



Alexandrina Council Environmental Action Plan 2014–2018

THRIVE IN CLEAN GREEN FUTURES



Acknowledgment of Country

The Alexandrina Council region intersects the traditional lands of the Ngarrindjeri and Kurna Traditional Owner groups.

Alexandrina Council acknowledges and respects their Traditional Ownership, and their rights, interests and obligations to speak and care for their traditional lands and waters in accordance with their laws, customs, beliefs and traditions.

On 8 October 2002, Alexandrina Council and the Ngarrindjeri Nation entered into a Kungun Ngarrindjeri Yunnan (Listen to Ngarrindjeri People Talking) Agreement. The KNY Agreement was the first of its type to be entered into between the Ngarrindjeri Nation and any level of Government. The KNY Agreement includes an expression of sorrow and apology to the Ngarrindjeri People and articulates a joint commitment by Council and the Ngarrindjeri Nation to seek ways of working together to uphold Ngarrindjeri rights and advance Ngarrindjeri interests.

In implementing this Plan, Alexandrina Council will have regard to the Ngarrindjeri Vision for Country as expressed in the 2007 Ngarrindjeri Nation Yarluwar-Ruwe (Sea Country) Plan:

Our Lands, Our Waters, Our People, All Living Things are connected. We implore people to respect our Ruwe (Country) as it was created in the Kaldowinyeri (the Creation). We long for sparkling, clean waters, healthy land and people and all living things. We long for the Yarluwar-Ruwe (Sea Country) of our ancestors. Our vision is all people Caring, Sharing, Knowing and Respecting the lands, waters, and all living things.

Major Sumner, Watersong - Just Add Water, Goolwa Wharf 2012

Photo: Alice Bell



Message from the Mayor and Chief Executive

Alexandrina Council is known nationally and internationally as a region of environmental importance. We are blessed to live adjacent to the Coorong and Lower Lakes Ramsar Wetland and to swim in clean beaches backed by coastal dunes. Further inland, our district boasts a wide range of habitats including mallee, eucalyptus woodlands and stringybark forests. The natural beauty of our region is one of the key features attracting people to live and holiday here.

Though we are rich in natural assets, the health of our environment continues to face a range of challenges and threats. In seeking to protect and improve our environment we must not forget the degraded nature of even our most valued natural places. Our rivers, creeks and wetlands are home to a host of threatened fish and bird species, whilst our roadsides and Council reserves contain some of the last vestiges of intact remnant native vegetation in the region.

Given all this, it is no surprise that our community has expressed a clear desire for Council to display strong environmental stewardship.

Action is needed at the global, national and local level to protect and enhance the environmental assets we have, to minimise further negative impacts and to adapt to expected changes such as population growth and climate change. Alexandrina Council is committed to playing our part and we

share the aspiration of our community that collectively, we should leave more than we inherit to future generations.

This Environmental Action Plan 2014–2018 ('the Plan') outlines Alexandrina Council's commitment to sustainable management of our environment for the next 4 years. It provides an overview of past achievements and prioritises future actions which will bring our community closer to the environmental vision contained in Council's Community Strategic Plan 2014–2023, namely to 'Thrive in Clean Green Futures'.

We give thanks to everyone who took the time to contribute to development of this Plan and we look forward to working with you to help create a cleaner, greener future for our community.

With our best wishes


Kym McHugh, Mayor


Peter Dinning, Chief Executive

Mayor Kym McHugh (left) and Chief Executive Peter Dinning (right)

Photo: Chris Herzfeld



Summary

Alexandrina Council recognises that all Council activities have an impact on the environment and that our community expects us to lead by example in the way we conduct our operations. Council can also help to foster a strong sense of environmental stewardship amongst our staff, residents, business community and visitors by educating and encouraging them to care for our local environment.

The Environmental Action Plan 2014–2018 ('the Plan') has been developed to guide Council's environmental management activities over the next four years, with a focus on protecting and enhancing environmental assets under Council's care and control, and on meeting community needs without compromising the ability of future generations to meet their needs.

As illustrated on the next page, the Plan is divided into four chapters:

- Protecting our water resources
- Enhancing biodiversity
- Progressively addressing climate change
- Living local

The Environmental Action Plan has been developed with a focus on protecting and enhancing environmental assets under Council's care and control, and on meeting community needs without compromising the ability of future generations to meet their needs.

Each chapter contains a number of strategies and key performance indicators (KPIs) against which we will measure our progress. The details of how the Plan will be implemented over the next four years are contained in action tables which support each strategy.

Actions are prioritised according to timeframe (i.e. short term, medium term and long term). Some of the high priority actions include:

- working with developers to ensure that wherever practicable all new irrigated public open space is maintained using alternatives to potable mains water
- amending our Development Plan to require that all new houses install a minimum 5000L rainwater tank
- creation of an in-house Biodiversity Team to increase the area of Council land actively managed for conservation
- developing a region-wide vision for reconnecting the landscape by undertaking works on Council reserves, roadsides and unmade roads
- undertaking a Coastal Hazard Study to identify the coastal areas and infrastructure most vulnerable to the impacts of climate change
- working with developers, builders and landowners to encourage green building design and construction
- recognising, rewarding and celebrating community action via environmental grants and awards
- establishing an Environmental Advisory Group to provide advice to Council on implementation of this Plan.

Progress against the Plan will be reported annually to Council. A complete review of the Plan will be undertaken in 2018 with a view to developing a further 5-year plan for the period 2019–2023.

Aspiration

THRIVE IN CLEAN GREEN FUTURES

Goals



**PROTECTING
OUR WATER
RESOURCES**



**ENHANCING
BIODIVERSITY**



**PROGRESSIVELY
ADDRESSING
CLIMATE CHANGE**



**LIVING
LOCAL**

Strategies

Minimise Council water use

Maximise the re-use of rainwater, stormwater and wastewater

Promote water sensitive development

Maintain and enhance the health of waterways

Provide community leadership

Build our knowledge

Protect and enhance remnant vegetation

Connect habitat and restore degraded areas

Improve urban biodiversity

Protect and enhance coastal biodiversity

Be a responsible land manager

Engage our community and develop partnerships

Reduce our greenhouse gas emissions

Identify and assess impacts, risks and opportunities

Build resilience

Plan for sustainable growth

Provide community leadership

Manage our waste sustainably

Promote sustainable food

Green our organisation

Inform and engage our community

Care for Aboriginal culture and country

Measuring our progress

Council mains water use

Total community mains water use

Community per capita mains water use

Volume of stormwater and wastewater reuse

Area of actively managed remnant vegetation

Area of actively managed revegetation

Area of actively managed urban biodiversity reserves

Number of community groups undertaking biodiversity works on Council land

Council greenhouse gas emissions

Council Adaptation Plan endorsed and actions implemented

Extent of community knowledge re climate change impacts, risks and adaptation options

Total waste to landfill

Total diversion of waste from landfill

Diversion rate of residential kerbside waste (%)

Proportion of residents satisfied with Council's environmental performance

Number of volunteers/ attendees at Council environmental events

About this Plan

Background

This Plan has evolved from a review of Council's two previous environmental action plans, the Sustainable Alexandrina Action Plan 2001 ('2001 Plan') and the Sustainable Alexandrina Policy Direction and Action Plan 2007–2010 ('2007 Plan').

The 2001 Plan was the outcome of Council's participation in the South Australian Partnership for Local Agenda 21, led by the State Government and the Local Government Association. The planning process began in 1998 with the creation of a community-based Working Group which continued to meet over a 2-year period. Development of the 2001 Plan also coincided with the introduction of the Local Government Act 1999 which strongly incorporated the concept of ecologically sustainable development into the objectives and functions of local government in South Australia.

This Plan consolidate Council's environmental initiatives and priorities into a formal overarching framework, enabling Council to take a more strategic and proactive approach to the resourcing of our environmental management responsibilities and aspirations over the long-term.

Our efforts in assisting the community to develop the 2001 Plan and in integrating sustainability considerations into our strategic planning processes were rewarded in 2003, with Council being named the Rural Winner of the Environment Local Agenda 21 Category at the National Awards for Local Government.

In 2007, an internal working group reviewed the 101 actions contained in the 2001 Plan and found that 87 had been acted upon whilst the remainder were being addressed through ongoing planning. The 2007 Plan was subsequently developed on behalf of Council by the SA Murray-Darling Basin NRM Board in response to an identified need for Council to provide greater protection for the region's natural resources and to place Council in the best position to establish partnerships to achieve sustainable management of these resources.

The 2007 Plan was revised in February 2009. Of the 61 actions contained in this revised version of the 2007 Plan, 35 have been acted upon whilst a further 11 actions are of an ongoing nature, many relating to the training of staff and the maintenance of relationships with external agencies. A number of outstanding actions from the 2007 Plan, particularly those relating to sustainable procurement and climate change, have been carried over into this Plan.

Whilst Alexandrina Council has expressed a strong commitment to environmental sustainability and the protection of our natural environment for many years, in developing this Plan we acknowledge that our level of environmental activity over the past decade has tended to wax and wane in line with staff expertise, capacity and turnover. The purpose of this Plan is to consolidate Council's environmental initiatives and priorities into a formal overarching framework, enabling Council to take a more strategic and proactive approach to the resourcing of our environmental management responsibilities and aspirations over the long-term.

Sustainable Alexandrina Staff Workshop

May 2013



Developing this Plan

Alexandrina Council would like to thank the many individuals, community organisations, government agencies, Councillors and staff members who have contributed ideas and knowledge to the preparation of this Plan.

The Institute of Sustainable Futures delivered two Elected Member, Executive and staff workshops in May 2013 to help inspire lasting change in sustainability thinking and action across Council as we embarked upon the planning process.

Community consultation and engagement to develop the Plan has included:

- a review of the consultation processes undertaken throughout 2011 and 2012 to support development of Council's Community Strategic Plan 2014–2023
- a Sustainable Alexandrina Community Workshop held in June 2013 which provided an opportunity for the community conservation sector to get involved in the early stages of Plan development
- a Sustainable Alexandrina Focus Group meeting held in December 2013 which provided an opportunity for key community leaders to provide feedback on a pre-public consultation draft of the Plan

- many informal conversations with community organisations and passionate individuals about the action needed for our community to thrive in a clean, green future.

Staff from all divisions of Council contributed to the development of the strategies and actions contained in this Plan and Council gives particular thanks to members of the internal Sustainable Alexandrina Working Group who met monthly throughout 2013 to steer preparation of the Plan.

Following Council endorsement of the draft Environmental Action Plan in January 2014, it was released for a 6-week public consultation period during February and March 2014.

During that period, the My Say Alexandrina website received 572 individual visitors, the draft Plan was downloaded 324 times, 117 people attended 5 community meetings and Council received 101 written responses (74 surveys and 27 submissions).

The feedback received was overwhelmingly positive with 96% of survey-takers either supporting or strongly supporting the Plan.

Links with the Community Strategic Plan 2014–2023

This Plan has been written to align with Council’s highest level strategic planning document, the Alexandrina Council Community Strategic Plan 2014–2023.

The Community Strategic Plan documents the community’s long-term aspirations, interests and priorities and it guides Council’s resourcing plans, such as the Long-term Financial Plan, Infrastructure and Asset Management Plan and Annual Business Plans and Budgets.

Environmental sustainability has received an elevated level of importance in the Alexandrina Council Community Strategic Plan 2014–2023, as compared to previous such plans. This is the result of extensive community consultation and engagement undertaken throughout 2011 and 2012, during which caring for our environment consistently emerged as a Top 3 issue for our community.

The aspiration to ‘Thrive in Clean Green Futures’ is now one of four themes comprising Council’s vision of Alexandrina Connecting Communities (see Figure 1).

The Community Strategic Plan also presents a number of key Outcomes and Strategies required to achieve the long-term aspiration to ‘Thrive in Clean Green Futures’ (see Figure 2). These key Outcomes and Strategies have been considered in the development of this Plan, and the strategies and actions contained in this Plan are designed to reflect the priorities of the Community Strategic Plan.

Figure 1: Our Vision – Alexandrina Connecting Communities.

Source: Adapted from the Community Strategic Plan 2014–2023.

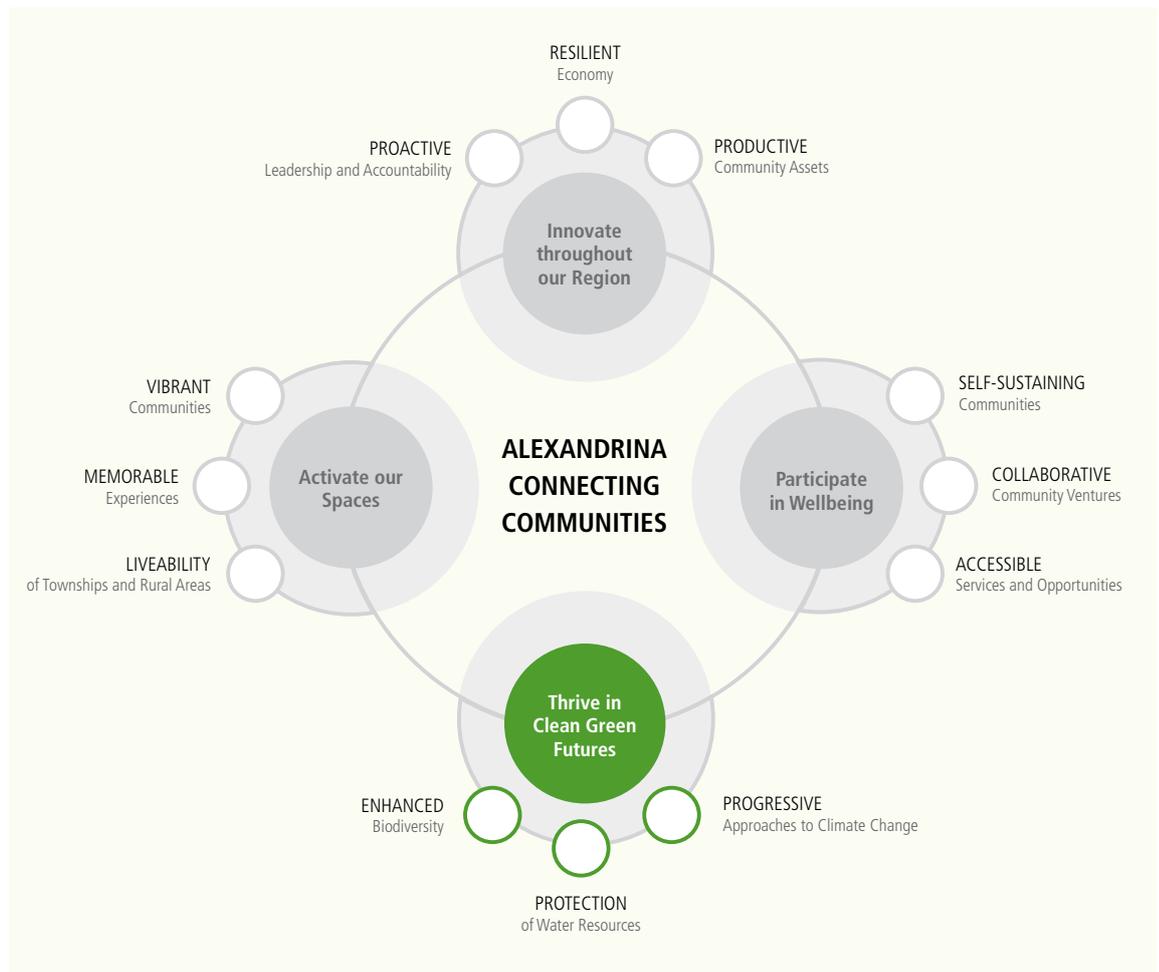
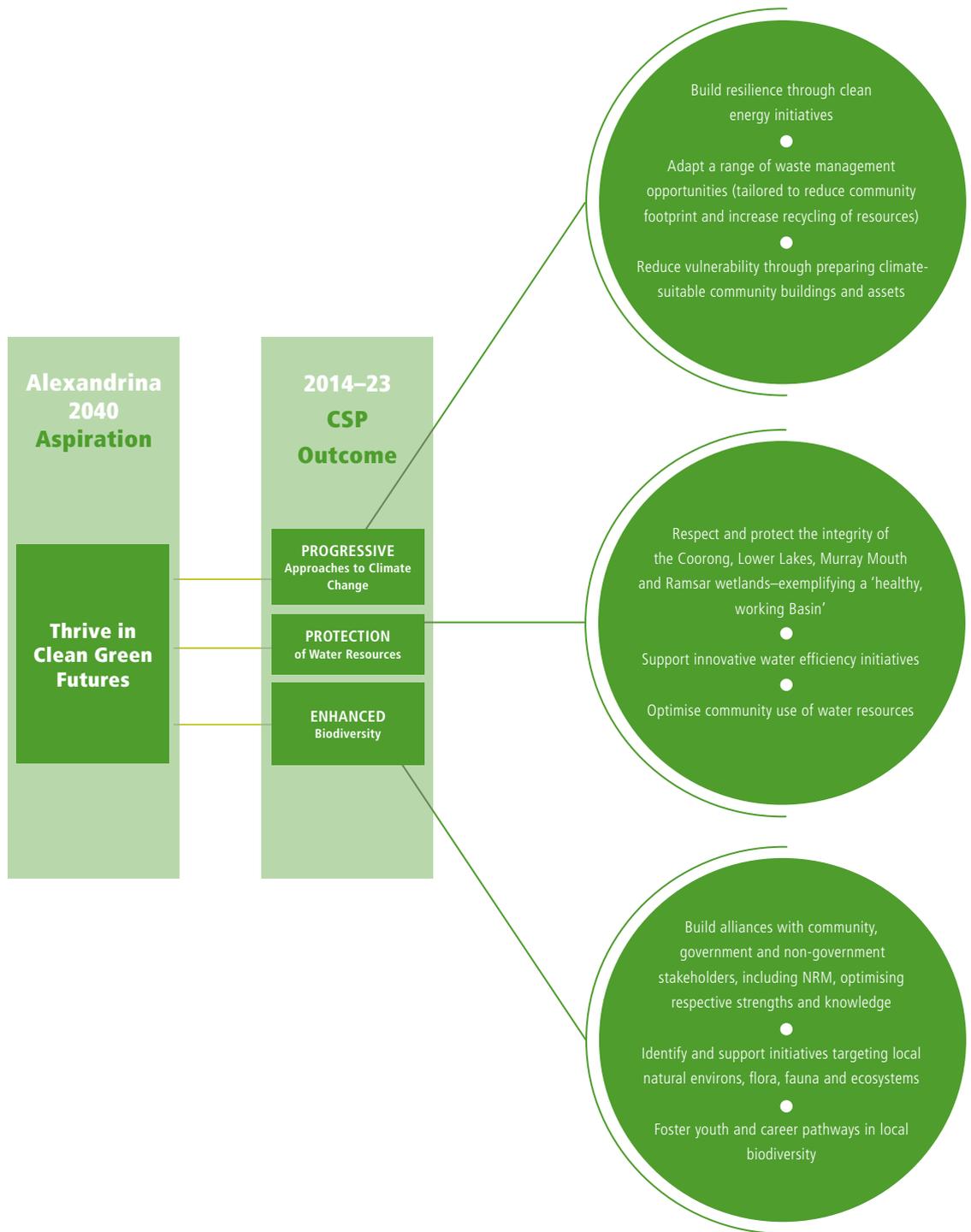


Figure 2: Thrive in Clean Green Futures: Aspiration, Outcomes, Strategies.

Source: Adapted from the Community Strategic Plan 2014–2023.



Alexandrina Council aspires to the concept of ‘just sustainability’ namely the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, while living within the limits of supporting ecosystems.

Legislative and policy context

The concept of ecological sustainability is embedded in the South Australian *Local Government Act 1999* (‘the Act’). One of the key objects of the Act is ‘to encourage local government to manage the natural and built environment in an ecologically sustainable manner’.

In seeking to give effect to these provisions of the Act, Alexandrina Council will aspire to the concept of ‘just sustainability’, namely the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, while living within the limits of supporting ecosystems.

The Act also dictates that:

- s. 6(b) 'A council is established to ... provide and coordinate various public services and facilities and to develop its community and resources in a socially just and ecologically sustainable manner'
- s. 7(e) 'The functions of a council include ... to manage, protect, restore, enhance and conserve the environment in an ecologically sustainable manner'
- s. 8(f) 'A council must ... seek to facilitate sustainable development and the protection of the environment and to ensure a proper balance within its community between economic, social, environmental and cultural considerations'.

The Act also requires Council 'to give due weight, in all its plans, policies and activities, to regional, State and national objectives and strategies concerning the economic, social, physical and environmental development and management of the community'.

In developing this Plan, a significant number of external environmental strategies, targets and programs were reviewed to ensure alignment of Alexandrina Council's environmental goals with those being developed at a national, state and regional level. In particular, this Plan has been guided by the objectives of the SA Strategic Plan, the 30 Year Plan for Greater Adelaide, the Adelaide & Mount Lofty Ranges Natural Resources Management Plan and the South Australian Murray-Darling Basin Natural Resources Management Plan.

The links between this Plan and relevant international, federal, state and regional policy and legislation as well as the links to other Council plans, policies and procedures are featured at the end of each chapter.

Implementing this Plan to 'Thrive in Clean Green Futures'

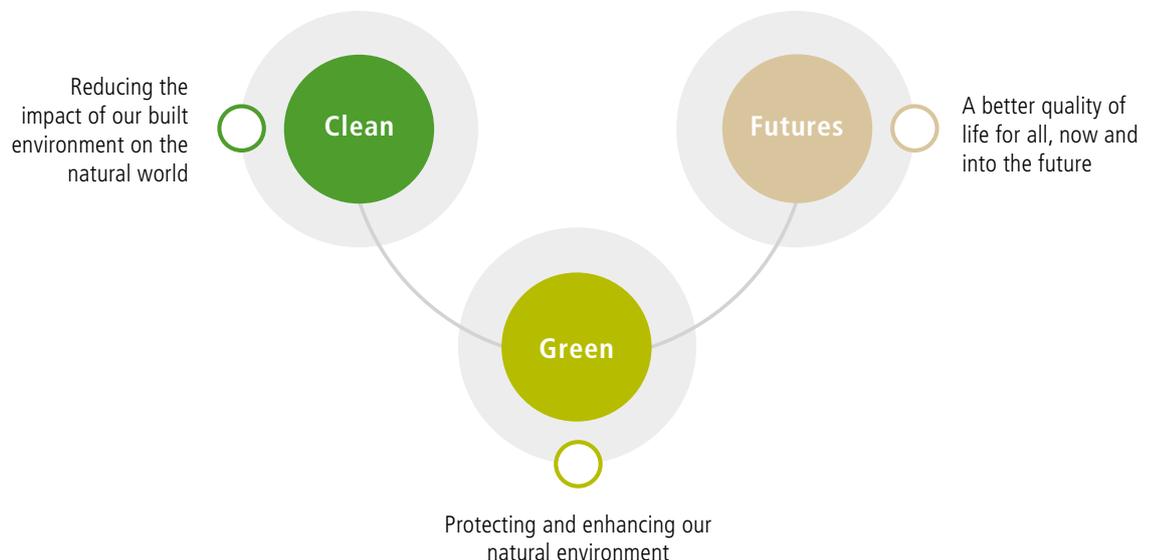
Our community's aspiration to 'Thrive in Clean Green Futures' presents both a challenge and an opportunity for Council. Given the limited resources that Council has to achieve this aspirational vision, there is a need to prioritise actions, issues and efforts, and to actively work with others who have a stake in our region's future.

In order to successfully implement the strategies and actions contained in this Plan, Council will:

- provide appropriate resources, both financial and staff, for the planning and delivery of the strategies and actions contained in the Plan
- actively pursue external funding opportunities to help fund implementation of the Plan and where relevant, promote funding opportunities to the community
- support the internal Sustainable Alexandrina Working Group to oversee and monitor the on-going implementation of the Plan
- communicate, collaborate and partner with neighbouring councils, government agencies, community groups, business and the community to deliver projects of joint interest.

Council cannot achieve the objectives of this Plan on its own. Creating a more sustainable future for our community will rest on the collective commitment and cooperation of Council, our residents, local businesses, regional partners and other levels of government.

Implementing the plan to 'Thrive in Clean Green Futures'



Structure of the Environmental Action Plan 2014–2018



Measuring our progress, setting targets and reporting outcomes

Monitoring our progress towards the goals contained in this Plan is of utmost importance. It helps Council to measure the effectiveness of our projects and programs, to continuously improve our environmental performance and keeps us accountable to our community and other stakeholders, such as government agencies.

Each chapter of this Plan contains a number of key performance indicators (KPIs) against which we will measure our progress. The KPIs have initially been expressed as measures, which a view to progressing to performance targets over time. For example, Council will measure our annual greenhouse gas emissions with a view towards setting a long-term emissions reduction target.

The only exceptions to this are:

- waste management, where we have adopted targets contained in the SA Strategic Plan and South Australian Waste Strategy
- mains water use, where we have adopted a target that where practicable, all new public irrigated space within the Alexandrina Council area be independent of mains water.

With respect to biodiversity in particular, we acknowledge that monitoring outcomes rather than activity is the best way to measure the success of our programs (i.e. simply

measuring the total area of remnant vegetation being actively managed by Council doesn't tell us whether or not the condition of that vegetation is improving). Whilst our current systems do not enable us to monitor outcomes in this way, the development of improved data capture and monitoring systems has been identified as a priority action within this Plan.

We will also use both strategic and opportunistic engagement with our community to help measure our progress. By discussing our environmental goals and actions at public events, forums and other instances where community input is sought we hope to gain insight and appropriate feedback, thereby helping us to qualitatively measure and evaluate our progress.

Progress against the KPIs, targets and actions contained in this Plan (and any new targets set) will be reported annually to Council. The details contained in the annual report will be made publicly available on Council's website.

Each financial year, an internal Implementation Plan will be developed as part of Council's corporate planning and budgetary processes, detailing which actions from this Plan Council will prioritise in that particular year.

