town's urban forest and carbon offsets

The following priority summary table is provided as an overview of the carbon footprint, carbon reduction and climate resilience targets, cost impact and cost saving opportunity.

Table 2: Priority Summary Table

Priority Areas	Carbon Footprint	Carbon Reduction / Climate Resilience Target	Cost Impact	Cost saving opportunity
1 Embed a low carbon culture	This is a governance priority so has no direct carbon footprint.	This is a governance priority so while it will result in carbon reduction, no specific target is associated with this priority.	The total new cost of actions in this priority is up to $228,000 plus officer time.	Reduced carbon emissions which lead to reduced non-renewable electricity costs and dependence.
2 Reduce emissions of facilities and assets	The estimated carbon footprint for facilities and assets is 15%	The KPI for this priority is a 10% reduction in emissions for facilities and assets, equivalent to a 1% reduction in the Town's emissions.	The total new cost of actions in this priority is up to $2.891 million plus officer time and additional actions required following energy audits.	Significant electricity cost savings (25-50% for lighting alone).
3 Reduce waste emissions	The estimated carbon footprint for waste is 85% of which the Town is responsible for 0.84%.	The KPI for this priority 50% reduction in waste by 2030, equivalent to a 42% reduction in the Town's emissions.	The total new cost of actions in this priority is up to $3.61 million and aligned with the delivery of the Strategic Waste Management Plan.	Significant landfill levy savings, estimated $340,000 per annum (after first 10 years of operation).
4 Switch to low carbon and renewables	The estimated carbon footprint for facilities and assets is 15%	The KPI for this priority 50% reduction in emissions for facilities and assets, equivalent to a 5% reduction in the Town's emissions. Note, our aspirational target is 100% dependent on the findings of future studies.	The total new cost of actions in this priority is up to $1.687 million plus officer time.	Significant electricity and petrol cost savings e.g. $36,000 per annum for Aqualife facility (payback period of 3 years)
5 Respond to immediate climate change impacts	This is a climate resilience priority so has no direct carbon footprint.	To improve the resilience of the Town's assets and infrastructure.	The total new cost of actions in this priority is up to $5,000 plus officer time. Several actions to improve our climate resilience are already costed as part of other budgets.	Reduced costs for upfront climate change impacts e.g. reduced recovery costs following emergency climate events or sea level rise.
6 Support and educate our community	This is a community priority so has no direct carbon footprint related to the Town's organisational emissions.	To assist the community in reducing their own carbon footprint and improving climate resilience.	The total new cost of actions in this priority is up to $20,000 plus officer time.	Significant electricity and petrol cost savings for the residents and community.

Priority Areas	Carbon Footprint	Carbon Reduction / Climate Resilience Target	Cost Impact	Cost saving opportunity
7 **Support and educate our businesses**	This is a business priority so has no direct carbon footprint related to the Town's organisational emissions.	To assist local businesses in reducing their own carbon footprint and improving climate resilience.	The total new cost of actions in this priority is up to $10,000 plus officer time, with several of the costs in the previous priority also linked to this priority.	Significant electricity, petrol and landfill levy cost savings for local businesses.
8 **Offset residual emissions**	This is a priority related to offsetting the residual carbon footprint. The informal offset from the Town's urban forest is equivalent to a ~6% saving on our carbon footprint.	The carbon reduction offset priority is intended to offset any residual emissions. This is estimated to be 51% of the Town's emissions in 2030.	The total new cost of actions in this priority is up to $95,400 based on the assumption that offsets commence from 2030.	-

6.1 Priority Area 1: Embed a low carbon culture

Priority Area 1 focuses on embedding a low carbon culture into the decision-making framework. The purpose of this priority area is to ensure that the Town considers carbon as part of its decision making.

The **Key Performance Indicator** for this priority is:

> *The Actions in the Climate Emergency Plan are monitored and implemented over the 10-year duration of the plan.*

The following actions are proposed:

Table 3: Actions for Priority 1: Embed a low carbon culture

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
1.1	Measure CO_2 emissions annually and monitor progress against emissions reduction targets, including: • Measure the impact of actions that have been implemented on the overall CO_2 emissions target. • Review the actions under the Climate Emergency Plan, identifying any actions upcoming and ensure that the Town can still meet its objectives under the plan. • Continue to improve the accuracy of data collection to support CO_2 emissions measurements ensuring that all scope of emissions are accounted for.	Understanding where to take action	Environment	2021 onwards	Approx $10k per annum	-
1.2	Undertake targeted engagement with Town Service areas to establish: • Lead responsibility • Support responsibility • Staged actions (e.g. staged actions to meet longer term targets) This will be captured in a Service Area Operational Plan or similar and should include the establishment of an advisory board linking governance policies to actions within this plan.	Understanding where to take action	Environment	2021	Approx $10k	-
1.3	Preference companies that provide carbon neutral office supply products	Offset emissions	All	2021 onwards	NA	-
1.4	Continue to participate in the Climate Council's Cities Power Partnership	Understanding where to take action	Environment	2021 onwards	Officer time	-

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
1.5	Consider rewarded exemplary local practice for local environmental initiatives that focus on carbon reduction outcomes	Reduce emissions	Strategic Planning, Environment	2021 onwards	$1,000 per annum	-
1.6	Collaborate with neighbouring local governments on cross-council low carbon initiatives and solutions	Reduce emissions	Strategic Planning, Environment	2021 onwards	Officer time	-
1.7	Enable the distribution of community information (including rates) through digital platforms to reduce paper and postage	Reduce emissions	Environment, Communications	2021 onwards	$1,000 per annum	-
1.8	Ensure that the catering and materials for all community events preference minimal waste and low carbon food (e.g. use local produce, vegetarian and vegan options).	Reduction in emissions	Environment, Functions, Community Development	2021 onwards	Estimated at $10,000 per annum[1]	-
1.9	Investigate potential mechanisms for funding local climate change action (e.g. grant funding, parking levy).	Understanding where to take action	Environment	2022	Officer time	-
1.10	Conduct a revision of the Climate Emergency Plan in 2023, 2027 and 2030 to reassess actions, progress and include additional actions where required	Understanding where to take action	Environment	2023 onwards	Approx $30k	-
1.11	Investigate the feasibility and benefit of adopting a Building Upgrade Finance (BUF) scheme to facilitate the environment upgrades / improvements to existing commercial buildings	Understand where to take action to reduce energy and emissions	Environment Planning and Building	2023 onwards	Officer time	-
1.12	Investigate effective approaches to ecologically sustainable development through the Local Planning Strategy, potentially partnering with WALGA[2].	Understanding where to take action	Place planning and Environment	2023 onwards	Officer time	-

[1] The extent of the impact depends on the cost difference to transition to an alternative that is available.

[2] For example, for Town-led and/or proponent-led precinct planning, the Town could develop place specific 'environment briefs' to scope desired environmental targets and objectives for Ecologically Sustainable Development (ESD) within urban renewal precincts.

6.2 Priority Area 2: Reduce Emissions of Facilities and Assets

Priority Area 2 focuses on reducing the emissions of all Town facilities and assets through better energy management and energy efficiency measures. Together the council facilities and assets (including fleet and lighting) account for 15% of the Town's overall emissions.

The **Key Performance Indicator** for this priority is:

> *Reduce the emissions of Town of Victoria Park facilities and assets by 10% by 2030 through improved energy management and energy efficiency measures.*

It is estimated that improvements in efficiencies can create a 10% reduction in facility and asset emissions, leading to a 1.4% reduction in the Town's overall emissions or the equivalent of saving 333 tonnes of CO_2-e per annum. The implementation of energy efficiency measures can also result in a cost saving for facilities and assets with previous examples indicating a 30-50% saving in lighting costs by switching the LEDs within facilities and a 25-50% saving in costs by switching to LED street, park and carpark lighting.

