DRAFT

SUSTAINABLE STRATHBOGIE 2030

Strategy and Action Plan

2018 – 2022

acknowledgement of country

We acknowledge that the land currently known as Strathbogie Shire is Taungurung and Yorta Yorta Country, and home to many First Nations clans from many countries. We honour and pay respect to those Elders from this country and all countries, past, present and future, who call this precious land home.

contents

Cover Image: A. Tame, Strathbogie 2017

01

A message from the Mayor

> ***"Together we can reduce our impact on the environment, and secure a future for our children, grandchildren, and great-grandchildren."***

In May 2017 I attended the Canberra launch of the Climate Council's Cities Power Partnership. At the launch Strathbogie Shire Council was the only Council representing rural Victoria, and indeed at that time, was the only rural Victorian Council who had signed up to this ambitious and impressive national programme.

Strathbogie Shire Council is proud to represent our rural residents, and to step up to facilitate better pathways to a more liveable, and comfortable Strathbogie Shire. We have strived to be nimble and responsive to the needs of our community and this has involved taking the lead on environment and sustainability projects and programmes over the last few years.

Sustainable Strathbogie 2030 identifies an important evolution in Strathbogie Shire Council's sustainable future, and recognises that rural Victoria will play a crucial role over the next decade in helping the world meet the ambition of the Paris Agreement to limit global temperature rise to less than 2°C.

And Strathbogie Shire is living proof that David and Goliath greenhouse gas mitigation stories do exist. No one expected our 'Bogie Bulk Buy' solar programme to exceed half a megawatt of installations, and introduce over seven other Victorian and NSW Council municipalities to the program. Thanks to our innovative thinking, hundreds of homes now enjoy solar power.

Sustainable Strathbogie 2030 focusses on defining actions to 2022 on the way to achieving 2030 environmental targets. We face challenges, but Council intends to be informed and ready to confront the tests that our Shire encounters, and lay a path for an abundant and enjoyable future here in Strathbogie Shire.

Cr Amanda McClaren

Mayor

02

A message from the Sustainable Development Reference Group

As members of the Strathbogie Shire Sustainable Development Reference Group, we have the privilege and challenge of providing insight and advice to Council on the environmental, economic, and social matters that affect the Strathbogie shire community.

Our members are embedded in the Strathbogie community, and having a role in shaping the environmental and sustainable future of this Shire has been important to us all. The Reference Group has a lens into areas where Council often does not possess resources to look, therefore committee's such as this are critical to the future and wellbeing of small communities.

Some of the projects the Sustainable Development Reference Group has successfully recommended to Council include:

Leopard Orchard, *Diuris pardina,* Greytown.
Image: C. Hammond 2017

- Advocacy and recommendation to employ an environment team leader;
- Council's successful solar program the Bogie Bulk Buy and associated workshops leading to 500+kW installed and over $250,000 in community savings per year;
- Signing up to the United Nation's Development Goals, the Climate Council's Cities Power Partnership, and Victorian Government's Take 2 pledge;
- Undertaking Strathbogie Shire Roadside Conservation Assessment - now online;
- Vegetation Protection Overlays in the planning scheme for roadsides with 'very high' conservation values;
- Commencing the tracks and trails 'Discovery Map and App' project.

We look forward to future years of working with Council on the innovative projects that emerge from the Sustainable Strathbogie 2030 Strategy.

Committee members:

Crs Mick Williams/Kate Stothers (Chair)
Cr Malcolm Little
Cr Deb Bower
Charlie Brydon, *Friends of the Seven Creeks*
Carolena Helderman, *Biodiversity Sector*
David Jamieson, *Strathbogie Pine Action Group*
Peter Robinson, *Victorian Farmers Federation*
Shirley Saywell, *Euroa Environment Group*
Peter Scott, *Intensive Agriculture Industry*
Anna Toland, *Agricultural Sector*
Carole Hammond, *Strathbogie Shire Council*
Jeff Saker, *Strathbogie Shire Council*

03

Our role in a changing climate

Our Community Vision

The community vision of our Council Plan to 2022 is for Strathbogie Shire is to build a "flourishing community" together, and support the community to grow through effective partnerships, engagement and the equitable and efficient delivery of services.

A key pathway to achieving this vision is "to sustainably manage our natural and built environment" where the following key strategies are supported

- Support sustainable environmental initiatives including roadside management and protections, renewable energy developments, and community not-for-profit and alliance initiatives.
- Mitigate and adapt to a changing climate through strategy development, revised mapping and urban design, community knowledge-sharing, and incentives to manage climate risk in agriculture.
- Protect and enhance our natural assets through revised plans, staff training, a revised Municipal Strategic Statement, and communications to residents.
- Protect and enhance our waste management with a new strategy, improving our service, supporting local groups, and working with our partners on waterway waste.

Council's role as influencers and activators

Sustainable Strathbogie 2030 is a major strategy designed to bridge a period of considerable resource and climate transition being experienced by residents, flora and fauna. Local government has been serving the citizens of Victoria since 1842 – nine years before the colony of Victoria was even designated. We take our role as public servants and community leaders seriously, and we have a lot to give in times of drought, floods, energy transitions. In this strategy we detail ambitious targets in two key areas – in Council's own operations, and secondly for the community across the wider Strathbogie Shire. To ensure we remain on-track, Sustainable Strathbogie 2030 (SS2030) has interim targets set for 2022, and beyond to 2030.

Within our own operations, we aim to lead by example. We will continue to incorporate environmental sustainability into our buildings, infrastructure, public places and fleet. We will pilot new technologies and sustainable procurement practices and transparently report our environmental performance.

We have also set ambitious environmental targets for the Strathbogie Shire area, inspired by Victorian, national and international goals and agreements, and the passion of our own local community. Our influential role as a local government helps us research and shape our local area's environmental potential and performance, but our control is limited. To achieve our Shire targets, we will continue to engage in, and urge robust, progressive partnerships between all levels of government, the private sector, and the community.

03 Our role in a changing climate

Our changing Shire

Accounting for the land that rises and falls along the peaks of our beautiful ranges, Strathbogie Shire encompasses over 7,430 square kilometres of unique landscapes, from rugged granite outcrops in our east, and the wide open plains of the north-west, across the dry, Box Ironbark forests in our south-west, and of course the Goulburn River (the major tributary of the Murray River) and associated wetlands of the Nagambie district.

The Shire of Strathbogie embraces more than 1,550 businesses over 20 industry sectors who support over 10,000 residents who call this Shire home. Our people and the environment sustain over $56.1 million in tourism income each year. However, as has been the case for more than 150 years, it is the agricultural sector and the businesses that support and depend on those farms, which still form the backbone of our local economy. Agriculture and supporting business equate to around 30 per cent of our Shire's prosperity and employment – some $277 million annually, and well over 1,000 jobs.

But Australia is one of the driest inhabited countries in the world. Its economic development relies on sound management of water and land use, and it has a great deal to gain from playing a leadership role to help combat climate change.

Erosion from extensive vegetation clearing is made worse by extreme weather events that occur with climate change, Image: C. Hammond 2017

While Australian farmers are well accustomed to our fickle climate, the emergence of climate change is presenting new challenges. Since 1910 Strathbogie Shire's climate has warmed by around 1°C, in line with the mean temperature of the rest of Australia. Since the mid-1990s in Australia's south there has been a decline in rainfall of around 11 per cent during the April to October growing season, and a corresponding increase in extreme fire weather, with longer fire seasons across large areas of Australia since the 1970s. In addition, the duration, frequency and intensity of extreme heat events have increased across large parts of Australia due to the warming climate (Bureau of Meteorology 2018).

Strathbogie Shire will continue to experience increasing temperatures, longer fire seasons, more time spent in drought, and extreme weather events such as floods and lengthy heatwaves.

Sustainable Strathbogie 2030 is a strategic blueprint with critical actions Council will be taking, and those community can also participate in with us, to transform, lead, and succeed in this changing environment.

04

A collective vision of sustainable development

2030 and the United Nations Sustainable Development Goals

These days, expectations of local ratepayers have seen local governments across Australia play a much broader role than simply delivering 'roads, rates and rubbish' outcomes. As higher governments have gradually discontinued programs, privatised services, or struggled to prioritise climate security, local authorities have stepped up, forging a unique Australian space across environmental and climate action with their communities, and affecting extensive change over the last four decades (Bulkeley 2000).

After successful community solar stewardship program, and partnerships in emissions reductions in 2017/18, in 2018 Strathbogie Shire Council resolved to embrace the UN Sustainable Development Goals (SDGs). The SDGs represent the world's largest, holistic effort to eradicate extreme poverty, stimulate economic development, boost urban creativity, culture and diversity, make public services more accessible, increase social inclusion, promote gender equality, boost civic participation, limit urban sprawl, enhance sustainable consumption and production, and reduce degradation of ecosystems, disaster risks and greenhouse gas emissions. In particular, Strathbogie Shire Council aspires to Goal 11 alongside many local authorities around the globe – to **"Make cities and human settlements inclusive, safe, resilient and sustainable"**.

The SDGs were developed in 2015 when, following the largest consultation in its history, the United Nations Member States agreed on 17 Sustainable Development Goals (SDGs) to guide global action on sustainable development until 2030. In particular, it is an acknowledgement that local authorities globally represent a key solution to many of the greatest challenges faced by our communities.

You can view Strathbogie Shire Council's and many other Australian organisations and projects created with the SDG principles at their heart here https://sdgs.org.au/

[back to contents page]

05

The Context for Sustainable Strathbogie 2030

The last decade has seen a sub-national maturing of the approach to climate change, and its impacts on our present and future environment, economy and society. Since 2010 Strathbogie Shire Council has researched and engaged strategically in this space, with outputs that have included:

- Sustainable Land Use Strategy 2010
- Environmental Strategy 2011
- Roadside Management Plan 2011
- Strengthening Strathbogie in a Changing Climate: Risk Assessment & Adaptation Strategy 2011
- Carbon Management Response Plan 2011-2013
- Municipal Emergency Management Plan
- Urban Tree Management Plan 2018
- Heatwave Management Plan 2014 – 2017
- Liveability Plan 2017-2021

During this period national and state climate change and greenhouse mitigation legislation and major programs have come and gone, and for onlookers the political climate has been as volatile as the extreme climate events experienced by residents. However, for 30+ years, local government has led innovation, action and implementation when it has come to environment, greenhouse gas mitigation, and climate resilience, doing its best to respond actively to direct need in the community. The multitude of local policy over time is testament to these efforts (Thomas 2010).