A complete review of the Plan, including a comprehensive public consultation process, will be undertaken in 2018 with a view to developing a further 5-year plan for the period 2019–2023.

Community revegetation project, Clayton Bay





Protecting our water resources

What's in this chapter

This chapter outlines what Alexandrina Council will be doing over the next four years to contribute to the sustainable management of water resources in our region. It contains actions to:

- minimise Council water use
- maximise the re-use of rainwater, stormwater and wastewater
- promote water sensitive development
- maintain and enhance the health of waterways
- provide community leadership.

Over the next four years, our primary focus will be on minimising Council's water use, ensuring that all new residential developments integrate appropriate water sensitive urban design (WSUD) treatments and improving the knowledge, skills and practices of our planning and engineering staff with respect to WSUD and the protection of water quality.

The relationship between the strategies contained in this Chapter and wider government and Council planning is presented on pages 29 and 30.

Our ideal future

- **Council and the community have continued to reduce their consumption of potable mains water.**
 - **The opportunity to incorporate WSUD treatments into both new and existing developments has been enthusiastically embraced by Council, developers and households alike.**
 - **The condition of Alexandrina's waterways and wetlands has either improved or been maintained.**
 - **Council is recognised as a leader within the local government sector with respect to sustainable and integrated water management.**
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Our region

Alexandrina Council is located at the very end of the nation's most iconic river, the River Murray, and all of our major townships are located adjacent to significant bodies of water.

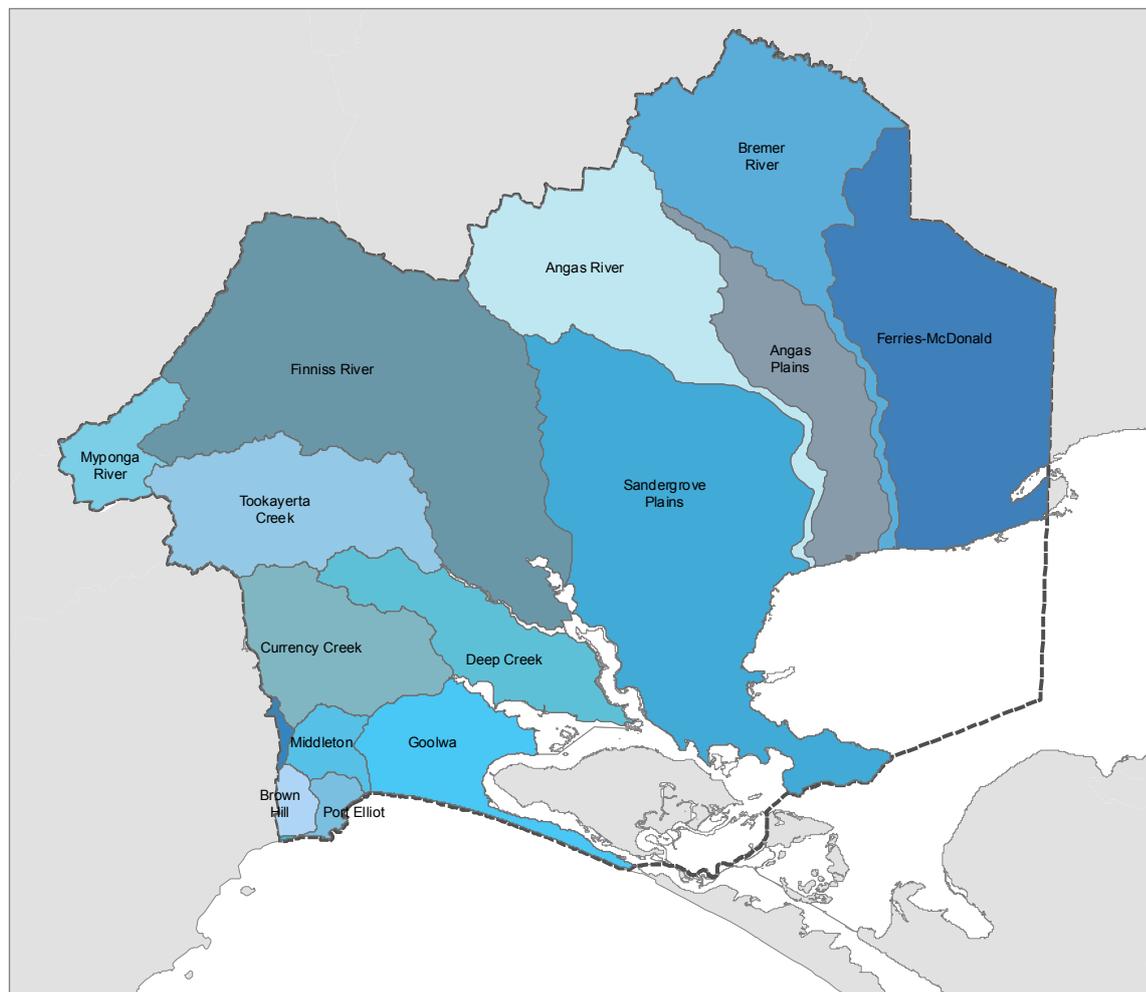
Our eastern boundary begins at the Murray Mouth and travels through Lake Alexandrina taking in the Goolwa Channel, Hindmarsh Island and Currency Creek. The Angas Plains extending inland from the coast and river, rise up to the foothills of the Eastern Mount Lofty Ranges. Included in this area are the catchments of the Bremer, Angas and Finnis Rivers along with Tookayerta Creek (see Figure 5). These catchments all drain from the eastern side of the Mount Lofty Ranges towards and into Lake Alexandrina. A series of barrages separate the Lower Lakes from the Coorong, Murray Mouth and Southern Ocean, preventing sea water incursion into the lakes, which have been a predominantly freshwater system for the last several thousand years.

Average rainfall in our region varies from over 800mm per year in Mount Compass to between 400-500mm year in Milang, Clayton, Goolwa, Strathalbyn and Port Elliot.

Non-urban land-use in the Eastern Mount Lofty Ranges is dominated by cropping and grazing. Other land uses include irrigated horticulture and pasture production, plus a small amount of forestry. Wine-grapes and pasture are the most common crops, with substantial areas of lucerne, olives, vegetables and cereals/pulses also grown.

Figure 3: Surface water catchments within Alexandrina Council

Source: Adapted from WaterConnect



Our region is known nationally and internationally for its aquatic environments:

- The Finniss River, Currency Creek, Goolwa Channel, Hindmarsh Island and Lake Alexandrina are all part of the internationally listed Coorong and Lakes Alexandrina and Albert Ramsar Wetland, recognised as one of Australia’s most important ecological assets.
- Listed as a critically endangered ecological community under the EPBC Act, many Fleurieu Peninsula Swamps are located in the Currency Creek, Tookayerta Creek and Finniss River catchments.
- Watercourses within the Eastern Mount Lofty Ranges, including the Angas River, are home to numerous native fish species, including the protected Southern Pygmy Perch.

¹Environment Protection Authority, Water quality in the Lower Lakes during a hydrological drought (June 2013).

Note: the average water level cited here is not the natural water level of Lake Alexandrina, but a level maintained since the 1930–40s as a result of river and lake regulation (i.e. locks and barrages).

The Millennium Drought

Our region was severely impacted by the Millennium Drought (2001–2009). During this time the worst drought conditions in over 100 years combined with over-extraction along the length of the River Murray resulted in extremely low flows, bringing the Lower Lakes to the brink of ecological catastrophe.

Water levels in Lake Alexandrina drew down to -1.05AHD (compared to a long-term average of 0.7AHD) whilst salinity levels as high as 9000 EC (uS/cm) and 6500 EC (uS/cm) were recorded at Point McLeay and the middle of Lake Alexandrina respectively.¹ As water levels dropped, acid sulphate soils were exposed and acidification of surface waters in the Lower Lakes became a real threat. Acidification of surface waters did occur over an area of 2,173ha in the shallow margins of the lakes with acid sulphate soils exposed over a much greater area (~20,000ha).

Millennium Drought at Goolwa

Photo: Michael Buddle



The Goolwa barrages were closed from 2007 to 2010, with sea levels being higher than the lakes for much of the drought period. Between 2002–2010, the Murray Mouth was only kept open via continuous dredging.

Council's advocacy was instrumental in having a salinity target for Lake Alexandrina included in the Basin Plan. The Basin Plan now dictates that salinity levels at Milang should not exceed 1000EC for 95% of the time.

The lack of freshwater inflows and resulting high salinity levels resulted in major losses of freshwater species and rendered the lake water unusable for irrigation, impacting on a range of irrigation reliant industries such as viticulture and dairy farming. Low water levels in the Goolwa channel also had a significant impact on tourism and related industries, such as boat building and repairs, not to mention overall community wellbeing.

Whilst the River Murray has subsequently experienced high flows during 2010–2012 and water levels in the Lower Lakes have returned to pre-drought levels, conditions such as those experienced during the Millennium Drought are likely to become more frequent and intense under predicted climate change conditions.

The Basin Plan

For the first time in Australia's history, the water resources of the Murray-Darling Basin are now being managed in a coordinated way. The Basin Plan became law in 2012 and will limit human water use within the Basin to ensure that sufficient water is allocated to the environment. New Basin-wide caps on consumptive water use will come into force in 2019. Alexandrina Council supports the objectives of the Basin Plan and will work with State and Federal Government agencies to develop and implement long-term plans for the management of the Lower Lakes during future low flow conditions.

Goolwa Channel



Our water resources

This chapter of the Plan addresses the following water resources: potable (mains) water, groundwater, surface water including rainwater and stormwater, and wastewater. Sustainable water management requires water managers and users, including Council, to balance the water needs of households, agriculture, industry and the environment. We also need to ensure that water quality is maintained and that the water we do use, is used efficiently.

Mains water

- Strathalbyn, Clayton, Milang and Langhorne Creek are supplied with potable water via SA Water's mains network. In an average year, 60% of this water supply is sourced from catchments within the Western Mount Lofty Ranges watershed, with the balance being sourced from the River Murray. In dry years, as much as 90% can be sourced from the River Murray.
- Goolwa and Port Elliot are provided with potable water by SA Water, from water harvested within the Myponga reservoir catchment. The Myponga reservoir does not receive any water from the River Murray but instead operates from water collected within the natural catchment.
- The Mount Compass township is supplied groundwater by SA Water and a private water supply scheme.

Groundwater and surface water

The SA Murray Darling Basin Natural Resources Management Board (SAMDBNRM) and the Adelaide & Mount Lofty Ranges Natural Resources Management Board (AMLRNRM) have primary responsibility for managing ground and surface water within the Alexandrina Council area.

All ground and surface water resources within the Alexandrina Council area are regulated, having been prescribed under the Natural Resources Management Act 2004. The rules for using these water resources are contained in three Water Allocation Plans (WAPs):

- Western Mount Lofty Ranges WAP – only a small portion of our Council area is covered by this WAP and that is the coastal strip from Middleton to Port Elliot and a small area to the west of Mount Compass. This WAP is administered by AMLRNRM.
- Eastern Mount Lofty Ranges WAP – the vast majority of our Council area is covered by this WAP, the eastern boundary of which meets the River Murray Prescribed Watercourse. This WAP is administered by SAMDBNRM.
- River Murray Prescribed Water Course WAP – this WAP is administered by SAMDBNRM and covers the River Murray from the Victorian border, encompassing Lakes Alexandrina and Albert plus portions of Currency Creek, the Finniss, Angas and Bremer Rivers.

The WAPs seek to set sustainable limits on water use, taking into account the water needs of the environment. Water rights are allocated to users via licences. WAPs also contain policies and permit requirements for water affecting activities such as the construction of wells and dams, undertaking works in, and discharging water into, watercourses.

Stormwater

Stormwater is the rainwater that runs off an urban environment and is a subset of surface water. Urbanisation tends to increase runoff rates due to large areas of paved or sealed (impermeable) surfaces where water cannot infiltrate into the underlying soil (such as roofs, car-parks, streets, driveways and footpaths). Whilst run-off rates in urban areas are higher, water quality is typically lower because as the water flows over these surfaces it picks up and transports pollutants such as litter, fuel, oil, fertilisers, herbicides, pesticides, fallen leaves, grass clippings, animal faeces, and sediment.

Alexandrina Council does not discharge any domestic wastewater into waterways. 100% of the domestic wastewater collected by Council's Community Wastewater Management Schemes is treated and recycled. Around 500ML of wastewater is reused each year.

Historically, stormwater in urban areas was managed as a drainage issue, with water being moved through the urban landscape as quickly as possible to minimise the risk of flooding. It was not cleaned or treated in any way and the water and everything in it was picked up and discharged directly into waterways or the sea. In more recent times, the importance of managing stormwater to protect water quality and reduce excess runoff has been well-recognised under the banner of Water Sensitive Urban Design (WSUD).

One of the key objectives of WSUD is to mimic the natural water cycle as closely as possible in the way that urban stormwater is managed (i.e. to increase the volume of stormwater infiltration, thereby reducing the amount of runoff to be managed which would otherwise wash pollutants into waterways and coastal ecosystems). In addition, stormwater is now seen as a valuable resource that, subject to appropriate treatment, can be re-used to reduce dependency on mains water supply and return water to the environment.

Wastewater

Council owns and operates Community Wastewater Management Schemes (CWMS) in Goolwa, Strathalbyn, Port Elliot, Milang and Mount Compass providing a service to over 6000 households. In each case, wastewater is collected via a series of gravity drains before being pumped to a wastewater treatment plant (or facultative lagoon in the case of Milang) for treatment. Treated water is then stored in lined storage lagoons during the winter months to be reused during summer.

Alexandrina Council does not discharge any treated wastewater into waterways. Instead, 100% of domestic wastewater collected by Council's CWMS is recycled. This equates to approximately 500ML of wastewater being re-used each year.

A large number of areas within the Council are still serviced by stand-alone on-site septic tanks, including parts of Goolwa, Hindmarsh Island, Milang, Strathalbyn, Port Elliot and Mount Compass.

Stormwater detention pond at Murray Smith Reserve, Goolwa



Becoming a 'water sensitive community'

Our community has successfully achieved the water goals we set in 2009 during our involvement in the International Council for Local Environmental Initiative (ICLEI) Water Campaign. Achieving these water goals indicates that we are well on our way towards becoming a water sensitive community. Transitioning to a water sensitive state is a key objective of the State Government's water security plan, Water for Good.

A water sensitive community:

- creates places that are resilient, liveable, productive and sustainable
- provides the water security essential for economic prosperity by efficiently using the diversity of available water resources
- enhances and protects the health of urban waterways and wetlands
- mitigates against flood risk and damage
- creates public spaces that harvest, clean and recycle water
- has water management strategies and systems that contribute to biodiversity, carbon sequestration and the reduction of urban heat island effects
- manages water with regard to its rural origins, coastal destinations and spiritual significance.²

Alexandrina Council Water Conservation Goal

Reduce water consumption by 15% based on 2001/02 levels by 2013.

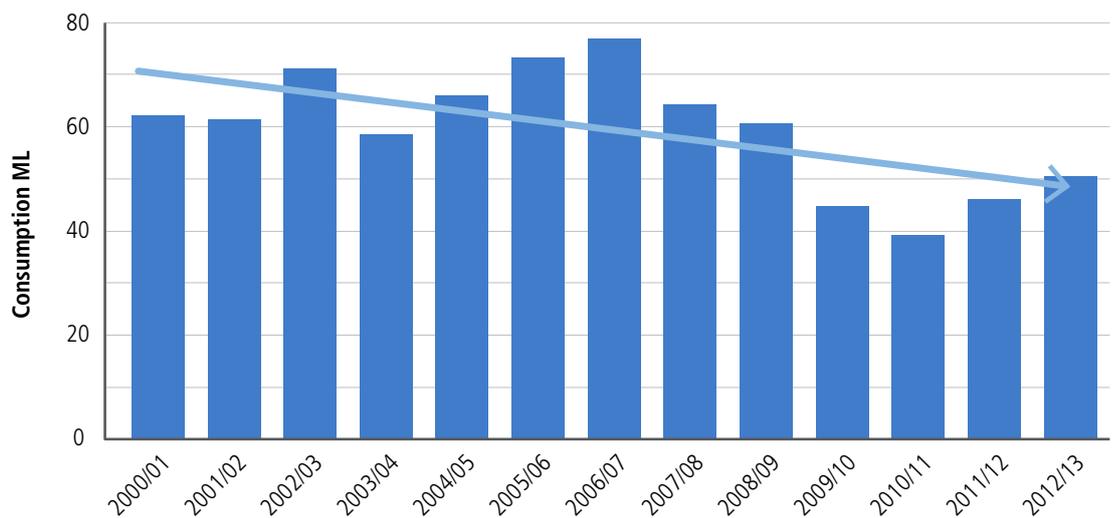
Result

Council has reduced our mains water use by over 17%. In 2001/02, Council's total mains water use was 61,294 kL whilst in 2012/13 our total mains water use was 50,489 kL. Over the past decade, Council mains water use has varied in line with water restrictions, rainfall and the introduction of alternative supplies. Council water use increased during the early years of the Millennium Drought due to increased irrigation of Council parks, gardens and sporting grounds. Council also established metered standpipes to provide water to landowners unable to access their normal water supply due to low water levels in Lake Alexandrina and the lower Murray. In the later years of the drought, water restrictions and investment in stormwater reuse infrastructure saw Council's use of mains water reduce significantly. Recent increases in mains water use are the result of population growth, and the need to irrigate open space within new residential developments. In future, Council will work with developers to ensure that where practicable, new open space areas are independent of mains water.

Alexandrina Council Water Conservation

Goal: Reduce water consumption by 15% based on 2001/02 levels by 2013.

Result: Council mains water use reduced by over 17%.



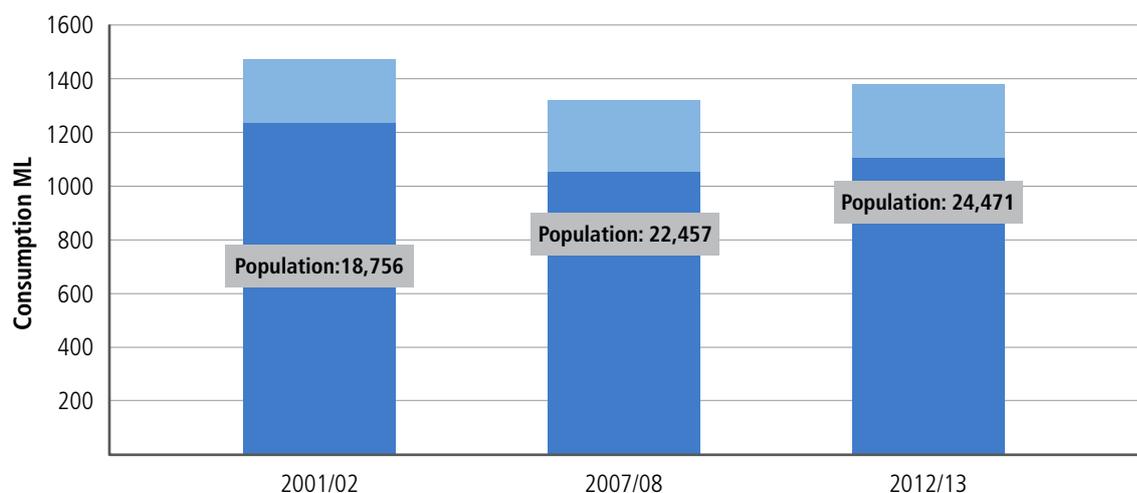
²Adapted from the Cooperative Research Centre for Water Sensitive Cities (watersensitivecities.org.au).

Community Water Conservation



Goal: Reduce water consumption by 25% per capita based on 2001/02 levels by 2013.

Result: Residential water use reduced by over 33%.



Community Water Conservation Goal

Reduce water consumption by 25% per capita based on 2001/02 levels by 2013.

Total community water use has also decreased by over 6% despite a 30% growth in the region's population since 2001/02.

Result

Per capita residential water use has reduced by over 33%. In 2001/02, total community water consumption was 1,470,405 kL whilst in 2012/13 the communities total water consumption was 1,378,940 kL. Over this time, residential water consumption reduced from 66 kL per person to 45 kL per person which represents a 32% per capita reduction at a household level. Encouragingly, per capita household water use has actually continued to decrease slightly post-drought.

Our achievements

Sustainable water management has been one of Alexandrina Council's highest priorities for the past decade and many millions of dollars have been spent on major water projects across the region. The strategies and actions contained in this Chapter of the Plan will build upon these past achievements.

Planning and education

Year	Achievement
2003	Adopted Water Conservation Policy requiring all new residential homes to install a 1000L rainwater tank, a 6/3 litre dual flush toilet system and aerating or low flow showerheads.
2006–2010	Joined the International Council Local Environmental Initiatives (ICLEI) Water Campaign. Undertook an inventory of water consumption, set water consumption and water quality improvement goals for Council and the community, and developed the 2010–13 Water Action Plan.
2008	Began encapsulating all water saving initiatives under the banner of 'Securing a Fresh Water Future' to demonstrate our commitment to sustainable water management and assist with community education and engagement.
2008/09	Held two water expos at Goolwa and Strathalbyn, participated in the SA Water Swap and Save program which saw 650 low-flow water heads and hundreds of four-minute shower timers distributed to community members, and hosted a WSUD forum for developers, surveyors, builders and real estate agents.
2012	Finalised the Integrated Water Management Plan (IWMP) for Goolwa and Hindmarsh Island. The IWMP identifies the most sustainable mix of 'fit for purpose' water supply solutions for the community to 2040.
2013	Finalised the Port Elliot Stormwater Management Plan. This plan contains actions to mitigate local flooding, improve water quality, determine future re-use options and reduce the impact of stormwater discharges on the coastal environment.

Corporate water use

Year	Achievement
2007/08	Installed water saving devices in the Goolwa Council office: waterless urinals, half-flush toilets and rainwater tanks. Harvested rainwater is plumbed into the building and used for toilet flushing, hand-basins and air-conditioning.
2009	Adopted the Irrigated Public Open Space Water Use Policy to conserve water whilst maintaining amenity of parks and gardens. Only Category A urban reserves are irrigated, water efficient garden design and maintenance standards and technologies are adopted, and where possible, alternatives to mains water are used for irrigation.
2011/12	New Strathalbyn Library includes best practice WSUD features: localised stormwater capture provides water for landscaping and a 130,000L underground rainwater tank provides water for toilet flushing.
2008–2012	All major parks and gardens within the Goolwa and Port Elliot townships are now irrigated using recycled stormwater or wastewater. Mains water saving = approximately 45ML per year.

Stormwater reuse

Year	Achievement
2009	Expanded the holding capacity of the detention basin at Murray Smith Reserve, which collects stormwater from Goolwa's town centre. Approximately 75ML of stormwater is captured and reused from this site each year.
2010	55ML stormwater storage lagoon and 70ML water cleansing wetland constructed on Kessell Road in Goolwa. This project acts as a storage and filtration system for stormwater collected from Murray Smith Reserve with water then re-distributed throughout Goolwa.
2010/11	Reuse network extended to South Lakes Golf Course. Currently the Golf Course receives 20-30ML per annum but it is anticipated that this will increase to 80ML per year as new residential estates increase stormwater availability.
2013	Stormwater network extended to harvest water from the sub-catchments surrounding Coddington Street and Liverpool Road. Water is pumped to the Murray Smith Reserve detention basin.

Protecting water quality

Year	Achievement
1970s onwards	Council and developers have created a significant number of stormwater ponds and urban wetlands which form part of our stormwater reuse network. These include the North Parade Wetland, Strath Hub Wetland, Pipers Crest Wetland and Aberdeen Park Wetland at Strathalbyn, the Sam Court Reserve Wetland at Mount Compass, the Kessell Road Wetland and Murray Smith, Albury Lane and Birchall Road Ornamental Lakes at Goolwa, the Vanali Drive Wetland System and Lakala Reserve Pond at Port Elliot and the Dragonfly Boulevard Wetland at Beyond.
2009	Stormwater detention basin constructed on North Parade in Strathalbyn to improve the quality of runoff from the township to the south-east before it enters the Angas River. Council engaged the Angas River Catchment Group to revegetate and maintain this area and it is now a functioning wetland with significant biodiversity values.
2009	End-of-line stormwater treatment system installed on South Terrace, Strathalbyn to reduce the level of pollutants entering the Angas River. Treats up to 46ML from a 19ha catchment.
2012	Vegetated swale constructed at Ocean Parade, Middleton to address erosion, encourage increased stormwater infiltration and reduce near-shore marine impacts.
2012/13	Mount Compass Wetland constructed to capture stormwater from a 25ha catchment. Water travels through a gross pollutant trap into the wetland before being discharged into Nangkita Creek.
Ongoing	Council maintains a total of 31 gross pollutant traps which remove pollutants from stormwater before it enters the region's waterways.

Wastewater

Year	Achievement
1990s	Recycled wastewater piped from Mount Compass CWMS to the Fleurieu Golf Course. The Golf Course continues to receive around 18ML of treated wastewater each year.
2003	85ML of recycled wastewater per annum piped to the Strathalbyn Racecourse. Prior to this, the club relied solely on mains water for their irrigation needs.
2008	Class B treated wastewater piped to the Goolwa Waste Depot and Recycling Centre for use in composting processes.
2009	Profit sharing arrangement established with Brook Turf, which currently uses around 180ML of treated wastewater each year from the Goolwa Wastewater Treatment Plant. The turf farm previously used water from the River Murray.
2010/11	20ML wastewater storage lagoon and 1.5ML per day wastewater treatment plant constructed on Michelmore Road at Strathalbyn. Recycled wastewater is used to irrigate the Strathalbyn Racecourse as well as private lucerne crops and vineyards.
2012/13	Began implementing the IWMP for Goolwa and Hindmarsh Island with construction of a new wastewater pipeline from Hindmarsh Island to Goolwa, a 150ML wastewater storage lagoon on Boettcher Road plus a 600 kL concrete tank and pumping station at the Goolwa Wastewater Treatment Plant to transfer reclaimed water to reuse sites.
2013/14	Extended the Mount Compass CWMS to an additional 160 dwellings in order to better protect the Mount Compass water supply which is located directly beneath the township.

