



GREATER BENDIGO ENVIRONMENT STRATEGY 2016 - 2021

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Contact

If you would like more information on the City of Greater Bendigo Environment Strategy, please phone (03) 5434 6000.

Acknowledgement of Country

We acknowledge that the City of Greater Bendigo is on Dja Dja Wurrung and Taungurung Country whose ancestors and their descendants are the traditional owners of this Country.

We acknowledge that they have been custodians for many centuries and continue to perform age old ceremonies of celebration, initiation and renewal.

We acknowledge their living culture and their unique role in the life of this region.

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TWENTY YEAR VISION

Greater Bendigo communities who are connected to healthy regional landscapes, working together to prosper equitably within the capacity of the earth's resources.



TRADITIONAL OWNER INVOLVEMENT

Australia's first people have a unique connection to place. We are fortunate in Central Victoria that the Dja Dja Wurrung and Taungurung as Traditional Owners of the country within the boundary of the City of Greater Bendigo are increasingly being involved again in landscape management, as were their ancestors.

We now appreciate the benefits that Traditional Owners applied in creating our unique landscape and its specific flora and fauna; their way of life was adaptive. This gives us hope that through our own Environmental Strategy that we as a thriving community will ensure that our environment is as much a part of us, as it was for the Traditional Owners of our area in the past and today.

This Environment Strategy has been shaped with input from Taungurung and Dja Dja Wurrung Traditional Owners and reference to Dheulkunya Dja, the Dja Dja Wurrung's first country plan.



Over 2015-16, the City of Greater Bendigo undertook consultation with community, business, councillors and staff to identify a shared environmental view of our region in 20 years. The Greater Bendigo Environment Strategy sets a 20-year vision for our municipality, recognising that many of the challenges and opportunities in environmental sustainability need continuous action.

To ensure we achieve the 20-year vision, the strategy covers ten long-term action areas, which are based on the ten guiding principles of One Planet Living, adapted to our local context. The strategy also identifies four flagship projects for Council to drive over the next five years.

The actions presented within the strategy have been chosen after discussing ideas proposed by people from community, business, government agencies and within council itself. Collectively, the actions will contribute to a 20-year goal in each area.

The flagship projects chosen for this strategy address many action areas and have multiple benefits for our city and rural communities. In committing to these flagship projects, Council also recognises that nothing is more certain than change and the strategy will need to evolve in response to changes and opportunities that may arise over the next five years. In this respect, the strategy can be viewed as a working document – one that will guide Council, but also allow flexibility to respond to changes and make the most of opportunities. For this reason the strategy does not contain detail about the implementation of the actions; instead these will be documented in the City's annual action plans.

After five years, we will review all the goals and actions in the strategy and our progress towards them, and include new flagship projects. This will allow Greater Bendigo to take the next step towards achieving our 20-year vision.

Whilst the Environment Strategy will be a stand-alone document, it is integrated into a suite of high-level strategies that are shaping Greater Bendigo. The Environment Strategy will align with and influence these strategies, including *Connecting Greater Bendigo (ITLUS)*, the *Economic Development Strategy*, the *Health and Wellbeing Strategy*, *Greater Bendigo Public Space Plan* and the *Residential Strategy*.

Flagship Project 1: Power to the people

Flagship Project 2: City in the forest, Forest in the city

Flagship Project 3: Catalyse a local renewable and equitable energy network

Flagship Project 4: A shared vision for restoring Bendigo Creek

For details, go to page 28.



THE CASE FOR CHANGE

Council's strategies in the past have helped Greater Bendigo become a successful, attractive and welcoming regional city and rural settlements. We have beautiful city parks, a diverse economic base, growing population and a nationally acclaimed arts and culture scene.

Greater Bendigo - Working together to be Australia's most liveable regional city

Vision, Council Plan 2013-2017

However, today our communities are, like other communities around the world, confronted by a number of challenges namely climate change, depletion of natural resources, loss of biodiversity, increasing costs relative to revenue, water scarcity and development pressures.

The challenges that confront us are not only a threat to the health of the natural environment, they threaten our own health, and the wealth and liveability of our city and settlements. Imagine what it could be like to live in a Greater Bendigo that has insecure energy supply, longer and hotter heat waves, or water scarcity leading to dried out green spaces. This is not a distant future; this is predicted to be Greater Bendigo in 20 years. What might it be like to be an elderly resident living here in that future? Or to be someone trying to run a business here? What might a potential resident think about living here in the future?

Those who take action for conservation and restoration of natural environments appreciate the inherent value of plants and animals and the threats of habitat loss and invasion of non-native species. Environmental sustainability achieves more than conservation; by greening our urban spaces we will cool heat islands (built up areas that are

hotter than nearby areas), making Greater Bendigo more attractive to visitors and residents. By helping the elderly and disadvantaged to reduce their power use and improve insulation, we reduce pressures on social services and hospitals and increase economic opportunity. By securing a local renewable energy supply, we can create jobs, retain business and stimulate innovation. The things that we do to improve environmental sustainability of Greater Bendigo will contribute to the economic and social vitality of our municipality.

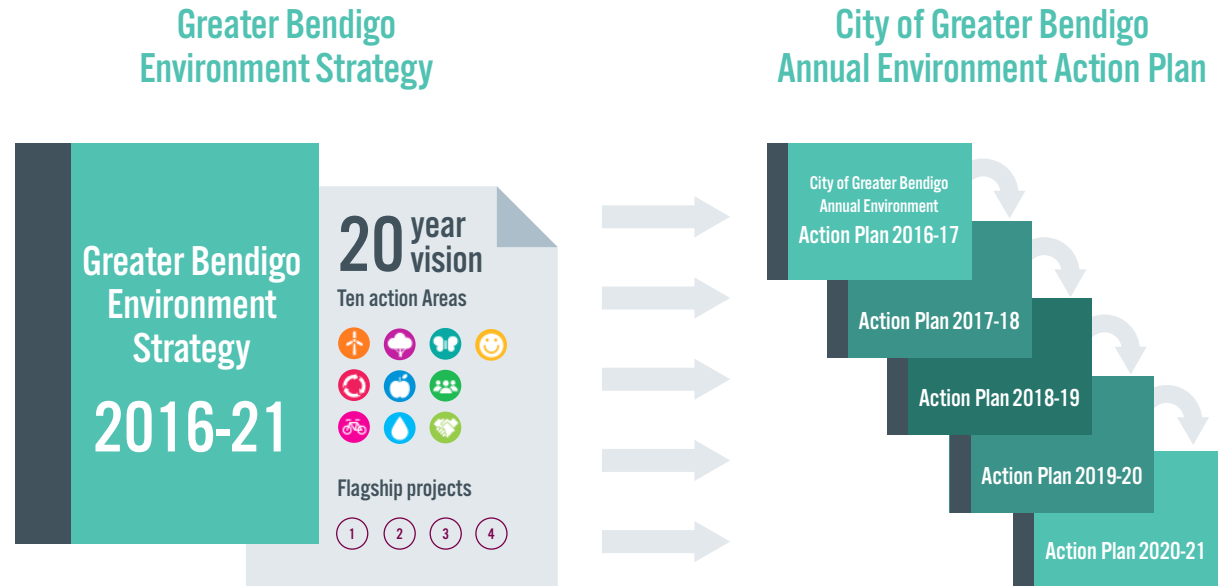
“Never doubt that a group of thoughtful, committed citizens can change the world, indeed it's the only thing that ever has”

Margaret Mead, US Cultural anthropologist

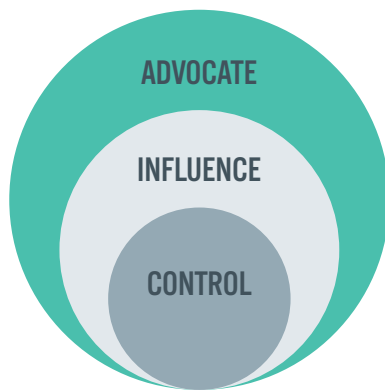
STRATEGY IMPLEMENTATION

The Greater Bendigo Environment Strategy will be implemented through annual action plans. The annual action plans will prioritise actions and add more detail than seen in the strategy. Preparing action plans annually also allows Council to be flexible enough to make the most of opportunities that cannot be foreseen.

Progress on the ten action areas and the four flagship projects will be assessed in the annual action plans.



A SHARED EFFORT



The City of Greater Bendigo is just one of the players who influence the sustainability, liveability and equity of the region.

In order to achieve the goals and actions set out in this strategy, a collaborative effort between Council, agencies, business and the community is needed. The City of Greater Bendigo has influence over what happens in Greater Bendigo, but that influence varies. In some cases, Council has direct accountability or control over an issue, such as regulating domestic pets or the design of City buildings and infrastructure. In other cases, Council may be concerned about an environmental issue, such as ground water discharge, or energy use by industry, but does not directly control action. This varying ability to control, influence or advocate for a situation or issues is illustrated in the 'spheres of influence' diagram.

This strategy, which has been developed in consultation with the community of Greater Bendigo, ensures council works at all three levels: advocating for change, influencing stakeholders and changing what is in Council's control.