Rural councils still struggle to resource and balance environment with the highly diverse 'babies to bitumen' aspects of their municipal roles. Yet it is in rural communities where arguably Victoria's most profound transformations around energy generation, agriculture and water, are occurring. Renewables are rapidly altering local governance in rural Australia as this new rate base alters its strategic, land use, and economic focus, bringing new opportunities and equity issues for local communities to consider.

Although Sustainable Strathbogie 2030 primarily addresses local community issues and concerns it also draws from state and international policy.

The overarching blueprint largely draws from the following:

- Strathbogie Shire Council Plan 2017 - 2021
- Protecting Victoria's Environment: Biodiversity 2037 (Victorian State Government)
- Goulburn Broken Catchment Biodiversity Strategy 2016-2021 (GBCMA)
- Victoria's Renewable Energy Roadmap 2015 (Victorian State Government)
- Victoria's Climate Change Adaptation Plan 2017 – 2020 (Victorian State Government)
- United Nations Sustainable Development Goals 2015 - 2030

[back to contents page]

06

A climate resilient shire

19th Century shearing shed, repaired & adapted to 21st Century work shed, Sheans Creek. *Image*: C. Hammond 2018

Background

We have a lot to learn from our Traditional Owners who adapted to a harsh life during the last Ice Age 20,000 years ago when temperatures dropped by as much as 10˚C compared to today. Animals became extinct, forests disappeared, and major areas of Australia were deprived of surface water as the continent became more arid, windswept and inhospitable. People abandoned as much as 80 per cent of the continent and adapted to living in small communities near persistent waterways. One of those very few Australian Ice Age 'refuges' is believed by archaeologists to be throughout the Strathbogie Shire region (Williams et al. 2013). What helped those distant individual's interactions with our region work so well? Personal bonds, trust, leadership, a thorough knowledge of the local area, the rich diversity of the landscape here?

These days, compared to other regions in Victoria and Australia, Strathbogie Shire has fewer financial, physical and human resources available to adapt to climate change and other structural pressures. On the other hand, communities in our Shire appear to have substantial resources of social capital – strong social relationships and bonds within the community. This was also highlighted in the 2011 risk assessment, *Strengthening Strathbogie in a Changing Climate*.

'Climate Resilient Shire', aims to build on what we already have in terms of social capital, and guide Council to facilitate community climate leadership where it counts.

In itself the SS2030 Strategy will be adaptive, and each year Council will review and update actions to keep them relevant and focused.

[back to contents page]

06 A climate resilient shire

Below are the key strategic actions we have outlined. You can read the full list of Climate Resilient Shire actions in the Action Plan in Appendix 1.

Issues and Opportunities

Increasing heat: Projections are for Victoria's average temperatures to increase and the hottest days to become hotter and more frequent. The impacts will strain energy and infrastructure systems and increase air pollution and community health problems. Increased temperatures will see our traditional agricultural methods such as livestock and soft-fruit production, deal with a range of stresses.

Changing rainfall patterns, drought conditions, and extreme meteorological conditions: The rainfall pattern of the north east of Victoria will continue to have dry periods and wet spells, but also subject residents, habitat and biodiversity to more frequent extreme weather events. This will lead to flash flooding, infrastructure damage, stock and crop casualties, transport adversity, and increased strain on our emergency services. Increased drought conditions will place pressure not only on agricultural business and those business who rely on our agri-economy, but also on the Shire's public open spaces, native forests, remnant vegetation and waterways.

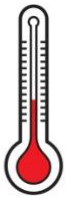
Increased bushfire conditions and declining volunteer numbers: Conditions that contribute to bushfires are increasing in our rural Shire, and many of our local areas are at direct risk. We need to work cohesively and imaginatively to reduce the risk together. Yet demographic changes have led to declining numbers volunteering for vital roles in emergency services.

Increased social impacts: Climate change presents a wide range of risks that may impact our community. Our climate adaptation thinking must include principles that not only protect communities from disasters, but also provide services for those who are made more vulnerable, disadvantaged or unwell by the effects of climate change.

Additionally, we are already feeling the effects of longer heatwave stretches, and more extreme weather that necessitates our homes be better equipped to withstand this thermally and structurally.

06 A climate resilient shire

SS2030 climate resilient shire summary



A climate resilient shire

December 2022 Targets	Strategic Directions
1. Strathbogie Shire residents assessed and evaluated in 2022 as 30% more adapted to emergencies, stress, new ideas, future planning, and new income options from a 2011 baseline. 2. Strathbogie Shire Council assessed and evaluated in 2022 as 30% more adapted to emergencies, stress, new ideas, future planning, and new income options from a 2011 baseline.	Assume a climate resilience leadership role and facilitate the strengthening of community networks and infrastructure. Excel in demonstrating leadership across Council Climate Adaptation policy, and implementation into assets under its stewardship.

What we have already achieved

2011	A thorough overview of community and council's climate change adaptation gaps and opportunities in the review of Strathbogie Shire's capacity *Strengthening Strathbogie in a Changing Climate: Risk Assessment and Adaptation Strategy.*
2017	Finalised and adopted the Municipal Emergency Management Plan for formal auditing and implementation.

Our next flagship projects

Action 1.07	Update and extend the 2011 'Strengthening Strathbogie Climate Change Report' as a 2030 Resilience Plan, including a costed action plan, integration into Council Plan and Budgets, impacts to cultural heritage, and integration into contemporary regional plans and tools, alongside an evaluation/ future-proof of all Council policy and infrastructure in the context of a future medium-high global emissions scenario.
Action 1.04	Develop a Biennial Community Resilience Leadership Program.
Action 1.06	Research and implement an opt-in SMS service for residents and visitors to connect to for council initiated risk management activities such as pre-storm water-tank discharge advice, and post-emergency cleanup activities.

2030 targets

- Strathbogie Shire residents assessed and evaluated in 2030 as 50% more adapted to emergencies, stress, new ideas, future planning, and new income options from a 2011 baseline.
- Strathbogie Shire Council assessed and evaluated in 2030 as 50% more adapted to emergencies, stress, new ideas, future planning, and new income options from a 2011 baseline.

07

A low carbon shire

Image: A. Tame, 2018, Euroa 2017

Background

Science-based Targets for Strathbogie Shire

The Paris agreement in 2015 saw 195 of the world's governments, including Australia, commit to prevent dangerous climate change by limiting global warming to well below 2 degrees Celsius. Targets adopted by organisations to reduce greenhouse gas (GHG) emissions are considered "science-based" if they are in line with the level of decarbonisation required to keep global temperature increase below 2 degrees Celsius compared to pre- industrial temperatures, as described in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR5).

Council's Greenhouse Targets – Zero Net Emissions by 2025

In 2018 Strathbogie Shire Council determined its organisational science-based targets through to 2030, calculating its carbon "budget" and gaining an understanding of the required annual reductions in tonnes of carbon that we must keep to. In 2019 we engaged specialist team Ironbark Sustainability to do the same with the wider sphere of community emissions. We also asked them to examine low carbon solutions for one of Councils largest emissions concerns – our vehicular fleet servicing capital works, parks and gardens, roads and works maintenance, and so on.

We have calculated how much in tonnes of carbon emissions Council would emit if we undertook no energy efficiency or abatement projects (business as usual or BAU), and mapped this against our planned SS2030 Science-Based carbon emissions (tCO_2-e) actions:

Estimated Projection of Greenhouse Mitigation Abatement to 2022	2018 - 2022
Council's BAU* Carbon Emissions (tCO_2-e)	23,550
Current Av ***Annual*** BAU Emissions (tCO_2-e)	4,710
Average ***2022 target*** Annual Emissions (t CO_2-e)	2,496
Greenhouse ***Abatement*** by 2022 (per cent)	25.8%
Total SS2030 *Abatement* (t CO_2-e)	**17,469**

*BAU = Business As Usual

Without actions like adding solar PV or retrofitting energy efficient lighting, energy costs and emissions will not reduce, or reduce very slowly. However, after implementing abatement actions through SS2030 as we can target a net zero emissions (NZE) goal by 2025. Much of this can be gained through the addition of renewable energy, capping legacy landfill, and transitioning our fleet. A co-benefit of taking action (such as investing in solar, changing plant machinery, street-lighting changeovers, purchasing hybrid vehicles etc) is that ratepayers will save hundreds of thousands of dollars in the energy and fuel costs which go to maintain their built, recreational, and infrastructural environments.

Residential, Agricultural and Business Emissions

In 2019 Council commissioned a community emissions profile to be prepared in compliance with the Global Protocol for Community-scale Greenhouse Gas Emissions Inventories (GPC). In doing so Strathbogie Shire is the first local municipality in Victoria, and the second in Australia, to undertake an analysis of its agricultural emissions.

In line with GPC requirements, this profile includes an emissions total as well as exploring emissions through a number of filters such as gas type, emissions scope etc. Strathbogie Shire's emissions for 2017/18 were calculated as 449 kilotonnes t CO_2-e (1 kilotonne = 1,000 tonnes).

Category	Emissions	Percentage (%)
Stationary Energy – Electricity	200,264	44.7%
Stationary Energy – Gas	26,524	5.9%
Transportation	69,436	15.5%
Waste	1,866	0.4%
Wastewater	338	0.1%
Agriculture	149,481	33.4%
TOTAL	447,909	100%

Whilst Strathbogie Shire Council does not have operational control over these emissions, it does have a facilitative role to play. It can assist the community to address the barriers they find on their way to discovering an energy efficient, and low carbon future. In 2017 Council introduced the Bogie Bulk Buy to overcome the barrier many residents found contracting trustworthy solar providers and down-to-earth renewable energy information. This program delivered over 120 solar systems and 26,000 tCO_2-e of abatement for the next three decades. Importantly it offered our community a pathway to access affordable, clean energy.

As a facilitator Strathbogie Shire Council hopes to achieve a great deal in partnership with community by the year 2030. Thanks to the Bogie Bulk Buy and other factors such as its location on the Hume Highway, Strathbogie Shire is viewed as a rural renewable and sustainability innovation hub, already attracting clean investment. Both TESLA and the RACV installed electric vehicle stations in Euroa in 2018. Additionally the State seat of Euroa came out on top as having the most domestic solar per capita in the whole of Victoria in 2018.