River Murray

Alexandrina Council has long-campaigned for a healthy, working Murray-Darling Basin and throughout the drought, adopted an unwavering commitment to securing a freshwater solution for the Lower Lakes. Our advocacy, alongside that of our community, was instrumental in having a salinity target for Lake Alexandrina included in the Basin Plan. The Basin Plan now dictates that salinity levels at the Lake Alexandrina testing site in Milang should not exceed 1000EC for 95% of the time.

Stormwater swale, Middleton Point



Challenges

The availability of water underpins the health of our environment and people, and the prosperity of our communities and economy. Yet, as the driest continent in the world with the most variable rainfall, Australia faces major challenges in ensuring sustainable water supply in the face of a drying climate and rising demand for water. Our region is no different. By 2031, population growth is expected to bring over 8000 new residents and over 4000 additional dwellings to the Alexandrina Council area. In addition, climate change forecasts suggest our region will trend towards warmer and drier average conditions, with reduced average rainfall, and an increase in the frequency of extreme weather events. In order to adapt to climate change and provide for population growth, long-term sustainable water management measures must be incorporated into Council's planning and infrastructure decisions now. The strategies and actions contained in this Chapter will help to provide for the sustainable, resilient growth of our communities while reducing reliance on traditional water resources and maintaining, and enhancing where possible, the ecological function of the region's watercourses.

Guiding principles

This chapter of the Plan is underpinned by the following principles that will help guide our efforts to make Alexandrina Council a more water sensitive community.

Council's primary water management objectives are water security for our community, minimising risks to property and life, conserving water and enhancing the environmental health of our waterways

In taking action to meet these objectives, Council will have regard to the following integrated water management and WSUD principles:

- Water for consumptive use should be sourced from within local catchments wherever possible, having regard to sustainable extraction limits.
- Reducing dependence on potable mains water piped in from non-local catchments is to be achieved by maximising the use of alternative water supplies that are 'fit for purpose' (i.e. water treated to a standard appropriate for its intended use).
- The movement, distribution, and quality of water should be managed to more closely reflect the natural water cycle. Stormwater should be managed in the landscape to reduce the volume (over and above pre-development levels) being discharged into waterways.
- Stormwater should be cleaned to an appropriate level before being discharged into waterways.
- New developments in drinking water supply catchments should have a beneficial, or at least neutral, impact on water quality.
- Waterways within urban developments should be protected and rehabilitated to support local biodiversity and aquatic health, and to enhance liveability.
- WSUD treatments should seek to add multiple benefits (flood control, alternative supply, improved amenity and liveability, enhanced biodiversity, reduced energy use and greenhouse gas emissions) while minimising costs associated with drainage infrastructure.

Dragonfly Boulevard Wetland

Beyond Today, Hayborough



Strategy 1.1: Minimise Council water use

Alexandrina Council is committed to reducing our consumption of mains water, and making sure the water we do use, is used efficiently. The last comprehensive inventory of Council mains water use was conducted in 2007/2008. At that time, the three areas of greatest water use by Council were: (1) open space, parks and gardens, (2) council buildings, and (3) public amenities. Over the past 5 years, Council has invested heavily in stormwater and wastewater reuse networks such that all major areas of open space within the townships of Goolwa and Port Elliot are now independent of mains water. We have also done much to upgrade and incorporate water efficiency, harvesting and reuse measures into new and existing Council buildings and facilities. Over coming years we will continue to adopt an approach of continuous improvement in order to further reduce Council's mains water use.

Our aim: To reduce the quantity of mains water used by Council.

In support of this aim, Council will:

- measure and publicly report on Council's mains water use
- set a corporate water consumption target and report on performance against this target
- reduce our water consumption by adopting a range of water efficiency, capture and reuse initiatives in Council buildings, facilities and open spaces.

Measuring our progress:

- Council mains water use.

Strategy 1.1: Minimise Council water use

Actions	Responsibility	Timeframe
1.1.1 Maintain an annual inventory of Council water-use which enables Council to track not only total mains water-use but also mains water use by sector i.e. open space, buildings, public amenities.	Environmental Strategy Officer/ Building Manager/Recreational Services Coordinator	Short Term
1.1.2 Set a corporate water consumption target applying to the life of this Plan.	Environmental Strategy Officer	Short Term
1.1.3 Develop and implement service-area specific action plans for achieving Council's corporate water consumption target.	Building Manager/ Recreational Services Coordinator	Medium Term
1.1.4 Incorporate water efficiency, harvesting and reuse measures into the redevelopment of Signal Point Building Two.	Building Manager	Short Term
1.1.5 Incorporate water efficiency, harvesting and reuse measures into the design and construction of the Fleurieu Regional Aquatic Centre.	Environment and Infrastructure Division	Medium Term
1.1.6 Utilise Council renewal and maintenance programs to opportunistically incorporate water efficiency, harvesting and reuse measures into Council buildings and facilities.	Building Manager	Ongoing
1.1.7 Continue to implement Council's Irrigated Public Open Space Water Use Policy to ensure the incorporation of water efficient landscape and irrigation design, including appropriate species selection, in Council parks and gardens.	Recreational Services Coordinator	Ongoing
1.1.8 Finalise and implement the Parks and Garden Irrigation Plan. The Parks and Garden Irrigation Plan will detail Council's long-term irrigation renewal and efficiency upgrade program.	Recreational Services Coordinator	Short Term
1.1.9 Determine what should be done with Council's four remaining River Murray Water Licences.	General Manager Environment and Infrastructure	Medium Term

Strategy 1.2: Maximise the re-use of rainwater, stormwater and wastewater

Over the past decade, Council has invested heavily in the development and expansion of our stormwater and wastewater reuse networks, dramatically improving Council’s security of supply. One of the key challenges in designing and operating reuse networks is matching demand for water with an appropriate source in terms of availability, reliability and water quality. This is known as ‘fit for purpose’ supply. Stormwater and wastewater each have different volumetric availability and water quality, which has implications for how this water can be used. Whilst the development of water reuse projects will slow over the next five years, Council’s commitment to maximising the re-use of stormwater and wastewater remains. Our focus for the next five years will be monitoring the performance of our existing reuse networks in preparation for the next round of major infrastructure development, which we expect will be needed within 5-10 years to cater for planned population growth.

Our aim: To continue to construct, operate and maintain integrated stormwater and wastewater reuse networks which maximise ‘fit for purpose’ water supplies.

In support of this aim, Council will:

- continue to manage and monitor our existing stormwater and wastewater recycling and reuse networks
- investigate ways to maximise the capacity of our existing reuse networks
- work with developers to ensure the amenity and recreational values of new open space areas can be maintained without relying on mains water.

Measuring our progress:

- Volume of stormwater harvested and reused by Council each year.
- Volume of wastewater treated and recycled by Council each year.
- Target: all new irrigated public open spaces in Future Urban Growth Areas are independent of mains water.

Strategy 1.2: Maximise the re-use of rainwater, stormwater and wastewater

Actions	Responsibility	Timeframe
1.2.1 Investigate the possibility of converting the currently redundant Dunreath Road inflow line into a reuse line to irrigate open space within the Strathalbyn township. This will require a recycled water demand analysis and supply network plan.	Infrastructure Manager	Medium Term
1.2.2 Supply the Mount Compass public toilets with treated stormwater from the Mount Compass Wetland. This will reduce mains water reliance by 2ML per year.	General Manager Engineering and Open Space	Short Term
1.2.3 Investigate the possibility of reusing treated wastewater from the Mount Compass CWMS to irrigate local sporting fields and other open space.	Infrastructure Manager	Medium Term
1.2.4 Work with developers to ensure that, where practicable, all new public open space is independent of potable water supplies.	Environment and Infrastructure Division	Ongoing
1.2.5 Develop a system for recording Council’s annual consumption of recycled stormwater and wastewater for inclusion in Council’s annual water inventory.	Environmental Strategy Officer	Short Term
1.2.6 Investigate the possibility of irrigating the Port Elliot Caravan Park with treated wastewater.	Infrastructure Manager	Medium Term

Strategy 1.3: Promote water sensitive development

Council is committed to using our land use planning and development control responsibilities to promote sustainable urban design and water management. We recognise that sustainable water management measures must be incorporated into planning and infrastructure decisions now to provide for resilient communities in the future. Council has already started planning for the dual pressures of population growth and future water scarcity via an Integrated Water Management Plan (IWMP) for Goolwa and Hindmarsh Island. Goolwa and Hindmarsh Island are the two areas predicted to experience the most significant growth over coming years, increasing from a current total population of around 6500 people to more than 15,000 people by 2040. The IWMP identifies the major actions Council and developers will need to take to make sure that as our population grows, we can continue to make the transition towards becoming a water sensitive community. Of utmost importance is ensuring that water sensitive urban design (WSUD) treatments such as swales, buffer strips, pervious pavements and bio-retention basins are incorporated into new developments as they are constructed, and that opportunities to implement WSUD within existing developments are not overlooked.

Our aim: To use the opportunity of planned population growth to drive the development of water-sensitive communities, with a particular focus on future urban growth areas.

In support of this aim, Council will:

- work with developers to ensure that Council’s long-term vision for integrated water management is consistently communicated, understood and delivered
- continue to apply land use planning and development controls to ensure that WSUD treatments are integrated into new and existing developments
- continue to up-skill our planning and engineering staff with respect to Council’s long-term vision for integrated water management and the application of WSUD
- help to educate developers, builders and residents about the most appropriate water sensitive urban design (WSUD) technologies and approaches for our region.

Strategy 1.3: Promote water sensitive development

Actions	Responsibility	Timeframe
1.3.1 Work with SAMDBNRM to finalise the Integrated Water Management Development Plan Amendment (DPA) introducing improved water conservation and mandatory WSUD provisions into the Alexandrina Council Development Plan.	Manager, Planning and Development	Short Term
1.3.2 Complete the Structure Plan for the Goolwa North Future Urban Growth Area, ensuring that it identifies key open space corridors and water reuse opportunities.	Manager, Planning and Development	Short Term
1.3.3 Work with developers to progressively implement the WSUD features recommended for the Goolwa North Urban Growth Area in the IWMP, including the construction of green corridors with vegetated swales that will promote infiltration and treat stormwater.	Environment and Infrastructure Division	Demand driven – may not occur within life of this Plan.
1.3.4 Work with developers to ensure that new residential development on Hindmarsh Island is accompanied by the construction of stormwater bio-infiltration basins as envisaged by the IWMP. These basins will improve the quality, and reduce the volume, of stormwater discharge to the Goolwa Channel.	Environment and Infrastructure Division	Demand driven – may not occur within life of this Plan.
1.3.5 Advocate for the State Government to introduce developer contributions towards the construction and maintenance of regional stormwater management infrastructure.	Manager, Planning and Development	Ongoing
1.3.6 Ensure that consideration of potential WSUD options is incorporated into the project management framework for all Council infrastructure projects.	Infrastructure Manager/ General Manager Engineering and Open Space	Medium Term
1.3.7 Work with the State Government to establish processes for monitoring the extent to which WSUD is being addressed in new developments, redevelopments and urban renewal programs.	Manager Planning and Development	Long Term

Strategy 1.4: Maintain and enhance the health of waterways

The devastating effects of the Millennium Drought were a vivid demonstration of the importance of healthy waterways for the wellbeing of our environment, economy and community. Waterway health is affected by a range of factors, many outside of Council control, such as agricultural land-use practices and over-allocation of water resources within catchments. Where Council can make a difference is by taking action to minimise polluting discharges into waterways and by actively managing the riparian zone of waterways on land under our care and control. Discharges from wastewater treatment plants and contaminated stormwater can be major sources of water pollution. In our region, all treated wastewater from Council-owned treatment plants is recycled, meaning none is discharged into the environment, and one of the key benefits of expanding our stormwater reuse network has been reducing the volume, and improving the quality, of water discharged into the Goolwa Channel.

Our aim: To avoid and minimise polluting discharges to, and restore the health of, waterways and wetlands.

In support of this aim, Council will:

- improve the water quality performance of our stormwater management systems
- ensure that Council staff and contractors, and private developers, adopt best-practice sediment and erosion control during construction activities
- continue to respond to community complaints about water pollution and monitor water quality in response to public health risks
- actively manage and restore remnant vegetation adjacent to watercourses on high priority sites under Council care and control
- support efforts by government agencies, NRM bodies and community groups to improve the health of water dependent ecosystems
- continue to enforce the Alexandrina Council Trade Waste Discharge Policy.

Strategy 1.4: Maintain and enhance the health of waterways

Actions	Responsibility	Timeframe
1.4.1 Review the new AMLRNM and MDBRNM Regional NRM Plans and Water Allocation Plans as they relate to water affecting activities, and then develop and adopt relevant Best Practice Operating Procedures if appropriate.	General Manager Engineering and Open Space	Medium Term
1.4.2 Undertake a Performance Review of existing stormwater and wastewater networks, focusing on both flow quantity and quality, and then develop and implement an action plan for necessary monitoring, maintenance and improvement works.	Infrastructure Manager/ General Manager Engineering and Open Space	Medium Term
1.4.3 Implement actions contained in the Port Elliot Stormwater Management Plan.	Infrastructure Manager	Ongoing
1.4.4 Develop and implement a management plan for Council reserves adjacent to the Angas River in Strathalbyn. This Plan should address biodiversity conservation and vegetation issues including woody weeds and fire risk, flood control, water quality and recreational use.	Environmental Project Officer/Recreational Services Coordinator	Medium Term
1.4.5 Develop and implement a management plan for Council reserves adjacent to the Bremer River in Langhorne Creek.	Biodiversity Team	Long Term
1.4.6 Prepare and implement management plans for constructed urban wetlands.	Biodiversity Team	Long Term
1.4.7 Continue to support the work of State and Federal governments, regional NRM organisations and community groups undertaking watercourse restoration and environmental watering projects.	Environmental Strategy Officer	Ongoing
1.4.8 Continue to monitor groundwater quality at Goolwa Waste and Recycling Depot.	General Manager, Engineering and Open Space	Ongoing
1.4.9 Review and update Council's Trade Waste Discharge Policy and Procedures.	Manager Health Environment and Community Safety	Short Term

Strategy 1.5: Provide community leadership

The stark realities of the Millennium Drought have made our community very aware of the need to conserve water. Between 2001/02 and 2012/13 our residents decreased their per capita water use by 32%. This is a significant saving and importantly, per-capita residential water use has continued to reduce post-drought. During the drought years Council actively sought to educate and involve the community in sustainable water management, hosting a number of water expos and providing information about the changes residents can make at a household level to reduce their water use. Council is committed to continuing this community education and engagement role to help ensure the lessons of the drought are not lost and our community continues to take responsibility for reducing their water use and protecting local water quality. Being located in the lower reaches of the Murray-Darling Basin means our community is extremely vulnerable to failures in upstream water management and Council will continue our strong advocacy role to ensure that healthy water levels and quality in the Lower Murray and Lakes are maintained, even in low flow conditions.

Our aim: To encourage the community action necessary for Alexandrina Council to become a truly water-sensitive community and to be recognised by our community as a committed and effective advocate for a healthy, working Murray-Darling Basin.

In support of this aim, Council will:

- encourage and support households and businesses to embrace permanent water conservation measures and reduce their mains water consumption
- help to educate the community about actions households and businesses can take to reduce water pollution
- raise awareness as to how Council is, and will be, managing water within existing townships and future urban growth areas
- seek to influence State and Federal government water policy through effective advocacy and partnership projects.

Measuring our progress:

- Total community mains water use.
- Community per capita residential mains water use.

Strategy 1.5: Provide community leadership

Actions	Responsibility	Timeframe
1.5.1 Educate the community about the importance of properly maintaining on-site wastewater systems.	Manager Health, Environment and Community Safety	Ongoing
1.5.2 Update Council’s online and hardcopy ‘Securing a Fresh Water Future’ communication materials.	Environmental Strategy Officer	Short-Term
1.5.3 Actively support continuation of The Living Murray Program as a means of promoting a healthier Lower Lakes, Coorong and Murray Mouth icon site, including via the monitoring of ecological objectives and the delivery of environmental water.	Environmental Strategy Officer	Ongoing
1.5.4 Remain actively engaged in the development and implementation of the Murray Darling Basin Plan and advocate on behalf of our community as required.	Environmental Strategy Officer/ Chief Executive	Ongoing

Swamp hens

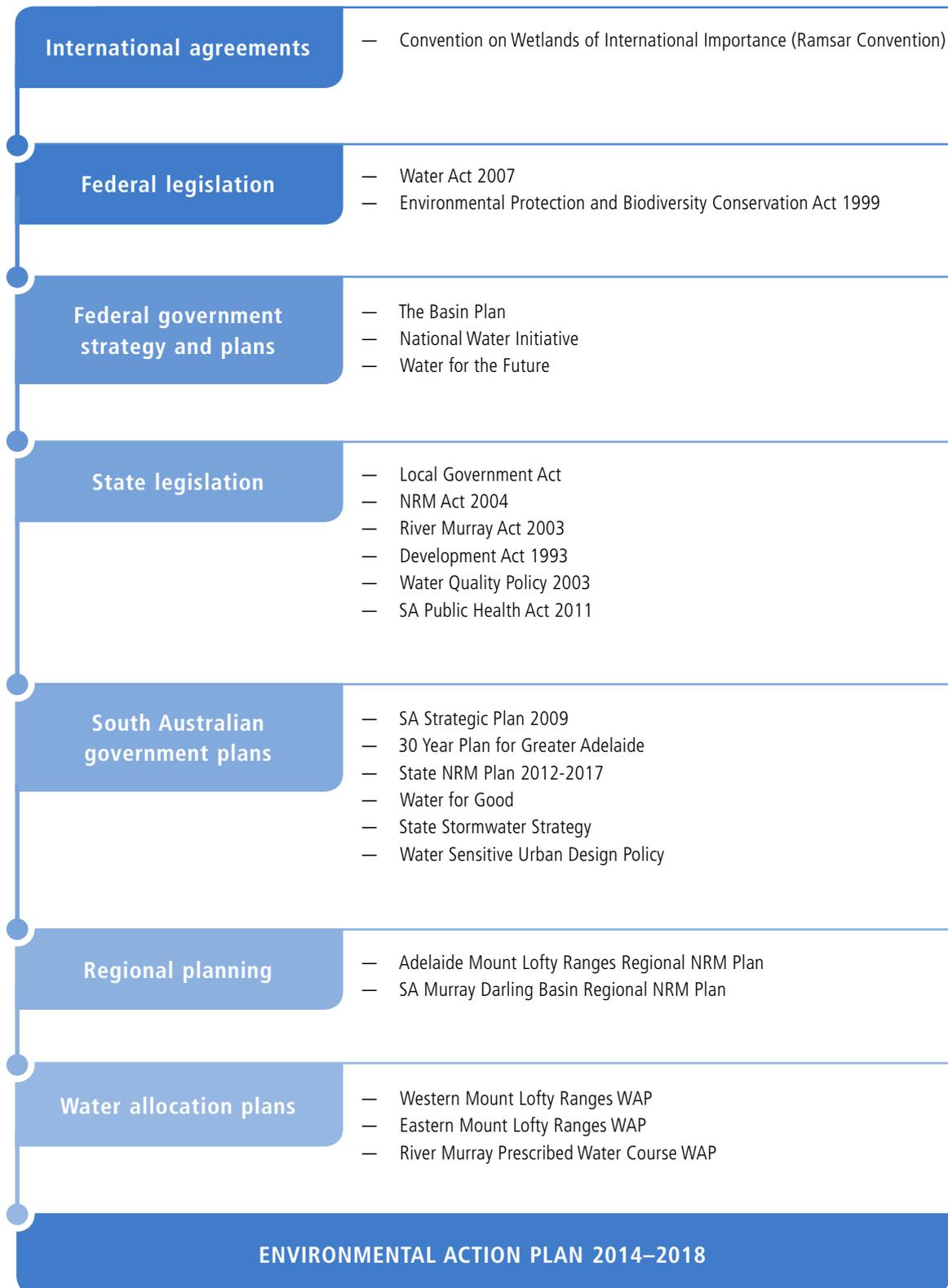
Photo: Michael Buddle



Links with international, federal, state and regional policy and legislation

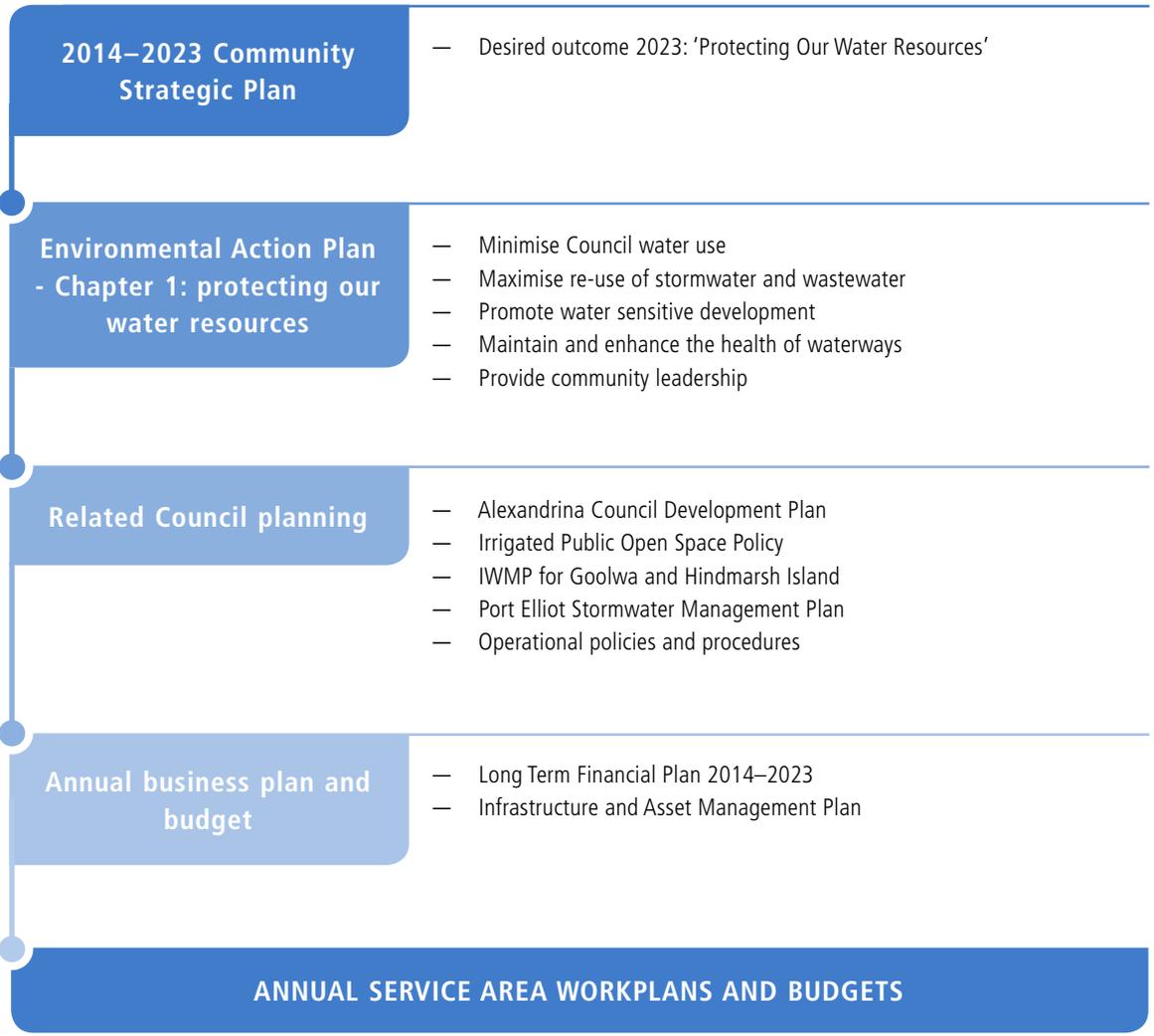
Our local responses reflect global, national, state and regional priorities identified in the following legislation, strategies and plans.

For a full description see Appendix 1.



Links with other Council plans

To effect real change a variety of staff across all divisions of Council will need to be responsible for, and involved in, implementing the strategies contained in this Chapter. The chart to the right demonstrates how this Chapter interacts with other Council strategies, plans, and procedures.



Sam Court Wetland, Mount Compass





Enhancing biodiversity

What's in this chapter

This chapter outlines what Alexandrina Council will be doing over the next four years to protect and enhance our local biodiversity.

It contains actions to:

- build our knowledge
- protect and enhance remnant vegetation
- connect habitats and restore degraded areas
- improve urban biodiversity
- protect and enhance coastal biodiversity
- be a responsible land manager
- engage the community and develop partnerships.

Our primary focus will be protecting and improving the condition of remnant native vegetation on land under Council's care and control. This includes protecting and promoting our urban biodiversity assets. We will also seek to support, and add value to, biodiversity works undertaken by the many community conservation groups and volunteers working within our Council area.

The relationship between the strategies contained in this chapter and wider government and Council planning is presented on pages 46 and 47.

Our ideal future

- **The majority of remnant vegetation on Council land is being actively managed for conservation.**
 - **The extent, condition and connectivity of native vegetation within our region is improving.**
 - **Our townships are greener, with urban biodiversity reserves and indigenous plantings in parks, gardens and streetscapes a key feature of our urban landscapes.**
 - **Our natural environment is valued by the community and we work together to improve our knowledge and to preserve, protect and enhance the region's biodiversity.**
-

What is biodiversity and why is it important?

Biodiversity is the variety of all living things on Earth: the different plants, animals and micro-organisms, the genetic information they contain and the ecosystems they form.

This sentence summarises the three levels of biodiversity which work together to create the complexity of life on Earth:

- Genetic diversity – the genetic differences between individuals of the same species be they plants, animals or micro-organisms.
- Species diversity – all the different species of plants, animals and micro-organisms. Some ecosystems have higher species diversity than others.
- Ecosystem diversity – the variety of ecosystem types across the planet. An ecosystem is any group of living things (plants, animals and micro-organisms) interacting as a system in conjunction with the non-living components of their environment (like air, water and soil).