This strategy identifies those actions that the City will do and those actions that the community can do. 'The community' is defined as any person or organisation that lives, works or operates in Greater Bendigo, including Council itself.

If we work together successfully, we will achieve both the vision of this strategy and the vision of the Council Plan, making Greater Bendigo a truly extraordinary place to live, work and play.

ONE PLANET ACTION AREAS

ONE PLANET LIVING

The City of Greater Bendigo has decided, in consultation with its community, to adapt the One Planet Living principles as the basis for the action areas in our Environment Strategy.

These principles, developed by international charitable organisation Bioregional, come from the understanding that environmental sustainability is more than protecting the natural environment. The Principles show that the health and prosperity of our community is deeply interconnected to the health of our natural environment.

As a result, Greater Bendigo's strategy contains action areas not usually seen in an Environment Strategy, such as equity, local economy, health and community.

By addressing sustainability holistically, rather than pitting issues against each other, Greater Bendigo will create healthy communities and a strong economy in beautiful and biodiverse places.

	Zero carbon	Making buildings energy efficient and delivering all energy with renewable technologies
	Zero waste	Reducing waste, reusing where possible, and ultimately sending zero waste to landfill
	Sustainable transport	Reducing the need to travel, and encouraging low and zero carbon modes of transport to reduce emissions
	Sustainable buildings and materials	Using sustainable and healthy products, such as those with low embodied energy, sourced locally, made from renewable or waste resources
	Local and sustainable food	Supporting sustainable and humane farming, promoting access to healthy, low impact, local, seasonal and wholefood diets and reducing food waste
	Sustainable water	Using water efficiently in buildings, farming and manufacturing. Designing to avoid local issues such as flooding, drought and water course pollution
	Thriving landscapes and ecosystems	Protecting and restoring biodiversity and creating new natural habitats through good land use and integration into the built environment
	Culture and community	Respecting and reviving local identity, wisdom and culture; encouraging the involvement of people in shaping their community and creating a new culture of sustainability
	Equity and sustainable local economy	Creating bioregional economies that support equity and diverse local employment and international fair trade
	Health and happiness	Encouraging active, sociable meaningful lives to promote good health and wellbeing



ZERO CARBON



Zero carbon is about more than addressing climate change; it is about supporting local renewable energy businesses that diversify our economy and a secure energy supply to vital industry.

Greater Bendigo is well positioned to benefit from a global transition to renewable energy technology because of our ample sunlight and access to the transmission grid. Northern Victoria receives almost as much sunlight as northern Australia, but has an added advantage being very close to the transmission grid (see Figure 1).

In recent years, a large number of solar panels have been installed on homes and businesses across Greater Bendigo, demonstrating the appetite for renewable energy within our community. Over 25 megawatts of solar PV systems have been installed on over 7,000 homes, meaning that 16% of homes in the municipality of Greater Bendigo have a solar PV system.

The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from around the world, forecasts a temperature rise of 1.4 to 5.5 degrees over the next century¹. The science is clear and as close to scientific consensus as anything ever has been².

Climate projections for our region show that we face hotter and drier conditions than we see today.³ A world that is two degrees warmer will see South Eastern Australia experience fewer frosts, less rainfall but more flooding, and an increase in droughts and heat waves⁴.

The *Adapting to Change* project identified that the future climate for Greater Bendigo will see extreme temperature days increase from 11 days to between 13-17 days by 2030 and the number of extreme fire risk days to increase from 14 days to 19 days per year⁵.

These changes threaten the liveability and health of our communities. A world five degrees warmer is unlikely to sustain current economies, societies, governments and law and order, as the natural systems that sustain our lives fail. These will have long-term economic impacts on Greater Bendigo including increased costs to maintain green spaces, faster deterioration of infrastructure and higher costs for water dependent industries.

Health care infrastructure, water infrastructure, roads, airports and communication systems are all vulnerable to heat waves, bushfires and flooding.⁶ Extreme events threaten our health and wellbeing and place pressure on health, welfare and social services.

In recent years, energy prices have risen dramatically as distribution costs⁷ and the cost of production have risen for fossil fuel based power. Based on average electricity bills, Bendigo spends at least \$80 million powering homes and almost all of that money leaves Bendigo. Most leaves the country.

Energy innovator Amory Lovins advocates increasing building energy efficiency by 50% by 2050 in order to support a 100% renewable energy economy⁸.

To achieve zero carbon and stimulate our economy, we need to simultaneously reduce energy demand and then re-invest in the local economy the millions of dollars we pay non-local power companies each year. Greater Bendigo renewable energy will be regionally owned, operated and managed, creating local jobs and economic opportunity.

Greater Bendigo has already achieved great wins driven by community and industry and supported by Council including the Bendigo Sustainability Group's (BSG) Goldfields Solar Hub solar rooftops project, the library solar project, MASH Bendigo and the Lighting the Regions streetlight efficiency project. We are well placed to produce solar, wind and geothermal energy supported by a distributed, networked, smart grid. Along with a significant increase in energy efficiency, we can show the rest of Australia how a municipality with more than 100,000 people can be powered by renewable energy.

¹ DEWLP (2015)

² AAP (2013), Cook (2014)

³ VCCCAR (2013) p.6

⁴ NASA (2016)

⁵ Southern Loddon Mallee Region (2015) 'Adapting to Change: Regional Climate Adaptation Plan'

⁶ Balston et al (2013)

⁷ Hill (2014)

⁸ Rocky Mountain Institute (2016)

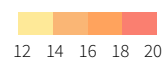
20 YEAR GOALS

0 (ZERO) NET CARBON IN GREATER BENDIGO

- 100% renewable energy generation from local and regional sources
- Highly energy efficient systems and buildings
- Universal access to, and proficient in using energy data monitoring tools
- People actively using low carbon modes of transport



Average Yearly Global Solar Exposure (MJ/sq. m)



— Electricity Transmission line
- - - Electricity 66 KV line

Figure 1: Solar exposure remounts and electricity transmission line

TOP ACTIONS

What Council will do:

- Improve the energy performance of City facilities and precincts (including energy efficiency and energy management)
- Increase the supply of renewable energy to City facilities
- Save emissions by reducing fuel and energy used by staff in the delivery of City services
- Establish Bendigo as a Centre of Excellence for Renewable Energy
 - Collaborate with stakeholders
 - Establish 100% renewable energy target and transition pathway
- Catalyse a local renewable and equitable energy network (Flagship 3)
- Support low carbon modes of transport
 - Transition the City to energy efficient modes of transport
 - Attract and work with companies who will make Bendigo electric vehicle ready
 - Support the local economy to transition to low carbon transport options
- Support households to reduce energy costs

What the Community can do:

In this action area 'community' includes residents, business, industry, state and federal government, local authorities and others

- Run a zero/low carbon demonstration house for community education
- Implement behaviour change programs and install technologies to reduce demand
- Partner in the development of a 100% renewable power grid for Greater Bendigo
- Support community solar bulk-buy schemes
- Transition to energy efficient vehicles and modes of transport



ZERO WASTE



Zero waste is about reducing the volume of waste we generate, reusing where possible and ultimately sending nothing to landfill that can be recovered or recycled. Zero waste strategies are being adopted by government and businesses around the world, including South Australia and small cities like Edmonton in Canada.

Like many other Australian municipalities, Greater Bendigo has a waste problem. We face major challenges associated with the collection and disposal of solid waste. Existing landfills are running out of space. This means we need to look at the best ways to help the community reduce waste, and find better ways to manage the waste that is produced – ensuring we have the right infrastructure and investment in Bendigo to recover as many resources as possible from all of our waste streams.

Greater Bendigo is already taking steps to reduce the waste that enters landfill by introducing additional recycling bins in public places and a garden and food organics collection. However, there is still much to be done to achieve our goal of zero waste to landfill by 2036.

The City has a *Waste and Resource Management Strategy* which details Council's intent for waste and resource management until 2019:

“Increase prosperity and protect the environment by maximising our resource recovery and reducing waste.”

The waste we currently send to landfill contains valuable materials that can and should be recovered and reused.

Greater Bendigo recognises that disposing of waste that could be reused or recycled wastes resources, opportunities and money. We can create economic and community value for Bendigo by recovering resources. It is estimated that 9.2 jobs per tonne are created by recycling and resource recovery activities, compared to 2.8 for landfill disposal. We also recognise that waste recovery and reuse is only part of the solution and that real change begins with waste avoidance in the first instance.

The concept of zero waste to landfill challenges the assumption that resources are unrecoverable from waste, and that effective resource recovery is more costly than landfill disposal. It shifts the focus up the waste hierarchy from landfill disposal to recovery, reuse and avoidance, and encourages a society that ultimately exists within nature's resource constraints.