The following actions are proposed:

Table 4: Actions for Priority 2: Reduce emissions of facilities and assets

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
2.1	Continue to rationalise the number of council vehicles required	Avoid and reduce emissions	Fleet Services	2021 onwards	Officer time	Savings in fleet managemt costs to be confirmed in future revisions
2.2	Enable council staff to have the opportunity to work from home to reduce transport requirements and energy consumption of respective facilities.	Avoid and reduce emissions	HR & OD	2021 onwards	No cost to access the Town's system remotely	Savings in energy costs to be confirmed in future revisions
2.3	Implement a regular maintenance program to ensure efficiency of all vehicles is maintained	Reduce emissions	Fleet Services	Minimum annually	$65,000	Savings in fleet managemt costs to be confirmed in future revisions

Indicates that budget is already allocated as part of existing plans and strategies

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
2.4	Continue to require all new and replacement light globes in council facilities to be LED (or similar energy efficient option)	Reduce energy use	Assets and individual facility managers	2021 onwards	Cost depends on light & fixture type. Range on average is $20-$40 per fixture.	30-50% saving in lighting costs
2.5	From 2021, ensure all new appliances for major facilities are within 1.5 stars from the highest available utilising the EER rating.	Reduce energy use	Assets and individual facility managers	2021 onwards	$10,000 per facility	Savings in energy costs to be confirmed in future revisions
2.6	From 2021, ensure all new and replacement council owned streetlights: • Utilise either LED (or similar energy efficiency technology), and • Review availability and viability of Smart Technology enabled lighting assets and implement for lighting assets when appropriate.	Reduce energy use and/or replace with renewable energy	Street Operations	2021 onwards	Between $1,950-$5,000 per light *	25-50% saving in street lighting costs
2.7	From 2021, ensure all new and replacement council owned park lights to utilise either LED (or similar energy efficiency technology)	Reduce energy use and/or replace with renewable energy	Park Operations	2021 onwards	Between $1,950-$5,000 per light *	25-50% saving in park lighting costs
2.8	From 2021, ensure all new and replacement council owned car parking lights utilise either LED (or similar energy efficiency technology)	Reduce energy use and/or replace with renewable energy	Parking	2021 onwards	Between $1,950-$5,000 per light *	25-50% saving in carpark lighting costs
2.9	Require the construction of future Council owned buildings and assets to meet either: • A minimum 5 Star Green Star for New Buildings certification from the Green Building Council of Australia (GBCA) or equivalent, or • Demonstrate that all minimum requirements under the Green Star for New Buildings Positive category from the GBCA have been met, or • A minimum 5 Star NABERS Energy and Waste rating for the commercial office space.	Avoid energy use and utilise renewable energy and efficient technologies to avoid future emissions	Assets, Street Operations and Environment	2021 onwards	This cost for this will be dependent on the size and type of facility.	Reduction in future electricity bills to be confirmed in future revisions

*Depending on project scope

Indicates that budget is already allocated as part of existing plans and strategies

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
2.10	From 2021, enable online meetings between facilities through provision of technology	Avoid emissions	HR & OD	2021 onwards	No further cost	Reduction in transport costs to be confirmed in future revisions
2.11	Establish an education and behaviour change program for the Town's staff focussed on energy savings and efficiency	Instigate avoiding and reducing energy use	Environment	2023	$100	Potential reduction in energy costs to be confirmed in future revisions
2.12	Each major facility[3] to complete an energy audit to identify energy efficiencies and consideration of renewables	Understanding where to take action	Environment and Assets	2024	$7,000/facility	Potential reduction in energy costs to be confirmed in future revisions
2.13	Install the energy monitoring / quality management system for council buildings	Avoid and reduce energy use	Assets	2024	$25,000 - $40,000	Up to 30% energy savings per year per facility
2.14	Implement the recommendations of Town energy audits, where budget allows	Avoid and reduce energy use	Assets and individual facility managers	2027	To be informed by facility energy audit	Payback from energy audit typically 5 years.
2.15	By 2030, transition all existing light globes in council facilities to LED (or similar energy efficient option)	Reduce energy use	Assets and individual facility managers	2030	Cost range on average is approx. $20-$40 per fixture[4]	30-50% saving of lighting energy use per facility
2.16	By 2030, transition all existing appliances for major facilities to improved efficiency within 1.5 stars from the highest available utilising the EER rating.	Reduce energy use	Assets and individual facility managers	2030	$10,000 per facility	Saving in energy costs to be confirmed in future revisions

Indicates that budget is already allocated as part of existing plans and strategies

[3] Major facilities are defined as Aqualife, Leisurelife, Admin building, Depot, Library, GO Edwards Park, Fletcher Park and Higgins Park. These eight facilities represent 85% of the total emissions under the Facilities category.
[4] Cost depends on light and fixture type for conversion.

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
2.17	Provide all minor facilities with recommended minimum standards for light fittings (CFL and LED bulbs) and improved appliances efficiencies within 1.5 stars from the highest available utilising the EER rating.	Reduce energy use	Assets	2030	This cost will be dependent on the size and type of facility	Saving in energy costs to be confirmed in future revisions
2.18	By 2030, transition all council owned existing streetlights to LED (or similar energy efficiency technology)	Reduce energy use and/or replace with renewable energy	Street Operations	2030	$990,000	Change to LED can result in savings of 25-50% compared to CFL and other standard equivalents
2.19	Continue to advocate for all Western Power owned streetlights within the Town to be: • Either LED (or similar energy efficiency technology), and • Smart technology enabled	Reduce energy use and/or replace with renewable energy	Street Operations	2030	Western Power cost	Saving in energy costs to be confirmed in future revisions
2.20	By 2030, transition all existing park lights to utilise either LED (or similar energy efficiency technology)	Reduce energy use and/or replace with renewable energy	Park Operations	2030	$1.188 million	Change to LED can result in savings of 25-50% compared to CFL and other standard equivalents
2.21	By 2030, transition all existing council owned car parking lights utilise either LED (or similar energy efficiency technology)	Reduce energy use and/or replace with renewable energy	Parking	2030	$608,000	Change to LED can result in savings of 25-50% compared to CFL and other standard equivalents

6.3 Priority Area 3: Reduce waste emissions

Priority Area 3 focuses on reducing the emissions generated from the Town waste through better waste management and education. Waste accounts for 85% of the Town's overall emissions. This includes both waste generated by the Town and waste from the community and businesses.

The **Key Performance Indicator** for this priority is:

> *Reduce the emissions of Town of Victoria Park waste by 50% by 2030 through better waste management systems and processes.*

It is estimated that the Strategic Waste Management Plan's target of a 50% reduction in waste will contribute to a 42.5% reduction in the Town's overall emissions or the equivalent of saving 10,113 tonnes of CO_2-e per annum. This uptake of organic waste collection is the most significant contributor accounting for 24.5% of the overall reduction in the Town's emissions profile. Due to the savings in landfill levy, the implementation of a Food Organics Garden Organics (FOGO) waste collection services is estimated to save the Town $340,000 per annum, realised after first 10 years of operation.

The following actions are proposed:

Table 5: Actions for Priority 3: Reduce waste emissions

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
3.1	Implementing educational methods for an improved waste disposal for cardboard and paper by 2023	Avoid and reduce emissions	Waste Services	2023	$5,000	Reduction in landfill levy costs
3.2	Implement FOGO to all households by 2025	Reduce emissions	Waste Services	2025	$710,000 for first year; $580,000/ year for following years	Saving is $340,000 per annum, realised after first 10 years of operation.
3.3	Target a minimum of 50% diversion of organics from landfill by 2030.	Reduce emissions	Waste Services	2030	Part of Strategic WMP targets	~$250,000 per annum saving

Indicates that budget is already allocated as part of existing plans and strategies

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
3.4	Target a minimum of 50% diversion of paper and cardboard from landfill by 2030.	Reduce emissions	Waste Services	2030	Part of Strategic WMP targets	Reduction in landfill levy costs to be determined in future revisions
3.5	Implement methods of efficient and minimised waste disposal for other items to target a minimum of 50% diversion of other materials from landfill by 2030 as per the actions in the Strategic Waste Management Plan.	Reduce emissions	Waste Services	2030	Part of Strategic WMP targets	Reduction in landfill levy costs to be determined in future revisions

6.4 Priority Area 4: Switch to low carbon and renewables

Priority Area 4 focuses on switching to low carbon or renewable fuels and energy for the Town's fleet and facilities. The purpose of this priority area is to utilise low carbon or renewable energy for the residual energy needs.

The **Key Performance Indicator** for this priority is:

> *Ensure that at least 50% of council facilities and 50% of vehicles by 2030 are powered by low carbon fuels or renewable energy.*

While our renewable target is 50% of all energy by 2030, **our aspirational target is 100%.** We do however need to do more research to establish whether this aspirational target is achievable by 2030 without imposing a significant cost on ratepayers. This is primarily due to the higher cost associated with securing renewables for nighttime energy loads and needs to be supported by further investigations as detailed under Actions 4.2, 4.3, 4.4 and 4.5 below as well as the energy audit and implementation action of 2.12-2.14 under a previous priority. Updates on how we are progressing with both the agreed target and aspirational target will be provided as part of the Plan's regular review and revision.