[back to contents page]

Issues and Opportunities

Energy efficiency: Electricity use contributes 60 per cent of Australia's greenhouse gas emissions, with buildings delivering an enormous 25 per cent of that emissions component (Martek & Hosseini 2019). As a first step, policy, strategy and guidelines to guide new and retrofitted low and zero carbon buildings has to be a priority across the built environment if we aim to deliver safe, comfortable homes and businesses, and meet our local, state and national legislative commitments. The Council has now developed sustainable building guidelines for our own capital works that outlines high standards for the building and operations of public buildings.

Within the built environment, there is already strong leadership, but efficiency needs to become standard practice through our planning system, building standards, and local policy.

Energy storage: Storing locally generated energy in batteries is a rapidly evolving area of the market. Batteries can store energy generated during the day from solar power systems for use in the evening or early morning. Until now, batteries have been too expensive for most homes and businesses, but some energy companies have now launched more affordable solar battery storage systems.

Renewable energy: In 2015, around 15 per cent of Australia's electricity generation was from renewable sources. The federal government has set a 2020 Renewable Energy Target (RET) for at least 33,000 gigawatt hours of electricity to be produced from renewable sources. This is estimated to be about 23-24 per cent of total electricity demand. Renewable energy, such as solar energy, produces no emissions. The cost of installing renewable technology is falling and market uptake increasing – more than 15 per cent of Australian households now have solar panels.

Community renewable energy: Community owned, locally sited renewable energy generation, provides another opportunity within our local area. Community renewable energy includes some form of control by community owners of the project.

Progressive community groups and businesses in our local towns are achieving great results from local renewable energy generation projects.

07 A low carbon shire

SS2030 low carbon shire summary

A low carbon shire

2022 Targets	Strategic Directions
1. 20 per cent emission reduction from 2017 levels across the Shire of Strathbogie by 2022. 2. 25 per cent energy derived from renewables shire-wide by 2022. 3. Zero net emissions in Council's corporate emissions from 2017 levels by 2025. 4. 20 per cent carbon sink increase across the Shire of Strathbogie 2017 - 2022.	**Support programs and projects that benefit the local economy, increase local knowledge, and reduce greenhouse gas emissions.** **Facilitate accurate and transparent State of the Environment communications to residents.** **Facilitate community investment, renewable markets and trading in carbon reduction projects.**

What we have already achieved

2012	'Watts Working Better' Project: replaced 500 streetlights with high efficiency globes resulting in 188 tCO_2-e abatement every year.
2017	Created and facilitated the 'Bogie Bulk Buy' a solar and battery community bulk buy resulting in 25,000 tCO_2-e for the 30 year life of the panels, and collective community energy savings of over $250,000 a year.

Our next flagship projects

Action 2.06	Commence Strathbogie Shire Council's *Corporate Greenhouse Program*, including Greenhouse Reduction Plan & Inventory, Building Audits and Energy Efficiency Retrofits with the aim of saving 60+ per cent (30,000+ tCO2-e) of our **<1.5 Degree 2030 "carbon budget"** of 56,520 tonnes of CO2-e every year.
Action 2.08	Commence an appropriately resourced program aimed at improving low-income residential energy, water efficiency and home comfort.
Action 2.09	Create the *Strathbogie Carbon Program*, identifying opportunities for local carbon farming projects, advocacy, funding and partnerships that enhance soils, livestock, trees, fertiliser and energy use that enhance Strathbogie Shire's reputation as an model economic and environmental locality.
Action 2.17	Finalise the *'Greening Strathbogie Shire's Buildings and Spaces'* Policy and Guidelines for adoption by Council in 2019.

Our long-term 2030 targets

- Zero net emissions in Council's corporate emissions maintained from 2025 to 2030.
- 50 per cent emission reduction from 2017 levels across the Shire of Strathbogie by 2030.
- 50 per cent energy derived from renewables by 2030.
- 50 per cent carbon sink increase across the Shire of Strathbogie.

Case Study

In 2018 Victorian Councils got together and began exploring a renewable power purchase agreement which could offer a secure, ten year renewable retail agreement for large energy consuming buildings like Aquatic Centres, depots, and street-lighting, all of which cost the Victorian community millions to run every year, and cause millions of tonnes of greenhouse gases to be emitted.

Some 39 Councils signed up to the expression of interest, committing nearly 125,000 megawatt hours a year to a Victorian renewable initiative, with Strathbogie Shire Council being the first Victorian rural shire to express an interest - signing up our street-lighting and large energy accounts.

The future is transitioning to clean energy, and local government is proud to be leading the way.

[back to contents page]

08

A water sensitive shire

Image: A glimpse of a fraction of our agricultural dams reflected in the sunset of a spring evening from Mt Wombat, C. Hammond, 2018

Background

Perhaps of all our natural resources, water is our most precious. Yet although we live on the driest inhabited continent on earth, Australians are the greatest per capita consumers of water in the world (McGee 2013).

Water is crucial to the social, economic and environmental wellbeing of our community. We use it to drink and wash, to fight fires, for our agricultural crops and livestock, and to manage domestic sewerage. Without it, as we already know, it's a life and death issue.

Past climatic conditions have caused Strathbogie Shire and our neighbours serious water security concerns. The predicted impacts of climate change will cause serious strain upon our potable water supplies (treated water that is safe enough for consumption). We must find ways to conserve our valuable water resources to accommodate these impacts.

08 A water sensitive shire

Through SS2030 the Shire aims to transform to be a water sensitive region that is resilient, clean and efficient. Our water management approach to meet these targets involves:

- Using less water through changes in behaviour and using water efficient designs, materials, equipment, fixtures and fittings
- adopting a water stewardship approach
- Capturing alternative water sources to recycle and use for non-potable purposes for Council managed facilities, and implementing incentives and mandatory requirements to community and business to assist them to do the same
- Reducing stormwater pollution, minimising local flood risk, enhancing greening and urban cooling through retrofitting the stormwater management network with raingardens, retardation basins, treatment designs, evapotranspiration projects, wetlands, swales and gross pollutant traps

Our approach aims to drought-proof our Shire to ensure we can use water when it is hot and dry. Our waterway health will be improved and non-potable water supplies will be safe- guarded for use in the next century and beyond.

Issues and Opportunities

Conserving valuable potable water: Our towns have impoundments managed by Goulburn Valley Water which capture and treat rainwater to drinking water standards, but we only need half of this for potable purposes. The rest is used for non-potable purposes, such as toilet flushing and watering gardens. Installing efficiency measures, such as smart meters to detect leaks, efficient irrigation systems and water efficient fixtures and fittings can save water.

Stormwater management: Strathbogie Shire has an old stormwater drainage infrastructure which it is gradually replacing. Traditionally large pipes and channels remove excess stormwater from the built environment to minimise flooding risk and damage. The stormwater enters our waterways with large amounts of litter, other pollutants and nutrients. By incorporating stormwater management systems such as domestic tanks or raingardens into our towns, stormwater is slowed down and filtered, reducing pollution entering our waterways. With the increase in extreme storms, a water tank bulk buy will also help reduce localised town flooding.

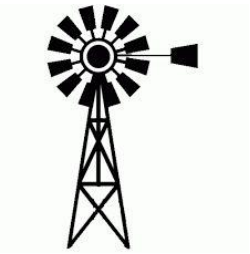
Alternative and recycled water resources: Stormwater harvesting and wastewater recycling present enormous opportunities for the Strathbogie Shire to save potable water and improve waterway health. Most stormwater and wastewater from the urban areas is discharged to our creeks and rivers. Unlike most water sources, wastewater is produced every day in our town's homes and businesses and does not rely on rainfall. It can be captured and treated to provide our future communities with a continuous water source. This approach reduces demand on the centralised water supply and may reduce the need for major water and wastewater network investment in the future to meet increased demand.

Keeping our shire green, cool and resilient: Using storm water and waste water as alternative water resources will keep our parks green and healthy during droughts which in turn provides residents and urban wildlife refuge during heatwaves and windstorms. Our shire will remain attractive to visitors and residents and our community's health and wellbeing will be enriched.

[back to contents page]

08 A water sensitive shire

SS2030 water sensitive shire summary

	December 2022 Targets	Strategic Directions
 **A water sensitive shire**	1. 15 per cent reduction from 2016 levels in annual nutrient & gross pollutant loads discharged to waterways via stormwater by 2022. 2. Five per cent of Strathbogie households have installed a water harvest, recycling, reuse or efficiency item in their home or business by 2022. 3. Reduce Council's potable water consumption to 1.2 per cent of the shire's per capita water consumption. 4. 95 per cent of Strathbogie Shire agri-business enterprises still operating in the municipality 2020-2022.	Reduce the impact of wastewater and pollutants on the shire's community and waterways. Prepare council and community for a medium to high global emissions scenario, and a hotter, drier climate future. Achieve best practice in the adoption and implementation of water sensitive urban design for our homes and infrastructure.

What we have achieved

2018	Shire's first council-required irrigated stormwater treatment basin (a small dam) on a subdivision commences development in Nagambie.
2015	Mandatory requirement approved through Section 173 of the Strathbogie Planning Scheme for new homes to install a water tank on their property to slow and lower peak runoff flows, and implement water efficient practices.