Waste & Resource Management Strategy can be viewed online at: bendigo.vic.gov.au

TOTAL MATERIALS RECOVERED & RECYCLED IN VICTORIA 2013-14



20 YEAR GOALS



0 (ZERO) RECOVERABLE RESOURCE SENT TO LANDFILL



ENVIRONMENT IS FREE FROM DISCARDED MATERIAL/ LITTER



City of Greater Bendigo Waste Hierarchy

TOP ACTIONS

What Council will do:

- Work with stakeholders to recover resources from current waste streams
 - Implement kerbside organic waste collection successfully
 - Identify opportunities with business and industry to recover waste
 - Work with business and industry to divert organic waste
- Educate the community about the role of resource recovery in living sustainably
- Work with stakeholders to reduce packaging and eliminate non-recyclable packaging
 - Work with local manufacturers
 - Engage supermarkets
 - Advocate to government
- Increase the percentage of recycled material used in the delivery of works programs
 - Using contemporary technology
 - Use recycled products
- Plan for end-of-life of Council assets (plant and infrastructure)

What the Community can do:

In this action area 'community' includes residents, business, industry, state government agencies, Loddon Mallee Waste and Resource Recovery Group and others

- Commercial and industrial waste producers can seek opportunities to use waste as a resource and reduce waste generation
- Large waste producers in the municipality improve waste recovery and reduce net waste production
- Increase home recycling and diversion of organic waste
- Buy products with less packaging to influence suppliers
- Advocate for container deposit legislation and product stewardship
- Use as many opportunities for product stewardship as are available; actively seek out retailers who offer takeback for old products, or recycling schemes for end of life consumables (such as tyres)
- Reclaim building materials
- Transition to plastic bag free shops and shopping



ZERO WASTE



SUSTAINABLE TRANSPORT



Greater Bendigo relies heavily on private and commercial vehicles to transport people and goods to, from and around our city and surrounding communities. In 2015, transport planning in Bendigo began significant change following the endorsement of *Connecting Greater Bendigo* – the Integrated Transport and Land Use Strategy (ITLUS).

Before that, a growing population, and steadily increasing traffic levels meant Council faced mounting concern about some roads being congested at peak times. The Greater Bendigo community rejected the concept of more and wider roads, and Council recognised that transport is about more than simply getting more people from A to B.

An important goal of both *Connecting Greater Bendigo* and the *Residential Strategy* is the 10 minute neighbourhood, where people are able to access a majority of their daily needs within a 10 minute walk or cycle of their home.

“The city’s urban form influences the way we get around – which in turn affects our wellbeing, our household budget and the wider economic and natural environments.”

Connecting Greater Bendigo, 2015

From an environmental perspective, the sustainable transport action area focuses on reducing the impact that travel has on carbon emissions, by improving transport efficiency and encouraging low and zero carbon modes of transport.

“Make less roads and make more bike tracks”

Primary school student, Environmental strategy consultation

Socially, sustainable transport improves health and wellbeing by increasing active travel and opportunities for the interactions that build social capital. Sustainable transportation modes prevent urban sprawl and expansion of road infrastructure that places physical separation between people and places.

Economically, sustainable transportation will help reduce the costs of car dependency: congestion, which increases demand for car infrastructure; the health costs associated with sedentary lifestyles; and the costs to individuals of buying, running and maintaining vehicles. Car dependent communities disadvantage vulnerable communities. Sustainable transport improves access for young people, the elderly, non-drivers and those without the means to run a car, ensuring everyone can access transport that allows them to participate fully in the workforce and social activities.

Sustainable transport also includes provisions to improve movement of freight around Greater Bendigo, which will reduce transportation costs and improve amenity by reducing urban congestion.

Over the next 20 years, Greater Bendigo can use sustainable transport and land use planning to become like great European and Asian cities, designed to have a network of places connected by active and public transport, with community spaces dominated by pedestrians. If successful we will become, as per the Council Plan, Australia’s most liveable regional city and settlements.

20 YEAR GOALS

A EFFECTIVE & WELL CONNECTED ROAD AND PATHWAY INFRASTRUCTURE THAT SUPPORTS LOW CARBON TRANSIT

- Most people actively engaged in using shared and/or low carbon modes of transport
- Municipal infrastructure that supports new transport technologies (electric vehicle ready)



Connecting Greater Bendigo

The *Connecting Greater Bendigo* (ITLUS) sets out the City's Strategy for growth and the movement of people and goods into the future.

View online at: bendigo.vic.gov.au

TOP ACTIONS

What Council will do:

- Support the transition of Greater Bendigo to an integrated transport and mobility network
 - Successful implementation of *Connecting Greater Bendigo*
 - Increased shared path safety through education and interpretive signage
 - Increase and interconnect shared paths including Bendigo Creek link, east-west links and connection to Bendigo CBD
 - Increase the priority of pedestrians in traffic management in central Bendigo
- Work towards Greater Bendigo having the required infrastructure to transition to efficient, effective and accessible shared low carbon transport options
 - Understand barriers and run behaviour change programs
 - Advocate for electric vehicle recharging infrastructure
 - Support the expansion of bike sharing technology
 - Advocate for bus and rail services that meet the needs of residents

What the Community can do:

In this action area, 'community' includes residents, business, public transport authorities, state and federal government and others

- Reduce transport footprint by walking, using public transport, riding bicycles and carpooling
- Advocate for or implement rail and bus public services that meet the needs of residents
- Advocate for improved pedestrian infrastructure
- Start and use a shared car and/or bike fleet, including publicly available options
- Advocate for or run electric buses and taxis
- Conduct bicycle education for both cyclists and motorists to encourage more riding – work with primary schools to create a cycling habit.



SUSTAINABLE BUILDINGS AND MATERIALS



Buildings and infrastructure consume large amounts of energy, resources and water. Around 40% of the world's energy resources are used in residential and commercial buildings and construction, and 40% of landfill waste is from demolition. Improved standards in Environmentally Sustainable Design (ESD) and clever use of existing buildings will improve the economic, environmental and social outcomes for the whole Greater Bendigo community.

By improving the standard of ESD in buildings, we can enhance the daylight, fresh air, amenity and comfort levels for the people who use the buildings, as well as reducing energy, waste and water.

In Victoria, there is a strong legislative and policy framework to support sustainable development, achieved through good planning, design and building. Whilst the existing National Construction Code and Victorian State Planning Provisions give a good starting point for incorporating ESD, there are many opportunities for improvement.

ESD offers many technical and design solutions to minimise energy, water and resource use in the construction and operation of buildings and infrastructure. For example,

design elements such as thermal mass, external shading, building orientation, cross ventilation and better insulation in buildings, lead to less reliance on energy.

The Greater Bendigo community wants to increase the sustainability of residential buildings and community infrastructure. Our community will work together to drive sustainable design and construction with the support of Council.

The Greater Bendigo Planning Scheme currently provides some direction in encouraging ESD in a development. There are opportunities to strengthen policy and guidance in the scheme to achieve more sustainable design outcomes. Developing partnerships with other local councils in Victoria provides an exciting opportunity to pursue these outcomes together.

Greater Bendigo is committed to demonstrating excellence in sustainable design and development of Council buildings and facilities. Council will build upon the work we have already done, and update the City's Sustainable Building Design Policy and Guidelines to reflect contemporary standards and to ensure all new buildings and development within Greater Bendigo meet these standards within 20 years.

20 YEAR GOALS



ALL BUILDINGS AND INFRASTRUCTURE ARE **CONSTRUCTED IN ENVIRONMENTALLY SUSTAINABLE WAYS,** REQUIRE FEWER INPUTS TO RUN, AND ARE HEALTHIER AND MORE COMFORTABLE TO INHABIT.



ALL COUNCIL BUILDINGS, INFRASTRUCTURE AND FACILITIES WILL MEET **A BEST PRACTICE STANDARD OF ESD**

TOP ACTIONS

What Council will do:

- Purchase environmentally preferable goods and services, including clauses in service delivery contracts
- Support and raise community awareness of the benefits of ESD in enhancing user experience and manage costs
 - Develop educational material and local case studies
 - Work with local partners to increase reach and impact
- Adopt and implement contemporary ESD policy standards and practices into City service delivery.
 - Develop an ESD policy for all new council building constructions
 - Adopt contemporary ESD standards in the Infrastructure Design Manual
 - Incorporate recycled materials in concrete mixes
 - Determine a minimum standard of energy efficiency for all council buildings and facilities
 - Investigate the potential to incorporating ESD in all relevant strategic planning projects
- Investigate ways that the Building Code can be used to drive higher ESD standards in council buildings, facilities and infrastructure
 - 5 Star Green Star standard (or equivalent) of environmental excellence in all new large Council buildings
 - Standard of excellence in ESD for all new smaller buildings and infrastructure, upgrades, maintenance and renewals.
 - Embed ESD into the design, construction and demolition of Council buildings and infrastructure.
- Consider and incorporate ways that the planning process can support improved ESD
 - Investigate potential use of voluntary programs for improving the ESD of subdivision and development proposals
 - Investigate potential need to introduce an ESD Local Planning Policy

What the Community can do:

In this action area 'community' includes residents, business, the construction and demolition industry, state government agencies and others

- Assist in the development of local case studies to support improved awareness of practical implementation of ESD in the built environment
- Support local energy and water efficiency retrofits of existing buildings
- Work with local partners such as the Bendigo Sustainability Group and Central Victorian Greenhouse Alliance to increase the outreach and effectiveness of community education and engagement programs
- Incorporate ESD into renovations and new builds



LOCAL AND SUSTAINABLE FOOD



The Australian food system is resource intensive and dependent on low energy prices and cheap oil. Most of the food we consume is transported long distances to reach our plate, meaning we have lost touch with seasonal eating – a key contributor to food related carbon emissions.