It is estimated that by switching 50% of the facilities energy needs to renewables and 50% of vehicles powered by low carbon fuels or renewables, there will be a 5.3% reduction in the Town's overall emissions or the equivalent of saving 805 tonnes of CO_2-e per annum. The implementation of low carbon and renewable actions can also result in a cost saving for facilities and assets due to the reduction in electricity bills. For example, the recent install of a 100kW at the Aqualife Facility is estimated to save the Town approximately $36,000 per annum and has a payback period of less than 3 years.

The following actions are proposed:

Table 6: Actions for Priority 4: Switch to low carbon and renewables

Action		Carbon benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
4.1	Continue the use of bicycles within the Council's fleet for suitable council travel	Reduce energy use and emissions	Fleet Services	2020 onwards	Within existing fleet maintenance budget	Savings in fuel costs
4.2	Investigate the viability of a community battery for storage of renewable power.	Further uptake of renewables	Environment, Assets	2022	Officer time	Potential savings in electricity bills to be determined following study
4.3	Investigate the feasibility of replacing gas use (a non-renewable resource with a carbon impact) with electricity, geothermal or renewable hydrogen for council facilities	Switch to lower carbon energy	Assets	2022	Officer time	Potential savings in energy bills determined as part of feasibility
4.4	Undertake a consideration for a Power Purchase Agreement contract for all major facilities that provides power that produces 20% less carbon than the grid	Replace energy used with renewables	Environment and Assets	2024	Cost dependent on the proposed supplier contract to power the Town's facilities	Savings in energy costs to be determined as part of contract revision
4.5	Conduct a feasibility assessment for the installation of a Microgrid within the Town	Potential to reduce energy use and replace energy used with renewables	Environment and Assets	2025	Officer time	Potential savings in electricity bills determined as part of feasibility
4.6	Transition 20% of all light vehicles to electric by 2025, if price projections continue to meet affordability parameters	Reduce energy use and emissions	Fleet Services	2025	$473,000[5]	Savings in fuel costs determined as part of future revisions

[5] Based on current prices for electric vehicles, projections indicate this cost will continue to reduce with some predictions estimating that electric vehicles will be cost equivalent to their petrol equivalent by 2025.

Action		Carbon benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
4.7	Transition 50% of all light vehicles to electric by 2030, if price projections continue to meet affordability parameters	Reduce energy use and emissions	Fleet Services	2030	$1,178,000	Savings in fuel costs determined as part of future revisions
4.8	In the establishment of electric vehicle charging infrastructure, ensure at least 50% of energy used to charge electric vehicles is sourced from renewable energy	Reduce emissions by replacing energy used with renewables	Fleet Services and Environment	2030	$6,000 per station	Savings in electricity bills determined as part of future revisions
4.9	Through installation of solar and power purchase agreements, ensure that at least 50% of all energy used for council facilities is sourced from renewables by 2030	Replace energy used with renewables	Environment and Assets	2030	Cost dependent on the proposed supplier contract to power the Town's facilities	Savings in electricity bills determined as part of future revisions

6.5 Priority Area 5: Respond to immediate climate change impacts

Priority Area 5 focuses on responding to immediate climate change impacts, improving the resilience of the Town and its people. The purpose of this priority area is to ensure that the Town is ready for the immediate changes in our climate.

The **Key Performance Indicator** for this priority is:

Implement the proposed actions to improve the resilience of the Town of Victoria Park

As this priority is focused on responding to climate change impacts (rather than reducing carbon) there is no direct reduction in the Town's carbon footprint as a result of this priority.

The following actions are proposed:

Table 7: Actions for Priority 5: Respond to immediate climate change impacts

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
5.1	Continue to implement Urban Forest Strategy targets around tree retention and vegetation growth to address heat stress concerns	Climate resilience	Place Planning, Technical Services and Infrastructure Operations	2021 onwards	$1M/year	Ancillary cost savings around health, energy use and maintenance
5.2	Continue to manage parks and bushland reserves to mitigate bushfire risk to surrounding assets, whilst aiming to enhance and increase the proportion of green space within the Town.	Climate resilience	Parks	2021 onwards	$195,500	Ancillary costs savings from bushfire avoidance
5.3	Conduct an awareness campaign to at risk businesses and housing (e.g. flood risk, sea level rise, heat waves and bushfire)	Climate resilience	Environment and Safety	2021 onwards	Officer time	-
5.4	Promote best practice erosion and flood risk management through water sensitive design at planning stages within the Town and implementation of the recommendations of the Swan and Helena Floodplain Development Strategy.	Climate resilience	Environment, Development Services and Technical Services.	2021 onwards	Officer time	Savings in maintenance costs determined in future revisions
5.5	Implement a targeted community education and awareness program for vulnerable community members during heat waves providing vulnerable community members: • Resources to manage heatwaves in their homes. • Information on how to seek respite with actions to help vulnerable community members (e.g. free access to council swimming pool facilities).	Climate resilience	Environment, Place Planning, Safety, Assets, Environmental Health	2021 onwards	$5,000	Ancillary cost savings around health and emergency response
5.6	Conduct heat wave response mapping and strategic tree planting for increased coverage	Climate resilience	Place Planning and Infrastructure Operations	2021 onwards	As per action 5.1	-

Indicates that budget is already allocated as part of existing plans and strategies

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
5.7	Implement the recommendations of the Town's Flood Adaptation Plan	Climate resilience	Planning, Engineering, Environment, Communications	2021 onwards	The cost associated with the actions are yet to be determined	Maintenance cost savings determined in future revisions
5.8	Collaborate with relevant state government stakeholders to implement consistent communication and support for the community during climate related events such as heatwaves, floods, or severe storms. This includes advocating for the State and Federal Government to deliver: • Strong climate change action, leadership, and coordination at all levels of government. • Effective and adequately funded Commonwealth and State Government climate change policies and programs	Climate resilience	Environment, Safety	2022 onwards	Officer time	-
5.9	Ensure all new and existing facilities and assets are resilient to extreme weather impacts through: • Build quality and effective maintenance. • Preparation and implementation of emergency response plans	Climate resilience	Assets, Safety	2022 onwards	Officer time	Savings in future maintenance cost for resilient facilities

6.6 Priority Area 6: Support and educate our community

Priority Area 6 focuses on supporting our community to reduce their household emissions. The purpose of this priority area is to provide education and support to our community, helping every individual in the Town reduce their carbon footprint.

The **Key Performance Indicator** for this priority is:

> *By 2030 greater than 60% of respondents in a community survey indicate that they've taken active steps to reduce their household carbon emissions.*

As this priority is focused on empowering the community to reduce their own carbon footprint, there is no direct reduction in the Town's carbon footprint as a result of this priority. However, community reduction in waste will contribute to the reduction in waste managed by the Town and therefore a reduction in emissions.

The following actions are proposed:

Table 8: Actions for Priority 6: Support and educate our community

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
6.1	Provide community education on their household energy use, including: • Energy efficiency and usage • Performance during heatwave events • Energy audits	Supporting the reduction in energy use	Environment	2021 onwards	$500 per annum	Reduction in household electricity bills
6.2	Provide the community information on the value and benefit of switching to fuel efficient cars	Supporting the transition to fuel efficient cars	Environment and Fleet	2021 onwards	$500 per annum	Reduction in household transport bills
6.3	Continue to provide sustainability-based incentives for residents	Supporting the reduction in emissions	Environment	2021 onwards	$15,000 per annum	Reduction in household bills
6.4	Provide regular information to encourage and promote active transport use	Supporting the reduction in emissions	Environment, Street Improvement, Community Development	2021 onwards	$500 per annum	Ancillary savings in private transport costs
6.5	Continue to hold an annual community tree planting days	Offset emissions	Place Planning, Parks Operations, Environment	2021 onwards	As per action 5.1	-
6.6	Continue to provide educational workshops on the value of tree retention, urban farming, and sustainable landscaping, including biophilic design.	Supporting further emissions offsets	Environment	2021 onwards	As per action 5.1	Ancillary savings for household food costs
6.7	Continue to provide community education on how to reduce landfill waste and improve recycling	Supporting the reduction in emissions	Waste Services, Environment	2021 onwards	$15,000	Reduction in landfill levy costs
6.8	Promote the use of established platforms and tools that encourage energy and waste reduction and sharing of resources	Supporting the reduction in emissions	Environment	2021 onwards	Officer time	Ancillary savings in household bills