Our next flagship projects

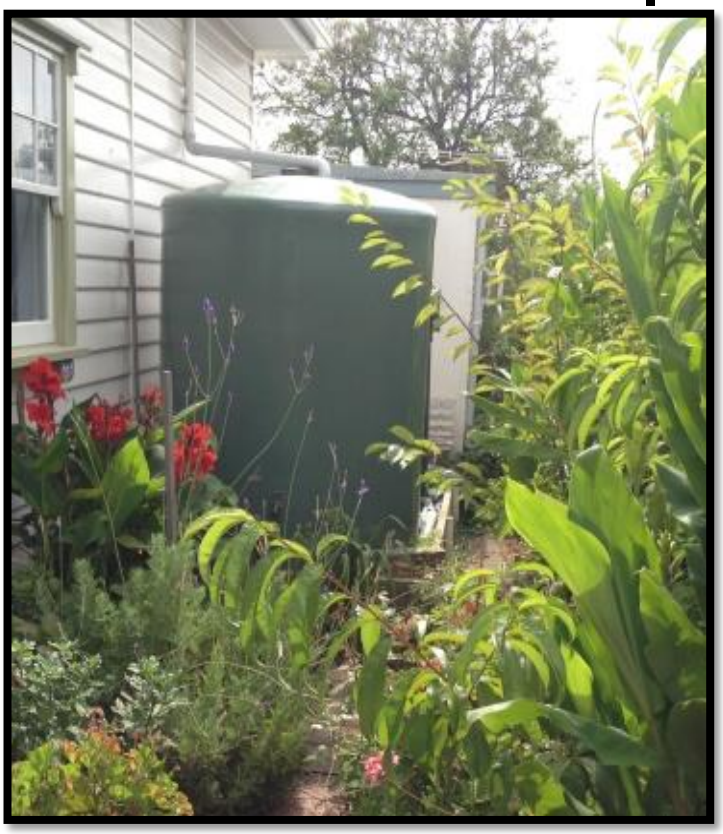
Action 3.02	Develop an Advocacy Plan and Programs for alternative water resources for Residents in Strathbogie Shire using Victorian Government and other Statewide incentive programs used as policy mechanisms.
Action 3.07	Seek in-principle and financial support to progress investigations into a full-feasibility and/or business case of alternative water options for Strathbogie Shire's agricultural regions which Council can implement in partnership with the agri-business community.

2030 targets

- 25 per cent reduction from 2016 levels in annual nutrient and gross pollutant loads discharged to waterways via stormwater by 2030.
- Twenty five per cent of Strathbogie households have installed a water harvest, recycling, reuse or efficiency item in their home or business by 2030.
- Maintain Council's potable water consumption at 1.2 per cent of the shire's per capita water consumption.
- 95 per cent of Strathbogie Shire agri-business enterprises still operating in the municipality 2023-2027.

[back to contents page]

Wastewater Reuse



At present, potable (drinkable) water is used for practically everything in the house and garden. We are literally flushing our drinking water down the toilet. On-site wastewater reuse can reduce potable water use in the home, though the opportunities for reuse vary depending on where you live. The two types of wastewater created in a home are greywater from non-toilet plumbing fixtures such as showers, basins and taps, and blackwater which has waste from the toilet.

Greywater is ideal for garden watering if detergents low in sodium and phosphorus are used and it is applied below the surface. Appropriately treated greywater can also be reused indoors for toilet flushing and clothes washing, both of which are significant consumers of water. Blackwater requires biological or chemical treatment and disinfection before reuse. For single dwellings, treated and disinfected blackwater can be used only outdoors, and often only for subsurface irrigation, and only if council permits it.

[back to contents page]

09

A zero waste shire

Image: Plastic bags caught in the Seven Creeks at Euroa, C. Hammond 2018

Background

The community of Strathbogie Shire has a lot to be proud of when it comes to waste. We have the highest landfill diversion rate in Victoria thanks to a decision made by Council back in 2015 – to do a fortnightly landfill waste pickup instead of a weekly one. Thanks to that our landfill diversion rate sits at a whopping 70%, whereas other councils manage approximately 46% diversion rate.

'Waste Disruptors' could be a term applied to the Shire of Strathbogie when looking back at 2015, because that same year also saw us adopting a weekly Food Organics and Garden Organics kerbside collection service – well before many Melbourne metro councils got on board. A massive 4,339 tonnes of organics has been recovered since this program started, equating to approximately 8,244 tCO_2-e. This may seem small if compared to some big emissions mitigation projects, but it is the equivalent to one year's electricity consumption for 2,000 homes. Furthermore, organics are very important to keep an eye on, mostly because of methane, which is a greenhouse gas 25 times more potent than the carbon emissions we generally hear about. Did you know products that emit the most methane are dairy products – especially cream cheese? So eating and composting dairy is definitely the way to go!

Like many small communities with limited resources, reusing what was around, has often been a priority. This has also been a theme for passionate and creative groups such as Boomerang Bags, the

product of which many of us see on shoppers arms each week. Our high landfill diversion rate translates to less waste in our landfills, flowing into our environment, and choking our precious habitats. But there is still much work to be done, and industries who require our help.

Issues and Opportunities

Environmental impacts of landfill: The environmental impact of sending waste to landfill is significant. Landfill sites generate methane, a greenhouse gas that is 25 times more potent than carbon dioxide. Emissions from waste account for almost 10 per cent of the total emissions from our local area.

Limited landfill capacity: Although we are recycling more, the growing population of Victoria will increase the amount of waste we generate, not all of which is currently recyclable.
Residential and commercial development growth also places restrictions on suitable land for new waste infrastructure.
Victoria is rapidly running out of local landfill capacity. Due to competing land priorities in different areas, waste treatment infrastructure is built further away from where the waste is produced.

Increased illegal dumping: The vast network of roads and lack of resources in small rural shires, sees some visitors and residents illegally dumping unwanted items on roadsides or public land. Illegal dumping causes obstructions, odour issues, agricultural contamination, wildlife injury and death, and contributes to perceptions of an area being unsafe.

New signage and surveillance programs are being rolled out in the Shire. Where recycling services are available, contamination of recycling streams is also an ongoing problem, causing some recyclable materials to enter landfill.

Economic benefits from resource recovery: Sending waste to landfill has the least economic and environmental benefit. While waste disposal costs continue to increase, recycling certain materials has a market value. Separating recyclables for reprocessing into new products presents great opportunities.

To maximise total resource recovery, and minimise waste entering landfill, the Shire needs to investigate solutions for alternative waste treatment (AWT) of the remaining items.

AWT facilities typically capture any missed recyclables for processing and garden and food waste for composting process mixed solid waste into fuels/biogas, with the remaining waste sent to landfill. Some AWT facilities can also turn the remaining waste into a valuable energy resource.

09 A zero waste shire

SS2030 zero waste shire summary

	2022 Targets	Strategic Directions
A zero waste shire	1. 80 per cent annual resource recovery of waste from Shire of Strathbogie managed properties by 2022. 2. 50 per cent annual resource recovery of maintenance, construction, demolition waste from Shire of Strathbogie managed assets by 2022. 3. 20 per cent reduction in waste contamination of our waterways by 2022. 4. 25 per cent reduction of waste to landfill from Strathbogie's Agricultural sector by 2022.	Enable waste awareness and avoidance throughout Council and community using strategic policy, and public infrastructure design. Enable waste awareness and avoidance throughout our Agricultural business community.

Our achievements so far

2018	Drafted the Waste & Resource Recovery Strategy 2019 – 2024 for consultation and adoption.
2018	In partnership with Mitchell, and Murrindindi Shire Councils, engaged a Waste Education Officer to assist with regional waste projects for the three Shire Council areas.
2015	Transitioned to fortnightly landfill waste bin pickup, and weekly Food Organics and Garden Organics kerbside collection services.

Our next flagship projects

Action 4.03	Integrate a 'Zero plastic shopping bag & Balloons' policy into the Shire Event Policy and Approvals process with non-destructive alternatives for event organisers.
Action 4.06	Seek funding to undertake a study to measure, benchmark and implement best practice waste avoidance and diversion for silage wrap, netting & twine in Strathbogie's agricultural sector and innovative practices where council can facilitate action.
Action 4.08	Support local groups and business engaging in waste reduction projects and events that reduce emissions, and waste going to landfill via the community grant process.

2030 targets

- 90 per cent resource recovery of waste from Shire of Strathbogie managed properties by 2030.
- 80 per cent reduction in waste contamination of our waterways by 2030.
- 70 per cent reduction of waste to landfill from Strathbogie's Agricultural sector by 2030.
- 80 per cent annual resource recovery of maintenance, construction, demolition waste from Shire of Strathbogie managed assets by 2030.

10

An ecologically rich shire

Echidna navigating Patterson's Curse, Sheans Creek, *Image*: C. Hammond 2017

Background

There are a diversity of ecosystems throughout Strathbogie Shire and within our borders we embrace plains, ranges, rivers and wetlands. Significant remnant vegetation and ecological communities exist in linear patches exist in linear patches like our roadsides, creeks and rivers, spring soak wetlands across the rocky outcrops of the Strathbogie Ranges, box ironbark forests to the south west, and revegetated sites on farms, crown land and private covenants.

Because of a background that includes prehistoric events that we see every day, the First People's occupation of over 60,000 years, and then European settlement from the late 18th century, and ongoing development, Australian ecology has an incredibly complex and unique place in our collective psyche. Many of us have been filled with wonder, fear, annoyance, and speechless awe at some stage when in the Australian wilderness. Yet in Strathbogie Shire, approximately 90 per cent of that extent is now gone.

Prior to European settlement, the vegetation below the Strathbogie Ranges on the plains (formally identified as the Victorian Riverina Bioregion), was a mixture of grasslands and low open woodland, dominated by tree species Grey Box *Eucalyptus microcarpa* and Yellow Box *E. melliodora*, Red Gum *E. camaldulensis* and Murray Pine *Callitris sp*. with a sparse grassy understorey. A number of small freshwater wetlands of various types were also scattered across the region.

10 An ecologically rich shire

Today, over 90% of the local woodlands has been cleared, mainly for dryland farming involving grazing and mixed cropping. Networks of vegetated roadsides and creeklines now play a very important role in sustaining native flora and fauna communities. In 2017 Strathbogie Shire Council engaged Biodiversity Services to review and rate our roadsides. They found we have some of the most ecologically valuable roadsides in Victoria. The full dataset of our roadside work can be viewed via the mapping on www.vvb.org.au/vvb_map.php?view=7879_571d812.

Creekline vegetation remnants now also play an important role for ecological connectivity, especially on Seven Creeks, Pranjip, Hughes, and Castle Creeks. Strathbogie Shire is home to an estimated one third of the State's population of the endangered Grey-crowned Babbler (Monarc Environmental Pty Ltd 2014). Other threatened fauna within the local area include Bush Stone-curlew, Swift Parrot, Tree Monitor and Brush-tailed Phascogale which are often found along these linear habitats because these areas contain large, old, hollow- bearing trees, crucial in supporting breeding habitat for species such as the phascogale and Squirrel Glider.

There are 74 species of native flora and 79 species of native fauna listed from 'poorly known' to 'vulnerable' right through to 'regionally extinct' or 'extinct in the wild' in Strathbogie Shire. Most of this comes down to habitat destruction, whether it be land clearing or the effects of climate change. The full lists of our flora and fauna can be viewed at www.swifft.net.au/cb_pages/threatened_species.php .