Healthy ecosystems are essential to our physical, social, cultural and economic well-being. We all rely on the services healthy ecosystems provide to us, such as oxygen to breathe, clean water to drink, fertile soil for food production, physical materials for shelter and fuel, and places to relax and connect with our spiritual and/or cultural identity. These ecosystem services are enabled by the presence of biodiversity in all its forms (genetic, species and ecosystem).

At a local level, the conservation and proper management of biodiversity delivers a range of more direct benefits:

- reduced water consumption and herbicide use for landscape maintenance
- self-regenerating landscapes which suppress weeds
- protection of creeks and slopes from erosion
- reduction of runoff and improved water quality
- reduction and control of fire hazard (woody weeds are often more flammable than natives)
- increased agricultural productivity via improved pest control, soil production and stabilisation, pollination and water purification
- buffering of wind, noise and the visual impacts of development
- educational opportunities, places of natural beauty and a sense of place.

Biodiversity loss will continue unless governments, business and the community take the urgent and sustained action necessary to address its decline.

Why is biodiversity declining?

Biodiversity is not static. It can be increased by genetic change and evolutionary processes, and it can be reduced by threats which lead to population decline and even extinction. Maintaining diversity is the key to retaining healthy ecosystems which are resilient to change.

Globally, and in Australia, biodiversity and ecosystem resilience are declining due to a range of threats including:

- habitat loss, degradation and fragmentation
- invasive species
- unsustainable use and management of natural resources
- changes to the aquatic environment and water flows
- changing fire regimes
- climate change.

The good news is that Australia's biodiversity is globally important for both its richness and uniqueness. Australia is one of 17 mega-diverse countries with between 7-10% of all species on Earth occurring here, over 80% of which are endemic (meaning they are only found in Australia).

The bad news is that globally, we are losing species at a rate up to 1000 times faster than the natural extinction rate and nationally, we have one of the world's worst extinction records, with the list of nationally threatened species continuing to grow. Over 440 animal species, 1300 plant species and 60 ecological communities are currently listed as threatened under the Federal Environmental Protection and Biodiversity Conservation Act 1999, with many more listed under State and Territory legislation.

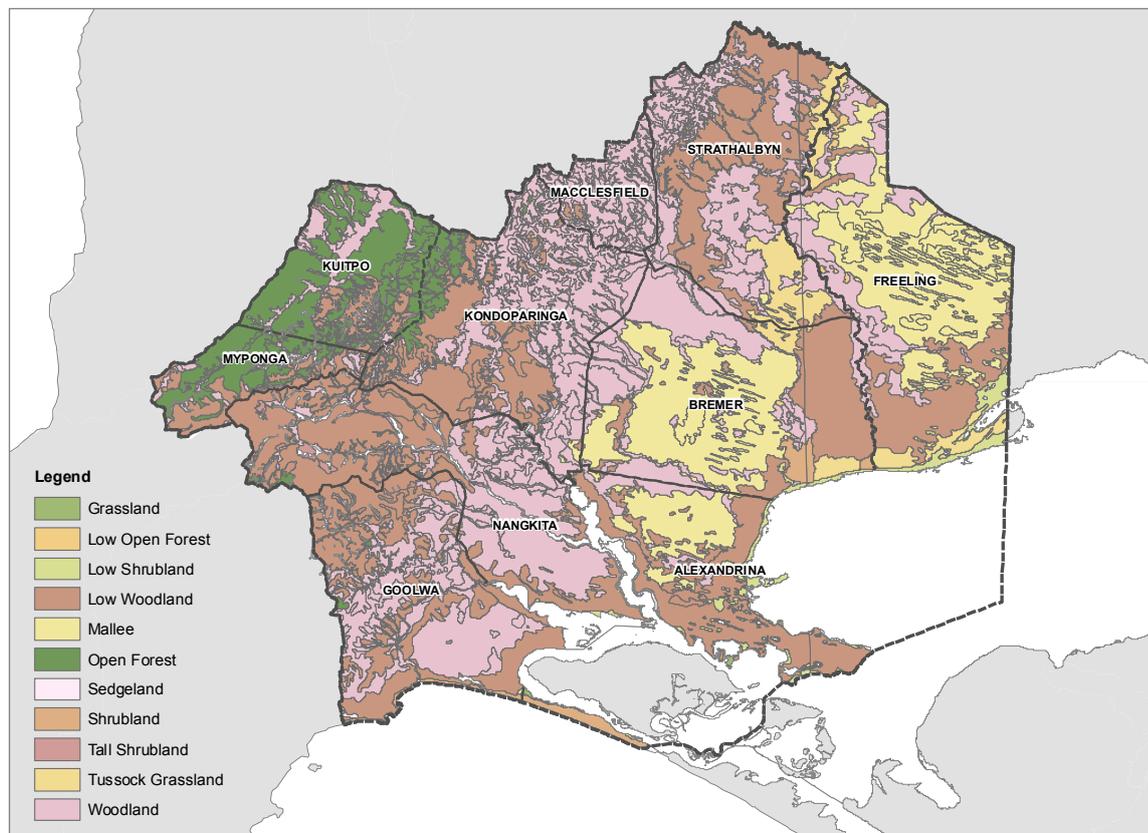
Here in South Australia, the most recent State of the Environment Report (2013) found that the extent and condition of remnant native vegetation across the State is fair to moderate but declining, whilst the number of plants, animals and ecological communities at risk is increasing, as is the abundance of pest animals and plants. The first South Australian SOE Report released a decade ago in 2003 found the same thing, which indicates a long-term failure to address the causes of local biodiversity decline. Biodiversity loss will continue unless governments, business and the community take the urgent and sustained action necessary to address this decline.

Our region

The landscape of our region is highly diverse, covering an area of over 1800 square kilometres on the Fleurieu Peninsula in the south-west corner of the Murray Darling Basin. Our southern boundary is 25 km of coastline consisting mostly of open sandy beaches with some rocky shoreline around the headlands of Port Elliot. Our eastern boundary begins at the Murray Mouth and travels through Lake Alexandrina, taking in the Goolwa Channel, Hindmarsh Island and Currency Creek, all of which form part of the Coorong and Lower Lakes Ramsar Wetland. Extending inland from the coast and Lower Lakes are the Angas Plains (encompassing Strathalbyn) which then gently rise up to the foothills of the Eastern Mount Lofty Ranges. Included in this area are the catchments of the Bremer, Angas and Finnis Rivers along with Tookayerta Creek. These catchments all drain from the Mount Lofty Ranges towards and into Lake Alexandrina.

Figure 4: Pre-European Vegetation of Alexandrina Council.

Source: DEWNR Digital Data. Data not available for Hindmarsh Island.



Prior to European settlement

An understanding of pre-European vegetation coverage is important for many reasons not least that comparisons between pre-European and current vegetation can help to highlight the extent of past clearance, identify vegetation types that are not well protected in reserves and help guide future restoration and revegetation activities.

Prior to European settlement in 1836, the Alexandrina Council area was covered by a continuous mosaic of vegetation communities that enabled native fauna to move freely across the landscape and which provided essential resources such as food and shelter to the local Ngarrindjeri People.

The vegetation communities were diverse and included the shrubby dunes and low grassy woodlands of the coastal strip, the reedbeds and grasslands adjacent to the freshwater Lower Lakes and creeks, the mallee communities of the plains surrounding Lake Alexandrina, the widespread woodland communities of the foothills,³ plus some denser Stringybark forests on the higher ridges to the north of Ashbourne and Mount Compass (see Figure 4).

³Dominated by a variety of species depending on location, including: Brown Stringybark (*Eucalyptus baxteri*), Peppermint Box (*Eucalyptus odorata*), Blue Gum (*Eucalyptus leucoxylon*), Pink Gum (*Eucalyptus fasciculosa*), River Red Gum (*Eucalyptus camaldulensis*) and Drooping Sheoak (*Allocasuarina verticillata*).

Our remaining vegetation

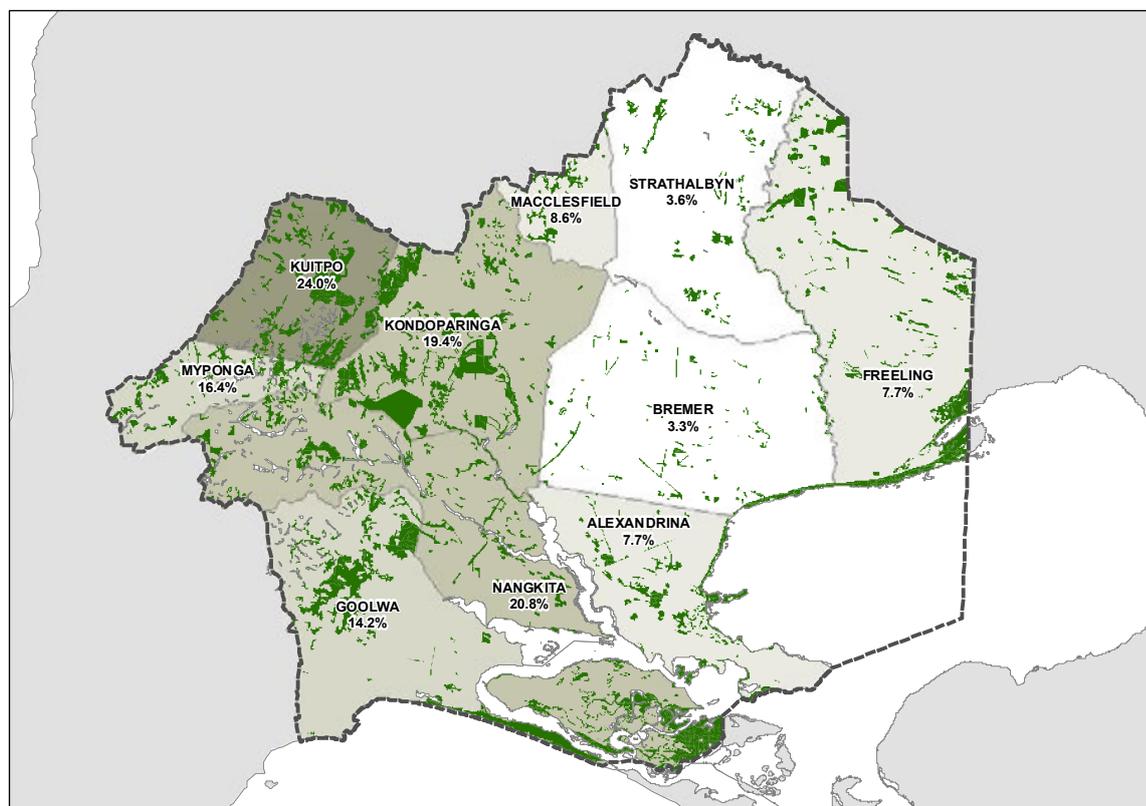
From the 1840s onwards, vegetation within our Council area has been subject to broad-scale clearance and disturbance for agriculture as well as urban and coastal development. Within the boundaries of Alexandrina Council, less than 12% of our original vegetation remains. This varies from 3.3% remaining in the Hundred of Bremer to 23.95% remaining in the Hundred of Kuitpo (see Figure 5). This reflects the preferential clearance of vegetation in areas with accessible topography and productive agricultural soils, such that mallee and woodland areas are now particularly under-represented in our region.

Our remaining remnants of native vegetation are contained in fragmented patches on both private and public land, and along our roadsides. Many of these parcels are small in area and/or linear in shape making them more vulnerable to threats such as weeds, pest animals, diseases and disturbance (known as edge effects) and they are often also isolated from each other, limiting the ability of native fauna to move safely through the landscape.

The most significant patches of remnant vegetation under Council's care and control include the Goolwa Dune System, our Bush For Life sites, our Roadside Marker System sites, as well many of our river and lakeside reserves and unmade road reserves.

Figure 5: Alexandrina Council – Extent of Remnant Vegetation.

Source: DEWNR Digital Data.



Other significant patches of remnant vegetation located within our Council area but managed by the South Australian Government include Cox Scrub Conservation Park, Finniss Conservation Park, Kyeema Conservation Park, Mount Magnificent Conservation Park, Scott Conservation Park, Sir Richard Peninsula, Tokuremoar Reserve and Tolderol Game Reserve.

The watershed areas around Mount Compass and Ashbourne also contain significant patches of native vegetation on private land. This more vegetated western portion of our Council district stands in contrast to the land around Strathalbyn, Langhorne Creek and Milang which is much more extensively cleared.

Four ecological communities listed as threatened at a national level are known to be found within the Alexandrina Council area:

- Swamps of the Fleurieu Peninsula
- Peppermint Box Grassy Woodland of South Australia
- Iron-grass Natural Temperate Grassland of South Australia
- Subtropical and Temperate Coastal Saltmarsh.

Many nationally threatened plant and animal species are also known to occur within the Alexandrina Council area. These include the Orange Bellied Parrot, Mount Lofty Ranges Southern Emu Wren, Hooded Plover, Southern Brown

Bandicoot, Southern Pygmy Perch, *Acacia pinguifolia* (Fat-leaved wattle), *Allocasuarina robusta* (Mount Compass Oak-bush), *Eucalyptus paludicola* (Mount Compass Swamp Gum), *Olearia pannosa* (Silver Daisy-bush), *Acacia rheticarpa* (Resin Wattle) and *Caladenia colorata* (Coloured Spider Orchard).

Identifying where these communities and species are located within the Alexandrina Council area, and having that information readily available for use by both Council and the community, is a knowledge gap a number of actions in this chapter will seek to fill.

Our achievements

Although these achievements are not insignificant, we recognise that in the past Council's approach to biodiversity management has been mostly reactive in nature, driven largely by requests for action and support from the community conservation sector. This chapter will assist Council to take a more deliberate, staged and strategic approach to biodiversity management by prioritising the ongoing maintenance and enhancement of native vegetation and habitats on land under Council's care and control.

- A comprehensive survey of remnant vegetation on Council roadsides was undertaken by Michael Hyde in 1997. The resulting data was used to create the Alexandrina Council Roadside Marker System.
- The Roadside Marker System (RMS) alerts staff, contractors and the public to significant native vegetation on roadsides. The number of sites included in the RMS has expanded significantly over the past 15 years and a comprehensive audit of the system was completed in October 2013. Markers are currently installed at over 350 sites.
- Between 2000-2004, a major project aimed to identify all unmade road reserves, water reserves and stone reserves within the Council area and classify them according to their conservation value. Of Council's 1000km of unmade road reserves, 600km were found to warrant on-ground surveys. A survey of 370 unmade road reserves (407km) was completed whilst around 200km selected for survey remain unsurveyed. The surveyed road reserves are classified according to presence of threatened species and overall ecological significance. Council's 64 water and stone reserves were also surveyed using aerial-photography.
- Every year, Council collaborates and combines resources with other agencies and environmental groups (many of which are volunteer-based) to deliver significant revegetation and weed control programs on numerous Council roadsides and reserves, including the Goolwa Dune System and Bashams Beach Regional Park.
- Council works with volunteers and AMLRNRM to monitor and manage Hooded Plovers on our beaches. This includes the erection of temporary protection fencing as required.
- Council provides financial support to Bush for Life on an annual basis to assist in the ongoing management and restoration of more than a dozen sites across the Council district.
- Council integrates local native species into our landscape designs for streetscapes, parks and gardens and stormwater projects, such as the Kessell Road Wetland at Goolwa, the North Parade Wetland at Strathalbyn and the Mount Compass Wetland on Nangkita Road.
- Council has entered into Heritage Agreements in respect of three properties under our care and control: Jaensch Road Reserve at Hartley, Dingabledinga at Hope Forest and the Finnis Oval Reserve.
- Since 2011, in collaboration with the State Government, Council has been undertaking a significant program of Aleppo Pine removal along the riverfront in Goolwa, on Hindmarsh Island and at Clayton Bay.

Challenges

The natural assets of our region are highly valued by our community, but these assets are facing a number of key threats, the two most significant of which are population growth and climate change. Managing the impact of these threats on our local biodiversity assets (as well as embracing the opportunities they offer) is a challenge to be collectively faced by all levels of government, the private sector and the community.

In 2013, our community comprised of over 24,800 people, with significant mobile populations including non-resident ratepayers and domestic and international visitors. As a site of projected growth in the 30 Year Plan for Greater Adelaide, our population is expected to reach approximately 33,000 by 2031. Forward-thinking planning and urban design strategies will be critical to ensure that, despite increased urbanisation, we are able to protect existing natural areas and indeed, allow for their extent to increase.

Alexandrina Council's future climate is predicted to be warmer and drier, have less reliable rainfall and later breaks in season, and to bring rising sea levels and more extreme weather events such as bushfires and heatwaves. Current threats to biodiversity such as habitat loss and fragmentation, weed infestation, drought and fire will be compounded by these climatic changes. Similarly, these existing threats also reduce the capacity of species and ecosystems to adapt to altered climatic conditions. The strategies contained in this Chapter will help to increase the resilience of our local ecosystems in the face of climate change and, we hope, maximise our potential to halt or slow the existing trend of biodiversity decline.

Alexandrina Council's future climate is predicted to be warmer and drier, have less reliable rainfall and later breaks in season, and to bring rising sea levels and more extreme weather events such as bushfires and heatwaves. Current threats to biodiversity such as habitat loss and fragmentation, weed infestation, drought and fire will be compounded by these climatic changes.

Guiding principles

This chapter of the Plan is underpinned by the following principles that will help to guide Council's decision-making with respect to biodiversity management:

Native vegetation management

- Council will prioritise the location and level of biodiversity management on land under our care and control in accordance with the following hierarchy:
 1. The protection, maintenance and then enhancement of remnant vegetation.
 2. Restoring sites that have been degraded by historical Council activities.
 3. Revegetating open space to reconstruct habitat elements that have been lost (i.e. buffers and corridors).
- The effective protection and enhancement of biodiversity assets on Council land requires:
 - both project initiation and ongoing management activities to be properly resourced
 - threatening processes to be identified, prevented and reduced
 - collaboration with the community conservation sector, government agencies, adjacent landholders and the wider community.
- Council bears ultimate responsibility for the protection, maintenance and enhancement of biodiversity on land under our care and control, including ensuring that adequate resources are made available for active conservation management of high priority sites.

Land transfer and acquisition

- Council land with high conservation values will only be sold or transferred to others where the transfer will result in long-term conservation benefits i.e. transfers into the State Government parks system.
- Council will only consider purchasing land of environmental significance when all other options have been fully explored i.e. Heritage or Land Management Agreements. Council's role does not generally extend to the purchase of land for conservation purposes, however if exceptional circumstances warrant consideration of such a purchase, external funding support will be sought from State or Federal government agencies and/or non-government land conservation groups.

Land use change and open space

- When developing land and undertaking Council operations, Council will seek to avoid any impacts on biodiversity, and if that is not possible, to minimise and offset any damage using onsite rehabilitation measures. Offsite offsets will be treated as an option of last resort. Council will encourage developers to adopt this same framework.
- Within new land divisions, remnant vegetation and other sites of high biodiversity should be protected and incorporated into appropriately designed open space allocations. If no such areas exist, developers will be encouraged to create new natural landscapes or habitat areas as part of their open space allocation.
- The provision, design and management of open space will seek to reduce the impact of uncontrolled access on areas of high biodiversity value e.g. horse-riding, mountain-bike riding and walking.

Community revegetation, Hindmarsh Island Landcare Group

Photo: Nicaïl Nicol



Pelicans, Clayton Bay



Significant environmental benefit offset sites

- Council's Environmental Project Officer will be consulted before any Council application for clearance of native vegetation under the Native Vegetation Act 1991 is submitted.
- When Council activities require the creation of a significant environmental benefit offset, provision will be made in budget of the relevant infrastructure project for at least the first year's on-ground activities (e.g. fencing, weed control, revegetation). After that first year, an annual site-specific budget allocation will be included in the Natural Resources budget for ongoing maintenance until such time as the site becomes self-sufficient and the Native Vegetation Council agrees that no further active management works are required (generally 10 years).
- When identifying potential significant environmental benefit offset sites, Council will give priority to improving the condition of existing vegetation rather than revegetating open space.

Private land

- Council acknowledges the importance of an integrated, landscape scale approach to biodiversity management but for the life of this Plan, our primary focus is the protection and enhancement of native vegetation on Council land. Once Council has established best practice management of its own land, further initiatives relating to biodiversity assets on private land can be explored. In the meantime, Council support for biodiversity management on private land will be limited to:

- the Environmental Grants Program
- actively restoring Council land which buffers or connects remnant vegetation on private land
- promoting programs delivered by community organisations and other levels of government
- the provision of information to help guide private investment, such as strategic revegetation priorities and species lists.

Fire management

- When reducing fuel load in vegetated areas, Council will aim to minimise harm to native vegetation. Our fuel reduction methods will be site-specific and appropriate to the significance of the vegetation and proximity to people and/or property.
- When developing site-specific management plans for biodiversity assets on Council land, Council's environmental officers will liaise with fire prevention staff to assess and manage fire risk.

Strategy 2.1: Build our knowledge

At present, Council’s ability to effectively manage our biodiversity assets is hampered by the limited functionality of our systems for recording and mapping biodiversity data. The ability of Council staff to easily access up-to-date spatial data regarding the location, condition and management of Council’s biodiversity assets will be critical for the effective implementation of the on-ground strategies contained in this Chapter. It is also important to ensure that Council’s biodiversity management practices are informed by best available science and that our priorities and actions align with relevant regional, state and national strategies and targets.

Our aim: To ensure that Council decision-making and management practices are informed by best available information about local biodiversity.

In support of this aim, Council will:

- actively seek to improve our knowledge and fill information gaps about the type, extent and condition of vegetation and habitats present on Council land
- monitor relevant federal, state and regional strategies to inform Council’s decision-making and management practices
- monitor climate change research on local ecosystems and species and their ability to adapt to a changing climate, to inform and continuously improve management practices
- monitor and measure biodiversity outcomes on land under our care and control
- ensure that information about biodiversity on Council land is collected, captured and mapped in a consistent way.

Strategy 2.1: Build our knowledge

Actions	Responsibility	Timeframe
2.1.1 Build on existing work, to ensure that all land parcels under Council’s care and control on which remnant vegetation is located have been identified, surveyed, and prioritised for on-ground works (including reserves, unmade road reserves and roadside marker sites). Surveys will need to be staged over time in accordance with available resources.	Environmental Strategy Officer/ Environmental Project Officer	Ongoing
2.1.2 Continually improve the capacity of Council’s GIS system to record and map data about the presence, condition and management of biodiversity on Council land.	Environmental Strategy Officer/ Asset GIS Coordinator	Ongoing
2.1.3 Develop and implement a standardised process for monitoring and measuring biodiversity outcomes on Council land.	Environmental Strategy Officer	Medium Term
2.1.4 Review EPBC Act Policy Statements, Threat Abatement Plans and Recovery Plans, as well as State/Regional recovery plans, to better inform management of Council’s biodiversity assets.	Environmental Strategy Officer	Medium Term
2.1.5 Prior to development of Council’s next 5-year environmental plan, produce a Biodiversity Report which documents the current knowledge, condition and management of biodiversity on Council land.	Environmental Strategy Officer	Long Term

Strategy 2.2: Protect and enhance remnant vegetation

With less than 12% remnant vegetation left across the Council district, it is critical that Council lead by example in the way we manage remnant vegetation on Council land. Council's first priority is conserving natural areas which remain in good condition and protecting these areas from threats. Remnant vegetation that is degraded will be restored through careful weed removal, the fostering of natural regeneration and selective planting of locally indigenous species. Revegetation, whilst important, is no substitute for the protection and restoration of existing remnant vegetation. Planted sites do not begin to replicate the diversity of species and interactions that occur in a naturally occurring vegetation system for many, many years. In addition, many native plants and animals require specialised conditions and habitats that cannot easily be replicated via planting.

Our aim: To protect, maintain and enhance the condition of remnant vegetation.

In support of this aim, Council will:

- actively manage remnant vegetation on Council land by developing and implementing management plans and/or annual work plans for high priority sites and by providing adequate resources for the ongoing maintenance and monitoring of these sites
- consider plants, animals and ecological communities that are threatened at a national, state, or regional level when prioritising and managing sites
- collaborate with community conservation and natural resource management groups to ensure that our collective resources are used for the greatest impact
- apply land use planning and development controls to protect remnant vegetation on both Council land and land owned by others.

Measuring our progress:

- Number and total area of remnant vegetation sites actively managed by Council.

Strategy 2.2: Protect and enhance remnant vegetation

Actions	Responsibility	Timeframe
2.2.1 Prepare and implement site specific management plans and/or annual work plans for those Council roadsides and reserves we identify as being of high conservation priority.	Environmental Project Officer	Ongoing
2.2.2 Continue to support operation of the Bush for Life program within the Alexandrina Council area.	Environmental Project Officer	Ongoing
2.2.3 Continue to collaborate with AMLRNM and SAMDBNRM to develop annual plans of on-ground roadside works which prioritise high conservation value sites and declared weed species.	Environmental Project Officer	Ongoing
2.2.4 Investigate the potential to sell Council-owned land parcels with low conservation value to fund the ongoing maintenance of Council land with higher conservation values.	Environmental Strategy Officer	Long Term
2.2.5 Ensure that Structure Plans for future urban growth areas include remnant vegetation maps as envisaged by the State NRM Plan and 30 Year Plan for Greater Adelaide.	Manager, Planning and Development	Short Term
2.2.6 Develop a system to ensure that an internal native vegetation assessment is conducted when assessing developments that are likely to impact on an area of significant biodiversity value.	Manager, Planning and Development/ Environmental Project Officer	Short Term
2.2.7 Identify and support retention of Significant Trees through the development of Council's Heritage Development Plan Amendment.	Manager, Planning and Development	Medium Term

Strategy 2.3: Connect habitat and restore degraded areas

Where suitable land is available, Council will seek to strengthen the resilience of local ecosystems via active revegetation and restoration. Priorities include the creation of buffers and corridors to restore connectivity across the landscape, and the restoration of cleared areas no longer needed for Council operations. Buffers and corridors help facilitate the movement of local flora and fauna across the landscape, protect existing remnant vegetation against edge effects and will foster the resilience of ecosystems in the face of climate change. Achieving a more connected landscape across our region will require sustained collaboration with the community conservation sector, private landholders, State and Federal government agencies and the wider community.