Indicates that budget is already allocated as part of existing plans and strategies

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
6.9	Provide the community information on options for installing solar energy for all new and existing dwellings, including alternative financing options. Delivery of this action should include partnering with an organisation to offer residents free advice for reducing energy use and installing solar and battery storage technology.	Supporting the transition to renewable energy	Environment	2022	$5,000 - $10,000	Reduction in household electricity bills
6.10	Work with an organisation to deliver a low carbon schools' program with local schools	Reduction in emissions	Environment	2022	Potential part of the Town's Switch Your Thinking program, $5,000 per annum.	Reduction in school electricity bills
6.11	Investigate the opportunity to provide subsidies, products or similar to support organic waste recycling at home	Supporting the reduction in emissions	Waste Services, Environment	2022	Officer time	Reduction in landfill levy costs
6.12	Investigate the opportunity to provide an incentive based mechanism for residents to reduce their waste footprint	Supporting the avoidance and reduction in emissions	Waste Services, Environment	2025	Officer time	Reduction in landfill levy costs
6.13	Investigate community interest in establishing a repair shop or similar to encourage diversion from landfill	Supporting the avoidance of emissions	Waste Services, Environment	2025	Officer time	Reduction in landfill levy costs
6.14	Investigate the roll out of electric vehicle infrastructure within the Town for community and business use	Supporting the avoidance of emissions	Environment, Assets and Technical Services	2023	Officer time	Reduction in private vehicle fuel use

Indicates that budget is already allocated as part of existing plans and strategies

6.7 Priority Area 7: Support and educate our businesses

Priority Area 7 focuses on supporting our businesses to reduce their emissions. The purpose of this priority area is to provide education and support to our community, helping every business in the Town reduce their carbon footprint.

The **Key Performance Indicator** for this priority is:

> *By 2030 greater than 60% of business respondents in a survey indicate that they've taken active steps to reduce their business carbon emissions.*

As this priority is focused on empowering businesses to reduce their own carbon footprint, there is no direct reduction in the Town's carbon footprint as a result of this priority, however, business reduction in waste will contribute to the reduction in waste managed by the Town and therefore a reduction in emissions.

The following actions are proposed:

Table 9: Actions for Priority 7: Support our business

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
7.1	Extend community education on energy efficiency and consumption for businesses, highlighting the economic and environmental benefit for smarter energy usage	Supporting the reduction in emissions	Environment	2021 onwards	As per action 6.9	Reduction in business electricity bills
7.2	Provide businesses of the Town with information on the value and benefit of switching company vehicles to fuel efficient cars, highlighting reduced fuel consumption costs	Supporting the transition to cleaner fuels	Environment	2021 onwards	As per action 6.2	Reduction in business transportation costs
7.3	Continue sustainability-based incentives to business owners for utility and supply cost benefits	Supporting the reduction in emissions	Environment	2021 onwards	As per action 6.3	Reduction in business costs
7.4	Develop a comprehensive and effective travel demand management strategy as part of the review of the Town's Integrated Movement Network Strategy	Supporting the reduction in emissions	Environment and Place Planning	2021 onwards	$10,000 - $15,000	Reduction in transportation costs
7.5	Seek support from local businesses for the annual community planting day	Offset emissions	Environment, Place Planning	2021 onwards	Officer time	-
7.6	Provide educational workshops on the value of tree retention, urban farming, and sustainable landscaping for businesses, including biophilic design.	Supporting further emissions reduction	Environment	2021 onwards	As per action 5.1	-

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
7.7	Extend community education on waste and recycling to businesses, highlighting the economic benefit for waste minimisation	Supporting the reduction in emissions	Environment and Waste Services	2021 onwards	As per action 6.7	Reduction in landfill levy costs
7.8	Investigate the opportunity to provide subsidies to support organic waste recycling for businesses to reduce landfill waste	Supporting the reduction in emissions	Environment and Waste Services	2022	Officer time	Reduction in landfill levy costs
7.9	Provide businesses with information on options for installing solar energy for new and existing business facilities and buildings, including alternative financing options to highlight the affordability of cleaner energy solutions	Supporting the transition to renewable energy	Environment	2022	As per action 6.9	Reduction in business electricity bills
7.10	Partner with an organisation to offer businesses free advice for reducing energy use and installing solar and battery storage technology.	Supporting the transition to renewable energy	Environment	2022	As per action 6.9	Reduction in business electricity bills
7.11	Investigate the opportunity to provide an incentive-based mechanism for businesses to reduce their waste footprint, including a recognition/reward program for businesses that are using energy efficient and sustainable practices.	Supporting the reduction in emissions	Environment and Waste Services	2025	Officer time	Reduction in landfill levy costs
7.12	Investigate the opportunity to partner with local businesses providing repair services	Supporting the avoidance of emissions	Environment	2025	Officer time	Reduction in landfill levy costs

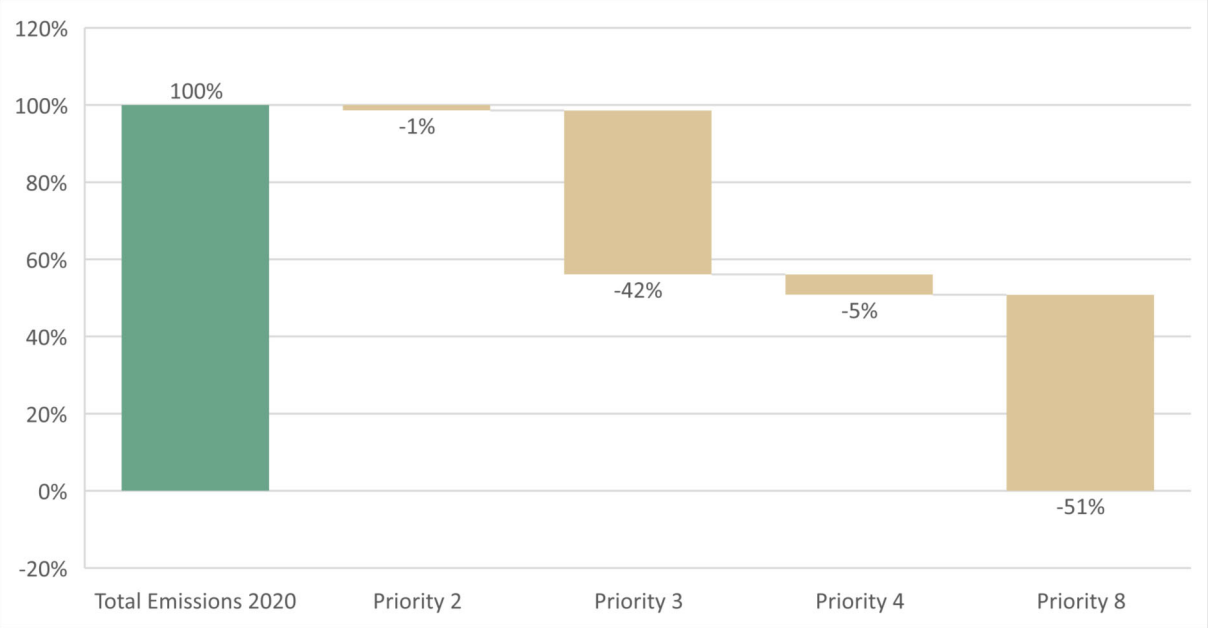
6.8 Priority Area 8: Offset residual emissions

Priority Area 8 focuses on offsetting residual emissions through sequestration within the Town's urban forest and carbon offsets. The aim of this document is to focus on the reduction of carbon emissions, however there will always be residual emissions that require offsetting to reach our zero carbon target. The purpose of this priority area is to get to our zero carbon goal, offsetting any remaining emissions generated by the Town.

The **Key Performance Indicator** for this priority is:

By 2030 offset any residual emissions to achieve a zero-carbon outcome

Based on our preliminary estimates, the residual emissions that will need to be offset represent approximately 51% of the Town's total baseline emissions or the equivalent of 12,092 tonnes of CO_2-e per annum.



Graph 1: Projected carbon reduction based on Key Performance Indicator targets

Carbon offsets are a mechanism that indirectly offset emissions through investing in solutions that either remove carbon from the atmosphere through sequestration and storage or programs focused on emission reduction/avoidance for other organisations. The Town currently has two offset mechanisms in place:

1. The informal offset gained by the carbon sequestration of our Town's Urban Forest. The Town cares for approximately 23,200 trees which equates to approximately 1,500 tonnes of CO_2-e sequestrated every year.
2. A formal offset program through Carbon Neutral, offsetting 347 tonnes of CO_2 per annum for the Town's fleet through the Yarra Yarra Biodiversity Corridor Biodiverse Carbon Offsets Program. This program is located in the northern wheatbelt of Southwest Australia.