Biodiversity is the variety of all life forms on Earth – the different plants, animals and micro-organisms and ecosystems that they are a part of.

Healthy land, waterways and ecosystems are fundamental for:

- protection of present communities and species of plants and animals
- mitigation of potentially devastating environmental problems including salinity, erosion, drought, and flooding
- improved amenity value
- influencing the health of human communities
- improved local productivity like pollination & pest control
- conservation of environmental heritage values
- improved human wellbeing and connection to nature
- regulation of climate and moderation of temperature extremes
- air and water purification.

10 An ecologically rich shire

Issues and Opportunities

Deforestation: Our local area once had a variety of native trees, plants, animals and birdlife. Our forests have been replaced by agricultural fields, orcleared for housing and hard pavements, roads and roofs. We need trees and plants around us because they:

- Reduce the urban heat island effect
- Filter and improve the air webreathe
- Provide our roads, houses and walkways with shade, and lengthen the life of infrastructure, and reduce energy requirements
- Filter stormwater run-off and particulates in our waterways
- Enhance the appearance, economic value and liveability of our towns
- Provide us with a connection to nature in our urban areas by attracting native wildlife to where we live
- Mitigate carbon emissions, with trees, healthy soil and vegetation storing emissions and preventing them from entering the atmosphere.

Raingardens, green roofs and walls: Raingardens retain water in the landscape, improve stormwater quality and keep our city green and cool, mitigating the impacts of the urban heat island effect. Similarly, green roofs and walls slow and clean stormwater, improve air quality, increase habitat for a variety of animal species and create additional space for urban food production and recreation.

Increasing our urban canopy: It takes many years for most trees to reach their mature size, with canopies increasing as trees mature. Canopy trees need room to grow and the competition for space is high, both above and below ground. This limits the available space for planting canopy trees.

The urban environment presents a challenging location to grow trees and plants. The microclimatic conditions created by brick, bitumen and concrete affect tree and plant growth. Trees also need sufficient soil and water. Rainfall cannot always reach the soil and water is essential for keeping our towns healthy and green. Rural Councils often struggle to water trees in times of drought.

Strathbogie Shire Council with the assistance of Urban Forest Consulting, is reviewing both urban and rural green infrastructure across the shire with the aim of increasing the environmental, economic and social capabilities of each. This will see the introduction of water sensitive urban design such as new designs for passively irrigated tree pits.

Rural roadsides: Strathbogie's roadsides are some of the most ecologically diverse and unique in Victoria. In 2017/18 they were expertly rated for their ecological conservation values, and a database created for council and community (www.vvb.org.au/vvb_map.php). Council aims to retain, and restore its rural roadsides, and review the Local Laws and policy that support our management and protection of them.

10 An ecologically rich shire

Rivers & Wetlands: A range of factors, including climate change is increasing the stress on our creeks and rivers. Higher water temperatures and reduced stream flows affect water quality. Aquatic and riparian species are already significantly impacted, as are those residents and visitors who regularly use our waterways. Erosion and sedimentation are greatly intensified by drought, and following a bushfire or extreme rainfall event, very high sediment loads enter these creeks and rivers.

The costs of not halting and restoring the damage in time can stretch into the millions of dollars, especially if riparian and aquatic weeds, and algal blooms are involved. Partnering with the Goulburn Broken CMA, the Department of Environment, Land, Water and Planning, Landcare, and local community groups is a priority of Strathbogie Shire Council in order to retain our healthy waterways.

Benefitting from our native forests: Our native forests provide a significant climate change buffer to biodiversity and residents. They store carbon, create moisture and rain, and provide refuge for creatures that collaborate with us to pollinate, increase tourism, reduce disease, enrich our soils and much more.

In 2018 Council called upon the State Government to halt logging Strathbogie State Forest and declare it a protected forest, and to support local native timber plantations, and forest based recreation.

As well as supporting community to examine forest eco-tourism, Council is currently reviewing the opportunities a native timber plantation industry could bring to Strathbogie Shire.

10 An ecologically rich shire

SS2030 ecologically rich shire summary

An ecologically rich shire

2022 Targets	Strategic Directions
1. 10 per cent increase in Low rated roadsides rated as Medium 2018 - 2022. 2. 20 per cent reduction of biosecurity threats to ecological and agricultural communities 2012 to 2022. 3. 10 per cent increase in native vegetation coverage on private land 2017 - 2022. 4. 20 per cent reduction in complaints about illegal removal of native vegetation by 2017 - 2022. 5. 10 per cent increase in new eco-business 2018 - 2022.	Protect and conserve our landscapes and ecosystems through education, partnerships, policy, programs and legislation. Leverage Strathbogie's unique natural environment to create stronger links to our gross regional economy.

Our achievements so far

2011 ongoing	Partnered with Landcare to run the Roadside Weed and Pest Program, successfully targeting state listed weeds and rabbits on up to 400km of roadsides each year.
2017	Finalised the Roadside Conservation Assessment, spatially logging over 200,000 items of flora data and placing on Visualising Victoria's Biodiversity website for public access.
2018	Commenced riparian restoration and monitoring program at Castle Creek, Euroa.

Our next flagship projects

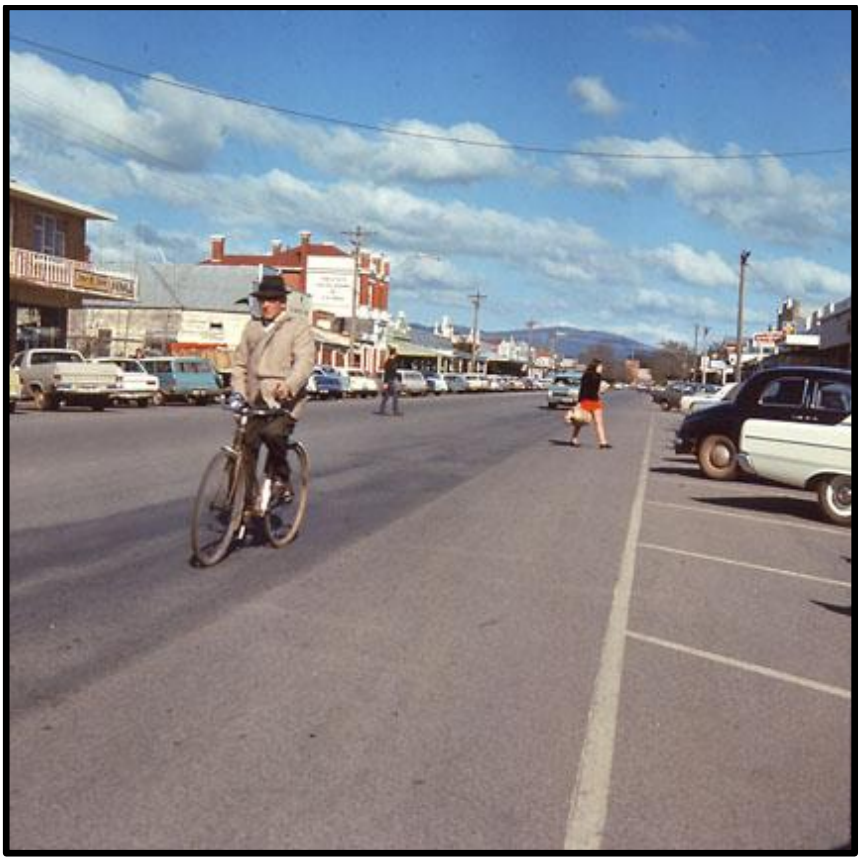
Action 5.04	Partner with the State Department of Economic Development, Jobs, Transport and Resources, DELWP, and Landcare, to undertake the Strathbogie Roadside Weed and Pest Program.
Action 5.07	Establish MoUs with local environmental community groups to maximise the outcomes, sustainability, and satisfaction of community-council partnerships on projects benefitting Strathbogie's natural heritage.
Action 5.08	Partner with Agriculture Victoria and the Euroa Arboretum to run Whole Farm Planning and Healthy Hectares land use management courses for new & existing landowners.
Action 5.09	Undertake a strategic analysis of our urban and rural forest landscapes to identify gaps and opportunities, specifically those benefitting social wellbeing, local economies, and environment.

2030 targets

- 25 per cent increase in Low rated roadsides rated as Medium 2023 - 2030.
- 35 per cent reduction of biosecurity threats to ecological and agricultural communities 2012 to 2030.
- 15 per cent increase in native vegetation coverage on private land 2023 - 2030.
- 30 per cent reduction in complaints about illegal removal of native vegetation 2023 - 2030.

11

An active and connected shire



Binney Street, Euroa in the mid 20th Century – active & connected in every way except by trees! Photographer unknown.

Background

Strathbogie Shire Council is committed to promoting the most sustainable modes of transport for residents, workers and visitors. We are improving walking and cycling conditions and facilitating electric vehicle research and access. We are also working with the Victorian state government to transform our Shire, to accommodate major public transport infrastructure and services, including rail and road networks.

Sustainable Strathbogie 2030 also recognises the importance of balancing all modes of transport for the differing requirements of residents, visitors and business across the Shire. This includes our mature-age demographic, freight for agricultural requirements, and safe and convenient transport for visitors. It also combines slower and less mechanical transport modes, and examining how we can improve our cycling, walking and other 'active' transport networks, so as to improve our health, wellbeing and physical connections to the local environment.

Sustainable Strathbogie 2030 focuses on the combined economic, social and environmental impacts associated with transport. Our Actions specifically target the challenges and opportunities linked to our rural transport fuel transition, such as the significant emissions of liquid fuel, our fuel security, cost savings, and air quality.

11 An active & connected shire

Issues and Opportunities

Security of fuel supply: A 2017 report by the NRMA noted that Australia's reliance on imported liquid fuels had increased significantly over the past two decades (NRMA 2017). Australia's, and the Strathbogie Shire economy is dependent on extensive transport networks to move people, goods and resources. This includes livestock, water, firetrucks, liquid fuel and gas, ambulances and other critical needs that we take for granted. The majority of our imported petroleum products are shipped via the South China Sea, an area fraught with international tension. The majority of our emerging electric vehicle fleets are also fuelled from a declining and expensive black non-renewable grid. Council is currently undertaking a study on our large and passenger fleet as to its adaptability to electric, hybrid and/or hydrogen fuel.