Our aim: To buffer and connect habitats and to restore areas degraded by prior Council activities.

In support of this aim, Council will:

- give priority to restoring, buffering and connecting threatened and preferentially cleared vegetation communities
- maximise the biodiversity outcomes of Council infrastructure projects by integrating biodiversity considerations into our project management framework
- increase the habitat value of Council revegetation projects by planting diversely and retaining natural habitat features
- advocate to other levels of government in support of community-led restoration and connectivity projects which are consistent with Council’s own environmental goals.

Measuring our progress:

- Number and total area of revegetation sites actively managed by Council.

Strategy 2.3: Connect habitat and restore degraded areas

Actions	Responsibility	Timeframe
2.3.1 Develop and begin to implement a landscape scale vision for buffering and connecting high priority biodiversity assets within the region by undertaking works on Council land.	Environmental Strategy Officer/ Environmental Project Officer	Medium Term
2.3.2 Work in partnership with AMLRNM, MDBNRM and GWLAP to encourage rural landholders adjoining Council biodiversity reserves to undertake works on their land to buffer, and reduce impacts to, remnant vegetation on Council land.	Environmental Project Officer	Long Term
2.3.3 Continue to maintain Council’s significant environmental benefit offset sites in accordance with management plans approved by the Native Vegetation Council and ensure that any new sites seek to enhance existing remnants via restoration, buffer plantings and/ or the creation of corridors.	Environmental Project Officer	Ongoing
2.3.4 Develop planting guidelines (including recommended species lists) for use in Council infrastructure projects.	Environmental Project Officer	Short Term
2.3.5 Decommission Swamp Road Lagoon at Strathalbyn and restore the 19ha site to a more natural state.	General Manager, Engineering and Open Space	Medium Term
2.3.6 Revegetate the capped landfill site at the Goolwa Waste and Recycling Depot to buffer Tokuremoar Reserve.	Environmental Project Officer	Medium Term
2.3.7 Advocate to other levels of government in support of a full feasibility study being conducted for the Hindmarsh Island Wetland Complex project.	Environmental Strategy Officer	Ongoing

Strategy 2.4: Improve urban biodiversity

Our region is unique in that many of our urban areas are located immediately adjacent to regionally, nationally and internationally important biodiversity assets: Goolwa, Clayton and Milang sit on the edge of the Coorong and Lower Lakes Ramsar Wetland; Goolwa, Middleton and Port Elliot all abut the coastal strip, whilst Strathalbyn has an important riverine corridor running through the centre of town. In addition to these high profile sites, our region’s urban biodiversity comprises all the parks, reserves and other open space (such as road verges) located within town limits. Actively managing and promoting small but ecologically significant patches of urban biodiversity can deliver multiple benefits, both environmental and social: preserving local biodiversity in an otherwise extensively cleared landscape, creating stepping stones to rural habitat, reducing Council’s water consumption and reliance on other landscaping inputs such as fertilizer and imported soils, connecting people with nature and improving our community’s sense of well-being.

Our aim: To protect, promote and enhance Council’s existing urban biodiversity assets and to integrate natural areas into future urban open spaces.

In support of this aim, Council will:

- incorporate biodiversity friendly areas into existing parks and other urban open spaces such as streetscapes
- seek to ensure that new housing developments protect existing biodiversity assets and create new natural spaces and habitat areas
- ensure that the management of Council’s urban biodiversity assets maximises biodiversity outcomes whilst minimising risks to safety, property and infrastructure.

Measuring our progress:

- Number and total area of actively managed urban biodiversity reserves.

Strategy 2.4: Improve urban biodiversity

Actions	Responsibility	Timeframe
2.4.1 Develop and implement a Clayton Bay Foreshore Master Plan in collaboration with the community to optimise both recreational and environmental outcomes.	Recreational Services Coordinator/Environmental Strategy Officer	Short Term
2.4.2 Create an Urban Biodiversity Maintenance Standard to enable high conservation value Level C and D reserves (and parts of Level A and B reserves) to be reclassified, maintained and resourced as Urban Biodiversity Reserves.	Environmental Project Officer/Recreational Services Coordinator	Short Term
2.4.3 Develop, and begin to implement, a spatial vision for the creation of township Urban Biodiversity Networks. These networks will be drawn from Council’s existing stock of open space reserves.	Environmental Strategy Officer/ Biodiversity Team	Medium Term
2.4.4 Continue to increase plantings of local native species in streetscapes as well as Level A and B parks and gardens.	Parks and Gardens Supervisors	Ongoing
2.4.5 Assess future urban growth areas to identify spatial priorities for creating biodiversity buffers and corridors.	Manager, Planning and Development	Short Term
2.4.6 Seek opportunities to collaborate with the CFS, NRM Boards, other government agencies and community groups to reduce township fire risk by removing woody weeds and revegetating with indigenous plants.	Recreational Services Coordinator/Team Leader Community Safety/ Environmental Strategy Officer	Medium Term
2.4.7 Utilise renewal and maintenance budgets to incorporate nature play facilities into existing play-spaces.	Recreational Services Coordinator	Ongoing

Strategy 2.5: Protect and enhance coastal biodiversity

The coastal strip within Alexandrina Council extends from Chiton Rocks to the west of Port Elliot all the way to the Murray Mouth. Council shares stewardship of the coastal zone with the State Government, which has care and control of two key areas of conservation significance, namely Sir Richard Peninsula and Tokuremoar Reserve. Other areas of conservation importance under Council care and control include the Goolwa Dune System and Bashams Beach Regional Park. Urbanisation of the coastal strip has had significant impacts on the health and extent of coastal dune systems in our region and has left little to no room for coastal habitat retreat in the face of expected sea level rise. Continued urban development and increasing visitor usage expose our remaining coastal habitats to the impacts of erosion, vegetation clearance, pests and weeds. Careful management of this area is critical to ensure that coastal habitats are not degraded further as our population and tourism industry continue to grow.

Our aim: To protect and improve the condition of Council's coastal biodiversity assets whilst catering for increased visitor usage.

In support of this aim, Council will:

- seek to ensure that new coastal infrastructure and amenities catering for increased visitor access and usage are sensitive to the fragile nature of the coastal environment
- help to educate the community about coastal biodiversity values and threats
- continue to provide litter bins, bag dispensers for dog faeces and other infrastructure that encourages that encourage responsible behaviour by those accessing and using the beach
- continue to seek and support external investment to improve the condition of coastal habitats on Council land.

Strategy 2.5: Protect and enhance coastal biodiversity

Actions	Responsibility	Timeframe
2.5.1 Continue to develop and maintain infrastructure which protects important coastal vegetation and habitats, such as dune fencing, board walks and beach access tracks.	Coastal Maintenance Officer	Ongoing
2.5.2 Collaborate with the NRA, SA Water and other State Government agencies to assess options and pursue opportunities for improved environmental, visitor and cultural heritage management of Sir Richard Peninsula.	Environmental Strategy Officer	Ongoing
2.5.3 Continue to work in partnership with AMLRNRM to implement the Southern Fleurieu Coastal Action Plan.	Environmental Project Officer/ Coastal Maintenance Officer	Ongoing
2.5.4 Investigate opportunities for collaborative management of the Tokuremoar area with AMLRNRM, Parks SA and the Ngarrindjeri Regional Authority.	Environmental Strategy Officer	Medium Term
2.5.5 Collaborate with the NRA, AMLRNRM and Bashams Beach & Horseshoe Bay Advisory Committee to develop and implement a Bashams Beach Regional Park Master Plan.	General Manager Engineering & Open Space	Short Term

Strategy 2.6: Be a responsible land manager

As a community leader and custodian of community land, it is important that Council has the capacity to deliver sustained biodiversity outcomes on land under our care and control. Failure to actively manage these biodiversity assets will lead to loss of native flora and fauna, chronic weed infestations and ultimately, higher ongoing management costs (given that statutory requirements for land management include declared weed control, declared pest control and fire hazard reduction). It is equally important that we minimise the negative impacts of other Council activities on biodiversity. The performance of certain core functions by Council (such as land use planning, development control, road construction and maintenance works, reduction of fire risk on Council land and roadsides, and pest plant and animal control) present a risk to biodiversity if appropriate controls are not developed and adhered to.

Our aim: To lead by example in maintaining an appropriately trained and informed workforce and to minimise the negative impacts of Council operations on biodiversity.

In support of this aim, Council will:

- foster an organisational culture that values biodiversity protection as a core function of Council
- ensure that staff and contractors have access to adequate information and are appropriately trained
- ensure that all parts of the organisation comply with relevant environmental legislation and actively seek to minimise adverse impacts on biodiversity
- continue to conduct pest animal and weed control on Council land and roadsides in collaboration with NRM boards.

Strategy 2.6: Minimise the impact of Council operations

Actions	Responsibility	Timeframe
2.6.1 Ensure the Roadside Vegetation Management Plan reflects current best practice, is supported by appropriate operational policies and procedures and contractual terms, and that all relevant staff and contractors are trained in its use.	Environmental Strategy Officer/ Relevant Managers	Short Term
2.6.2 Maintain the existing Roadside Marker System and ensure that it is supported by appropriate operational policies and procedures and that all relevant field staff and contractors are trained in its use.	Environmental Strategy Officer/ Relevant Managers	Short Term
2.6.3 Develop systems to ensure that proposed Council activities which might impact upon nationally listed species or ecological communities are assessed to determine whether referral is required under the EPBC Act.	Relevant Managers/ Environmental Strategy Officer	Short Term
2.6.4 Develop and implement operational policy and procedures for phytophthora management and ensure all relevant staff and contractors are appropriately trained.	Environmental Strategy Officer/ Relevant Managers	Medium Term
2.6.5 Review Council's Weeds Management and Control Policy and supporting operational practices, and assess staff training needs, to ensure that Council is meeting its legislative requirements under the NRM Act and that negatives impacts on biodiversity from Council's weed management activities are minimised.	Environmental Strategy Officer	Long Term
2.6.6 Grow Council's nature conservation capabilities to the extent necessary to deliver the actions and outcomes identified in this Chapter. This will require Council to invest in a minimum of 2FTE staff with specialised skills in conservation land management. Council will look for co-funding opportunities to fund an additional 1FTE trainee position.	General Manager, Engineering and Open Space	Medium Term
2.6.7 Continue to deliver a feral cat management program targeting colonies of concern on both Council and private land.	Manager Health Environment and Community Safety	Ongoing
2.6.8 Investigate the need for a holistic Pest Animal Management Plan which collates Council's policies and procedures regarding rabbits, foxes, cats, hares, deer, corellas, wasps and mosquitos into one document.	Manager Health, Environment and Community Safety	Medium Term
2.6.9 Ensure that biodiversity considerations are integrated into the project management framework for all Council infrastructure projects.	Infrastructure Manager/ Environmental Strategy Officer	Medium Term

Strategy 2.7: Engage our community and develop partnerships

The protection and enhancement of local biodiversity is a joint responsibility of government, the private sector and the community. It requires our collective commitment and cooperation, and the more informed and educated we are, and the more we work together, the more effective our actions will be. Our Council area is already home to a highly skilled and active community conservation sector and we acknowledge the significant contribution made by volunteers, conservation groups and NRM organisations to the protection and enhancement of biodiversity on both Council and privately-held land. In addition to educating and engaging the wider community, maintaining and strengthening these existing relationships will be critical to the delivery of the strategies contained in this chapter.

Our aim: To encourage and support community involvement in biodiversity management and to develop partnerships which will enhance biodiversity outcomes across the Council district.

In support of this aim, Council will:

- help to educate the community about the value of, and threats to, local biodiversity and the actions needed to protect and enhance our local biodiversity assets
- encourage broad community participation in on-ground activities that protect and improve biodiversity on Council land
- work collaboratively with individuals, community groups, agencies and organisations towards the protection, management and restoration of biodiversity on Council land
- seek to support, and add value to, biodiversity works undertaken by volunteer conservation groups working within our Council area
- foster networks with adjoining Councils, state government agencies, NRM Boards and non-government organisations for the effective coordination of on-ground works and to maximise external funding opportunities.

Measuring our progress:

- Number of community groups undertaking biodiversity works on Council land.

Strategy 2.7: Engage our community and develop partnerships

Actions	Responsibility	Timeframe
2.7.1 Strengthen Council's relationship with the Community Nurseries Network by ordering plants for Council infrastructure and revegetation projects via the network.	Environmental Project Officer/Infrastructure Manager	Ongoing
2.7.2 Engage in dialogue with federal and state government agencies, non-government organisations and the community about how to best ensure that biodiversity gains achieved on Council land via the CLLMM program are not put at risk once federal funding is withdrawn in 2016.	Environmental Strategy Officer	Short Term
2.7.3 Continue development of the Sustainability Hub at the Goolwa Works Depot on Kessell Road including the preparation and implementation of a Sustainability Hub Master Plan which incorporates opportunities for ongoing community education and engagement.	General Manager, Engineering and Open Space/ Biodiversity Team	Long Term
2.7.4 Provide in-situ information to the community about the value and management of biodiversity on Council land through the installation of interpretive signage.	Environmental Strategy Officer/Environmental Project Officer	Ongoing
2.7.5 Seek to facilitate community seed collection on Council roadsides whilst also ensuring that Council's annual roadside slashing program can proceed in a timely manner.	Environmental Project Officer/Team Leader Community Safety	Ongoing
2.7.6 Develop a policy and procedure governing Council's response to the deliberate vandalism of vegetation on Council land.	Environmental Strategy Officer	Short Term

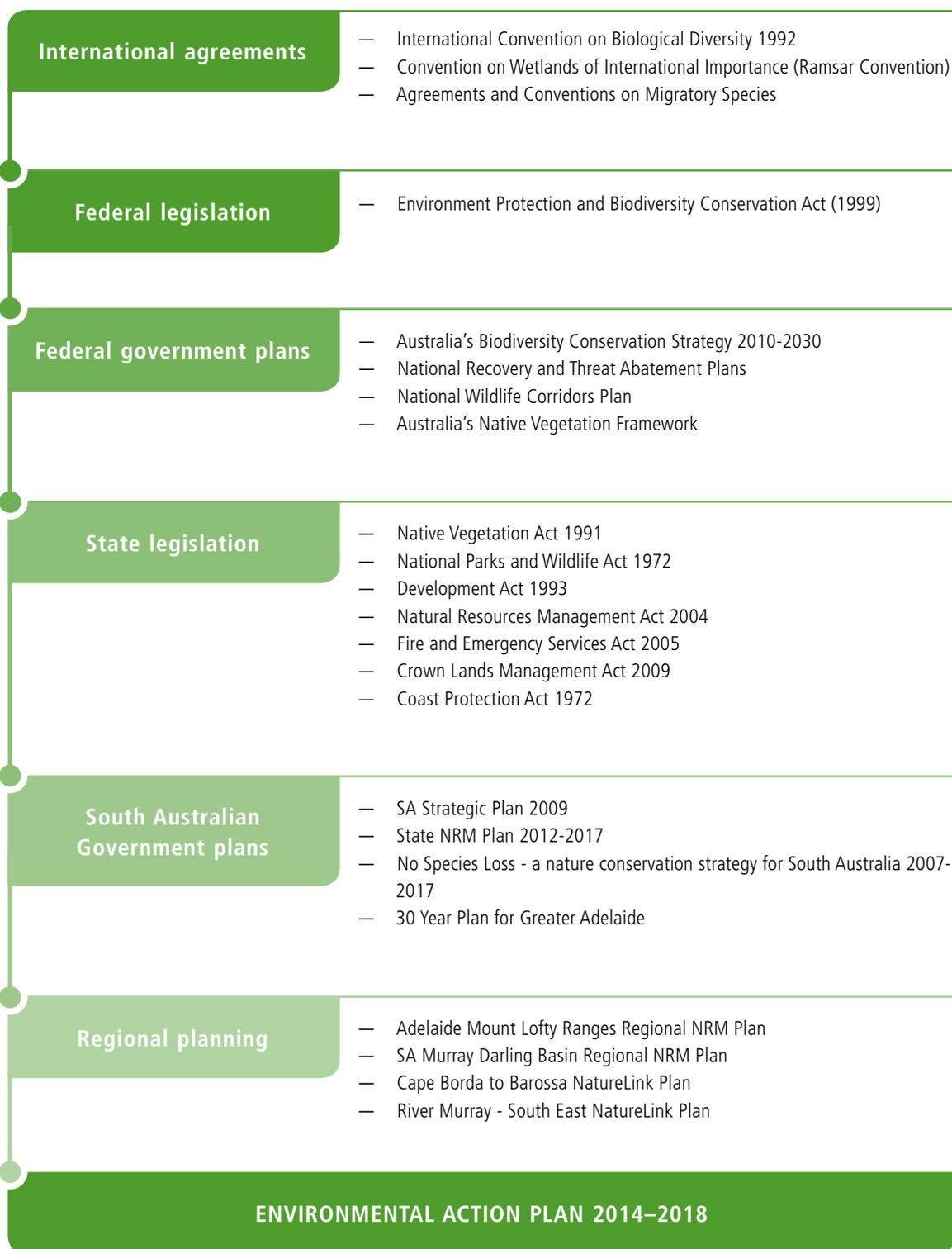
Actions	Responsibility	Timeframe
2.7.7 Review our volunteer management system to ensure that community conservation groups and other volunteers undertaking biodiversity works on Council land are protected by appropriate WHS standards (i.e. insurance, training, supervision).	General Manager, Organisation and Culture/Environmental Strategy Officer	Short Term
2.7.8 Develop a policy and procedure governing the provision of materials, loan equipment and financial support to community conservation groups.	Environmental Strategy Officer	Medium Term
2.7.9 Participate in the Green Army Program as a way to engage young people in local biodiversity management.	Environmental Strategy Officer	Medium Term

Goolwa Beach Boardwalk



Links with international, federal, state and regional policy and legislation

Our local responses to biodiversity reflect global, national, state and regional priorities identified in the following legislation, strategies and plans. For a full description see Appendix 1.



Links with other Council plans

To effect real change a variety of staff across all divisions of Council will need to be responsible for, and involved in, implementing the strategies contained in this Chapter. The chart below demonstrates how this Chapter interacts with other Council strategies, plans, and procedures.



Mixed recreational use of Goolwa Beach

Photo: Ben Simon





Progressively addressing climate change

What's in this chapter

This chapter outlines what Alexandrina Council will be doing over the next four years to respond to climate change.

It contains actions to:

- reduce our greenhouse gas emissions
- assess impacts and risks and identify opportunities
- build resilience
- plan for sustainable growth
- provide community leadership.

Over the next four years our primary focus will be on setting and working towards a reduction target for Council's own emissions, developing a better understanding of the climate-related impacts and risks for our region and building the resilience of Council-managed assets, operations and services. Council will also provide information to households and businesses about actions they can take to respond to climate change.

The relationship between the strategies contained in this Chapter, and wider government and Council planning, is presented on pages 58 and 59.

Our ideal future

- **Council has adopted and met an ambitious emissions reduction target by maximising our uptake of energy efficiency and renewable energy initiatives.**
 - **The key climate-related impacts, risks and opportunities for our region are well understood by both Council and the community.**
 - **Council, households and businesses are actively adapting and building resilience to climate change.**
 - **The opportunity to create sustainable, low-carbon communities through planned population growth has been enthusiastically embraced by Council, developers and households.**
-

About global climate change

It is now unequivocal that global climate change is happening, and scientists are more certain than ever that human activity is the primary cause.⁴

Since the advent of the industrial revolution in around 1750, greenhouse gas emissions from human activities have resulted in an enhanced greenhouse effect. Observed climate changes over the past 50 years or so are a consequence of this enhanced greenhouse effect.

The natural greenhouse effect is what keeps our planet warm enough to sustain life. The solar energy that reaches the Earth's surface warms the land and oceans. In turn, the land and oceans release heat upwards in the form of infrared radiation. Greenhouse gases in the atmosphere (such as carbon dioxide, methane, nitrous oxide and water vapour) absorb and re-radiate some of this outgoing radiation, acting like a blanket which keeps the surface of the Earth warm and reduces the amount of heat escaping back into space.

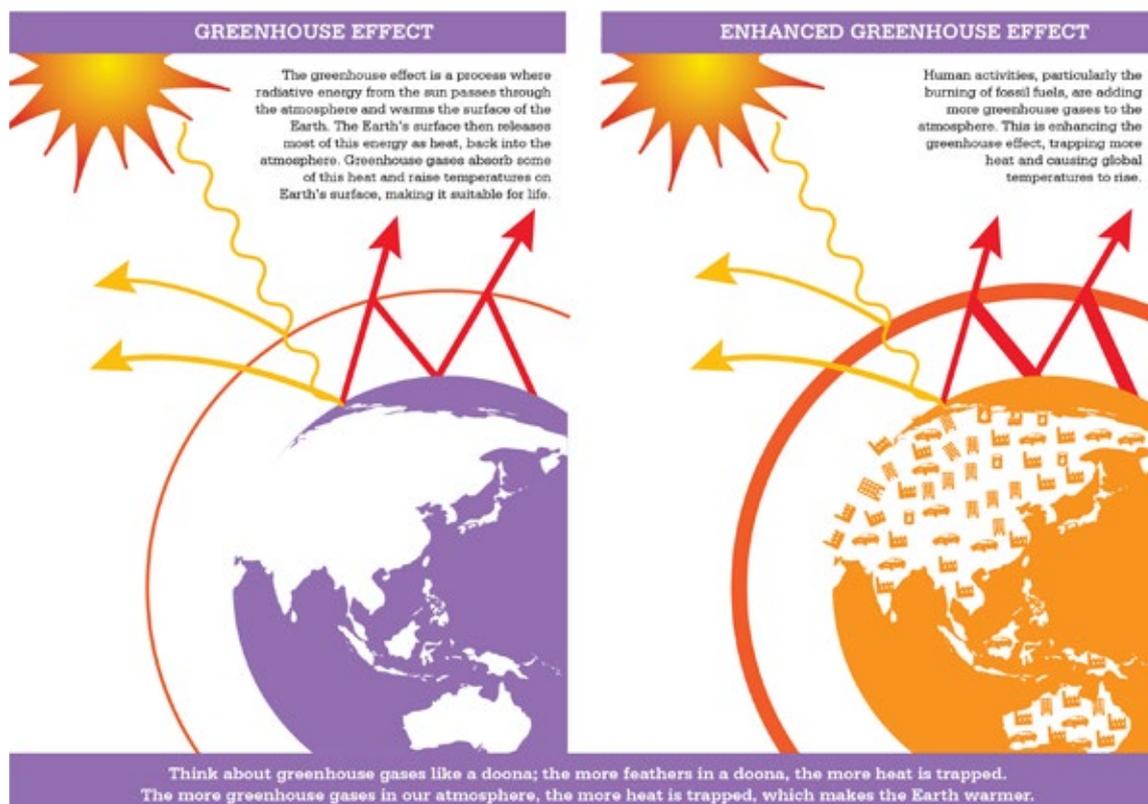
Since industrialisation, human activities have caused greenhouse gas concentrations in the lower atmosphere to rise dramatically above natural levels. Current atmospheric concentrations of carbon dioxide of over 400 parts per million (ppm) are much higher than the natural range of 172ppm to 300ppm that has existed for the past 800,000 years.⁵ The main sources of greenhouse gas emissions from human activity are the burning of fossil fuels, land clearing and intensive agriculture. As a result, the Earth's greenhouse blanket is becoming thicker, trapping extra heat and further warming the planet. This is called the enhanced greenhouse effect, often referred to as global warming.

⁴IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC 5th Assessment Report: Summary for Policymakers), p. 2, 15.

⁵IPCC 5th Assessment Report Summary for Policymakers, p. 9.

Figure 6: The Greenhouse Effect.

Source: Climate Commission



Since 1880, global surface temperature has risen by about 0.85°C⁶ and all 13 years of the 21st century (2001-2013) rank among the 15th warmest on record.⁷ Other observed changes include warmer ocean temperatures, widespread melting of snow and ice, sea level rise and increased ocean acidity. Rainfall and extreme weather patterns are also changing. These long-term global climate trends are occurring alongside normal weather variations that happen naturally over seasons or decades.

The Intergovernmental Panel on Climate Change's Fifth Assessment Report released in 2013 concluded it is extremely likely (>95% probability) that human influence has been the dominant cause of observed global warming since the mid-20th century.⁸

Despite most nations of the world agreeing that a global temperature rise beyond 2°C (relative to 1861-1880 baseline) poses unacceptably high risks to humanity, global greenhouse gas emissions are continuing to rise. If emissions continue to track at the top of the IPCC's emissions scenarios, global average temperature could rise by 3.2°C – 5.4°C by 2100 (relative to 1850-1900 baseline) and the average sea level could rise by nearly 1m (relative to 1986-2005 baseline).⁹ Some further climate change is now inevitable but just how hot it will get in coming decades depends on future trends in global greenhouse gas emissions.

Climate change in South Australia

Whilst climate change is a global issue that affects us all, the impacts of global warming will vary between regions i.e. the effects of climate change here in South Australia, will be different from the effects of climate change in the Northern Territory.

South Australia is already becoming warmer and our seas are rising. The average surface temperature in South Australia has increased by around 1°C over the past century (which is higher than the global average) whilst South Australian sea levels have been rising at a rate of around 4.3mm per year since the early 1990s (which is higher than the global average of 3.2mm).¹⁰ In addition, the state has experienced a long-term reduction in autumn rainfall, particularly over southern agricultural areas.

⁶IPCC 5th Assessment Report Summary for Policymakers, p. 3.