Food systems require significant inputs such as soil fertilisers, pesticides and herbicides to enable continuous, large-scale food production. Similarly, production of processed and packaged food is resource intensive and generates more emissions than produce in its original form. The waste derived from packaged food is of growing concern, as is the waste generated from purchasing more food than we need. Australians discard up to 20% of the food they purchase.⁹

“Don't buy foods with rubbish on them.”

Primary School students, Community consultation

The City recognises that the majority of food is, and will continue to be, sourced from commercial scale production systems because these provide affordable food to the most people. It is important that the region's farmers are supported to improve soil carbon, minimise chemical use, protect waterways and improve water use. Choosing locally grown, unprocessed, seasonal food is the most effective way to reduce our environmental footprint, eat healthily and support the local economy.

“Plant, and inspire others to plant lemon, orange and fruit/veggies in their backyards, and share with friends.”

Primary School students, Community consultation

Greater Bendigo is in the North Central region that produces over \$1.4 billion¹⁰ in gross value of an exhaustive range of produce including grains, sheep and beef meat, dairy, intensive piggeries and broiler farms, and fruit and vegetables. The Greater Bendigo community is well placed to source local and sustainable food. This means¹¹:

- Supporting local farmers and producers by investing our food dollar close to home
- Purchasing fresher produce, that has not been in transit or a supermarket cold-store for days or weeks
- Choosing foods that are in season i.e. that are most abundant, flavoursome and least expensive
- Consuming responsibly and only purchasing what we need
- Knowing more about the origins of our food and producers
- Selecting produce that is as close as possible to its original form, with minimal processing and packaging
- Eating a balanced diet and reducing intake of resource intensive products, such as dairy and red meat
- Learning to grow our own fruit and vegetables or joining a community garden

Greater Bendigo can support the growth of local and home food production, with several farmers' markets, community gardens and local food networks already well established. The City has also produced the *Home Grown* booklet, providing a practical guide to growing fresh food at the home scale as well as *Food in Greater Bendigo*, which provides the location of community gardens. The City will build upon this existing foundation to increase and encourage the production of local and sustainable food in Greater Bendigo.

⁹ Food Wise (2016)

¹⁰ North Central CMA (2015) Regional Sustainable Agriculture Strategy

¹¹ Local Harvest (date n/a)

20 YEAR GOALS



**GREATER BENDIGO IS A
HUB FOR RESOURCE EFFICIENT
FOOD PRODUCTION SYSTEMS
THAT DON'T DAMAGE
NATURAL ECOSYSTEMS**



**THE GREATER BENDIGO COMMUNITY HAS
HIGH AWARENESS OF THE RESOURCES
REQUIRED TO PRODUCE FOOD
AND HOW THEY CAN INFLUENCE FOOD SYSTEMS**

- People choose to eat local and in-season foods daily
- Households waste less food.
- Increased amount of locally produced food retailed locally
- Increase participation in growing food in urban spaces

TOP ACTIONS

What Council will do:

- Support quality commercial scale agriculture and horticulture
 - Supportive planning decisions
 - Encourage innovation and the development of sustainable high intensity food production
- Support local urban food production
 - Community gardens and nature strip gardens
 - Community orchards in community spaces
 - Encourage networks that promote local producers
 - Preference caterers who source locally produced food
- Support and promote Traditional Owner food harvesting
 - Understand what plants and animals exist on country
 - Increase and promote planting of naturally occurring bush foods (staples, berries and fruits) in urban plantings.
- Support and promote food sharing
- Raise awareness of the benefits of home gardening and local fresh food

What the Community can do:

In this action area 'community' includes residents, farmers, food processors, business, state government agencies and others

- Safeguard regional commercial scale farmers by buying fresh and in-season produce
- Support local farmers by buying local and shopping at farmers' markets
- Attend and contribute to events that promote and celebrate local produce
- Use of local and seasonal produce for catering in schools, hospitals and other facilities
- Support the Bendigo Regional Food Alliance
- Create more food trade networks
- Plant bush foods that are indigenous to the region, which have high health values and biodiversity



SUSTAINABLE WATER



The City of Greater Bendigo lies within the catchments of the Loddon and Campaspe Rivers, and is watered largely from the Coliban and Campaspe Rivers. The Upper Coliban, Lauriston and Malmsbury Reservoirs are the major water sources for the settlements in Greater Bendigo, along with water treated from Lake Eppalock at Lake Eildon. The Bendigo Water Reclamation Plant in Bendigo can produce high quality 'Class A' recycled water, at a maximum of 13ML per day.

These sources provide domestic water supply to Bendigo's residents, to industry, agriculture and manufacturing, as well as enabling us to maintain local parks, sporting fields, public gardens, swimming pools and for use in public facilities and buildings.

The natural water bodies across Greater Bendigo are highly valued for their environmental, recreational, cultural and economic values. Water plays an important role in sustaining physical and mental wellbeing of communities, as well as maintaining the appearance of our city and settlements.

Both riparian vegetation and in-stream values supporting aquatic ecosystems rely on sensitive management of water quality and runoff volumes entering natural drainage systems.

"My concern is how water supply can meet the basic needs of the growing population"

— Community member, Environmental strategy consultation.

Mining in Greater Bendigo has left a legacy of contamination of some groundwater bodies. Rising groundwater became a problem for Bendigo when Unity Mining closed its Kangaroo Flat mine in 2011 and stopped pumping water from the extensive network of mine shafts beneath the city. Council will work with stakeholders to address groundwater rise to protect cultural assets and preserve the appeal of our city.

A variable rainfall has always been part of the landscape in central Victoria, and Bendigo is familiar with water scarcity having experienced drought and enduring water restrictions. In the future, Greater Bendigo is expected to be warmer and drier than it is today. It is projected that by 2070 there will be an overall reduction in rainfall in the Loddon Mallee region, with the greatest decreases expected in spring and winter. The time spent in drought is also forecast to increase over the course of the century¹². The City of Greater Bendigo and Coliban Water remain committed to promoting water savings.

This forecast, coupled with a growing population, means we must be smart with the use and conservation of our water resources. We need to use water efficiently in our buildings, on farms and in manufacturing, as well as at the household level. We also need to ensure there is sufficient water reserved to maintain the ecological functioning of the waterways across the region.

Despite an overall trend of declining rainfall, future rain events are projected to come in increasingly extreme downpours. This is likely to lead to an increase in the incidence of flooding events, particularly in urbanised areas¹³. Council must ensure that existing infrastructure can withstand future flooding capacities and new developments incorporate smart water sensitive design that conserve water resources, whilst also planning for increased flood capacities.

¹² DELWP (2015)

¹³ DELWP (2015)

20 YEAR GOALS



ALL OF OUR WATERWAYS ARE
**HEALTHY, AND WATER OF THE REQUIRED
QUALITY CAN BE ACCESSED WHEN NEEDED**
AT AN AFFORDABLE PRICE TO:

- Meet the needs of the environment
- Meet the needs of households and industry
- Maintain and develop an aesthetically attractive city and settlements
- Contribute to the mental and physical wellbeing of the community
- Support the cultural practices of Traditional Owners

TOP ACTIONS

What Council will do:

- Work with partners to plan for Greater Bendigo's long-term water security
- Secure water from a range of sources to meet the service demands of a growing and vibrant municipality
- Use water sensitive design principles in the construction and management of open space
- Incorporate Water Sensitive Urban Design into residential and commercial development
- Improve the water quality of local lakes and waterways
- Support Traditional Owner direct involvement in the management of waterways.
- Contribution to the successful management of groundwater
- Educate and support communities to save water
- Raise awareness and advocate to agencies about the importance of water quality in healthy communities and the role the riparian zone plays

What the Community can do:

In this action area 'community' includes residents, Traditional Owners, business, industry, state government agencies, water and natural resource authorities and others

- Support the efforts of Traditional Owners to secure adequate and equitable water rights that meet social, cultural, spiritual, economic and environmental needs
- Install residential water tanks and adopt water saving behaviours
- Increase the use of recycled water and stormwater for commercial, residential and industrial use
- Efficient and effective water use by industries that use reticulated water





THRIVING LANDSCAPES AND ECOSYSTEMS



The Greater Bendigo region covers an area of 3,048km². Within this inland landscape is an extensive network of national and regional parks, crown land reserves, public forests and private land. These areas provide important ecological functions and habitats for significant flora and fauna. Bendigo is known as the ‘city in the forest’ because the Greater Bendigo National Park and the Bendigo Regional Park almost surround the entire city.