To ensure future offsets are in line with recommended industry best practice, the following criteria that must be met before future purchasing of offsets are as follows:

Step 1 - Standard of offset

Different projects generating offsets to purchase may be accredited to various standards. The Town should select a standard of accreditation that aligns with its own organisational values. For example, the Australian Government's initiative 'Climate Active' (formerly NCOS) provide guidance for what is a genuine voluntary offset and set minimum requirements for calculations / actions associated with offsets[6]

Step 2 - Location

Selection of the offset project location will need to be considered e.g. local, state, national or international. It should be noted that major offset projects are limited due to the availability of suitable sites and capital costs and may need to be considered outside the boundaries of the Town.

Step 3 - Social & Environmental Benefit

The benefits of the offsetting project should be considered that focus on delivering social and environmental benefits in addition to reducing emissions. Benefits include increased biodiversity, maintaining habitat, avoiding clearing of vegetation, local employment, living and working on country and improved health & education.[7]

The following actions are proposed:

Table 10: Actions for Priority 8: Offset residual emissions

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
8.1	Continue to offset the fleet emissions annually	Offset emissions	Fleet Services	2021 onwards	$8,000	-
8.2	Through implementing the objectives of the Urban Forest Strategy, double the urban canopy from that measured in 2016 of 10% or 1.8mill m2 to 20% or 3.6mill m2 (at tree maturity).	Understanding where to take action to offset emissions	Place Planning	2024	As per action 5.1	-
8.3	Investigate the opportunity of recognising the Town's urban forest as an official offset/carbon credit	Offset emissions	Place Planning	2022	$5,000	-
8.4	Partner with a research institution to undertake a Masters or Honours project that completes detailed sampling to estimate carbon sequestration capacity of the Town's existing and developing urban forest.	Understanding where to take action to offset emissions	Place Planning	2024	Cost will be determined by the scope of the project	-

Indicates that budget is already allocated as part of existing plans and strategies

[6] Carbon Neutral Pty Ltd, 2017 https://www.climateactive.org.au/what-climate-active
[7] Climate Active, 2019

Action		Climate benefit	Responsibility	Timeframe	Estimated budget cost	Anticipated savings
8.5	Carbon offset all air travel by 2025	Offset emissions	All	2025	Estimated at <$10 per flight	-
8.6	Appropriate purchase of carbon offsets to achieve the net zero emissions target by 2030.	Offset emissions	Environment	2030	Approx $100k per annum	-

7 Community Action Plan

7.1 Average emissions for each individual

In Australia, the average individual's greenhouse gas emissions are the equivalent of 16.9 tonnes of carbon dioxide per year (OWID, 2019) (see **Plate 6** below) with some estimates indicating it is as high as 21 tonnes of carbon dioxide per year (Australian National University, 2020). Our total carbon footprint can vary depending on the calculations used so there is a wide range of what the average individual's footprint is.

Australia has one of the highest carbon footprints per capita in the world

Aspects of our lifestyle such as how we manage our waste, or factors like how much we use our cars or how much energy we use, all contributing to our overall carbon footprint.

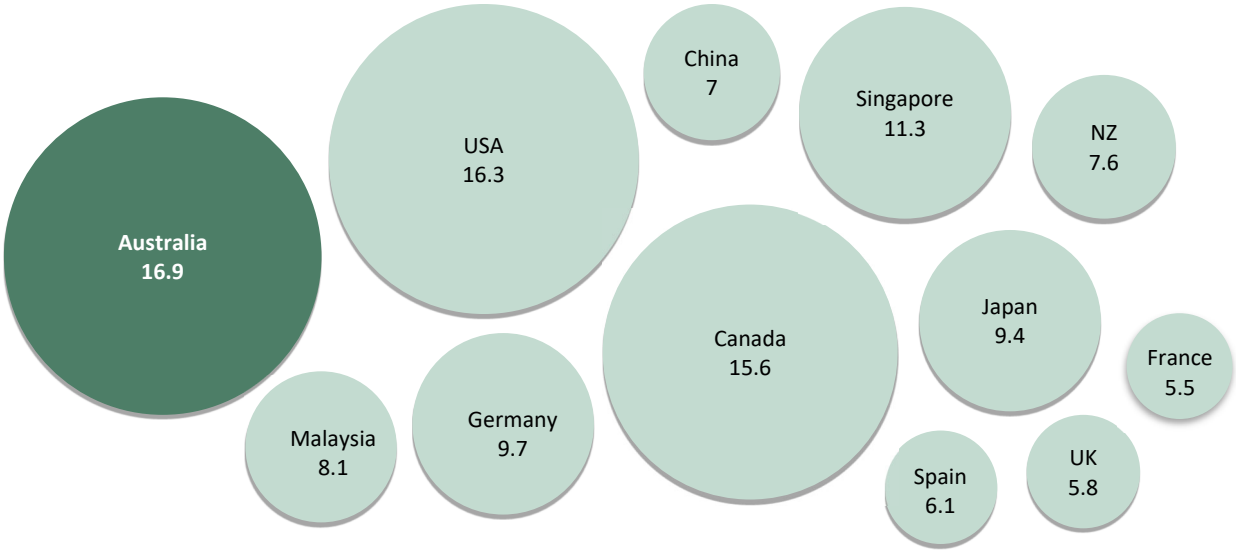


Plate 6: CO_2 Emissions (tonnes) per capita across 12 countries, (OWID, 2019)

Every household has a different footprint depending on their lifestyle choices. Your household footprint can vary significantly to your neighbours depending on the choices you make in your home and lifestyle. The main things that can impact your household carbon footprint are:

The size of your home	The size of your household	How well your home stays cool and warm	Your diet	The transport you use	Your home appliances
Smaller dwellings such as units or townhouses generally have lower emissions than detached dwellings	Households with more people generally have lower emissions due to the sharing of resources	Homes that require little energy to stay cool in summer and warm in winter have lower emissions	Meat consumption is a large contributor to emissions. People with a more plant-based diet have lower emissions	People who walk, cycle or catch public transport have lower emission than those who rely on cars	Homes that have a lot of appliances or older power-hungry appliances generally use more energy and have larger emissions

You can calculate your own individual or household emissions using one of the several calculators available online. Some of these are more basic asking questions around your lifestyle choices, others are more detailed with questions on things like your household energy use.

For the average family, our carbon footprint is broken down into the following sectors.

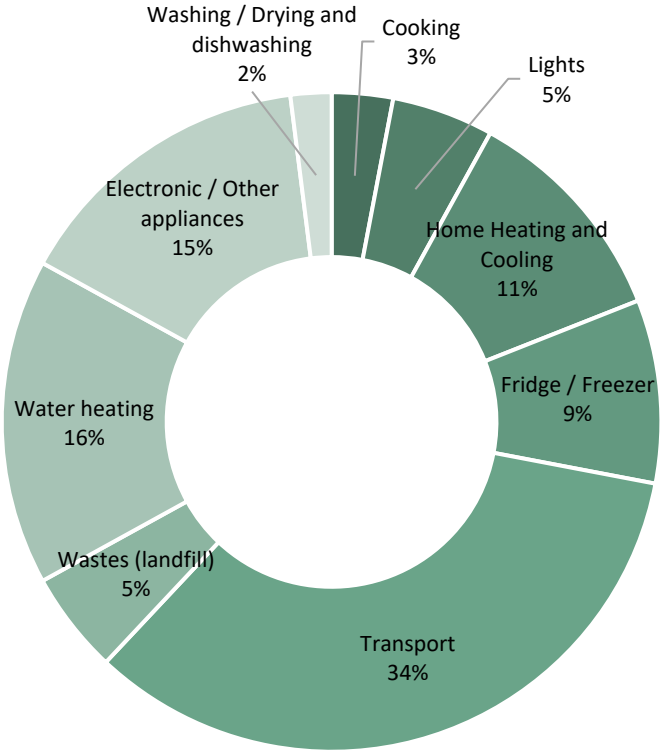


Plate 7: Average Australian family's GHG emissions by percentage Source: Environment Protection Authority, 2011

7.2 What you are already doing

We know that we're already making good progress, with the Town's residents adapting their lifestyle and behaviour to reduce emissions. Here are some of the things the Town of Victoria Park residents are already doing.