⁷NOAA State of the Climate Global Summary Information. December 2013, www.ncdc.noaa.gov/sotc.

⁸IPCC 5th Assessment Report Summary for Policymakers, p. 15.

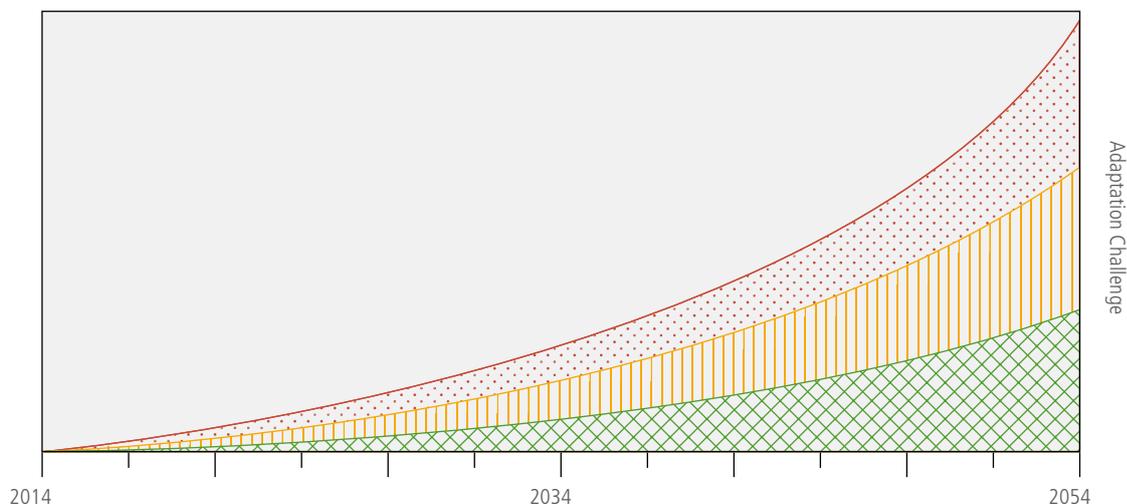
⁹Australian Government, Factsheet: What's New in the Fifth Assessment Report (climatechange.gov.au).

¹⁰Suppiah et al, Climate change under enhanced greenhouse conditions in South Australia (2006), p. viii; Australian Baseline Sea Level Monitoring Project Annual Sea Level Data Summary Report July 2010 – June 2011, p. 35; IPCC 5th Assessment Report Summary for Policymakers, p. 9.

Figure 7: The relationship between mitigation and adaptation.

Adapted from Resilient South Project Background Paper (City of Onkaparinga, 2012).

-  Business as usual
-  Some mitigation
-  Strong mitigation



In 2003 and 2006, CSIRO assessed the impact of climate change on South Australia’s future temperature and rainfall patterns, and on extreme weather events. CSIRO climate projections for South Australia for 2030 and 2070 predict:

- higher temperatures including more extreme hot days, with spring and summer warming more than winter and autumn
- decreased rainfall in agricultural regions (especially in winter and spring)
- greater frequency and severity of drought
- decreased flows in water supply catchments including the Murray-Darling Basin
- increased flood risk (despite drier average conditions)
- increased incidence or severity of bushfires
- coastal hazards such as erosion and flooding related to sea level rise combined with storms of possibly increased intensity.

At an even more localised level, the effects of climate change in the South Australian Murray Darling Basin region will be different from those felt in other parts of the State.

Over the past decade, multiple reports have found that under a number of climate change scenarios, the South Australian Murray Darling Basin Region shows warming of between 0.45 and 1.3°C by 2030 and between 0.8 and 4.0°C by 2070 (relative to 1974-2004 baseline).¹¹

Rainfall changes are more difficult to model than changes in temperature. As a result, projections for 2030 and 2070 range from significant decreases in overall rainfall to a small overall increase in rainfall. An overall drying trend is considered more likely than not, with annual decreases in rainfall of anything up to 15% by 2030 and 30% by 2070.

Despite some uncertainties about the exact extent of local impacts, what is certain is that these changes will affect all parts of our community, including our health, our infrastructure, our social and economic wellbeing, as well as our environment. We know what the broad trends will be and in most cases, this level of information will be enough to make decisions and act accordingly.

Responding to climate change

Responding to the challenges of climate change is a shared responsibility. Governments, business, communities and households will all need to take action to reduce our emissions and to adapt to the changes described above. Reducing our emissions (mitigation) and preparing for climate change impacts (adaptation) are complementary and equally necessary responses. The opportunity to avoid climate change altogether has now passed and the impacts of climate change will affect every facet of Australia’s economy, society and environment. The degree of adaptation required will depend upon the success of global mitigation efforts. The longer it takes to reduce global emissions the more difficult the adaptation challenge will become.

Emissions reduction targets

Australia is one of the top 20 carbon polluting countries in the world and we produce more carbon emissions per person than any other developed country – around four times the world average.

The Australian Government has committed to reducing the nation’s greenhouse emissions by at least 5% compared with 2000 levels by 2020 and up to 15-25% depending on

¹¹Suppiah et al, Climate change under enhanced greenhouse conditions in South Australia (2006), pp. 27-34; SARDI, Regional Climate Change Projections South Australian Murray-Darling Basin (2010), pp. 9-11; The Environment Institute University of Adelaide, Strengthening Basin Communities Milestone 2 Report (2011), pp. 10-11.

the extent of international action taken to restrain global emissions. Australia's 2050 target is to reduce emissions by 80% compared with 2000 levels.

South Australia was the first state in Australia to legislate targets to reduce greenhouse gas emissions. The Climate Change and Greenhouse Emissions Reduction Act 2007 sets a target of reducing greenhouse gas emissions within the state by at least 60% (to 40% of 1990 levels) by 2050.

Additional targets are contained in South Australia's Strategic Plan including:

- improve the energy efficiency of dwellings by 15% by 2020 (against a 2003-2004 baseline)
- improve the energy efficiency of government buildings by 30% by 2020 (against a 2000-2001 baseline)
- support the development of renewable energy so that it comprises 33% of the State's electricity production by 2020
- limit the carbon intensity of total South Australian electricity generation to 0.5 tonnes of carbon dioxide/ MWh by 2020.

Local Government can play an important role in providing information on emissions reduction ideas and opportunities to households and businesses.

Whilst there is currently no mandatory requirement upon Local Governments to reduce carbon emissions, many South Australian Councils have already set and are working towards voluntary targets, and the sector is encouraged and supported by the Local Government Association to do so. Local Government also has an important role to play in providing information on emissions reduction ideas and opportunities to households and businesses.

Our achievements

Council has already taken a number of steps to both mitigate and adapt to the effects of climate change. The strategies and actions contained in this chapter of the Plan will build upon the following achievements of Council:

Mitigation

- In 2010, Council engaged a consultant to undertake an inventory of Council's greenhouse gas emissions for the 2006/07 financial year. This inventory will provide a baseline against which to assess the carbon footprint of our organisation into the future.
- In 2011, a 16kw solar power system was installed at the Goolwa Works Depot on Kessell Road. This installation will accrue savings of \$100,000 over 12 years and reduce greenhouse gas emission by 25.5 tonnes per annum.
- The new Strathalbyn Library, Council and Community Centre opened in September 2011 and incorporates numerous green building practices including auto-lighting and auto-ventilation plus high efficiency heating, cooling, lighting, insulation and glazing systems which reduce power consumption.
- In collaboration with the City of Victor Harbor and District Council of Yankalilla, Council supported the highly successful Solar Program which enabled residents to buy affordable roof-top solar. In 2012, postcode 5214 (Currency Creek, Goolwa, Hindmarsh Island) was the second top solar postcode in South Australia and fifth nationally, with solar power installed on around 25% of homes.

Adaptation

- Since 2010, Council has been working with the local agricultural industry via the Alexandrina Sustainable Agriculture Roundtable (ASART) to ensure that our land-use planning and development assessment processes enhance the industry's ability to adapt to the impacts of climate change.
- Council has undertaken a number of actions to reduce our community's reliance on the River Murray and prepare for future water scarcity. These include a significant expansion of Council's storm water and wastewater re-use infrastructure and the preparation of an Integrated Water Management Plan for Goolwa and Hindmarsh Island which addresses the impacts of climate change on long-term water demand and supply.
- In 2010, Council collaborated with the Local Government Association of South Australia to undertake a preliminary risk assessment of the impacts of climate change on Council's operations and services. This assessment identified a range of potential adaptation actions for Council to consider.

Challenges

Over the next 20 years our region will experience many changes with planned urban growth predicted to bring over 8000 new residents and more than 4000 additional dwellings. Reducing our collective environmental impact whilst catering for population growth and enhancing the economic strength of our region will be particularly challenging. For this growth to be sustainable, the community as a whole will need to look for new ways to conserve energy and adapt our ways of living to the inevitable impacts of climate change. But with this challenge comes an opportunity – the opportunity to use growth and change to support the development of more sustainable neighbourhoods, improve our region’s local environment and promote a green economy. The actions Council will take to encourage this transition are discussed in more detail under Strategy 1.4 below.

Guiding principles

This chapter of the Plan is underpinned by the following principles that will help to guide Council’s decision-making:

- Council accepts there are strong economic, social and environmental reasons for responding to climate change sooner rather than later.
- Council’s response to climate change will focus on matters we have clear roles and responsibilities for and which Council can directly control and/or influence.

- Council will ensure our own operations lead by example by integrating climate change considerations into:
 - our strategic planning and decision-making processes
 - our management of Council infrastructure, assets and natural areas
 - our delivery of Council functions and services.
- When taking action to reduce Council’s own emissions, our activities will be guided by the following hierarchy:
 1. avoiding and reducing carbon emissions
 2. using renewable energy
 3. offsetting emissions.
- Council will support local community and business responses to climate change by:
 - providing information on actions households and businesses can undertake to respond to climate change
 - applying land use planning and development controls, and working with developers, to minimise community emissions as well as the impacts and risks associated with climate change
 - advocating on behalf of the community to State and Federal governments to ensure the appropriate allocation of roles, responsibilities and resources across all levels of government in responding to climate change.

Solar array at Goolwa Depot, Kessell Road



Strategy 3.1: Reduce our greenhouse gas emissions

Alexandrina Council is committed to playing our part in helping to meet South Australia’s emissions reduction goals and more broadly, to making a fair contribution to the global challenge of preventing dangerous climate change. We will do this by setting and working towards a reduction target for Council’s own emissions that aligns with the emissions reduction and renewable energy targets adopted by the State Government. In order to meet this target, Council will need to consider, and then implement, a range of energy conservation, efficiency and renewable energy initiatives. This could include retrofitting existing Council buildings, introducing standards for new Council buildings, increasing our GreenPower purchase and introducing smaller, more fuel efficient and hybrid cars into our fleet. It is important that Council begin to model the behaviour needed for our community to collectively make the transition to a clean-energy future.

Our aim: To lead by example by becoming a lower emissions Council.

In support of this aim, Council will:

- measure and publicly report our greenhouse gas emissions
- set an emissions reduction target and report on performance against that target
- reduce our emissions through a range of energy efficiency and renewable energy initiatives.

Measuring our progress:

- Council’s annual greenhouse gas emissions.

Strategy 3.1: Reduce our greenhouse gas emissions

Actions	Responsibility	Timeframe
3.1.1 Establish a system for annually measuring and reporting Council’s greenhouse gas emissions that is compliant with the national mandatory reporting framework.	Environmental Strategy Officer	Short Term
3.1.2 Undertake a Carbon Emissions Reduction Study to investigate pathways, and develop a roadmap, for reducing Council emissions.	Environmental Strategy Officer	Short Term
3.1.3 Set an emissions reduction target and begin to implement the necessary mitigation actions.	Environmental Strategy Officer/ Relevant Managers	Medium Term
3.1.4 Ensure that consideration of Council’s emissions reduction target is incorporated into the project management framework for Council infrastructure and retrofit projects.	Environmental Strategy Officer/ Relevant Managers	Medium Term
3.1.5 Work with the Local Government Association and other councils to investigate opportunities for local governments to generate carbon credits on council land, via carbon sequestration, in a way that also delivers local biodiversity, recreation and/or amenity benefits.	Environmental Strategy Officer	Long Term
3.1.6 Work with the Local Government Association, other councils, SA Power Networks and the State Government to identify opportunities to improve the energy efficiency of public lighting.	Environmental Strategy Officer	Ongoing

Strategy 3.2: Identify and assess impacts, risks and opportunities

Climate change is already happening and some further changes are now inevitable regardless of how fast global greenhouse gas emissions decline. This means that as well as reducing emissions, we also need to prepare for climate change impacts such as higher temperatures, lower rainfall, sea level rise and more extreme weather events. The first step in successful adaptation planning is to improve our understanding of the likely impacts of climate change on the local community, economy and environment. Only then can we begin to manage the risks associated with these impacts. Climate change also brings with it opportunities for innovation and economic development which need to be proactively identified. A significant body of work documenting expected climate change impacts in our region already exists. The challenge now is to interpret this information in the context of those issues which are most important to Council and the local community.

Our aim: To understand the likely impacts of climate change at a local level and to identify climate-related risks and opportunities for Council assets, operations and services.

In support of this aim, Council will:

- continue to monitor scientific research about climate change projections to build our understanding of the likely impacts of climate change at a local level
- ensure that climate change risks and opportunities relevant to Council assets, operations and services are identified and assessed
- as a matter of priority, identify the coastal areas within our region which are most vulnerable to climate change.

Strategy 3.2: Identify and assess impacts, risks and opportunities

Actions	Responsibility	Timeframe
3.2.1 Actively participate in the Regional Adaptation Planning processes being led by SAMDBNRM and RDA Hills and Coasts to ensure that climate change risks and opportunities relevant to Council’s assets, operations and services are assessed, and that priority actions to minimise these risks and take advantage of opportunities are identified.	Environmental Strategy Officer	Short Term
3.2.2 Undertake a Coastal Hazard Study to identify the coastal areas and infrastructure within our region which are most vulnerable to the impacts of climate change (i.e. sea level rise, increased storm surges, inundation and erosion). This study should include sea level rise and flood mapping and assess potential management options.	Environmental Strategy Officer	Medium Term
3.2.3 Liaise with State and Federal Government agencies responsible for assessing the impacts of climate change on the barrages and the ecology of the Lower Lakes and ensure that relevant information is effectively communicated to the community.	Environmental Strategy Officer	Ongoing

Storm Tide

Photo: Ian Rowan



Strategy 3.3: Build resilience

Climate change resilience is the capacity of an individual, business, institution or community to effectively respond to shifting climatic conditions while continuing to function and prosper. Simply put, it is the ability to survive, recover from, and even thrive in a changing climate. Council has already taken significant action to build our institutional resilience to one of the key impacts of climate change, namely water scarcity, by investing heavily in storm water and wastewater reuse infrastructure. The next challenge for Council is to comprehensively incorporate climate change considerations into our long-term financial and asset management plans. Risk assessment work undertaken by the Local Government Association shows that buildings, roads, footpaths and other Council assets are all at risk of reduced asset life, which brings with it significant maintenance and replacement cost implications. At a community level industry, businesses, households and Council will all need to take action to build our collective resilience. In this respect, Council's efforts will focus on building the resilience of community services we provide and collaborating with those sectors of the community which are most vulnerable to climate change impacts.

Our aim: To minimise climate-related disruption and costs to Council operations and to help build a more resilient community.

In support of this aim, Council will:

- identify and begin to address the adaptation needs of Council infrastructure, operations and services
- integrate climate change considerations into Council's long-term financial and asset management planning
- collaborate with relevant State and Federal government agencies and other regional partners to manage the public health risks arising from climate change
- collaborate with the key local industries which are most vulnerable to the impacts of climate change to increase their level of climate-change preparedness
- work with regional partners to improve our emergency management planning.

Measuring our progress:

- Council Adaptation Plan endorsed and actions implemented.

Strategy 3.3: Build resilience

Actions	Responsibility	Timeframe
3.3.1 Following completion of Regional Climate Change Adaptation Plans by the SAMDBNRM and RDA Hills and Coasts, develop and begin to implement an Alexandrina Council Climate Change Adaptation Plan.	Environmental Strategy Officer	Medium Term
3.3.2 Develop and implement a Regional Public Health Plan in collaboration with other Southern and Hills councils which prepares for, and manages, the public health and social impacts of climate change. This should include consideration of the impacts of climate change on the provision by Council of Home and Community Care (HACC) services.	Manager Health Environment and Community Safety	Short Term
3.3.3 Work with the LGA and other Councils to develop tools for translating the management of climate change impacts into Council's long term financial and asset management plans.	Environmental Strategy Officer/ Relevant Managers	Medium Term
3.3.4 Continue to work with ASART to help the region's primary production sector prepare for climate change.	Manager Planning and Development	Ongoing
3.3.5 Continue to work with SAMDBNRM and AMLRNRM to develop and implement natural resource initiatives which will increase the capacity of local ecosystems to adapt to climate change.	Environmental Strategy Officer/ Environmental Project Officer	Ongoing
3.3.6 Work with the Fleurieu Bushfire Management Committee to review and update the Interim Fleurieu Bushfire Area Management Plan to ensure adequate consideration is given to the expected increase in the frequency and intensity of bushfires.	Manager Health, Environment and Community Safety	Ongoing

Strategy 3.4: Plan for sustainable growth

Our region’s population is growing. By 2031, Alexandrina Council is projected to have almost 8,250 more people along with over 4,300 new dwellings. If resilient communities are our aim, the challenges of climate change mitigation and adaptation will need to be tackled at all levels of urban planning and design. Energy efficient subdivision layouts need to be complemented by sustainable transport strategies, water-sensitive urban design and open-space habitat corridors. Individual buildings and infrastructure assets within our Council area should also be designed or retrofitted to reduce greenhouse gas emissions and withstand projected changes in climate. Council responsibilities for land use planning and development control put us at the centre of this challenge, however we cannot solve the climate change issues associated with future population growth on our own. The opportunity to develop more sustainable built environments will also need to be embraced by other levels of government, developers and households.

Our aim: To use the opportunity of planned population growth to encourage the development of sustainable low-carbon communities.

In support of this aim, Council will:

- incorporate increasingly effective climate change policies into our Development Plan
- work with developers to encourage the development of sustainable, low-carbon neighbourhoods
- become a promoter of green building design and construction by engaging with developers, builders and prospective homeowners
- advocate for, and help to design and deliver, a regional transport network that is safe, accessible, efficient and sustainable.

Strategy 3.4: Plan for sustainable growth

Actions	Responsibility	Timeframe
3.4.1 Prior to undertaking Council’s next Strategic Directions Report, review and if necessary plan to amend Council’s Development Plan to ensure that it reflects accepted best practice with respect to climate change.	Manager, Planning and Development	Long Term
3.4.2. Advocate for the State Government to strengthen mandatory development controls with respect to green building design and construction.	Manager, Planning and Development	Ongoing
3.4.3 Work with developers to design and market future urban growth areas as ‘green developments’ with a focus on energy efficient and water sensitive design, sustainable transport options, biodiversity protection and natural open space.	General Manager Environment and Infrastructure	Ongoing
3.4.4 Develop and deliver a program to encourage greater uptake of green building design and construction within our Council area.	Environmental Strategy Officer/ Manager, Planning and Development	Medium Term
3.4.5 Advocate on behalf of the community and participate in regional working groups to ensure that our region is well serviced with a safe, accessible, efficient and sustainable transport network.	Manager Strategy and Governance	Ongoing
3.4.6 Promote walking and cycling by continuing to expand the region’s walking and cycle networks whilst also providing adequate protection for the natural environment.	Environment and Infrastructure Division	Ongoing
3.4.7 Give consideration to developing an Alexandrina Council Transport Action Plan which includes climate change adaptation and minimising community greenhouse gas emissions as objectives.	Environment and Infrastructure Division	Long Term

Strategy 3.5: Provide community leadership

Council is committed to providing community leadership and building the capacity of the community to respond to climate change. We will do this by helping to reduce barriers to community action. There remains a significant gap between the level of action best available science tells us is needed to effectively respond to climate change and the level of action actually happening in the community. Council can help bridge this gap by raising awareness of local climate change impacts and risks and by connecting the community with the information and skills they need to respond and adapt to climate change.

Our aim: To reduce barriers and promote community behaviour change in response to climate change.

In support of this aim, Council will:

- help the community to understand the likely impacts of climate change at a local level through awareness raising and education activities
- help the community to help themselves by providing information to businesses and households about how they can take action to respond to climate change
- support the concept of local energy supply and promote the uptake of household and community-level renewable energy
- support and participate in sector-wide climate change planning and research projects
- seek to influence State and Federal government climate change policy through effective advocacy and partnership projects.

Measuring our progress:

- Extent of community knowledge regarding climate change impacts, risks and adaptation options.

Strategy 3.5: Provide community leadership

Actions	Responsibility	Timeframe
3.5.1 Build on the work contained in the Local Energy Security Study for the SAMDB Region to investigate opportunities for (and work with partners to promote) local energy supply and community-owned renewable energy projects in our Council area.	Environment and Infrastructure Division	Long Term
3.5.2 Advocate for State and Federal Governments to provide financial incentives and support for the uptake of renewable energy at the household and community level.	Environmental Strategy Officer	Ongoing
3.5.3 Contribute to sector-wide climate change resilience by continuing to participate in the Local Government Association’s Science to Solutions Project.	Chief Executive	Ongoing

Strathalbyn Library



Links with international, federal, state and regional policy and legislation

Our local responses to climate change reflect global, national, state and regional priorities identified in the following legislation, strategies and plans. See Appendix 1 for a full description.

*At the time of publication, the Federal Government has introduced legislation to repeal the carbon pricing mechanism established under the Clean Energy Act 2011, but the legislation has yet to be passed.

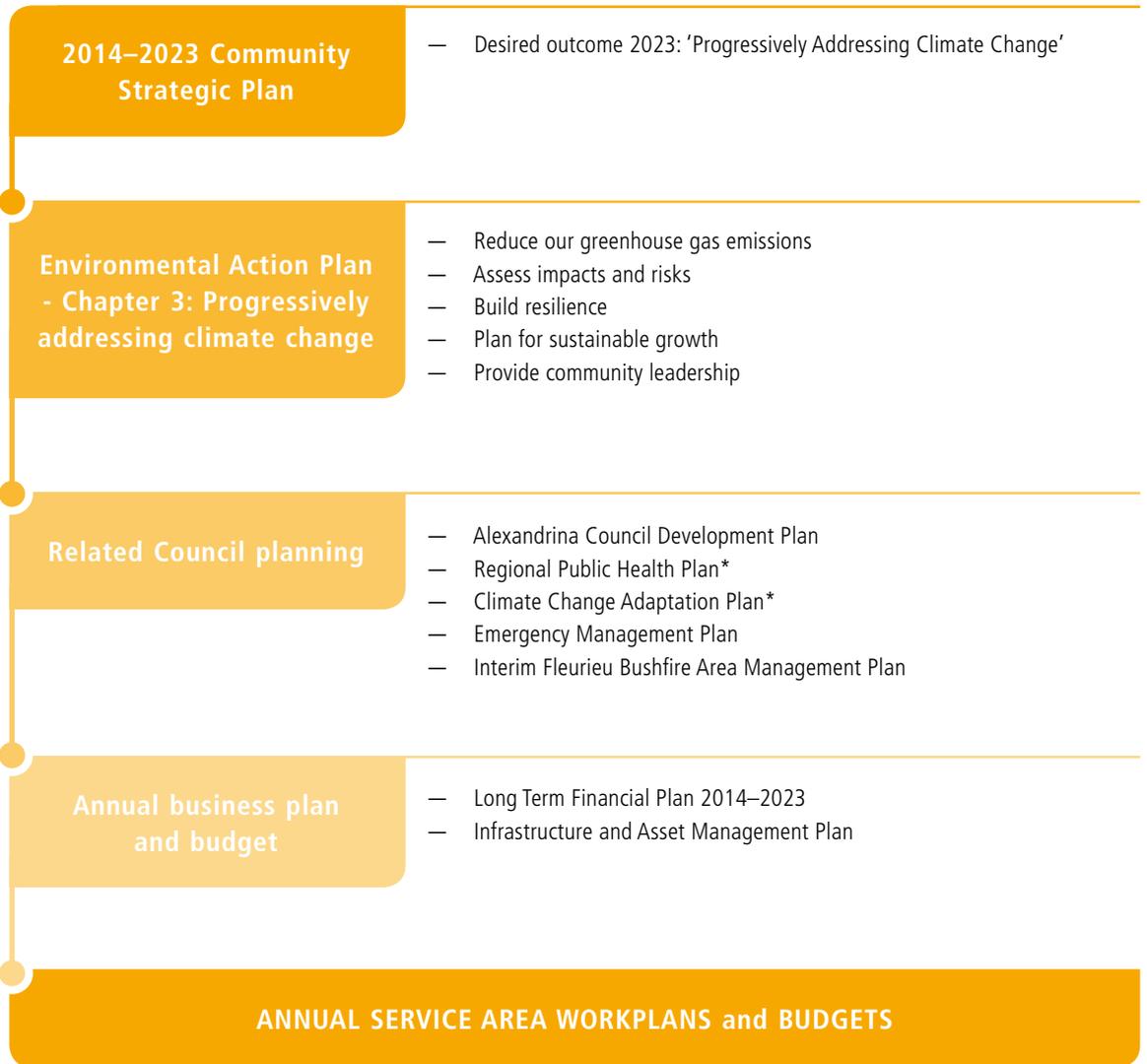
** Under development.



Links with other Council plans

To effect real change a variety of staff across all divisions of Council will need to be responsible for, and involved in, implementing the strategies contained in this Chapter. The chart below demonstrates how this Chapter interacts with other Council strategies, plans, and procedures.

*Still to be developed.





Living local

What's in this chapter

This chapter outlines what Alexandrina Council will be doing over the next four years to help reduce the ecological footprint, and increase the positive impact, of our organisation and community in the areas of waste, food and culture.

It contains actions to:

- sustainably manage our waste
- promote sustainable food
- green our organisation
- inform and engage our community
- care for Aboriginal culture and country.