Transition to new fuel technology: In 2017 the Goulburn Broken Greenhouse Alliance, a partnership of 11 councils in north-east Victoria commissioned a study into the feasibility of introducing electric vehicles into council passenger vehicle fleets. It found many people feel 'range anxiety' and anxious about the availability of recharge infrastructure, vehicle pricing, the types of vehicles available, and whether vehicles were suitable in off-road conditions. The key opportunities were seen as lowering GHG emissions, and reducing vehicle operational costs (Goulburn Broken Greenhouse Alliance 2017).

With Council now examining options for the transition of its own fleet – from large trucks, to work utilities to passenger vehicles, the local Strathbogie Shire community will get the opportunity to see close-up how the transition works in a rural setting, and how economic this can be.

Enabling access to the outdoors: In 2018 the Sustainable Development Reference Group convened a sub-committee to commence the mapping and 'ground-truthing' of 11 of Strathbogie Shire's existing tracks and trails and create an app and map. The primary goal was to to enable residents and visitors to effortlessly walk and cycle to various outdoor destinations and learn more about the unique and diverse flora, fauna and fungi of our ranges and plains regions.

11 An active & connected shire

SS2030 active & connected shire summary

<table>
<tr><td> 
an active & connected shire</td><td>2022 Targets
1. Decrease of 10 per cent in community transport emissions from 2016 baseline by 2022.
2. Decrease of 10 per cent in Council's transport emissions from 2016 baseline by 2022.
3. 1000 locals and visitors indicate they have completed a walk in Strathbogie Shire by 2022.
4. Visible representation of our local indigenous history and culture in 50 per cent of our municipal townships by 2022.
5. Strathbogie Shire Council recognised as leading excellence in rural sustainable development.</td><td>Strategic Directions
Enable local and visitor access to low emission transport throughout Strathbogie Shire.
Encourage respect for Strathbogie Shire's unique environmental heritage by facilitating personal connection, and access.
Align Strathbogie Shire Council's strategies, plans and goals to the ethical and equitable values espoused by the UNs Sustainable Development Goals.</td></tr>
<tr><td colspan="3">What we have done already</td></tr>
<tr><td colspan="3">2017 We partnered with the Goulburn Broken Greenhouse Alliance for the Electric Vehicle Feasibility Study and Business Case.
2018 We commenced the Discovery Map Committee – a sub-committee of the Sustainable Development Reference Group – to commence the mapping and ‘ground-truthing’ of 11 of Strathbogie Shire's existing tracks and trails and create an app and map to enable residents and visitors to effortlessly walk and cycle to various destinations.
2018 We commissioned a review of our current large and passenger council fleet against the best low carbon, cost efficient fuels, ownership arrangements, and reporting services on the market suitable for a rural shire council.</td></tr>
<tr><td colspan="3">Our next flagship projects</td></tr>
<tr><td colspan="3">Action 6.04 Seek funding for an ongoing project to create contemporary, locally created resources for birdwatchers and hikers seeking to enjoy our natural ecological heritage, and work with community including Taungurung and Yorta Yorta to create.
Action 6.08 Engage with the Taungurung and Yorta Yorta communities, the Euroa Arboretum, and the Sustainable Development Reference Group to discuss and implement opportunities for a First People's Living History Park of indigenous plantings and accessible interpretation.
Action 6.10 Include low carbon vehicles in Council's fleet and trial vehicles to deliver services to our community.</td></tr>
</table>

11 An active & connected shire

2030 targets
- Decrease of 15 per cent in community transport emissions from 2016 baseline by 2030. - Decrease of 15 per cent in Council's transport emissions from 2016 baseline by 2030. - Visible representation of our local indigenous history and culture in 100 per cent of our municipal townships by 2030. - 6000 locals and visitors indicate they have completed a walk in Strathbogie Shire by 2030.

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Assume a climate resilience leadership role and facilitate the strengthening of community networks and infrastructure.	1.01	Contribute to regional forums and meetings communicating climate resilience in agriculture and business, and innovation throughout the industry.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				
	1.02	Ensure new landowners all undertake an approved land management program such as Whole Farm Planning (Agriculture Vic for >40Ha) or Healthy Hectares GBCMA and Euroa Arboretum <40Ha), and that course providers are appropriately supported by Strathbogie Shire Council.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				
	1.04	Develop a Biennial Community Resilience Leadership Program.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				
Excel in demonstrating leadership across Council Climate Adaptation policy, and implementation into assets under its stewardship.	1.03	Implement a Community Climate Resilience and Vulnerability Assessment Methodology as part of the 2030 Resilience Plan (see Action 1.07).	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				
	1.05	Review and commence implementation of existing and new Council-owned facilities in each major township capable of operating independently to be available for community during extreme climate events such as off-grid heatwave-venues.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Excel in demonstrating leadership across Council Climate Adaptation policy, and implementation into assets under its stewardship.	1.06	Research and implement an opt-in SMS service for residents and visitors to connect to for council initiated risk management activities such as pre-storm water-tank discharge advice, and post-emergency cleanup activities.	Manager IT	2022 2021 2020 2019 2018 2017		●				
	1.07	Update and extend the 2011 'Strengthening Strathbogie Climate Change Report' as a 2030 Resilience Plan, including a costed action plan, integration into Council Plan and Budgets, impacts to cultural heritage, and integration into contemporary regional plans and tools, alongside an evaluation/ future-proof of all Council policy and infrastructure in the context of a future medium-high global emissions scenario.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017		●				
Facilitate accurate and transparent State of the Environment communications to residents.	2.05	Using accepted emissions and evaluation audit methods, evaluate and review progress toward Council and Community Emissions Reduction Targets every 5 years, and report progress transparently to Council and residents each year.	Team Leader Climate Change & Environment Communications Coordinator	2022 2021 2020 2019 2018 2017	●					
	2.11	Create an informative SS2030 web experience, including a living Action Plan updated as actions are completed with images, documents and video of actions as they are completed.	Team Leader Climate Change & Environment Communications Coordinator	2022 2021 2020 2019 2018 2017	●					

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
	2.13	Implement a program that records, analyses and reports on Council's energy, water, fleet, and waste emissions and financials, in order to reduce costs and increase understanding of Council's emissions standing.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
Facilitate community investment, renewable markets and trading in carbon reduction projects	2.09	Create the Strathbogie Carbon Program, identifying opportunities for local carbon farming projects, advocacy, funding and partnerships that enhance soils, livestock, trees, fertiliser and energy use that enhance Strathbogie Shire's reputation as a model economic and environmental locality.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.12	Undertake a Renewables Land Suitability Prospectus with appropriate funding, to identify transmission infrastructure, map suitable land, and consult with landowners for developers of renewable energy infrastructure.	Manager Planning & Investment	2022 2021 2020 2019 2018 2017	●					
	2.15	Advocate with State and Federal governments for rural emissions reduction & climate adaptation projects and programs.	Executive Management Team	2022 2021 2020 2019 2018 2017	●					

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Facilitate community investment, renewable markets and trading in carbon reduction projects	2.18	Support research and development of Victoria's Local Government Renewable Energy Power Purchase Agreement (PPA) Project, for a cheaper and more stable energy supply, as well as Victoria's Renewable Energy Target, and Emissions Reduction Target.	Executive Management Team	2022 2021 2020 2019 2018 2017	●					
	2.19	Facilitate the purchase of Australian Carbon Credit Units (ACCU) in 2022 to offset Council's remaining emissions and meet zero net emissions standard, with no less than 50 per cent of ACCUs purchased from approved voluntary market offset schemes with environmental, social and cultural core-benefits that meet Strathbogie Shire Council's commitment to the UN Sustainable Development Goals.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
Support programs and projects that benefit the local economy, increase local knowledge, & reduce greenhouse gas emissions.	2.01 ✓	Undertake a 12 month Strathbogie Solar Bulk Buy Program 2017-18.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.02	Support local groups engaging in renewable energy projects that reduce emissions and progress Strathbogie Shire's SS2030 Strategic Direction with community grants.	Team Leader Climate Change & Environment Manager Liveability	2022 2021 2020 2019 2018 2017	●					

[back to contents page]

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Support programs and projects that benefit the local economy, increase local knowledge, & reduce greenhouse gas emissions.	2.03 ✓	Join the Council Alliance for a Sustainable Built Environment (CASBE) and the Built Environment Sustainability Scorecard (BESS) to engage, network and train with best practice ESD through planning and the built environment.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.04	Engage and partner regularly with regional, State and National groups such as the Goulburn Broken Greenhouse Alliance, CASBE, and the Cities Power Partnership as members, and to stay engaged with new initiatives and emerging technology.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.06 ✓	Commence Strathbogie Shire Council's Corporate Greenhouse Program, including Greenhouse Reduction Plan & Inventory, Building Audits and Energy Efficiency Retrofits with the aim of saving 60+% (30,000 tCO2-e) of our <1.5 Degree 2030 "carbon budget" of 56,519 tonnes of CO2-e.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.10	Deliver eco-driver training to Council staff to reduce greenhouse emissions, fuel consumption and financial costs from Council fleet.	Manager Assets Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
	2.14	Review remaining public and street lighting in Strathbogie Shire with a view to implementing a Second Generation "Lighting the Regions" Project with the Goulburn Broken Greenhouse Alliance and AusNet to install low-emission/energy light globes before 2022.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					

Appendix 1: Action Plan to 2022

Strategy Direction	Actions to 2022		Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Support programs and projects that benefit the local economy, increase local knowledge, & reduce greenhouse gas emissions.	2.16	Develop and implement low emission, low consumption purchasing standards into Strathbogie Shire Council Policy, including for the Council Fleet Purchasing Policy requiring 80 per cent minimum of passenger vehicles to emit less than 5 tonnes CO2-e per 20,000 KM per annum, & for suitable EV charging infrastructure to be located at Council buildings.	Manager Governance	2022 2021 2020 2019 2018 2017	●					
	2.17	Finalise the 'Greening Strathbogie Shire's Buildings and Spaces' Policy and Guidelines for adoption by Council.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
Conduct Council business and operations with a commitment to the United Nations Sustainable Development Goals.	2.08	Commence an appropriately resourced program aimed at improving low-income residential energy, water efficiency and home comfort.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017	●					
Achieve best practice in the adoption and implementation of water sensitive urban design for our homes and infrastructure.	3.08	Engage specialist consultants to develop a Stormwater Infrastructure Database and best practice audit, measurement and maintenance regime so council can identify opportunities, challenges, and tailor our future approach to Water Sensitive Urban Design (WSUD) implementation.	Infrastructure Development Engineer	2022 2021 2020 2019 2018 2017			●			
Prepare council and community for a medium to high global emissions scenario, and a hotter, drier climate future.	3.02	Develop an Advocacy Plan and Programs for alternative water resources for Residents in Strathbogie Shire using Victorian Government and other Statewide incentive programs used as policy mechanisms.	Team Leader Climate Change & Environment Executive Management Team	2022 2021 2020 2019 2018 2017			●			