These parks feature a diverse range of Box–Ironbark forest and woodland vegetation that support over 70 threatened species, including the Pink-tailed Worm-lizard, Swift Parrot, Whipstick Westringia and Mclvor Spider-orchid.

Natural ecosystems give significant benefits to the residents of Greater Bendigo. Services include fresh air, clean water, nutrient cycling and climate regulation as well as the preservation of culture and amenity.

Since gold was found along the Bendigo Creek in 1851, Greater Bendigo’s natural environment has been vastly changed for mining, agriculture and urban development. Tree planting with the intention to create a beautiful civic precinct began in the 1880s.

Most remnant vegetation is on public land and there are large areas on private land; including sites protected under covenants.

Many vegetation communities are under pressure from urban development, agriculture and climate change. It is important that Greater Bendigo focuses on maintaining and enhancing biodiversity, protecting areas of vegetation and making efforts to increase connection between vegetation communities. Connections can provide habitat, increase the movement of species amongst habitat patches and allow species to respond to environmental change.

Continuous improvement is required to ensure fire hazard management practices support rather than damage biodiversity.

It is important that we preserve and increase vegetation within urban areas. Vegetated cities have many benefits. Greenery creates ‘urban microclimates’ that help to stabilise local temperatures and humidity caused by urban heat islands, an important function in an increasingly warmer climate. Vegetation can contribute to wildlife corridors between isolated parcels of sustainable habitat keeping animals safe from predators, which improves species longevity and diversity. Vegetation also enhances the experience of urban public spaces, providing opportunities for people to connect with nature.

By greening our cities, we can all connect more with the natural world. This experience, coupled with wildlife interactions, will encourage communities to protect landscapes and ecosystems.

The City of Greater Bendigo is committed to protecting and restoring existing areas of remnant vegetation and creating new natural habitats through good land use and integration into the built environment.

20 YEAR GOALS



CONNECTED AND FLOURISHING URBAN AND RURAL LANDSCAPES THAT SUPPORT HEALTHY ECOSYSTEMS NOW AND INTO THE FUTURE

- Increase connectivity of native vegetation across the landscape (biolinks)
- Increase in the diversity of plants and animals in the urban environment
- Increase in canopy cover in urban areas
- Increased knowledge, understanding and appreciation of our natural environments and ecosystem function

TOP ACTIONS

What Council will do:

- Plan for urban tree cover that will support resilient liveable settlements
 - Provide shade
 - Reduce heat islands
 - Connect vegetation communities
- Support and promote programs that increase knowledge about and action to protect natural places
- Minimise the impact of development on natural areas
- Support Traditional Owner involvement in land management, including involvement in strategic planning
- Educate and regulate to ensure responsible pet ownership
- Work with stakeholders with regard to the planned burning program in the region
 - Encourage Traditional Owner participation
 - Encourage continuous improvements in fire hazard management practices
 - Support research into the effects of planned burns on the environment
- Ensure the City's weed and pest animal management activities support thriving ecosystems
- Restore natural waterways, especially Bendigo Creek (see Flagship Project 4)

What the Community can do:

In this action area, 'community' includes residents, business, educators, developers, and water and land management authorities, and others

- Identify opportunities for biolinks across the municipality
 - linking areas of biodiversity value provides opportunities for species movement and enhances the resilience of species in the face of challenges
- Protect high quality native vegetation from planned burns. Instead using locally appropriate measures to manage the risk of bushfire
- Plant native plants and install nest boxes
- Investigate ways to protect valuable trees on private and public property
- Support and encourage community-based environment groups, such as Landcare to continue their contributions to restoring the natural environment
- Support community-based groups to continue their valuable work restoring the natural environment
- Support the implementation of the City's urban forest plan



CULTURE AND COMMUNITIES



Efforts to improve environmental sustainability and increase community connections often go hand in hand. Working on sustainability helps communities build diverse social connections, as groups come together to grow and share food, protect and enrich landscapes, encourage sustainable practices and improve connections to nature.

Across Greater Bendigo, there are many groups that recognise their connection to place and make a valuable contribution to local sustainability and conservation. These groups play an integral role in our community and it is important they continue to be supported and encouraged in their work. There is opportunity for these groups to provide a platform for other members of the community to connect with nature and learn about the local community, sustainability and the natural environment. People of all ages, ability and cultural backgrounds make positive contributions to the sustainability and wellbeing of our community.

“Everyone should be included no matter what colour they may be or because of their family background”

— Primary student, Community consultation.

Greater Bendigo is on the traditional lands of Dja Dja Wurrung or Jaara people and the traditional lands of the Taungurung people who are the rightful custodians. For Traditional Owners and Indigenous peoples, land, also known as country, is part of who they are, as they are part of it. Country is central to their identity and culture¹⁴.

The hills, rivers and trees that form the cultural landscape are dotted with sites that tell the stories of the local Indigenous communities. Scar trees, birthing sites and artefacts are evidence of past and current practices of the Dja Dja Wurrung and Taungurung people. The experience that traditional owners have adapting to changes in the environment mean that they can provide guidance to help communities facing the impacts of a changing climate.

The Indigenous culture and history of the municipality is interwoven with communities that are culturally and linguistically diverse. In 2002, the City made a commitment to welcome refugees into our community and has seen the percentage of people born overseas rise in the last decade. The City recognises that cultural diversity creates rich and interesting communities and will continue to support this diversity.

Many of the members of these groups have a deep connection to the land that is founded upon respect (for the land) and recognition that the Earth's resources are finite and should not be exhausted and that human existence is inextricably linked to the natural world. The practice of consuming consciously, preserving resources and not exceeding the capacity of the land to regenerate offer important lessons for modern society. It is vital that this wisdom and culture is respected, learnt from and preserved.

¹⁴ DEWLP (2016) *Indigenous land management*. URL: <http://www.depi.vic.gov.au/forestry-and-land-use/managing-land/indigenous-land-management>

20 YEAR GOALS



A STRONG CULTURE OF COMMUNITY INVOLVEMENT IN IMPROVING ENVIRONMENTAL SUSTAINABILITY IN GREATER BENDIGO INCLUDING:

- Higher rates of community involvement in environmental action
- Increased involvement by Traditional Owners in management and decision making
- Increased involvement of people from multicultural communities

TOP ACTIONS

What Council will do:

- Acknowledge and raise awareness of indigenous culture, including support for Traditional Owner country plans - Dhelkunya Dja
 - Work with elders to understand traditional ways of life in the local landscape
 - Continue to provide cultural awareness training for city staff.
- Acknowledge the role of cultures and faiths in shaping community attitudes to the environment
- Promote sustainable living and culture
 - Support local community groups
 - Work with community groups to develop events that promote sustainable living
 - Provide means for artistic expression and engagement in local culture, particularly for youth
- Ensure the City can maintain dialogue with community about environmental and sustainability matters
 - Including the Sustainability Environment Advisory Committee (SEAC)
 - Engage expert panels

What the Community can do:

In this action area 'community' includes residents, business, community groups, community support organisations, Traditional Owners, event organisers and others

- Incorporate environmental sustainability into community projects
- Increase awareness of cultural connection to foods and production in culturally and linguistically diverse communities
- Host an annual sustainable living festival (SLF) (or investigate the opportunity to run a regional event alongside the Melbourne SLF)
- Strengthen our understanding of what significant sites and artefacts exist on Dja Dja Wurrung and Taungurung Country and secure the right and means for Traditional Owners to effectively protect and manage cultural landscapes and sites
- Make use of Dja Dja Wurrung and Taungurung cultural heritage to promote healing and reconciliation, teach Indigenous people about their Country and laws, and raise cultural awareness among the broader community
- Bring considerations of environmental sustainability into cultural events to celebrate cultural diversity in Bendigo, and the environmental philosophies and practices of diverse cultures.



EQUITY AND SUSTAINABLE LOCAL ECONOMY



Economic growth, human wellbeing and a sustainable future are intimately connected. A sustainable local economy can mean different things to different people, however it is generally founded upon the notion that we do not use more than we need. This allows us to preserve resources for future generations as well as ensuring our economic growth is environmentally sound and socially equitable.

“Clean, green industries mean jobs and business opportunities for Bendigo”

— Community member, Environment strategy consultation.

The Victorian Local Sustainability Advisory Committee (VLSAC) describes a sustainable local economy as:

- An economy that is resilient to the pressures we face with peak oil, climate change and the need to move to a low carbon economy
- An economy that does not rely on too many external inputs and outputs – that can achieve growth into the future from its local area
- An economy which limits waste and uses resources efficiently

- An economy built on a whole of community approach
- An economy that supports living and working locally.

Continuing to operate under the current model of economic growth is no longer sustainable. It is built upon consuming far more resources than the Earth can replenish, perpetuates climate change impacts and is inequitable, particularly for those in disadvantaged and developing societies.