ALMOST 20% OF HOUSEHOLDS HAVE *solar energy*

Residents in the Town are already transitioning to renewable energy with approximately 2,717 small-scale solar systems installed across the combined suburbs of the Town (Western Power, 2020). This equates to the reduction of roughly 1.3 tonnes per resident or the equivalent of reducing the average households carbon emissions by 15%.

ONE QUARTER OF OUR COMMUNITY *leave their car at home*

Residents of the Town are using their cars for work travel less in direct comparison against Inner Perth localities and the Perth Metro Region average. The use of sustainable modes of transport (public transport, walking, cycling and motorbike) has increased from 21.6% in 2006 to 24.8% in 2011 to travel to work[8]. This means that approximately 9,166 residents or one quarter of people in the Town choose to commute without using their car.

WE ALREADY HAVE GREAT HOUSING *diversity*

Residents in the Town also have a greater choice of housing diversity with 47.8% of dwellings in 2016 recorded as medium or high density, compared to 25% in Greater Perth[9]. Smaller households with higher density generally have a smaller household footprint.

THERE IS MORE THAN *one tree* PER HOME ON PRIVATE LAND

The leafy backyards of the Town also help sequestrate (or remove) carbon. Our estimates indicate that there are 15,000 trees on private land. This equates to more or less 1 tree per household[10] which equates to a sequestration of roughly 60 kg of carbon per annum per household.

HOUSEHOLDS ARE REDUCING THEIR *waste footprint*

Residents have been involved in household hazardous waste drop-off events at the Town's depot and the disposal of e-waste, oil and cardboard in partnership with City of South Perth. We also know that the average amount of waste going to landfill is decreasing, with a 13.6% reduction in waste from 2007 to 2017. [11] Diverting waste from landfill reduces overall carbon emissions.

[8] Transport statistics from the Integrated Movement Network Strategy, Town of Victoria Park, 2013
[9] Australian Bureau of Statistics, 2016b.
[10] ABS estimated 16,946 dwellings in the Town of Victoria Park from the latest, 2016 census.
[11] Strategic Waste Management Plan, Town of Victoria Park, 2019

COMMUNITY GROUPS ARE CHOOSING TO *buy local*

The Town's community has access to the community-based program, "Grow it Local", a local community grass roots mission where residents register their locally grown products and vegetable patches, with a view to sharing produce and knowledge. Eating locally and growing your own produce reduces transport and packaging emissions.

7.3 Reducing your emissions

We want to help every household in the Town achieve a zero carbon goal by 2030. Here are ten simple steps you can take to reduce your household emissions to achieve that zero carbon target. It is in the council's best interest that the residents of the Town are encouraged to adopt methods and practices to reduce greenhouse gas emissions. Actions surrounding energy efficiency, renewables, storage, transport, waste, offsetting, and lifestyle can significantly reduce an individual's carbon footprint. The Town of Victoria Park Climate Emergency Plan has therefore been set in place as an example or guide for the community to follow in adopting a carbon neutral future.

1  **Eat more fruit and veg**

Adopting more of a plant-based diet reduces carbon emissions compared to eating meat regularly. Eating more fruit and vegetables and plant-based protein such as chickpeas is also great for your wellbeing. If you are a regular meat eater, why not trial Meat-Free Monday, or become a weekday vegetarian or vegan. It is estimated that going vegan for two-thirds of meals could cut food related carbon emissions by 60%.[12] The more you can reduce meat and other animal product intake and adopt a plant-based diet, the more you can lower your carbon emissions.

2  **Holiday at home**

Reducing your travel carbon footprint doesn't mean giving up your holidays. Adopting a sustainable approach to your travel plans can be a great opportunity to explore your local surroundings. Holidaying at home can boost Western Australia's economy allowing you to make a positive contribution in your own backyard.

[12] Based on information available from The Economist, 2019

3		**Buy seasonal and local produce**	Try purchasing local produce from farmers markets or local growers. According to the EPA, buying more organic food can reduce your food footprint by roughly 15%! These small farms are more likely to adopt low-input production systems reducing energy intensive pesticide and feritiliser practices. [13] Buying local also reduces transport emissions of your produce.
4		**Walk, cycle or catch public transport**	Use active transport where possible – Walk, cycle or catch public transport. The average expected savings of catching public transport compared to driving to work is $8,141 per year. [14] Walking or cycling is free and a greater way to integrate exercise into your daily commute.
5		**Collect your organic waste**	In the Town, approximately 16.4% of the average household landfill bin is avoidable food waste.[15] Food waste doesn't break down easily in landfill and produces methane which is 26 times more potent than carbon dioxide.[16] You can help to divert food waste and therefore methane emissions through collecting and composting food scraps either through a household compost bin or worm farm, or searching ShareWaste.com to find a neighbour nearby who's happy to accept your waste.
6		**Think about your waste and recycling habits**	The average household in the Town produces 13.82 kg of landfill waste and 3.875 kg of recycling waste per week.[17] Much of what we put in our landfill and recycling bins can be avoided through choosing alternatives like reusable products or buying healthier foods that don't require as much disposable waste in the form of packaging. The Council website has a lot of great ideas on minimising waste.

[13] GreenPeace, 2014
[14] Study based on commuter leaving their car at home and travelling via public transport to work five days a week (Wang, 2013).
[15] Based on the average of summer and winter household food waste for 2018 (MRC Waste Audit Report, 2018)
[16] Based on information available from Government of Western Australia, 2018
[17] Based on the average of summer and winter household landfill and recycling per week for 2018 (MRC Waste Audit Report, 2018)

7		**Switch your lighting to LED**	Lighting is responsible for roughly 6% of Australian household energy usage. An LED equivalent lamp consumes one-fifth the energy of a halogen lamp reducing overall carbon emissions.[18] By switching your household to LED you could save approximately $40-50 per annum on your energy bill.[19]
8		**Switch to a more fuel-efficient car**	Consider switching to a hybrid or electric vehicle. Today, the cost of running a car on fuel is $1.50 per litre and the cost of running an electric car is $0.33 per e-litre.[20] Hybrid electric vehicles save 110g/km of CO_2 when compared to petrol fueled cars.[21]
9		**Install solar**	Consider installing solar panels to your roof for a cleaner and cheaper alternative energy source. An Australian household with a 6.6kW solar system would generate 11,046kWh of clean energy each year, reducing 9.5 tonnes of CO_2 emissions[22], equivalent to a 47% reduction of an average household's emissions!
10		**Plant more trees**	If you have 5 trees in your backyard, that's equivalent to a third of a tonne sequestrated every year![23] Trees act as a natural carbon sequestration source which means they inhale carbon in the atmosphere and exhale oxygen. This carbon is captured as the tree grows and is stored in their leaves, branches, bark, stems and roots. The amount of carbon a tree inhales depends on the size, age, and species of the tree.

[18] Commonwealth of Australia, 2013b
[19] Our calculations have been based on the average household bill for a four-person household in Perth which is approximately $1,700 per annum.
[20] Based on information available from Electric Vehicle Council, 2020
[21] Based on information available from Toyota.com.au, 2018
[22] Based on information available from Infinite Energy, 2020
[23] Based on information available from Carbon Neutral Pty Ltd, 2017

8 Business and Commercial Action Plan

8.1 Average emissions for industry

Emissions in Australia across the business and commercial sphere vary significantly depending on the size and type of industry. Every industry has a different footprint depending on its management, operational scope and usage. Your business footprint can vary significantly from your competitors depending on the choices you make in running your business.

The main things that can impact your business / commercial carbon footprint are:

The size / type of your business operations

Smaller businesses including cafes and small firms generally have lower emissions than larger scale industries requiring more capacity & infrastructure such as manufacturing.

Company facilities

The amount of energy used and emissions emitted within your business will vary depending on appliances, building type, lighting amongst other company assets.

Purchased electricity

The amount of electricity your business purchases will depend on how much generation is needed. For example, offices will require more electricity for air conditioners opposed to a mobile service.

Waste generation in operations

The amount and management of waste at your business will significantly affect your carbon footprint. Food waste alone costs the Australian economy around $20 billion each year.[24]

Company vehicles

Company fleet emissions will vary depending on the type and size of your vehicles. For example, electric or hybrid cars will emit less than 100% petrol fueled vehicles.

Transportation and distribution

Emissions associated with transportation and distribution of goods will vary across each business depending on how much importing/exporting is required for your business.

According to an analysis of the jobs held by the resident population in the Town (ABS, 2016a), the three most popular industry sectors were:

1. Health Care and Social Assistance,
2. Professional, Scientific and Technical service and
3. Accommodation and Food Services.