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Prepare council and community for a medium to high global emissions scenario, and a hotter, drier climate future.	3.04	Partner with respected agencies and organisations to develop a water stewardship policy, as well as incentive programmes and educative practices that drive water security for Council, residents, business and our natural environment.	Team Leader Climate Change & Environment Infrastructure Development Engineer	2022 2021 2020 2019 2018 2017			●			
	3.06	Complete water efficiency audits at Council's top three water consumption sites and implement efficiency measures as required.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017			●			
	3.07	Seek in-principle and financial support to progress investigations into a full-feasibility and/or business case of alternative water options for Strathbogie Shire's agricultural regions which Council can implement in partnership with the agri-business community.	Team Leader Climate Change & Environment Executive Management Team	2022 2021 2020 2019 2018 2017			●			
	3.11	Undertake water use audits and rainwater collection infrastructure retrofits on Council buildings, and integrate rainwater use into operational guidelines for Parks and Gardens, toilets, truck-wash facilities, street-tree watering, and other identified uses.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017			●			

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Prepare council and community for a medium to high global emissions scenario, and a hotter, drier climate future.	3.12	In consultation with the GBCMA, prepare internal Council guidelines to provide a hierarchical use of alternative water sources to groundwater for all Council facilities and reserves, and identify sensitive areas where groundwater resources are stretched or should not be used.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017			●			
	3.13	For all new capital works at the planning stage, incorporate a detailed investigation into water re-use opportunities for inclusion in the whole of project scope.	Manager Capital Works	2022 2021 2020 2019 2018 2017			●			
	3.14	Work with our partners to document key sites, and establish guidelines for the protection of groundwater dependent ecosystems in Strathbogie Shire.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017			●			
Reduce the impact of wastewater and pollutants on the shire's community and waterways.	3.01	Advocate to the GBCMA to finalise the draft LSIO overlay in Strathbogie Shire to give formality to requirements to reduce wastewater risks to waterways, our environment, and residents, across the Shire of Strathbogie.	Executive Management Team	2022 2021 2020 2019 2018 2017			●			
	3.03	Identify high risk locations, and advocate for a reticulated sewerage program under a special charge scheme for these residences within the Shire of Strathbogie.	Manager Planning & Investment	2022 2021 2020 2019 2018 2017			●			

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Reduce the impact of wastewater and pollutants on the shire's community and waterways.	3.05	Prepare a business case to engage the services of an ESD Officer who will work across all Directorates from the Environment unit, implementing a sustainable built environment (energy efficiency, water resources, stormwater management, building materials, waste management, urban ecology and site management) into council and community activities, through education, advice, design and planning information, and compliance.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017			●			
	3.09	Manage the performance of septic tanks with education and compliance activities such as brochures, media releases, website information, publicity, and random checks etc.	Manager Environmental Health Manager Planning & Investment	2022 2021 2020 2019 2018 2017			●			
	3.10	Educate the community regarding the environmental benefits of construction and connection to the reticulated sewerage network with an animated graphical rendition of what occurs during inundation, and with a non-maintained septic system, and seek other Council partners to contribute to the project.	Manager Environmental Health Infrastructure Development Engineer	2022 2021 2020 2019 2018 2017			●			
Enable waste awareness and avoidance throughout Council and community using strategic policy, and public infrastructure design.	4.01	Review and update waste policy and strategy documentation.	Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Enable waste awareness and avoidance throughout Council and community using strategic policy, and public infrastructure design.	4.02	Ensure internal and external capital works contracts and project briefs include planning for construction and demolition waste, using construction waste hierarchy process, and consultation with Council's Waste Management Engineer prior to approval and final sign off.	Manager Capital Works Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
	4.03	Integrate a 'Zero plastic shopping bag & Balloons' policy into the Shire Event Policy and Approvals process with non-destructive alternatives for event organisers.	Event & Visitor Economy Coordinator Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
	4.04	Seek funding for an Events Waste Recycling Trailer to be loaned to community event organisers.	Event & Visitor Economy Coordinator Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
	4.05	Install 'no littering' signs at known roadside litter hotspots across the Shire and regularly monitor these sites in partnership with local landholders and groups, apply the Litter Act and review Local Laws to offenders, and remove dumped material including garden waste.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017				●		
	4.07	Collect green waste from Council managed parks for compostable re-use.	Manager Works	2022 2021 2020 2019 2018 2017				●		

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Enable waste awareness and avoidance throughout Council and community using strategic policy, and public infrastructure design.	4.08	Support local groups and business engaging in waste reduction projects and events that reduce emissions, and waste going to landfill via the community grant process.	Team Leader Climate Change & Environment Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
	4.09	Audit Council's waste streams in staff occupied buildings, including paper, cardboard, plastic containers, e-waste and printer cartridges and review education and projects to refine waste management.	Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
	4.10	Support key stakeholders and community to implement waste prevention education and collection programs for our waterways.	Team Leader Climate Change & Environment Waste Mgt Engineer / Infrastructure Dev Engineer	2022 2021 2020 2019 2018 2017				●		
Enable waste awareness and avoidance throughout our Agricultural business community.	4.06	Seek funding to undertake a study to measure, benchmark and implement best practice waste avoidance and diversion for silage wrap, netting & twine in Strathbogie's agricultural sector and innovative practices where council can facilitate action.	Waste Management Engineer	2022 2021 2020 2019 2018 2017				●		
Leverage Strathbogie's unique natural environment to create stronger links to our gross regional economy.	5.09	Undertake a strategic analysis of Strathbogie Shire's urban and rural forest landscapes to identify gaps and opportunities, specifically those benefitting social wellbeing, the future of the local economy, and our environment.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.10	Undertake an urban forest strategy, as part of the 'Greening Strathbogie Shire's Buildings and Spaces' Policy and Guidelines, for adoption by Council (item 2.17).	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Protect and conserve our landscapes and ecosystems through education, partnerships, policy, programs and legislation.	5.01	Review and update the Roadside Management Plan 2011 and ensure the update of the Strathbogie Shire Local Laws refers to the revised document.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.02 ✓	Undertake a Roadside Conservation Values Assessment for reallocation of the conservation status of our roads.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.03 ✓	Partner with CeRDI and SWIFFT to release Strathbogie's roadside ecological data to the public on the Visualising Victoria's Biodiversity website.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
Protect and conserve our landscapes and ecosystems through education, partnerships, policy, programs and legislation.	5.04 ✓	Partner with the State Department of Economic Development, Jobs, Transport and Resources, DELWP, and Landcare, to undertake the Strathbogie Roadside Weed and Pest Program.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.05	Support the Strathbogie Blackberry Action Group to educate residents, and to eradicate the Blackberry threat across privately held land in Strathbogie Shire, particularly via support of landholder Whole Farm Planning and Healthy Hectares Training.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.06	Design a Conservation Covenant Rate Rebate Policy to lock up carbon, and protect biodivesity for landowners who have land registered for a conservation covenant on the Cert of Title, and create a Rebate Program to enhance the properties biodiversity values.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	

[back to contents page]

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Protect and conserve our landscapes and ecosystems through education, partnerships, policy, programs and legislation.	5.07	Establish MoUs with local environmental community groups to maximise the outcomes, sustainability, and satisfaction of community-council partnerships on projects benefitting Strathbogie's natural heritage.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.08 ✓	Partner with Agriculture Victoria and the Euroa Arboretum to run Whole Farm Planning and Healthy Hectares land use management courses for new & existing landowners.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
	5.11	Update the roadside conservation value layers as per the completed Roadside Conservation Management Review, and create a Vegetation Protection Overlay (VPO) in the Strathbogie Planning Scheme for select roadsides assessed as possessing a conservation value of Very High and High.	Manager Planning and Investment Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017					●	
Enable local and visitor access to low emission transport throughout Strathbogie Shire.	6.01	Advocate to the Victorian State Government for electric vehicle infrastructure in rural areas.	Executive Management Team	2022 2021 2020 2019 2018 2017						●
	6.06	Analyse best methods to raise own funds, and grants, and philanthropy for accessible electric buses which can operate throughout Strathbogie Shire and incorporate into a Sustainable Strathbogie Rural Public Transport Advocacy document.	Manager Arts Culture & Economy Team Leader Climate Change and Environment	2022 2021 2020 2019 2018 2017						●
	6.10	Include low carbon vehicles in Council's fleet and trial vehicles to deliver services to our community.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●

Appendix 1: Action Plan to 2022

Strategy Direction	Actions to 2022		Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
	6.13	Undertake an 'Active & Connected Cycling Strategy' and review the opportunities and barriers, infrastructure, routes, and social initiatives required for residents and visitors to access a safe and enjoyable cycling lifestyle in Strathbogie Shire.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●
Align Strathbogie Shire Council's strategies, plans and goals to the ethical and equitable values espoused by the UNs Sustainable Development Goals.	6.14	Establish and endorse a Council 'Responsible Investment Charter' to be used as a guideline to all staff and elected members, and which outlines Councils commitment to UN Sustainable Development principles of an economically, socially and environmentally balanced Shire and wider world, and to act, invest, and procure in ways that benefit those principles.	Manager Governance	2022 2021 2020 2019 2018 2017						●
Align Strathbogie Shire Council's strategies, plans and goals to the ethical and equitable values espoused by the UNs Sustainable Development Goals.	6.15	Consider SDG thinking in the Municipal Strategic Statement (MSS) Review.	Manager Planning and Investment	2022 2021 2020 2019 2018 2017						●
	6.16	Incorporate SDG thinking into the Strathbogie Shire Council Strategy Framework.	Executive Management Team	2022 2021 2020 2019 2018 2017						●
	6.17	Engage with SDG stakeholders to share lessons learned and gain insight from others as the Shire of Strathbogie aligns with the SDGs.	Executive Management Team	2022 2021 2020 2019 2018 2017						●