The relationship between social disadvantage, economic underperformance and environmental degradation are well documented. Environmental degradation can both cause and exacerbate disadvantage, and people living with disadvantage often do not have the means to restrict their environmental impact. The Brundtland Commission, which played a prominent part in popularising the notion of sustainable development, defined it in equity terms as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹⁵

A sustainable local economy is not simply a matter of equity, it will be a significant driver of jobs and wealth. The global market for low-carbon and environmental goods and services was estimated at US\$5.5 trillion in 2011-12, and is growing at over 3% per year. The opportunities presented by this market will, if capitalised upon, sustain the prosperity of our communities. Building on our history of innovation, and collaboration, Greater Bendigo can have a local economy that is prosperous, equitable and environmentally sustainable.

“Saving our planet, lifting people out of poverty, advancing economic growth... these are one and the same fight”

Ban Ki-Moon

¹⁵ The Rio Declaration, principle 16.

20 YEAR GOALS



- People have equity in access to goods, services and employment
- Disadvantage in Greater Bendigo has reduced
- Greater Bendigo is nationally recognised as a leader in sustainable industry



Economic Development Strategy

The *Economic Development Strategy* can be viewed online at: bendigo.vic.gov.au

TOP ACTIONS

What Council will do:

- **Promote green job and industry creation in Bendigo**
 - promote Greater Bendigo as a leader in this field
 - Advocate for conditions that support an innovative green economy
 - Support and promote the availability of Environmental Upgrade Agreements to local businesses
- **Support social justice initiatives that intersect with the Environment Strategy**
 - Support social enterprises that have environment and equity goals
 - Provide support to carbon-intensive households
- Work with partners to ensure public transport, cycle-ability and walkability is improved across Greater Bendigo
- **Invest ethically and maintain assets to maximise useful life**
- **Recognise and support sustainable and ethical businesses and leaders**
- **Work in conjunction with businesses to foster sustainable industry**

What the Community can do:

In this action area 'community' includes residents, business, industry, state government agencies, social and economic agencies, schools, universities and others

- **Become leaders in sustainable industry**
- **Develop new sustainable industries**
- **Create business out of diverting waste, such as setting up a waste to energy facility**
- **Create a business network to allow peer learning and practice change**
- **Improve public transport links to areas of social disadvantage across Greater Bendigo**
- **Improve education rates within disadvantaged communities**
- **Improve workplace conditions to ensure equity**
- **Support the rollout of the NBN across the region, especially areas experiencing disadvantage**





HEALTH AND HAPPINESS



Connection to nature underpins our communities and livelihoods, providing us with places (and things) to explore, learn from and enjoy. Our wellbeing, creativity, health and intelligence are increased through connection to the natural world. This knowledge has influenced the design of local buildings like the Bendigo Hospital, which is why all rooms have views to green spaces.

Modern society is experiencing rises in obesity, stress related illness and mental health disorders. Greater Bendigo has the third highest rate of obesity and the highest rates of anxiety and depression in Victoria¹⁶. Car dependence and the associated lack of physical activity are associated with obesity and other health conditions. There is evidence to suggest that less time spent in nature, as a result of our increasingly busy and technologically driven lifestyles, is directly correlated with an increase in social, mental and physical health problems. Research on Australians living in urban areas shows that people have a more positive outlook on life and a higher life satisfaction when they have ready access to natural environments¹⁷.

The natural environment, including parks and open spaces in urban areas, rail trails and national parks are places for people to observe nature, recreate, meet with others and unwind. It is essential that Bendigo maintains and preserves the current network of parks, open spaces and nearby

nature reserves so that people can connect with the natural world and their community. The City is also committed to increase opportunities for the community to interact with nature, through improving the walk-ability and cycle-ability across the municipality.

People who are connected with the natural world are more likely to be advocates for our environment. Connecting children to nature and providing opportunities for nature based play, is not only foundational to their healthy physical and mental development, but will also encourage a generation that respects the natural world. This is already happening through programs such as bush kindergarten and family Nature Club, which Council is committed to supporting.

“Exposure to the natural world – including nearby nature in cities – helps improve human health, wellbeing, and intellectual capacity. Time spent in nature is (also) the most cost-effective and powerful way to counteract the burnout and sort of depression that we feel when we sit in front of a computer all day”

Richard Louv, author of *Last Child in the Woods* and *The Nature Principles*.

¹⁶ Department of Health (2014)

¹⁷ ACF (2016)

20 YEAR GOALS



PEOPLE LIVING ACTIVE, SOCIABLE, MEANINGFUL LIVES WITHIN THEIR SHARE OF OUR PLANET

- More people using natural places to support their physical and mental health and wellbeing
- A community that shares knowledge and experience of nature to sustain future generations



Municipal Public Health and Wellbeing Plan

The Municipal Public Health and Wellbeing Plan can be viewed online at: bendigo.vic.gov.au

TOP ACTIONS

What Council will do:

- Encourage people to use natural environments to improve physical and mental wellbeing through:
 - Education and support for community activities
- Raise awareness of the learning and development benefits to children from a regular connection to nature
 - Support activities that allow children to connect with nature
 - Develop and maintain natural play spaces
- Connect people to nature by learning, growing and sharing together
 - Promote publications such as *Home Grown*, a guide to growing fresh food
 - Support and connect community and school gardens across Greater Bendigo
 - Promote ways to share excess fruit and vegetables with neighbours

What the Community can do:

In this action area 'community' includes residents, Traditional Owners, business, state government agencies, water and natural resource authorities, schools, universities, health agencies and others

- Provide opportunities for marginalised people (e.g. new migrants, disabled, elderly) to connect with the local natural environment
- Establish exercise programs in the bush that encourage exercise through conservation based work
- Develop more bush kindergarten programs



FLAGSHIP PROJECTS

for the Environment Strategy 2016-2036

1 2 3 4

The following four flagship projects have been chosen for this strategy to lead and inspire municipal-wide action to achieve the goals of the Environment Strategy. Each project will have multiple benefits for our city and rural communities.



FLAGSHIP PROJECT 1: POWER TO THE PEOPLE

Our environmental problems ultimately have a human cause. The one planet action areas are designed to support changes in human behaviour that will make a difference in their homes, work and local community.

Local environment and sustainability community groups are working hard to make Greater Bendigo sustainable and need support and encouragement to create the new sustainability led economy. This flagship project aims to educate the Greater Bendigo community for sustainability and support communities to achieve shared goals.

Community Sustainability Education: from tips to transformation.

At the Rio Earth Summit in 1992, local government was positioned as a key driver of change for community ecological sustainability. Importantly, local government was envisaged as a facilitator of community led change rather than a deliverer of government-devised projects. Local Agenda 21 asked local governments to provide the support, encouragement and resources for communities to do it for themselves.¹⁸

Community education for sustainability has come a long way from the tip brochure of the 1990s. Back then, community sustainability education involved handing out booklets with 101 'tips' to save the environment. In the 2000s, education progressed to town hall style workshops for the community on

saving water, waste, energy and biodiversity. This was a more effective version of the tip booklet, but still failed to change culture. Light bulb giveaways were also popular in the 2000s, with minimal effect on overall sustainable behaviour.

"Today's information is tomorrow's fish and chip wrapper"

Frank Ryan, Vox Bandicoot

Since then, research and experience have clearly shown that information alone does not change behaviour and it certainly doesn't create communities of change. We know that our behaviours are shaped by environment to some degree, which is why the *Connecting Greater Bendigo* Strategy is so important. We also know that our values and behaviour are profoundly shaped by those around us and that we in turn shape the values and behaviour of those around us.

"Everything we do or say tends to ripple through our network, having an impact on our friends (one degree), our friends' friends (two degrees), and even our friends' friends' friends (three degrees)...one way to think about ourselves is that each of us can reach about halfway to everyone else on the planet."¹⁹

Nick Christakis and James Fowler,
Network Scientists and authors of *Connected*

Effective community education for sustainability needs Council and partners to meet communities where they are at, supporting and enabling them to be even better at achieving shared sustainability goals. We will have truly transformative education when we bring people together to reimagine community connection and our relationship with the earth.

Some local governments are leading the way

Across Australia and the world, local government has partnered with community on projects created by the community to achieve shared outcomes.

- The City of Hobsons Bay holds an annual community environmental volunteers celebration on World Environment Day.
- The Cities of Warrnambool and Albany run annual community sustainability festivals.
- The Cities of Darebin, Hume and Banyule run Community Environmental Leadership Courses every six months for 40 people focusing on all aspects of leadership and the creation and delivery of a local sustainability project by each person.
- The cities of Yarra, Greater Geelong and Fremantle have applied the one planet principles to their operations in recent years.
- Cities including Penrith, Moreland and Moonee Valley have used the Sustainability Street Approach to bring together people at the neighbourhood level and achieved 30% reductions in water, waste and energy across the households involved and improved all social indicators.²⁰

Reimagining a Local Sustainability led economy

As we are now on the cusp of a new sustainability led economy, community sustainability education needs to encourage people to think big, rather than tell them to change light bulbs.

Greater Bendigo has excellent community sustainability groups achieving great progress towards the ten action areas in this strategy. While Council has provided constant support and encouragement to community groups, this flagship project aims to create true partnerships for change.

Council will empower communities across Greater Bendigo and enterprises to take action and set up local sustainability enterprises. We will encourage and enable people in communities to be better at movement building and change practice so that the community can teach each other about the path to sustainability.