The relationship between the strategies contained in this Chapter, and wider government and Council planning, is presented on pages 69 and 70.

Our ideal future

- **Our community has reduced the amount of waste we produce and increased the amount we reuse and recycle.**
 - **We are a food-wise community which actively supports local food producers and projects.**
 - **Council is recognised by the community as making a positive and continuous effort to lead by example and improve our environmental performance.**
 - **Our community has the knowledge, skills and motivation they need to manage their properties, households, businesses and lifestyles in a more sustainable way and is actively partnering with Council to deliver a cleaner, greener future for our region.**
 - **Council and the Ngarrindjeri Regional Authority regularly collaborate at a strategic and operational level to deliver projects of joint interest.**
-

Our achievements

The strategies and actions contained in this chapter of the Plan will build upon the following past achievements of Council:

Waste management

- Introducing a 3-bin system (waste, recycling, green organics) for the collection of kerbside residential waste in 2006.
- Accommodating South Coast Bottle and Can and Goolwa Salvage and Save at the Goolwa Waste and Recycling Depot to ensure that all waste and recycling activities for the community can be offered at one site.
- Processing and recycling green organic waste from both Alexandrina Council and City of Victor Harbor at the Goolwa Waste and Recycling Depot to produce over 3500 tonnes of mulch each year.
- Establishing a bio-solids treatment facility at the Goolwa Waste and Recycling Depot to enable waste from septic tanks, and sludge from the Goolwa Wastewater Treatment Plant, to be mixed and composted with green organic waste for reuse in agricultural purposes.
- Establishing the Fleurieu Regional Waste Authority in collaboration with the City of Victor Harbor, Kangaroo Island Council and District Council of Yankalilla in 2010.
- Having the Goolwa and Strathalbyn Waste and Recycling Depots approved as official e.waste sites under the National Television and Computer Recycling Scheme in 2012/13.
- Extending kerbside collection of green waste to include the townships of Mount Compass, Milang, Langhorne Creek and Clayton in 2013.
- Introducing a coloured multi-bin system into Council offices and depots in 2013/14 to separate the waste stream into paper recycling, green organic waste, mixed recycling, deposit cans and bottles and waste to landfill.

Sustainable food

- Collaborating with URPS to develop the Rural Areas Strategy and Action Plan. This strategy was recognised as leading practice by the Planning Institute of Australia with a State Award (2009) and a National Award (2010) in the Rural Planning Achievement category.
- Establishing the Alexandrina Sustainable Agriculture Roundtable (ASART) in 2010 to assist with implementation of the Rural Areas Strategy and Action Plan.
- Developing and distributing the 'Proud to be part of our farming future' brochure which provides guidance to residents seeking to purchase a rural lifestyle property, as a means of encouraging good working relationships between farmers and their neighbours.
- Holding a 'Year of the Farmer Awards' dinner in 2012 to showcase local producers and recognise the contributions of individual farmers, farming families, farm businesses and rural community organisations across the district.
- Creating the Rural Initiatives Grant in 2013, with preference given to projects which demonstrate environmental benefits.
- Assisting Cittaslow Goolwa to establish the Cittaslow Community Garden on council-owned land adjacent to the Goolwa Depot on Kessell Road.
- Partnering with the State and Federal Governments to deliver a four-year Obesity Prevention and Lifestyle (OPAL) program which supports local children and their families to eat well and be active.

Community engagement

- Providing ongoing financial support to a range of sustainability-related community organisations including Cittaslow and the Milang Old School House Community Centre.
- Launching the online consultation website 'My Say Alexandrina' giving people the opportunity to engage with Council when and where it suits them, and providing a convenient way for the community to connect with Council about issues of concern or interest.

Caring for Aboriginal culture and country

- Signing the first ever Kungun Ngarrindjeri Yunnan (Listen to Ngarrindjeri People Talking) Agreement with the Ngarrindjeri Nation in 2002 including a 'sincere expression of sorrow and apology to the Ngarrindjeri people'.
- Entering into the Kurna Indigenous Land Use Agreement (ILUA) in 2013, in conjunction with the other 27 Councils in Kurna country. Pursuant to the ILUA, Council will make an annual financial contribution to a fund which pays for administration of the ILUA and for projects designed to benefit Kurna people.
- Erecting a public display of the Letters Patent 1836, unveiled at a ceremony held in March 2014.
- Maintaining a strong and effective working relationship by hosting regular Leader to Leader and Working Group meetings between staff of the Alexandrina Council and Ngarrindjeri Regional Authority.
- Celebrating Ngarrindjeri arts & culture via the Just Add Water program including film screenings, art exhibitions and interactive events such as the Ngarrindjeri Sharing Circle and Sponge Arts Hub.

Volunteers of the Clayton Bay Nursery and Environment Group

Photo: Con Boerma



Figure 8: Waste management hierarchy

Source: adapted from Zero Waste SA



Strategy 4.1: Manage our waste sustainably

In 2010, Alexandrina Council joined forces with the City of Victor Harbor, Kangaroo Island Council and District Council of Yankalilla to form the Fleurieu Regional Waste Authority (FRWA). FRWA is responsible for providing waste management services across the region. This includes the operation of waste and recycling depots, the provision of kerbside collection, public litter and event bins, plus community education and engagement activities. In addition to working with FRWA to provide regional waste services, Alexandrina Council is responsible for collecting illegally dumped waste and is committed to minimising and responsibly managing waste generated by our own operations. In all respects, Council's approach to waste management is guided by the waste management hierarchy (see Figure 8) and the dual objectives of the State Waste Strategy which are: (1) to avoid and reduce waste, and (2) to maximise the useful life of materials through reuse and recycling.

Our aim: To work with other FRWA member Councils to achieve sustainable and cost effective waste management within the Alexandrina Council area.

In support of this aim Council will work with FRWA to:

- minimise community waste going to landfill and maximise resource recovery
- educate the community about all aspects of responsible waste management including waste avoidance and minimisation, resource recovery, reuse and recycling

- continually monitor, and implement as appropriate, national and international advances in sustainable waste management
- improve Council's internal waste management practices.

Measuring our progress:

- Total waste to landfill (tonnes).
- Total diversion of waste from landfill (tonnes).
- Diversion rate of residential kerbside waste away from landfill (%).

Our waste targets:

Council supports, and will track progress against, the following waste reduction targets contained in the SA Strategic Plan and South Australia's Waste Strategy 2011-2015:

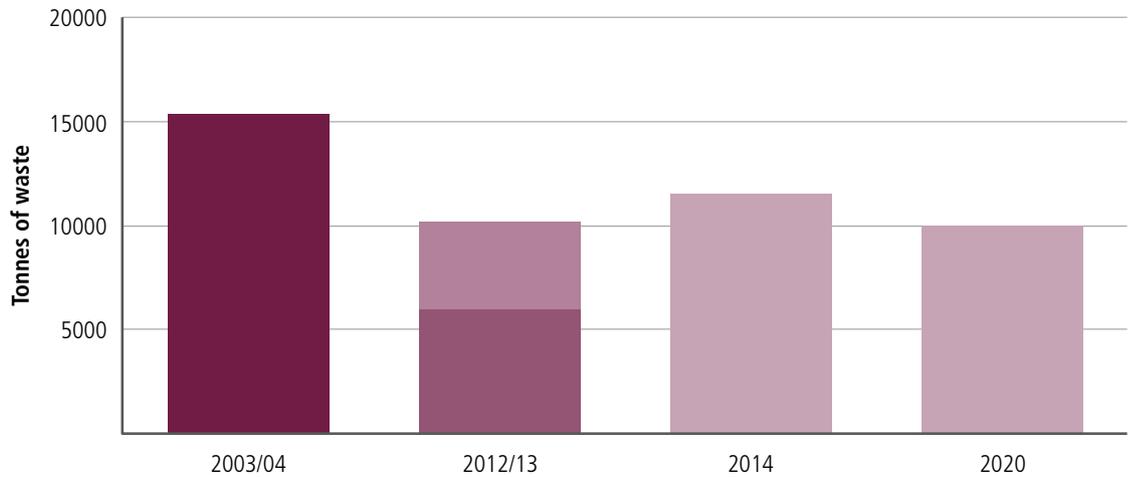
Target: Reduce waste to landfill by 35% by 2020 (milestone of 25% by 2014) - 2002/03 baseline.

Working from a 2003/04 baseline (2002/03 data is unavailable) Alexandrina Council has already met the 2014 target and is on track to meet the 2020 target. In 2012/13, FRWA collected a total of 37,600 tonnes of waste from the Alexandrina Council area with 10,154 tonnes (27%) taken to landfill. This figure includes both residential kerbside waste and waste directly deposited at Waste and Recycling Depots. This represents a 34% decrease on the 2003/04 baseline, in which year a total of 15,329 tonnes of waste from within Alexandrina Council went to landfill. Over that time, Alexandrina Council's population has increased by almost 25% from 20,019 to 24,866.¹²

¹²Alexandrina Council profile.id and forecast.id. (<http://profile.id.com.au/alexandrina/home>).

Waste to landfill

- Total
- Kerbside
- Depots
- Target



Diversion of residential waste kerbside

- Waste to landfill
- Recyclables
- Green waste



This means that in 2003/04 total waste to landfill was equivalent to 766kg per capita, as compared to 408kg per capita in 2012/13. This is well below the national average, which was 1030kg per person in 2009.¹³

Target: Maximise diversion of municipal solid waste to the extent practically achievable – 2008/09 baseline.

The diversion target for municipal solid waste in metropolitan areas is 70% by 2015, but no specific target is set for non-metropolitan areas where waste management services are affected by greater distances, increased transport costs and reduced economies of scale. In 2012/13, FRWA diverted 3272 tonnes of residential kerbside waste away from landfill within the Alexandrina Council area. This represents

a diversion rate of 35% with 5986 tonnes of kerbside residential waste still ending up at landfill sites. Diversion rates have declined slightly since 2009 when 4797 tonnes of residential waste went to landfill and approximately 3191 tonnes was diverted. An audit of our kerbside waste system undertaken in 2012 found that 55% of the waste in kerbside waste bins could have been diverted into the recycling and green bins. In coming years, FRWA hopes to significantly increase residential diversion rates and reduce the amount of divertible material being disposed of in kerbside waste bins via the introduction of fortnightly kerbside waste collection. A 2012 study suggested that with this approach, a 62% diversion rate is realistically achievable.¹⁴

¹³National Sustainability Council, Sustainable Australia Report 2013, p. 194.

¹⁴Fleurieu Regional Waste Authority Audit 2012 prepared by One World Environmental Solutions.

Strategy 4.1: Manage our waste sustainably

Actions		Responsibility	Timeframe
4.1.1	Support continued implementation of FRWA's Communication Plan and Education Program.	General Manager, Engineering and Open Space/Environmental Education Officer	Ongoing
4.1.2	Implement regional fortnightly kerbside waste collection of all three waste streams (residual waste, recycling, green waste).	General Manager, Engineering and Open Space	Short Term
4.1.3	Complete the upgrade of the Goolwa Waste and Recycling Depot to a Regional Waste Transfer Station.	General Manager, Engineering and Open Space	Short Term
4.1.4	Assess options, and implement the preferred method, for diverting food waste away from the general kerbside waste stream.	General Manager, Engineering and Open Space	Short Term
4.1.5	Assess options and implement the preferred method for introducing Extended Producer Responsibility Schemes at the Goolwa and Strathalbyn Waste and Recycling Depots.	General Manager, Engineering and Open Space	Medium Term
4.1.6	Undertake planning and monitoring to ensure that waste management services provided by FRWA within the Alexandrina Council area meet the requirements of the Environment Protection (Waste to Resources) Policy 2010.	General Manager, Engineering and Open Space	Ongoing
4.1.7	Assess options for introducing public place and event recycling bins.	General Manager, Engineering and Open Space	Medium Term
4.1.8	Trial a 'rubbish free parks' initiative in Council reserves adjacent to high value natural assets.	Recreational Services Coordinator	Medium Term
4.1.9	Develop and implement initiatives to educate the community about the real costs of waste management.	General Manager, Engineering and Open Space	Medium Term
4.1.10	Advocate to the State Government with respect to the retention of Zero Waste SA and the more active use of the Waste to Resources Fund.	General Manager, Engineering and Open Space	Ongoing
4.1.11	Continue to develop and implement initiatives to avoid waste, reduce waste to landfill and improve waste recovery from Council operations.	General Manager Engineering and Open Space / Environmental Strategy Officer	Ongoing

Strategy 4.2: Promote sustainable food

Food is one of the biggest contributors to our ecological footprint. The growing, processing, packaging and transporting of food all have an ecological impact. One of the ways to minimise the negative environmental impacts of the food we eat is to support local food. By eating seasonal food that is locally and sustainably produced and sold with minimal packaging we can benefit the environment, the local economy and our health. There is already a strong food culture on the Fleurieu Peninsula, with farmers markets, food and wine trails and farm-gate producers providing memorable experiences for residents and visitors alike. Farming remains a key employer, with one in six of all jobs on the Fleurieu Peninsula being in agricultural production and processing. In 2007, Goolwa was recognised as the first Cittaslow (Slow Town) in Australia reflecting the communities' growing commitment to sustainable and healthy lifestyles, active participation and growing and enjoying locally produced food and wine. Sustainable food also emerged as a community priority under the banner 'Grow, Eat, Share' when developing the Community Strategic Plan 2014–2023. Alexandrina Council is committed to the wellbeing and prosperity of our rural communities as well as to supporting our community to make more sustainable food choices.

Our aim: To promote sustainable food by supporting local food projects and producers, and in doing so, contribute to community connection and wellbeing.

In support of this aim, we will:

- help to educate Council staff and community members about sustainable food choices
- continue to maintain and develop partnerships with the region's primary producers via the Alexandrina Sustainable Agriculture Round Table (ASART)
- work in partnership with the community to build interest and capacity for undertaking local food projects.

Strategy 4.2: Promote sustainable food – Grow, Eat, Share

Actions	Responsibility	Timeframe
4.2.1 Integrate more edible plants and trees into township parks, play-spaces and streetscapes.	Recreational Services Coordinator	Medium Term
4.2.2 Develop sustainable catering guidelines for Council meetings and events.	Environmental Strategy Officer/OPAL	Medium Term
4.2.3 Assess options for, and support the development of, additional community gardens.	Manager Community Wellbeing	Medium Term
4.2.4 Continue to host the Alexandrina Sustainable Agriculture Round Table (ASART) as a means of providing recognition and support for farming and to encourage sustainable farming practices within the Alexandrina Council area.	Manager Planning and Development	Ongoing
4.2.5 Finalise and implement the Rural Areas Development Plan Amendment (DPA) introducing provisions in the Alexandrina Council Development Plan which will protect productive farming land and support crop diversification.	Manager Planning and Development	Short Term
4.2.6 Collaborate with NRM Boards and other community organisations such as the GWLAP to promote and encourage sustainable farming practices.	Environmental Strategy Officer	Ongoing
4.2.7 Continue to support local food projects delivered by the Obesity Prevention and Lifestyle (OPAL) program, including those delivered in partnership with local schools.	OPAL	Ongoing
4.2.8 Collaborate with Adelaide Hills Council, City of Onkaparinga and District of Council Barker with respect to the Mount Lofty Ranges Agrarian Landscape World Heritage Listing bid.	Manager Planning and Development	Ongoing

Strategy 4.3: Green our organisation

When Council first started talking to the community about developing an environmental strategy, one message came through loud and clear: Council is expected to lead by example. Council has had a Sustainability Policy in place for many years, but there is still more we can do to promote a green culture within Council and to integrate sustainability considerations into the decisions we make, the way we do business and the services we deliver. We recognise the need to ensure that our own house is in order before we can credibly influence others and encourage environmentally friendly behaviour change within the community. The adoption of this Plan is itself a significant step towards embedding environmental sustainability into Council's organisational culture.

Our aim: To improve the environmental performance of Council operations and foster an increased level of individual and corporate environmental responsibility.

In support of this aim, Council will:

- continue the process of integrating environmental sustainability as a core objective across all Council divisions and activities
- seek to ensure that the products we use and services we acquire minimise negative environmental impacts
- encourage our employees to adopt environmentally friendly behaviours at work and at home
- be proactive in seeking partnerships with other government agencies and regional bodies to obtain the support needed to achieve our sustainability goals.

Measuring our progress:

- Proportion of the community who are satisfied with Council's environmental performance.

Strategy 4.3: Green our organisation

Actions	Responsibility	Timeframe
4.3.1 Review, and if necessary update, Council's Sustainability Policy.	Environmental Strategy Officer	Short Term
4.3.2 Ensure the cross-organisational Sustainable Alexandrina Working Group meets regularly to drive, monitor and report upon implementation of this Plan.	Environmental Strategy Officer	Ongoing
4.3.3 Encourage staff to adopt environmentally friendly behaviours by holding regular 'Green Team' events and internal education campaigns.	SAWG/Environmental Education Officer	Long Term
4.3.4 Develop, implement and promote a set of Sustainable Events Guidelines for use by Council and the community.	Events Coordinator/Environmental Education Officer	Medium Term
4.3.5 Integrate sustainability considerations into Council's procurement policies, procedures and practices.	General Manager Organisation and Culture	Medium Term
4.3.6 Develop and deliver an environmental induction package for all new Council employees.	Manager HR and Risk/ Environmental Strategy Officer	Medium Term
4.3.7 Incorporate sustainability responsibilities and targets into the job descriptions and performance reviews of staff.	Manager HR and Risk / Relevant Managers	Medium Term
4.3.8 Ensure that environmental projects, initiatives and successes are regularly communicated to staff.	Environmental Strategy Officer/ SAWG	Ongoing
4.3.9 Continue to develop and implement annual Joint Action Plans with AMLRNRM and SAMDBNRM.	Environmental Strategy Officer	Ongoing
4.3.10 Pursue opportunities to collaborate with scientific research institutions on projects that will support the objectives of this Plan.	Environmental Strategy Officer	Ongoing
4.3.11 Undertake an Environmental Training Needs Analysis for all managers, staff and contractors and then develop & implement the necessary Environmental Training Program.	Environmental Strategy Officer	Medium Term

Strategy 4.4: Inform and engage our community

Raising awareness and building the capacity of households and businesses to take positive action are essential steps toward creating a more sustainable future for our community. Council cannot achieve the objectives of this Plan on our own. Our region is fortunate to have several community-run centres (Strathalbyn Natural Resource Centre, Lakes Hub, Milang Old School House Community Centre) which are a focus for environmental learning in our communities. Our region also hosts at least 25 active community conservation groups. Council is committed to working with these and other groups providing environmental education in our region to ensure that our community’s information needs are being met, without being duplicated. Council is also committed to recognising and rewarding those individuals and community groups who take a leading role in caring for the environment and enhancing the region’s sustainability.

Our aim: To inform, inspire and support the community to take action towards a more sustainable future.

In support of this aim, Council will:

- provide information which helps households and businesses to understand and reduce their environmental impacts
- offer our community a range of innovative environmental education opportunities
- facilitate meaningful community involvement in Council’s environmental decision-making
- recognise, reward and celebrate community action.

Measuring our progress:

- Number of volunteers/attendees at Council environmental events.

Strategy 4.4: Inform and engage our community

Actions	Responsibility	Timeframe
4.4.1 Establish an Environmental Advisory Group to provide input and advice to Council regarding implementation of this Plan.	Environmental Strategy Officer	Short Term
4.4.2 Investigate options for providing targeted environmental education materials to new property owners at the time of sale.	Environmental Strategy Officer/ Relevant Managers	Medium Term
4.4.2 Grow Council’s environmental education and engagement capabilities to the extent necessary to develop and deliver an annual Environmental Education Program targeted to households, business and schools. This program should support the other objectives of this Plan and will require Council to invest in a part-time Environmental Education Officer.	General Manager Environment and Infrastructure	Medium Term
4.4.3 Develop and deliver an annual Environmental Grants Program to reward and incentivise community action.	Environmental Strategy Officer	Medium Term
4.4.4 Host a bi-annual event which recognises and celebrates the achievements of local environmental volunteers and community groups.	Environmental Education Officer	Medium Term
4.4.6 Create an Environmental Hub on Council’s website to provide our community with a comprehensive source of environmental information.	Environmental Strategy Officer	Short Term
4.4.7 Pursue opportunities to raise the profile of Council’s environmental management activities via innovative collaborations with the region’s arts and culture sector.	Arts and Cultural Development Officer/Environmental Strategy Officer	Ongoing

Strategy 4.5: Care for Aboriginal culture and country

Alexandrina Council operates within the traditional lands of the Ngarrindjeri and Kurna Traditional Owner groups. Alexandrina Council acknowledges and respects their Traditional Ownership, and their rights, interests and obligations to speak and care for their traditional lands and waters in accordance with their laws, customs, beliefs and traditions. In 2002, Alexandrina Council and the Ngarrindjeri entered into a Kungun Ngarrindjeri Yunnan (Listen to Ngarrindjeri People Talking) Agreement. The KNY Agreement was the first of its type entered into by the Ngarrindjeri Nation and any level of government. The KNYA was the first of this type of agreement between the Ngarrindjeri Nation and any level of Government. The actions below support the protection and maintenance of Aboriginal culture and cultural sites within the Alexandrina Council area, and will enhance Council's natural resource management activities through the engagement and participation of the region's Aboriginal people and their representatives.

Our aim: To work with Traditional Owners to build awareness and understanding of, and to protect and promote, Aboriginal connection to country.

In support of this aim, Council will:

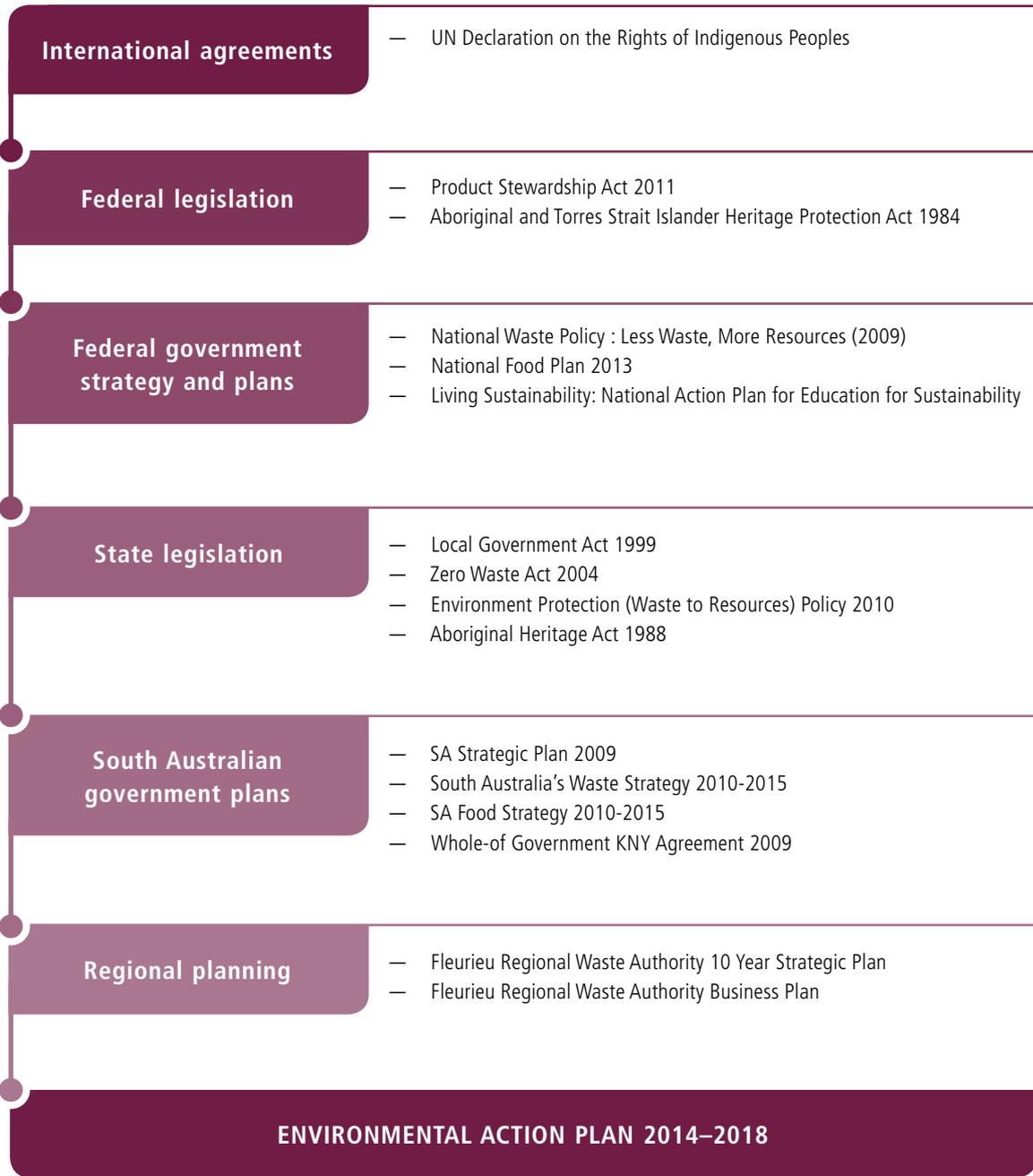
- continue to work with the Ngarrindjeri Regional Authority to give effect to the mutual commitments contained in the Kungun Ngarrindjeri Yunnan Agreement
- identify and pursue opportunities for Council staff to work with and learn from Traditional Owners
- adopt a continuous improvement approach to the way that Council and Traditional Owners engage and work with each other when planning and undertaking Council projects which impact upon traditional lands and waters
- identify and pursue opportunities for partnerships between Council and Traditional Owners in the area of natural resource management.