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Encourage respect for Strathbogie Shire's unique environmental and local heritage by facilitating personal connection, and access.	6.02	Seek funding and contract specialists to undertake a review of current Council policy, strategy, guidelines and action plans, tendering, RFQs, investments etc, to align with the United Nations Sustainable Development Goals, including no poverty, reduced inequalities, clean water and sanitation, climate action and affordable and clean energy	Manager Governance	2022 2021 2020 2019 2018 2017						●
	6.03	Create and regularly update Environment & Sustainability content for the printed and digital Welcome to Strathbogie pack.	Team Leader Climate Change & Environment Communications Coordinator	2022 2021 2020 2019 2018 2017						●
	6.04	Seek funding for an ongoing project to create contemporary, locally created resources for birdwatchers and hikers seeking to enjoy our natural ecological heritage, and work with community including Taungurung and Yorta Yorta to create.	Team Leader Climate Change & Environment Tourism & Visitor Economy Coordinator	2022 2021 2020 2019 2018 2017						●
	6.05	Use databases, Management Guidelines, mapping and the Planning Scheme to record and protect culturally significant trees on Council land which play a role in the Strathbogie Shire community culturally, historically, scientifically and aesthetically.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●
	6.07	Finalise the mapping outcomes of Strathbogie Shire's 11 tracks and trails with the Discovery Map Sub-Committee. Create an app and map for users of our local environment.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●

Appendix 1: Action Plan to 2022

Strategy Direction		Actions to 2022	Responsible Manager Partners	Time-frame	Low carbon shire	Climate resilient shire	Water sensitive shire	Zero waste shire	Ecologically rich shire	Active & connected shire
Encourage respect for Strathbogie Shire's unique environmental and local heritage by facilitating personal connection, and access.	6.08	Engage with the Taungurung and Yorta Yorta communities, the Euroa Arboretum, and the Sustainable Development Reference Group to discuss and implement opportunities for a First People's Living History Park of indigenous plantings and accessible interpretation.	Team Leader Climate Change & Environment Project Officer Projects & Works	2022 2021 2020 2019 2018 2017						●
	6.09	Engage with the Euroa Arboretum and the Goulburn Broken CMA to tell the story of the Silver Banksia (Banksia marginata) and the oldest Silver Banksia orchard in Australia.	Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●
	6.11	Build Strathbogie Shire's ecotourism social media presence on Facebook, Twitter, Sina Weibo, YouTube and TripAdvisor, including the development of eco-tourism copy, photos and video for distribution in social media channels, and to share with tourism operators.	Team Leader Climate Change & Environment Communications Coordinator	2022 2021 2020 2019 2018 2017						●
	6.12	Support and advocate for the further development of Transition of the Strathbogie Forest: Tourism & Plantation Blueprint for the Strathbogie Shire, to lay the foundation for sustainable development of integration of plantation forestry into farming systems, as well as developing The Great Strathbogie Trail and associated tourism industry.	Executive Management Team Team Leader Climate Change & Environment	2022 2021 2020 2019 2018 2017						●

Appendix 2:

Glossary

Active transport: Involves any physical activity that gets you from one place to another, such as walking and cycling.

Arterial transport: A high-capacity urban road or route.

Baseline: An initial set of observations or data used for comparison of future status, so as to observe changes (positive or negative). The baseline may be set at the current status or for a time in the past.

BASIX or Building Sustainability Index: A NSW government index, to rate energy and water efficiency performance of residential buildings, that aims to reduce water consumption and greenhouse gas emissions by 40 per cent compared to pre-BASIX (2004) buildings.

Best Practice: A method, technique or procedure that has been shown by research and experience to produce optimal results, and that is established or proposed as being suitable for widespread adoption. Best practice is commonly new or innovative compared to standard practice, but is not required to be. In some cases, a standard and established practice may be the best.

Biodiversity: Biological diversity including species richness, ecosystem complexity and genetic variation.

Business-as-usual: A projection (e.g. greenhouse gas emission levels) based on the assumption that all existing policy measures remain in place with no new measures introduced.

Canopy cover: The proportion of land area occupied by the tree's crown or canopy, or combined canopies, when visualised from directly above. It is often expressed as a per centage or the total area covered.

Carbon intensity: Electricity that has a high emissions concentration, or energy intensity, for example coal-fired electricity has a high emissions concentration, or carbon intensity.

Carbon neutral or net zero emissions: Balancing the amount of carbon released with an equivalent amount offset by purchasing carbon credits to make up the difference. The best practice approach is to reduce or avoid carbon emissions first, then offset any unavoidable emissions.

Catchment: The geographical zone in which water is captured, flows through and eventually discharges at one or more points. The concept includes both surface water catchment and groundwater catchment. A surface water catchment is defined by the area of land from which all precipitation received flows through a sequence of streams and rivers towards a single river mouth, as a tributary to a larger river, or to the sea. A groundwater catchment is defined by geological structure of an aquifer and groundwater flow paths. It is replenished by water that infiltrates from the surface. It has vertical thickness (from a few metres to 100s of metres) as well as area. Depending on local conditions, surface and groundwater catchments may be physically separate or interconnected.

Alternative terms are **watershed**, **basin** and **river basin**.

COP21: The 2015 United Nations Climate Change Conference held in Paris, December 2015 that negotiated the Paris Agreement - a global agreement on the reduction limiting global warming to less than 2˚C compared to pre-industrial levels and to drive efforts to limit the temperature increase even further to1.5˚C.

Discharge: Water-related discharge from a

[back to contents page]

site, including drainage, wastewater (effluent) used cooling water and irrigation surplus. The quality of discharged waters may range from good to polluted, depending on its origin, its use, and treatments applied.

Dual plumbing: A plumbing system with two separate pipes supplying potable and reclaimed water to a building or precinct.

Ecosystem: Animals, plants and microorganisms that live in one place, and the environmental conditions that support them.

Effluent: Water or wastewater discharged from a site after being used. The quality of effluent may range from good to polluted, depending on its origin, its use, and treatments applied.

Energy efficiency: Using less energy to achieve the same output.

Energy storage: The capture of energy produced at one time for use at a later time, often with batteries.

Evapotranspiration: Water losses compining two processes: evaporation and transpiration. Evaporation is where water evaporates to the atmosphere from open water and soil. Transpiration is the process by which plants absorb water from the soil via their roots, and allow it to vaporize from its leaves. Because the two processes occur together on vegetated ground, it is convenient to combine them in one term.

Environmental Flow: describes the quantity, timing, and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on them. It may be less than the fully natural flow. In water resources management, this represents the minimum flow that should be allocated to nature in a catchment, thus limiting what may be allocated for direct human uses.

Environmental Upgrade Agreements: A government finance mechanism for building owners to access finance for upgrade works of existing buildings that result in energy, water and other environmental savings.

Greenhouse gas emissions: Gases that trap heat in the atmosphere. Greenhouse gases from human activities are the most significant driver of observed climate change since the mid-20th century.

Groundwater: Water below the surface of the Earth stored in pore spaces and fractures within rock or layers of sand and gravel (aquifers). In water resources management the term more specifically applies to water that can be extracted at a viable rate, quantity and quality for human use (with or without treatment). Saline water or water contained in rocks of very low permeability is not conventionally considered groundwater.

Locally indigenous: A native plant that is limited to a particular geographic area and often confined to a specific habitat.

Low-carbon energy: Electricity produced with lower amounts of carbon dioxide emissions than conventional fossil fuel power generation, such as wind, solar and hydro power.

Mitigate: Taking action to reduce impact on the environment, as well as contributions to climate change action (in this context).

National Australian Built Environment Rating System or NABERS: An Australian government initiative that measures and rates the environmental performance of Australian buildings and tenancies.

Non-potable water: Water that is not of a quality for drinking and cooking purposes, used for purposes such as laundry, gardening, car washing and cooling towers.

[back to contents page]

Appendix 2: Glossary

Paris Pledge for Action: At COP21 in Paris (December 2015), a group of global cities, regions, companies and investors committed to achieve climate stability, limiting global temperature rise to less than 2˚C and preferably less than 1.5 ˚C.

Potable water: Treated water that is safe enough for human consumption, use in kitchens and bathrooms.

Raingardens: Gardens that allow rainwater runoff to be absorbed, providing rainwater for plants and improving water quality in waterways by up to 30 per cent.

Recycled water: Former wastewater (sewage or otherwise used water) is treated to remove solids and impurities and used for non-potable water needs, rather than discharged into waterways.

Renewable energy: Energy from resources which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat.

Resilience: The capacity to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks are experienced.

Sea level rise: Long-term increases in the mean sea level due to global warming.

Spring: A point where groundwater naturally flows out at the surface. Many springs benefit from the higher level of protection from pollution that groundwater has compared to surface water. However those from shallow aquifers are more vulnerable. In the Strathbogie Ranges they are known as 'Perched Bogs' and can appear and disappear randomly.

Stormwater harvesting: Water from intense rainfall events (stormwater) is captured, cleaned and typically re-used for non-potable purposes.

Supply Chain: The network of all suppliers and their activities that contribute to providing all materials, ingredients and services to the site to support its normal production and operational activities. The chain starts from the provider of raw materials (eg. Mines) or ingredients (eg. Farms), through every intermediate supplier to delivery at the site (from its direct suppliers). It includes intermediate processing and production of goods, packaging and transportation.

Swales: Low, moist or marshy land, naturally landscaped feature or a human-created one, that manages water runoff, filters pollutants and increases rainwater permeation.

Trigeneration: A system providing cooling, power and heating. Electricity is produced locally, the waste heat is used to supply heating and hot water, and converted into cooling via a heat-driven chiller system.

Urban heat island effect: Cities are often warmer than rural areas because vegetation is replaced on a large scale with hard structures, such as pavements, bitumen and buildings, which absorb and release more heat than the natural landscape.

Urban renewal areas: A program of land redevelopment in areas of moderate to high density urban land use.

Utility corridors: A passage built underground or aboveground to carry utility lines such as electricity, water and sewer pipes.

Water efficiency: Using less water to achieve the same output.

Water sensitive urban design: A design approach which integrates the urban water cycle into urban design to reduce environmental degradation and improve aesthetic appeal.

Wetlands: A land area saturated with water that forms a distinct ecosystem of aquatic plants that manage water runoff, filter pollutants and increase rainwater permeation.

[back to contents page]

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