¹⁸ sustainabledevelopment.un.org/outcomedocuments/agenda21

¹⁹ Christakis, N.A. & Fowler, J.H. (2011) Connected, Back Bay Books, New York

²⁰ Hocking, C. Ray, S. & Day, T. (2006). The Guide Beside approach to professional learning for facilitators of environmental sustainability, Victorian Association for Environmental Education, Melbourne, Australia



5 YEAR ACTIONS

- In partnership with local community groups and organisations:
 - Develop a ten year community sustainability campaign to get the Greater Bendigo community signing up to create a sustainable life in the areas of the one planet action areas.
 - Create an annual Sustainability Thinker in Residence position; someone who will help us all imagine and design the sustainability led new economy.
 - Fund initiatives like Sustainability Awards and the Community Sustainability Festival as a regional hub of sustainability innovation, celebration and connection.
 - Run an annual community sustainability workshop in Bendigo that brings together local community sustainability groups to share ideas and inspiration
- Provide annual sponsorships for three different Bendigo community sustainability leaders to attend national sustainability conferences to bring those ideas back to Bendigo.
- Employ a Community Sustainability Education Officer
 - Engage communities at the neighbourhood level to create environmental change and social connectedness
 - Support Greater Bendigo community environmental groups and projects to be better at community movement building and change practice.
 - Deliver an annual community sustainability leadership course in Bendigo for community and business sustainability leaders.
- Empower the City of Greater Bendigo Green Team with a budget and give them accountability for the City's own waste and energy goals. Ask other organisations to join together on the journey by making the same pledge and sharing ideas and inspiration. Publicly report on progress to inspire the community.

FLAGSHIP PROJECT 2: CITY IN THE FOREST, FOREST IN THE CITY

Throughout the community consultation for this strategy, there was one dominant theme: trees. Our communities clearly told us that they want a tree rich network to increase biodiversity and provide shade across the whole city, maintained with water sensitive roadside design.

“Our 'City in the Forest' slogan may appear OK on an aerial photo, but when I'm walking to the shops I don't feel protected from the sun or elements.”

— Community member, pre-strategy consultation

A healthy urban forest, which is the sum of all urban vegetation, both native and exotic, is critical for liveable, resilient and healthy urban communities. Greater Bendigo's urban trees are valuable community assets that enhance the local environment and provide a green network of spaces for the community to enjoy. Our trees and vegetation provide the following benefits:

- Shade (reduction in sun and heat exposure)
- A sense of place
- Localised cooling during heatwaves
- Amenity and landscape aesthetics
- Energy savings in buildings
- Improved property values along tree-lined streets

- Habitat for wildlife, particularly birds
- More attractive and economically viable commercial and retail centres
- Rainfall and stormwater interception, resulting in reduced stormwater flows into the region's rivers
- Air pollution amelioration
- Wind abatement
- Carbon storage and sequestration
- A food source
- A unique municipal brand - attractive, green spaces reflect proactive and innovative city management
- A connection to nature, especially for children

The benefits of urban forests far outweigh the cost of planting and managing them. Cities across the world can now calculate the dollar value benefit that their urban tree populations provide and thereby determine their return on investment. The City of New York has calculated that the city gets a USD\$5.60 return on investment for every dollar spent maintaining urban trees²¹. Clearly, urban trees are a worthy investment now and for the future.

The City of Greater Bendigo has a well-organised street and park tree-planting program, as evidenced by over a thousand new street trees planted across Greater Bendigo every winter. *The Hospital Precinct Structure Plan* features considerable focus on strategically increasing tree canopy. As a result, Greater Bendigo already has a growing urban forest. However there are opportunities to make the forest bigger, healthier, more interconnected and longer lived so that it provides the maximum possible benefit to the community. There is opportunity to make Greater Bendigo's urban forest a part of the City's brand, creating its unique character in Greater Bendigo's city and settlements.



Figure 2: New York trees are worth 5 times more than they cost so what is the value of Bendigo's urban trees?

²¹ Peper et al (2007)

With a coordinated effort, tree numbers and canopy cover across our city and settlements can be increased and better growing conditions for the trees created. There is also a clear opportunity to raise awareness about the benefit of urban trees for Greater Bendigo and to communicate well about Council's urban tree management program. There is also a need to identify areas of priority for increased tree planting. Priority areas will include those with few trees, areas of high pedestrian activity that require better shade cover, bike paths, areas of social vulnerability to extreme weather events such as heatwaves, areas subject

to localised flooding or those streets and parks that act as habitat corridors between places of ecological value.

Council will develop a program to strategically increase vegetation cover across all urban areas of Greater Bendigo to reduce heat island impacts, improve community health and wellbeing and enhance the attractiveness of the City. This initiative builds upon a range of existing and ongoing strategic work such as the City in a Forest concept, the Compact City vision and the Rosalind Park Masterplan and surrounds.



Figure 3: City of Greater Bendigo has an existing street tree-planting program that could be enhanced

5 YEAR ACTIONS

- Engage the community and build regional partnerships
- Calculate the dollar value of Greater Bendigo's urban trees
- Calculate urban tree canopy cover over Greater Bendigo
- Develop an urban forest strategy, identifying key urban forest performance targets and incorporating the goals of Connecting Greater Bendigo with well-designed and welcoming public spaces
- Identify priority areas for tree and vegetation planting, including areas of socio-economic disadvantage, high pedestrian activity, wildlife habitat corridors and areas

FLAGSHIP PROJECT 3: CATALYSE A LOCAL RENEWABLE AND EQUITABLE ENERGY NETWORK

Within Victoria, the northwest region has the best solar potential in the state with almost as much solar radiance as northern Australia. Taking into consideration the impact of carbon emissions from ageing fossil fuelled generators, rapid improvements in renewable technology, our proximity to the electricity transmission network, and our geographic location as the gateway to the northwest, Greater Bendigo is well positioned to become the centre of clean energy for Victoria.

During the community consultation that started this strategy, the theme of renewable energy and climate change was a dominant concern of community members.

“We should be increasing solar panels on houses and localise energy to create more jobs for locals.”

Community consultation

The transition to renewable energy is growing worldwide at an astonishing rate. Greater Bendigo can either seize the opportunity to become a major provider of renewable energy, or someday in the not too distant future we will find ourselves being net importers of renewable energy. To take advantage of the momentum, the City recognises that it will need to work collaboratively to attract and support the businesses and communities who will create local energy production and sharing systems. This flagship project is about doing the work to catalyse an industry that will strengthen our local economy, secure energy supply and reduce carbon.

The community of Greater Bendigo has a strong history of innovation and is a regional leader in the uptake of renewable energy technologies. Not only has our community rolled out the Central Victorian Solar Cities program and hosted the biannual Renewable Energy for Regional Australia conferences from 2007 to 2011, the City has worked in tandem with community groups including

the Bendigo Sustainability Group (BSG) to support and drive projects such as the Goldfields Solar Hub program, solar on the Library, Lighting the Regions streetlight replacement with LED streetlights, as well as other energy efficiency and community awareness activities.

As a result of these programs:

- 16% of homes have installed solar PV systems;
- In postcode 3551, 1 in 4 homes have a solar PV system;
- Our municipality has over 25 megawatts (MW) of privately owned local solar PV generation capacity;
- We are ahead of state and national averages for the uptake of solar PV system

There are significant benefits to networks and consumers of energy generated and consumed in the same area, avoiding the infrastructure costs and line losses from long transmission lines and big zone substations.





POWER POTENTIAL: RENEWABLE GROUNDWATER MANAGEMENT

Shallow and rising groundwater in Bendigo has caused odours along Bendigo Creek and discharge at the surface. Management of groundwater is currently done through pumping groundwater at the Central Deborah Tourist Mine, with very high pumping costs required to prevent discharge into the creek and tourist facilities.

This operation could turn out to be expensive unless consideration is given to low cost, low energy input systems. There is potential to power all pumping using methods that are financially, socially and environmentally sustainable.

There is also potential to establish other innovative energy solutions for the long-term management and treatment of the groundwater.

The City and stakeholders can investigate options including concentrated solar power (CSP), thermal energy (heat source), and subterranean hydroelectric generation.

By using sustainable technologies to manage the groundwater, we can ensure the long-term groundwater levels can be managed at minimal cost.



POWER POTENTIAL: BARNARD & VIEW ST ENERGY PRECINCT

At present the City has five separately metered facilities within the View Street and Barnard Street precinct that includes the Art Gallery, Capital Theatre, QEO and Aquatic Centre. These all operate independently with individual and separate grid point connections. This is inefficient and leads to increased costs of power supply.

By connecting these facilities using an integrated microgrid* the city can increase efficiency of supply use, balance uses across all facilities to lower energy consumption and reduce costs. On site local generation of electricity would offset the overall purchase of power from the grid and lead to reduced carbon emissions.

The local energy precinct network will help the precinct reduce energy and contribute to electric vehicle and battery storage.