Strategy 4.5: Care for Aboriginal culture and country

Actions	Responsibility	Timeframe
4.5.1 Review the cultural awareness competencies of key project staff across all divisions of Council and provide cultural awareness training to fill any knowledge gaps.	General Manager Organisation and Culture/Relevant Managers	Short Term
4.5.2 Develop and implement an agreed procedure with the Ngarrindjeri Regional Authority which governs the notification and consultation processes Council and the NRA will follow with respect to development applications and Council projects which impact upon traditional lands and waters.	General Manager Environment and Infrastructure	Short Term
4.5.3 Continue to employ a dedicated Indigenous Liaison Officer to act as the primary contact between Council and Traditional Owner groups.	General Manager Organisation and Culture	Ongoing
4.5.4 Investigate options for preferential engagement of suppliers who support the economic participation, development and employment of Aboriginal people.	General Manager Organisation and Culture	Medium Term
4.5.5 Work with the Ngarrindjeri Regional Authority and other Local Governments to investigate resourcing options for a Local Government Liaison Officer based within the NRA.	General Manager Organisation and Culture	Ongoing
4.5.6 Build collaborative partnerships between Council and NRA staff to ensure that information regarding Ngarrindjeri knowledge and interests is incorporated into Council's biodiversity management planning processes and activities.	Environmental Strategy Officer/ Environmental Project Officer	Ongoing
4.5.7 Continue Leader to Leader meetings which monitor areas of mutual interest.	General Manager Organisation and Culture	Ongoing
4.5.8 Collaborate with the NRA to apply Councils Reserve Naming Procedure and ensure that town entrance signs include appropriate place names and acknowledgements.	Indigenous Liaison Officer	Ongoing

Links with international, federal, state and regional policy and legislation

Our local responses reflect global, national, state and regional priorities identified in the following legislation, strategies and plans. For a full description see Appendix 1.



Links with other Council plans

To effect real change a variety of staff across all divisions of Council will need to be responsible for, and involved in, implementing the strategies contained in this Chapter. The chart below demonstrates how this Chapter interacts with other Council strategies, plans, and procedures.



Mount Compass Strawberry Farm



Appendix 1 – Related plans and legislation

International agreements

Agreements and conventions on migratory species

Some of the bird species within Alexandrina Council are migratory. Australia is a signatory to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) as well as three bilateral agreements with Japan, China and Korea which provide for the conservation of migratory birds of the East Asian – Australasian Flyway. All migratory bird species listed in these bilateral agreements are protected in Australia as matters of national environmental significance under the EPBC Act.

Convention on Wetlands of International Importance 1971

Known as the Ramsar Convention, it promotes the conservation and wise use of wetlands. Wetlands which satisfy specified criteria can be designated as Ramsar Sites. Member countries must agree to conserve such wetlands by maintaining their ecological character. Australia currently has 65 Wetlands of International Importance listed under the Ramsar Convention, including the Coorong and Lakes Alexandrina and Albert Ramsar Site.

International Convention on Biological Diversity 1992

The primary aims of this Convention (CBD) are the conservation and sustainable use of biodiversity. The CBD requires member nations to prepare a national biodiversity strategy, identify and monitor biodiversity and threatening processes, establish a system of protected areas and implement measures to protect and promote the recovery of threatened species. The CBD also contains provisions relating to research, public education and awareness, impact assessment and scientific cooperation. Australia's primary tool for implementing the CBD is the Biodiversity Conservation Strategy 2010-2030.

United Nations Framework Convention on Climate Change 1992

The ultimate objective of this Convention is to stabilize global greenhouse gas concentrations at a level that

would prevent dangerous climate change. It also provides a framework for negotiating specific international treaties (called 'protocols') that can set binding national limits on greenhouse gas emissions. The Kyoto Protocol was one such treaty. Parties to the convention continue to meet annually and in 2010, agreed that future global warming should be limited to less than 2 degrees above pre-industrial levels. Parties have agreed to develop a future protocol to be adopted at the 21st meeting of the parties in 2015.

United Nations Declaration on the Rights of Indigenous Peoples 2007

The Declaration is a non-binding document which sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, and education. The Australian Government released a statement supporting the Declaration in 2009.

Federal legislation and standards

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

This Act creates a legal framework for the protection of Aboriginal objects, areas and remains. It operates in conjunction with State and Territory aboriginal heritage laws, as well as the EPBC Act which protects indigenous heritage places that are nationally or internationally significant, or that are situated on land that is owned or managed by the Commonwealth.

Carbon Credits (Carbon Farming Initiative) Act 2011

The Carbon Farming Initiative (CFI) allows farmers and land managers to earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land. These credits can then be sold to people and businesses wishing to offset their emissions. The CFI also aims to help the environment by encouraging sustainable farming and by providing a source of funding for landscape restoration projects. Participation in the CFI is voluntary.

Clean Energy Act 2011

This Act creates a carbon pricing mechanism and provides for industry assistance programs. Under current law, facilities which emit more than 25,000 tonnes of carbon dioxide each year are required to report on, and pay for, their carbon pollution. The Australian Government has said it intends to repeal this legislation and replace the carbon pricing mechanism with a Direct Action Plan.

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is Australia's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internally important flora, fauna, ecological communities, wetlands, migratory species, marine and heritage areas. The EPBC Act focuses on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance under State legislation. Activities likely to have a significant impact on a matter of national environmental significance are subject to an assessment and approval process under the EPBC Act.

National Greenhouse and Energy Reporting Act 2007

This Act establishes a national framework for reporting greenhouse gas emissions, greenhouse gas projects and energy consumption and production by corporations in Australia.

Product Stewardship Act 2011

This Act provides a framework to effectively manage the environmental, health and safety impacts associated with the disposal of products. The aim is to reduce waste and prevent

harmful materials from ending up in landfill by increasing recycling and the recovery of valuable materials from products. The framework includes voluntary, co-regulatory and mandatory product stewardship provisions.

Water Act 2007

This Act establishes the Murray-Darling Basin Authority and requires it to prepare the Basin Plan for the integrated and sustainable management of water resources in the Murray–Darling Basin. It also establishes a Commonwealth Environmental Water Holder to manage the Commonwealth's environmental water to protect and restore the environmental assets of the Basin, and gives the Australian Competition and Consumer Commission (ACCC) a key role in developing and enforcing water charge and water market rules.

Federal government strategies and plans

Adapting to Climate Change in Australia: Australian Government Position Paper (2010)

Sets out the Australian Government's vision for adapting to the impacts of climate change and proposes practical steps to realise this vision. It outlines the Australia Government's role in adaptation and identifies six national priority areas for action: water, coasts, infrastructure, natural ecosystems, natural disaster management and agriculture.

Australia's Biodiversity Conservation Strategy 2010-2030

The vision of this Strategy is that Australia's biodiversity is healthy and resilient to threats, and valued both in its own right and for its essential contribution to our existence.

Goolwa wastewater treatment plant



The Strategy highlights three priorities for action to help stop the decline in Australia's biodiversity. They are: (1) engaging all Australians, (2) building ecosystem resilience, and (3) getting measurable results. Developed to fulfil Australia's obligations under the UN Convention on Biological Diversity, implementing the Strategy is a shared responsibility across all levels of government, the community and the private sector.

Australia's Native Vegetation Framework (2012)

Endorsed by the Council of Australia Governments (COAG) Standing Council on Environment and Water, this Framework sets out five goals to meet the vision of native vegetation being managed in an ecologically sustainable way: (1) increase the national extent and connectivity of native vegetation, (2) maintain and improve the condition and function of native vegetation, (3) maximise the native vegetation benefits of ecosystem service markets, (4) build capacity to understand, value and manage native vegetation, and (5) advance the engagement and inclusion of indigenous peoples in the management of native vegetation.

Living Sustainability: National Action Plan for Education for Sustainability (2009)

The aim of this Plan is to equip all Australians with the knowledge and skills required to live sustainably. It sets out a framework for national action that adopts the following four strategies: (1) demonstrating Australian Government leadership, (2) reorienting education systems to sustainability, (3) fostering sustainability in business and industry, and (4) harnessing community spirit to act.

National Climate Change Adaptation Framework (2007)

Agreed to by COAG, this Framework encourages cooperative actions between all Australian governments to address key demands from business and the community for targeted information on climate change impacts and adaptation options. A key focus of the Framework is supporting decision-makers to understand and incorporate climate change considerations into policy and operational decisions at all scales and across all vulnerable sectors.

National Carbon Offset Standard (NCOS)

The NCOS aims to provide national consistency and consumer confidence in the environmental integrity of the voluntary carbon market. It assists consumers to make informed choices and interpret carbon neutral claims. It also helps businesses to determine their carbon footprint in line with consumer expectations and ensures they purchase robust offsets. It does this by providing guidance on what a genuine voluntary offset is, and by setting minimum requirements for calculating, auditing and offsetting the carbon footprint of an organisation, product or event to voluntarily achieve carbon neutrality.

National Food Plan (2013)

This Plan sets long-term goals to achieve the vision of Australia's food system being a sustainable, globally competitive, resilient food supply supporting access to nutritious and affordable food. The five priority areas for which goals have been set are: (1) growing exports, (2) thriving industry, (3) families and communities, (4) global food security, and (5) sustainable food.

National Waste Policy: Less Waste, More Resources (2009)

This Policy covers waste in the municipal, commercial and industrial, construction and demolition waste streams and covers gaseous, liquid and solid wastes. Radioactive waste is excluded. The aims of the Policy are to avoid the generation of waste, manage waste as a resource, ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally sound manner and to contribute to a reduction in greenhouse gas emissions, to energy conservation and production, water efficiency and the productivity of land. The Policy sets directions in six key areas: (1) taking responsibility, (2) improving the market, (3) pursuing sustainability, (4) reducing hazard and risk, (5) tailoring solutions, and (6) providing the evidence.

National Water Initiative (2004)

This is the blueprint for national water reform, agreed to by COAG. The NWI is a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment. Under the NWI, governments have made commitments to: prepare comprehensive water plans, achieve sustainable water use in over-allocated or stressed water systems, introduce registers of water rights and standards for water accounting, expand trade in water rights, improve pricing for water storage and delivery, and to better manage urban water demands.

National Wildlife Corridors Plan (2012)

An initiative to support the reconnection of the Australian landscape, this Plan lays the foundation for a collaborative, whole-of-landscape approach to the conservation of our nation's biodiversity. The aim is to create a national network of wildlife corridors, ranging from small corridors created by local communities to large corridors that stretch across many different landscapes. The Plan contains a five point plan of action: (1) developing and supporting corridor initiatives, (2) establishing enduring institutional arrangements, (3) promoting strategic investment in corridors, (4) working with stakeholders and supporting regional NRM planning, and (5) monitoring, evaluating and reporting.

Kondoli the Whale, inflatable story telling space - Just Add Water



Securing a Clean Energy Future: The Australian Government's Climate Change Plan (2011)

The Australian Government is responding to climate change through a wide range of measures as documented in this Plan. These measures include introducing a carbon price, promoting innovation and investment in renewable energy, encouraging energy efficiency and creating opportunities in the land sector to cut carbon pollution (i.e. the Carbon Farming Initiative and Biodiversity Fund). It is likely that many aspects of this Plan will be altered as a result of the recent change in government.

The Basin Plan

The Basin Plan provides a coordinated approach to water use across the Murray-Darling Basin and is developed under the Water Act 2007. The aim is to manage Basin water resources in the national interest rather than on jurisdictional or sectoral based approaches. New caps on the quantities of surface water and groundwater that can be taken from the Basin will come into force in 2019, the aim being to limit water use at environmentally sustainable levels whilst achieving a balance between environmental, economic and social considerations. The Basin Plan includes an environmental watering plan, a water quality and salinity management plan, requirements for state water resource plans and requirements for monitoring and evaluation of the Plan's effectiveness.

Water for the Future

Water for the Future is the Australian Government's long-term initiative to better balance the water needs of communities, farmers and the environment. It contains a suite of urban and rural policies and programs, including

significant funding for water purchasing, irrigation modernisation, desalination, recycling, and storm water capture. Water for the Future is built on four key priorities: (1) taking action on climate change, (2) using water wisely, (3) securing water supplies, and (4) supporting healthy rivers and wetlands.

South Australian legislation

Aboriginal Heritage Act 1988

This Act aims to protect and preserve Aboriginal heritage within South Australia by making it a crime to excavate or damage Aboriginal sites, objects and remains without first obtaining the authority of the Minister. The discovery of Aboriginal sites, objects and remains must be also reported to the Minister and failure to do so is an offence.

Coast Protection Act 1972

This Act establishes the Coastal Protection Board which works in partnership with Local Governments to protect and restore the coast from erosion, deterioration, pollution and misuse. The Board can engage in restoration activities such as moving or replenishing sand. The Board also provides comment on coastal development applications made under the Development Act 1993, particularly in relation to whether development is likely to be affected by storm surge flooding and/or sea-level rise, but also whether a proposal will impact on coastal qualities such as vegetation, reserves, beaches and views.

Crown Lands Management Act 2009

Crown Land is managed by the South Australian Government under this Act for the benefit of the community. Crown Land is all land within South Australia that is not privately owned. Crown Land may be subject to different types of tenure including licence, dedicated land, term lease or perpetual lease. Often Crown Land is placed under the care and control of Local Government for a dedicated purpose, such as recreation or conservation.

Development Act 1993

This Act establishes the planning and development system framework for South Australia and details many of the processes required to be followed within that framework (including processes for creating local Development Plans and for assessing development applications). It also establishes the powers and responsibilities of the Minister for Planning, the Development Assessment Commission and Local Governments (including Development Assessment Panels). The Alexandrina Council Development Plan is made under this Act.

Environment Protection Act 1993

This Act establishes the Environment Protection Authority (EPA). The key objects of the Act are to promote ecologically sustainable development and to prevent, reduce and minimise environmental harm. It does this in a number of ways: (1) by creating a general environmental duty not to pollute the environment, breach of which is an offence, (2) by enabling the EPA to create and enforce Environmental Protection Policies on specific issues, (3) by requiring activities of environmental significance to be licensed under the Act, (4) by requiring certain development applications to be referred to the EPA for comment, (5) by creating a range of offences for causing environmental harm, (6) by giving the EPA a range of investigation and enforcement powers such as the power to issue Environmental Protection Orders and Clean-up Orders, and (7) by establishing a framework for the management of site contamination.

Fire and Emergency Services Act 2005

This Act provides for the operation of South Australia's emergency services organisations: the Metropolitan Fire Service (MFS), South Australian Country Fire Service (CFS) and State Emergency Service (SES). The activities of all three organisations are overseen by the South Australian Fire and Emergency Services Commission (SAFECOM). The Act also provides for the State's bushfire management framework, creating the State Bushfire Coordination Committee which is supported by Regional Bushfire Management Committees (BMCs). Local Governments are involved in developing Bushfire Management Area Plans via the BMCs. Local Governments also have a number of compliance roles under

the Act i.e. ensuring that private landowners undertake required fire prevention activities, enforcing fire bans and issuing fire permits during fire danger season.

Local Government Act 1999

This Act creates the legal framework within which Local Government operates within South Australia. Amongst other things, the Act sets out the roles, functions and objectives of Councils, the role of elected members, the Chief Executive and staff, how rates should be charged and how land under the care and control of Local Government should be managed. One of the key roles of Council under the Act is to provide public services and facilities and develop the community in an ecologically sustainable manner.

Native Vegetation Act 1991

This Act is designed to prevent broad-scale clearance of native vegetation for agriculture and urban development on both public and private land. Regulations set out the circumstances in which native vegetation may be cleared without the need for consent from the Native Vegetation Council whilst the Act sets out the process for making a clearance application. The Act also enables landowners to enter into Heritage Agreements and then apply for assistance to preserve, enhance and manage native vegetation on their land.

National Parks and Wildlife Act 1972

This Act establishes and provides for the management a large part of South Australia's protected area system (including national parks, conservation parks, game reserves, recreation reserves and regional reserves) and also provides a mechanism for protecting threatened plant and animal species. The Act has three conservation status categories: Endangered, Vulnerable and Rare.

Natural Resources Management Act 2004

The NRM Act provides the legislative framework for the sustainable and integrated management of South Australia's natural resources. It creates the Natural Resources Management Council and 8 regional Natural Resources Management Boards (NRM Boards). The NRM Council prepares the State NRM Plan whilst each NRM Board is responsible for preparing and implementing a Regional NRM Plan and Water Allocation Plans. Key regulatory functions of the NRM Boards include controlling the use of water through Water Allocation Plans and working with landowners to control pest plants and animals. The NRM Act also imposes a 'duty of care' on all persons to take reasonable steps to prevent land and water degradation. Failure to do so can result in prosecution.

River Murray Act 2003

This Act aims to protect, restore and enhance the River Murray and its natural resources (including water, soil, ecosystems and heritage). It does this by imposing a duty of care on all people to ensure that their actions do not cause harm to the River. Certain statutory approval processes, such as development approvals and mining applications, must also be referred to the Minister for the River Murray who can impose conditions on approval to protect the River Murray.

South Australian Climate Change and Emissions Reduction Act 2007

This Act made South Australia the first Australian state to legislate targets to reduce greenhouse emissions. The headline target is to reduce greenhouse gas emissions within the state by at least 60% to an amount that is equal to or less than 40% of 1990 levels 2050. The legislation also commits the state government to work with business and the community to develop and put in place strategies to reduce greenhouse emissions and adapt to climate change. Resulting initiatives include climate change sector agreements and the Climate Change Adaptation Framework for South Australia.

South Australian Public Health Act 2011

This Act sets in law the standards, rules and powers used to preserve, protect and promote the public's health in South Australia. It enables health officials to take action to address health hazards and minimise the risk of communicable diseases, and enables the development of voluntary codes of practice for industry, business and the community. Local Government environmental health officers have a range

of responsibilities under the Act, including food business and swimming pool inspections, immunisation programs, mosquito and other pest management, human waste control, and responding to cases of severe domestic squalor.

Zero Waste Act 2004

This Act creates Zero Waste SA, a statutory authority whose primary purpose is to promote waste management practices which will eliminate waste to landfill. Zero Waste SA is responsible for developing the South Australian Waste Strategy and generates income for its activities from the Waste to Resources Fund, which receives 50% of the solid waste levy collected under the Environment Protection Act 1993.

South Australian strategies and plans

30 Year Plan for Greater Adelaide

This Plan sets out a vision for the growth and development of the Greater Adelaide region during the next 30 years. It outlines where people will live, where jobs will be located and where new transport and infrastructure will be provided. The Plan prepares for population growth of 560,000 people and the construction of 258,000 more dwellings. The Greater Adelaide area extends from Victor Harbor and Goolwa in the south to the Barossa Valley in the north; from Gulf St Vincent in the west to the River Murray in the east. Within Alexandrina Council, the Plan identifies two significant Future Urban Growth Areas at Goolwa North and Hindmarsh Island, plus smaller areas around Strathalbyn.

Basham's Beach Regional Park



Climate Change Adaptation Framework for SA (2012)

The Framework is intended to guide action taken by business, the community, non government organisations, the research sector, local governments and state government agencies to develop well informed and timely climate change adaptation responses. The Framework's guiding principles describe how adaptation responses at all levels will be prioritised, developed and delivered. The Framework also establishes a regional approach to adaptation planning and describes the likely impacts and opportunities from climate change for a range of sectors.

No Species Loss – A Nature Conservation Strategy for South Australia 2007-2017

The Strategy outlines five goals that must be achieved if we are to protect the South Australia's native species from extinction. These are: (1) conservation of South Australia's biodiversity, (2) community ownership and stewardship for biodiversity, (3) ecological knowledge that can influence decision making, (4) adjustment to the impacts of climate change, (5) active and integrated natural resource management partnerships. The Strategy also sets objectives and targets for the conservation and management of the South Australia's biodiversity which will contribute to achieving these goals.

SA Food Strategy 2010-2015

This Strategy identifies six priorities for ensuring that South Australia's food industry can remain internationally competitive by being sustainable, well-managed and consumer driven. The Strategy is applicable to whole food value chain – starting from the consumer and working back through retail, distribution and processing to the producer. It contains six priorities: (1) consumer insight and market development, (2) enhancing knowledge, collaboration and leadership, (3) enhancing capacity and productivity, (4) optimising environmental sustainability, (5) leading in product integrity, and (6) fostering regional and community development.

SA Strategic Plan 2009

Provides direction to government, business and community organisations regarding the future of South Australia. Revised in 2011, the Plan contains 100 measurable targets that reflect the priorities of the State and it guides the content of the State NRM Plan and Regional NRM Plans.

South Australia's Waste Strategy 2010-2015

This Strategy is the primary tool for reforming waste management in South Australia. It informs Zero Waste SA's Business Plan, guides state and local government activities and involves business, industry and the wider community.

The objectives of the Strategy are to maximise the useful life of materials through reuse and recycling and to avoid and reduce waste. The Strategy also sets targets for total waste to landfill and diversion rates.

State NRM Plan 2012-2017

The State NRM Plan seeks to integrate natural resources management across all public and private lands in partnership with government, industry and the community. Regional NRM Plans are required to be consistent with the State NRM Plan. The State NRM Plan contains three goals each of which are supported by a number of guiding targets and representative measures. The three goals are: (1) People taking responsibility for natural resources and making informed decisions, (2) Sustainable management and productive use of land, water, air and sea, and (3) Improved condition and resilience of natural systems.

State Stormwater Strategy (2011)

This Strategy outlines how the targets for stormwater harvesting and reuse contained in Water for Good (i.e. having the capacity to harvest 60 GL a year within Greater Adelaide by 2050) can be achieved. It contains nine key actions including the development of an integrated blueprint for Greater Adelaide's urban water management.

Tackling Climate Change: SA's Greenhouse Strategy 2007-2020

This over-arching document sets out South Australia's long-term response to climate change via three key strategies: reducing greenhouse gas emissions, adapting to climate change and innovating in markets, technologies, institutions and the way we live. The Strategy contains 8 goals in the areas of leadership, adaptation, community, industry, energy, transport and planning, buildings and natural resources, each with a list of key government actions.

Water for Good

This is South Australia's water security plan to 2050 and beyond. It outlines 94 actions needed to ensure that water supplies are secure, safe, diverse, reliable and able to sustain a growing population as well as a growing economy in a changing climate. The vision is that Greater Adelaide will not need water restrictions – beyond permanent water conservation measures – more than once in every 100 years.

Water Sensitive Urban Design Policy (2013)

This Policy promotes urban design principles which integrate the management of the water cycle into land use and development processes. It provides State-wide water sensitive urban design (WSUD) targets for new

developments and details the role that Government will play in collaboration with other stakeholders to maximise the use of WSUD approaches.

Regional plans

NatureLink Plans – Cape Borda to Barossa and River Murray-South East

NatureLinks is a landscape-scale approach to conserving South Australia's plants and animals by managing and restoring large areas of habitat within broad biodiversity corridors. NatureLinks aims to create five biodiversity corridors across the state. The State Government plays the role of a facilitator, bringing together land managers, organisations, community groups and government agencies to share knowledge and expertise and work in partnership. The Cape Borda to Barossa NatureLink stretches from Kangaroo Island across to the Fleurieu Peninsula and Mount Lofty Ranges through to the Barossa Valley. The River Murray – South East NatureLink stretches the full length of the River Murray in South Australia, encompassing the entire Coorong area and continuing along the south-eastern coast to the Victorian border.

Regional NRM Plans – Adelaide and Mount Lofty Ranges and SA Murray-Darling Basin

Each Regional NRM Board established under the Natural Resources Management Act 2004 is required to prepare a Regional NRM Plan. The majority of Alexandrina Council falls

within the SA Murray-Darling Basin NRM Region however a small portion to the west of Mount Compass and the coastal strip from Middleton through to Hayborough fall within the Adelaide and Mount Lofty Ranges NRM Region. Regional NRM Plans contain a description of the state and condition of natural resources within the relevant region and include a 10-year strategic plan (providing direction for all stakeholders working to improve the natural resources of the region) and a 3-year business plan (outlining how the Board will invest its monies during that period).

Water Allocation Plans - Eastern Mount Lofty Ranges, Western Mount Lofty Ranges and River Murray Prescribed Water Course

Water Allocation Plans (WAPs) seek to set sustainable limits on water use, taking into account the water needs of the environment. A WAP will set the amount of water that is available for consumptive use, how that water may be allocated to users and the types of activities that are permitted with that water. Once a WAP is in place, water rights are allocated to users via licences. WAPs also contain permit requirements for water affecting activities such as the construction of wells and dams, undertaking works in watercourses, and discharging into watercourses. All ground and surface water resources within the Alexandrina Council area are regulated in this way, as is water taken from the River Murray.

Goolwa Coastcare revegetation project, Middleton

Photo: Ben Simon



Appendix 2 – List of acronyms

AHD – Australian Height Datum

AMLNRNM – Adelaide and Mount Lofty Ranges Natural Resources Management Board

ASART – Alexandrina Sustainable Agriculture Roundtable

CLLMM – Coorong Lower Lakes and Murray Mouth

COAG – Council of Australian Governments

CSIRO - Commonwealth Scientific and Industrial Research Organisation

CWMS – community wastewater management scheme

DPA – Development Plan Amendment

EC (uS/cm) – Electrical conductivity (a measure of salinity)

FRWA – Fleurieu Regional Waste Authority

FTE – Full Time Equivalent

GIS – geographic information system

GWLAP – Goolwa to Wellington Local Action Planning Association

ILUA – Indigenous Land Use Agreement

IPCC – Intergovernmental Panel on Climate Change

IWMP – Integrated Water Management Plan for Goolwa and Hindmarsh Island

KNYA – Kungun Ngarrindjeri Yunnan Agreement

KPI – Key Performance Indicator

LGA – Local Government Association of South Australia

NRA – Ngarrindjeri Regional Authority

NRM – Natural Resources Management

OPAL – Obesity Prevention and Lifestyle

ppm – parts per million

RDA – Regional Development Australia

RMS – Roadside Marker System

SAMDBNRM – SA Murray-Darling Basin Natural Resources Management Board

SAWG – Sustainable Alexandrina Working Group

SBC – Strengthening Basin Communities

WAP – Water Allocation Plan

WHS – Work Health and Safety

WSUD – water sensitive urban design

THRIVE IN CLEAN GREEN FUTURES

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