Together, these three industries made up 30.2% of the total employed resident population in the Town (ABS, 2016a). For these three industry sectors, the biggest contributor to carbon emissions are:

- Emissions tied to the energy (electricity and gas) needed to run facilities
- Emissions tied to the waste produced by businesses
- Emissions tied to the energy (fuel) used for transportation and logistics

[24] DAWE, n.d.

8.2 What local businesses are already doing?

Organic waste diversion at Optus Stadium

'Optus Stadium' have introduced a 100% waste recovery system with compostable, hard plastic recycling and landfill bin options.[25] The stadium utilises a Solid Waste Collection System that uses vacuum pressure for this collection of solid waste through a piping network. This vacuum collection system allows for the waste streams to be separated at the source of waste generation and separated to separate waste collection points accordingly. Hence, organic waste from the stadium can be collected and transported automatically, ready for off-site removal/re-use.[26] In 2018, 77% of all the stadium waste was diverted from landfill.[27]

Energy efficiency at Crown Perth

'Crown Perth' have implemented multiple energy conservation projects including; auto controls to all external lighting, lighting continually assessed and changed to more energy effective units, staff education and engagement through a calendar of environmental initiatives and upgrade to controls of steam boilers and gas heating boilers to improve combustion process and minimise emissions. [28] An upgrade of 15,000 lights to LED technology in combination of time scheduling of lighting to convention areas with review of lighting in office and restaurants achieved an 80% reduction in lighting energy use.[29]

Responsible Cafes accepting reusable cups

We have several local cafes participating in the Responsible Cafes program, a program that connects thoughtful cafes with conscious consumers by encouraging cafes to offer a discount to customers with reusable takeaway cups. Australians throw away more than one billion takeaway coffee cups every year. Despite popular belief, the cups and lids are difficult to recycle and 90 percent end up littered or in landfill.

As part of the implementation of the Climate Emergency Plan, we would love to hear what your business is doing to reduce your carbon impact.

[25] Optus Stadium, 2020
[26] Avac Australia, 2020
[27] WA Today, 2020
[28] Crown Perth Resorts LTD, 2020
[29] The Fifth Estate Pty Ltd, 2020

8.3 Reducing your business emissions

We want to help every business in the Town achieve a zero carbon goal by 2030. It is in the council's best interest that businesses of the Town are encouraged to adopt methods and practices to reduce greenhouse gas emissions. Several actions surrounding energy efficiency, renewables, transport, waste and education / behaviour change can significantly reduce businesses carbon footprint. The Town of Victoria Park Climate Emergency Plan has therefore been set in place as an example or guide for businesses to follow in adopting a carbon neutral future.

Here are ten simple steps you can take to reduce your business's energy consumption and emissions to achieve a zero carbon target.

1		**Educate your staff and customers**	Educating your staff, workplace and customers can make a significant impact on energy usage, waste diversion and overall behaviour change. Consider educational recycling programs, encourage employees to take sustainable transport to work, encourage everyone to switch off all their equipment at the end of the day or lights where they can and only print what is essential to divert waste. If it is possible, limit commuting for meetings through teleconferences or consider having staff work from home once a week to reduce energy usage.
2		**Source local products**	Whether you are sourcing food for your restaurant, packaging for your manufactured goods or office supplies, sourcing local products are all ways you can help to reduce associated transport emissions and support local businesses
3		**Improve the efficiency of your logistics**	Improving energy efficiency in your operation logistics can reduce energy consumption and therefore emissions. For example, improving travel routes for delivering goods using the most efficient route would not only reduce your vehicle emissions but save you money on fuel too. Sourcing local products is another way to reduce your transport emissions.
4		**Install a recycling diversion program**	Consider installing a recycling diversion program at your business with labelled bins for different products e.g. batteries, paper, milk lids amongst other products to reduce and divert your waste from landfill. Crown Perth divert 80% by weight of the resorts waste from landfill through custom made recycling bins for co-mingled recycling, cardboard and paper. The casino also has in place recycling programs for batteries, electronics, tins, glass, plastic wrap, paper, and cardboard (and more).[30]

[30] Crown Perth Resorts Ltd, 2020.

5 Collect your organic waste

It is estimated that food waste fills over 60% of the bin of an average café or restaurant.[31] This means that together with paper and cardboard, roughly 80% of the bin contents could be recycled or recovered and diverted from landfill. Food waste in landfill produces methane which is 26 times more potent than CO_2.[32] For businesses with large amounts of food waste:

- Include organic waste collection in your waste contract
- Invest in an onsite food compost technology that processes food waste quickly
- Donate your food waste or coffee grinds to the local community garden

For smaller businesses and offices, you can donate food scraps to a local community garden or have an onsite compost bin or worm farm.

6 Install energy efficient appliances and LED

Consider installing energy-saving equipment at your business including computers, printers and fridges. You could also make the switch to LED lighting. It is estimated that changing 50 halogen downlights to LED at your business could save you up to $2,300 a year.[33] These energy efficient technologies could not only reduce emissions but costs on your electricity bill.

Information for businesses that lease their premise: We know that a lot of local businesses lease their premise meaning they have less control over the building performance. Here are some things that leasing businesses can do to help save energy and switch to renewables:

1. **Switching to LED:** Light fittings are the easiest switch and will result in a saving to your bill.
2. **Advocate for better waste management:** If you are part of a bigger complex that has centralised waste collection, talk to the facility manager about improve recycling rates and collecting organics. The increase in landfill levy often makes it financially beneficial to reduce waste to landfill.
3. **Talk to you landlord about renewables:** It is worth talking to your landlord about installing solar on their premises. If you are a long-term leaseholder, you could provide a financial contribution to support their investment in renewables. Solar is a good investment for the landlord but will also result in energy bill savings for your business.
4. **Lease equipment for improved energy efficiency:** It may be viable to investigate leasing equipment that may not be installed in your business space already or could be used instead of existing equipment that may not be energy efficient.

[31] NSW EPA, 2017
[32] Based on information available from the Government of Western Australia, 2018
[33] DPIE, 2019

7 

Seek external funding for energy savings

There are several funding options for businesses to improve energy efficiency and switch to renewables. These funding options take away the burden of the upfront investment, meaning you can see the energy savings sooner.

- Seeing whether the solar company offers a Power Purchase Agreement (PPA)
- Energy efficient upgrade loans e.g. City Switch provide financial models to help businesses obtain upfront capital for energy savings including Energy performance contracting (EPCs), Environmental upgrade agreements for existing buildings and operational finance or equipment leasing

8 

Switch to fuel efficient fleet or company vehicles

Today, the cost of running a car on fuel is $1.50 per litre and the cost of running an electric car is $0.33 per e-litre.[34] On behalf of the Australian Government, Australian Renewable Energy Agency (ARENA) has funded for a free program, 'Charge Together Fleets' to help businesses make informed choices about electric vehicles. The program contains a knowledge hub and a car operating cost calculator to assist with this transition.[35] See, fleets.chargetogether.org for more information.

9 

Install solar at your business

Consider installing solar panels to your company roof for a cleaner and cheaper alternative energy source. With prices continuing to fall for solar systems, these are becoming more affordable for business owners. There are also alternative financing options where you pay off your solar system as it generates energy, without having the upfront investment. Search for Australia-wide Solar Subsidy Programs for options on financial support ranging from small business scale to larger commercial scale subsidies.

10 

Seek out carbon offsets

Carbon offsets can be used to make your business carbon neutral. This is a way of demonstrating your organisation's commitment to carbon reductions and a great message to communicate to your customers. We recommend pursuing this once you've reduced your energy and waste and invested in renewables to ensure you offset only what's remaining.

[34] Based on information available from Electric Vehicle Council, 2020
[35] Charge Together Fleets, 2020

9 Monitoring and Reporting

In order to assess the ongoing implementation of the Climate Emergency Plan and our zero carbon target, the following monitoring and evaluation actions will be completed.

Part 1: Annual Review – completed every year.