** A microgrid is a local, small-scale power network that can operate independently or in conjunction with the area's main electrical grid.*

5 YEAR ACTIONS

- **Attract and support investment in renewable technology:**
 - Hold a local renewable energy forum to engage potential investors and users
 - Investigate the renewable energy potential of the region and economic impacts of investment
- **Work with business and community to secure 100% renewable energy for all Greater Bendigo residents and businesses**
- **Investigate opportunities to develop a View Street and Barnard Street local energy precinct**
- **Investigate ways to manage rising groundwater using renewable technologies**
- **Advocate that energy regulators and policy makers produce policy that allows communities to run micro grids without excessive retail costs or over-regulation**

FLAGSHIP PROJECT 4: A SHARED VISION FOR RESTORING BENDIGO CREEK

Across Greater Bendigo, there is great support for restoring the Bendigo Creek to a natural waterway, particularly in the highly modified sections through the city of Bendigo. While some great work is being done, it is time to create a shared vision for Bendigo Creek, so we can restore this great community asset.

The Bendigo Creek stretches 153 km from Kangaroo Flat in the south, through the centre of Bendigo to join into the Mount Hope Creek north of Lockington. The cycling and

walking trail along the Creek is one of Bendigo's greatest recreational assets and is frequented by walkers, cyclists and joggers every day.

As with many of Greater Bendigo's landscapes, Bendigo Creek has an intense history of cultivation, exploitation, neglect and transformation. The creek was originally of a 'park like appearance' and for a long time the Dja Dja Wurrung people engineered the creek through a chain of ponds to create a regular supply of clear water. The creek was kept treeless through regular fire management and used as alluvial flats for plentiful grasslands. The accounts of early non-indigenous settlers to the area noted that with the introduction of sheep and cattle grazing, low lying vegetation that kept the stream banks together was eaten and banks tramped, which led to erosion of the flats and the creation of a steep sided creek.

With the arrival of mining, the creek became a waste receiving system that overflowed during heavy rains, bringing foul smelling sludge waste into the streets of Bendigo. As Bendigo prospered and money was spent on civic infrastructure, a royal commission, entitled 'the Sludge Commission' was established to solve the Bendigo Creek problem. Work was undertaken to pave a new course for the creek, building a timber box drain to take the sludge to Huntly. The large bluestone and concrete course in the centre of Bendigo that we now know as Bendigo Creek is the result of significant engineering works at that time.

²² Culture Victoria (2016)



Figure 4: Flooding along Bendigo Creek



Figure 5: Urban sections of the Bendigo Creek

The benefits of a healthy, green creek corridor are many. Flora and fauna increases ecosystem services of clean air, clean water and natural beauty. A restored Bendigo Creek will act as an important linear biolink for the region, connecting places of ecological significance like Crusoe Reservoir. The public reserve alongside the creek is a vital piece of recreational infrastructure and can become a relaxing, beautiful green space to connect with nature, within an urban environment.

Despite its beauty along stretches and its important role in liveability and environmental function, the Bendigo Creek essentially remains a stormwater receiving drain (see Figure 4 and Figure 5) and brings with it pollutants that affect water quality downstream. Population growth has increased urbanisation and reduced permeability of surfaces in the landscape, increasing stormwater flows into the creek, compromising its health.

Bendigo's community recognise the beneficial outcomes of this work for people and for the environment, calling for the restoration or improvement of the Bendigo Creek to a more natural watercourse as part of the community and stakeholder consultation.

Similar linear urban waterway restoration work has been conducted successfully across Australia and overseas.

“[The community can] partner with the City of Greater Bendigo and Coliban Water to restore the creek so that we know what healthy water is/ looks like as well as restoring frog ponds.”

Community members, environment strategy consultation

“We'd love to see more wildlife like platypus, frogs and birds in the creek.”

Community members, environment strategy consultation

The GreenWay in inner west Sydney (see Figure 6, left) exemplifies how public private partnerships can work together to achieve strong ecological and social outcomes (greenway.org.au). The iconic Cheonggyecheon River restoration in South Korea (see Figure 6, right) represents innovative thinking and design to create a place for people and the environment. Both of these projects demonstrate that the process of creek restoration is not the remit of one discipline or agency.

There are many groups of people and organisations in Bendigo committed to the long process of regenerating Bendigo Creek including environmental groups and community volunteers.

A joint partnership initiative has been in place for the past ten years, coordinating the management of the Bendigo Creek between the City of Greater Bendigo, North Central Catchment Management Authority and the Department of Environment, Land, Water and Planning. The Dja Dja Wurrung and North Central Catchment Management Authority are also running a project to build community capacity to undertake works along the Bendigo Creek.

The restoration of the Bendigo Creek requires a large scale, coordinated and strategic effort. Urban waterways are complex ecosystems with competing urban and rural demands that require critical, innovative thinking, best practice urban and environmental design and the ability for everyone to work together. Drainage engineers, open space planners, field naturalists, water managers, community members, urban designers, traditional landowners, ecologists, environmentalists, water quality researchers, horticulturalists and others should all be working together. It is time to create a shared vision for the Bendigo Creek, to set key goals for its long term future, to develop a business case for significant funding contributions and to ask all relevant stakeholders to work together. It is time to value Bendigo Creek as a great community asset worth enhancing and protecting. We have the opportunity to redefine Bendigo Creek, its identity and functionality in a thriving and growing regional city, now and for the future.



Figure 6: The GreenWay in inner west Sydney (L) and Cheonggyecheon River restoration (R)

5 YEAR ACTIONS

- Establish a Partnership between the City of Greater Bendigo, North Central Catchment Management Authority, Goulburn-Murray Water, Department of Environment, Land, Water and Planning, Coliban Water and Dja Dja Wurrung
- Engage with all stakeholders to create a shared vision for the creek
- Identify clear design, environmental and social outcomes for the Creek
- Ensure appropriate governance structures are in place to be able to make critical decisions around the management of the creek
- Establish online ways to build a profile for the creek through clear messaging and story telling, particularly in relation to flora and fauna already in the creek.
- Continue weed removal, vegetation works, improving water quality and caring for country works along the Creek
- Develop a regional Bendigo Creek Management and Action Plan, which includes protection from encroaching urban development at Epsom and Huntly
- Establish a creek health monitoring and evaluation program

5-10 YEAR ACTIONS

- Restoration works to be conducted by all relevant industries, government agencies, local schools, environmental and community groups.



Image: North Bendigo Landcare Group revegetation of the creek

CURRENT RESTORATION EFFORTS

A lot of positive work continues along the creek including weed removal, revegetation, installation of gross pollutant traps, installation of educational signage, installation of nesting boxes for wildlife and water quality testing.

The North Bendigo Landcare Group, in partnership with Parks Victoria has been actively undertaking much needed restoration works along various stretches of the Creek. The North Central Catchment Management Authority has managed the restoration of the northern reaches of the creek, which has seen the endangered Creekline Grassy Woodland community regenerated. This work has provided quality habitat for the movement of local wildlife as well as linked the creek ecologically to Coliban Water's Bendigo Water Reclamation project site where endangered and vulnerable bird and frog species have been recorded.

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GLOSSARY OF TERMS

Alluvial - Sand, silt, clay, gravel, or other matter deposited by flowing water, as in a riverbed

Amelioration - Make (something bad or unsatisfactory) better

Biodiversity - The variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable.

Biolinks - Vegetated linkages that improve connectivity between areas of natural habitat.

Class 'A' Recycled Water - Water that has been treated to a 'fit for purpose' standard for a specific application according to Environment Protection Authority guidelines.

Groundwater - water that is located below the earth's surface. Over time, water from rain and rivers migrates through the ground and is stored in porous soils and rocks.

Heat Island - an urban area where the air temperature is consistently higher than in the surrounding region because of the generation and retention of heat created by human activity and human-made structures.

Microgrid - A small-scale power grid that can operate independently or in conjunction with the area's main electrical grid.

Remnant Vegetation - Patches of native trees, shrubs and grasses still remaining in their original form.

Reticulated Water - The piped-water network.

Riparian Vegetation - Vegetation that grows on stream or river banks.

Sequestration - the trapping of a chemical in the atmosphere or environment and its isolation in a natural or artificial storage area

Stormwater - Water from rain that “runs off” across the land instead of seeping into the ground.

Traditional Owners - Indigenous people who have lived on traditional lands and cared for country over many thousands of years.

Urban Microclimate - A microclimate is a local set of atmospheric conditions that differ from those in the surrounding areas e.g. urban areas where brick, concrete, and asphalt absorb the sun's energy, heat up, and re-radiate that heat to the ambient air: the resulting urban heat island is a kind of microclimate.

Vegetation Communities - a group of plants occurring together to form a characteristic vegetation type.

ACRONYMS

BSG - Bendigo Sustainability Group

ESD - Environmentally Sustainable Design

ITLUS - Integrated Transport and Land Use Strategy

LED - light-emitting diode

NBN - National Broadband Network

PV - Parks Victoria

SEAC - Sustainability Environment Advisory Committee

SLF - Sustainable Living Festival

VLSAC - Victorian Local Sustainability Advisory Committee

WSUD - Water Sensitive Urban Design