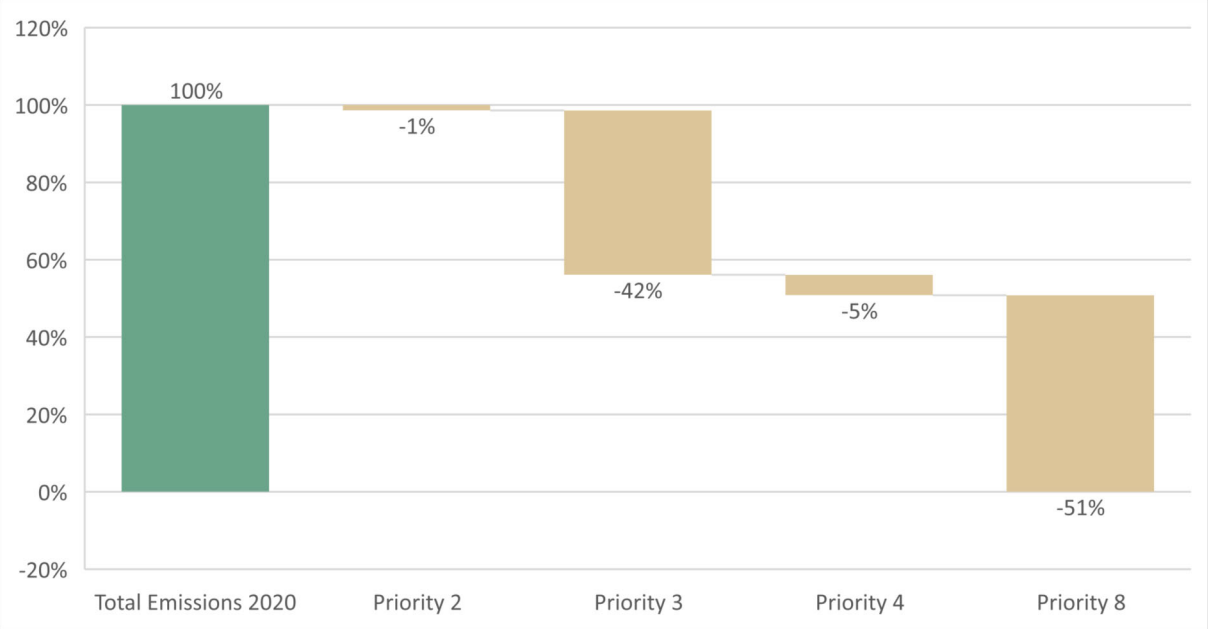
1. **Action 1.1** Measure CO_2 emissions annually and monitor progress against emissions reduction targets, including
    a. Measure the impact of actions that have been implemented on the overall CO_2 emissions target
    b. Review the actions under the Climate Emergency Plan, identifying any actions upcoming and ensure that the Town can still meet its objectives under the plan.
    c. Continue to improve the accuracy of data collection to support CO_2 emissions measurements ensuring that all scope of emissions are accounted for

Part 2: Climate Emergency Plan review – completed in 2023, 2027 and 2030.

2. **Action 1.10** Conduct a revision of the Climate Emergency Plan in 2023, 2027 and 2030 to reassess actions, progress and include additional actions where required.

As part of our ongoing monitoring and reporting of our progress, the Town will include information on our website documenting the carbon impact of actions. We will investigate the feasibility of establishing a dashboard carbon counter to help communicate our journey to carbon zero.

Based on the key performance indicators set out under each action of this report, it is anticipated that the Town will achieve a 49% reduction in emissions if all actions in this report are implemented. The remainder of the emissions reductions will be achieved through offsets as per the offset actions under Priority 8.



Graph 2: Projected carbon reduction based on Key Performance Indicator targets

Priority 1 focuses on the council's broader commitment to low carbon outcomes so may have ancillary impacts to this graph to be captured at a later stage.
Priority 5 focuses on climate adaptation so therefore does not impact this graph
Priority 6 & 7 focus on community and business carbon emissions and contributes to the waste reductions under Priority 2, however most emissions are the responsibility of the individual and/or business and therefore not included in this graph

10 Terminology

The following terminology has been used in this document.

Term	Definition
Carbon footprint	Carbon footprint is the amount of carbon dioxide emissions that are associated with all the activities of a person or other entity such as a building or corporation.[36]
Carbon offset	Carbon offsets (or units) are used to compensate for emissions that a business produces to bring their carbon footprint to zero. These units are generated by projects that reduce, remove or capture emissions e.g. reforestation or renewable energy.[37]
Circular economy model (CEM)	The CEM illustrates the continuous flow of technical and biological materials through an economic / value system focusing on eliminating waste, pollution and the continual use of resources whilst regenerating natural systems.[38]
Climate change adaptation	Ways in which countries and communities can develop adaptive solutions to implement action/s to respond to the current and future impacts of climate change.[39]
Climate emergency	Serious and urgent problems that are being caused or likely to be caused by changes in the world's weather, especially increased temperatures globally as a result of human activity, increasing the level of carbon dioxide in the atmosphere.[40]
Climate Mitigation	Climate mitigation refers to reducing climate change through reducing the flow of greenhouse gases into the atmosphere e.g. reducing sources that burn fossil fuels or enhancing carbon sinks such as oceans and forests which store these gases.[41]
Climate resilience	Climate change resilience refers to the ability of a social or ecological system to absorb disturbances whilst retaining the capability of the same basic structure and ways of functioning.[42]
CO_2-e	A carbon dioxide equivalent or CO_2-e (or CO_2-eq) is the concentration of carbon dioxide that would cause the same amount of radiative forcing (change of the climate system e.g. a change in the concentration of carbon dioxide) as a given mixture of carbon dioxide and other GHGs.[43]
Greenhouse gases (GHG)	Greenhouse gases refer to water vapour, carbon dioxide, methane, nitrous oxide, ozone and some artificial chemicals such as chlorofluorocarbons (CFCs).[44]
Power Purchase Agreement (PPA)	A PPA is an arrangement where a solar service provider designs, builds, owns, operates, monitors and maintains a photovoltaic (PV) solar system and a customer agrees to host the system on their property and purchase the system's electric output from the provider for a certain period and price (traditional at no upfront capital cost).[45]
The Town	Refers to the Town of Victoria Park unless otherwise specified.
Tree canopy	Urban tree canopy is a method of measuring the coverage of the layer of tree leaves, branches and stems of a tree that delivers the most benefits.[46]
Zero carbon	Zero carbon or being carbon neutral means the net greenhouse gas emissions associated with an organisation's or city's activities are equal to zero.[47]

[36] Encyclopædia Britannica, Inc, 2020
[37] Climate Active, 2019
[38] Ellen MacArthur Foundation, 2017
[39] United Nations Framework Convention on Climate Change, 2020
[40] Cambridge University Press, 2020
[41] NASA, 2020
[42] United Nations Framework Convention on Climate Change, n.d.
[43] IPCC, 2001
[44] Department of Agriculture, Water and the Environment, n.d.
[45] NSW Government, 2015
[46] Town of Victoria Park, 2018
[47] City of Melbourne, 2016

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Document Control

Doc name:	Climate Emergency Plan Town of Victoria Park				
Doc no.:	**EP19-121(04)--004L GAF**				
Version	**Date**	**Author**		**Reviewer**	
1	July 2020	Jessica Lisle	JHL	Jessica Lisle	JHL
		Grace Ferraz	GAF		
	Sections of the report issued to the Town for comment				
A	August 2020	Grace Ferraz	GAF	Jessica Lisle	JHL
				Ashley Bird	ALB
	Final draft issued to the Town for review				
B	August 2020	Grace Ferraz	GAF	Jessica Lisle	JHL
	Additional information included, issued to the Town for review				
C	September 2020	Jessica Lisle	JHL	Brendan Nock	BN
	Update following internal Town review				
D	October 2020	Jessica Lisle	JHL	Brendan Nock	BN
	Update following internal Town review				
E	November 2020	Jessica Lisle	JHL	Brendan Nock	BN
	Update following internal Town review				
F	January 2021	Jessica Lisle	JHL	Brendan Nock	BN
	Update following review by Councillors				
G	January 2021	Jessica Lisle	JHL	Brendan Nock	BN
		Grace Ferraz	GAF		
	Update following review by Councillors				
H	April 2021	Jessica Lisle	JHL	Brendan Nock	BN
		Grace Ferraz	GAF		
	Update following public comment				
I	May 2021	Jessica Lisle	JHL	Brendan Nock	BN
		Grace Ferraz	GAF		
	Update with overview table				

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Version	**Date**	**Author**		**Reviewer**	
J	June 2021	Jessica Lisle	JHL	Brendan Nock	BN
	Update to budget numbers				
K	July 2021	Jessica Lisle	JHL	Brendan Nock	BN
	Minor revisions following council review				
L	July 2021	Jessica Lisle	JHL	Brendan Nock	BN
	Minor revisions following council review				