

# Contents

Acknowledgement of Country.....	3	Sustainable Buildings and Operations.....	46
A message from the Mayor.....	4	Ecotourism .....	48
Why an Environment Strategy?.....	5	Stewards of the environment, custodians of our culture.....	50
Environmental Narrative .....	6	Aboriginal Culture.....	52
Environment Strategy Framework .....	8	Volunteering, Environmental Literacy and Sustainable Living.....	54
Guiding Principles .....	10	Engaging Young People .....	56
Strategic Alignment.....	12	Litter and Illegal Dumping .....	58
Built in nature, not on nature.....	14	Climate Change.....	60
Supporting Biodiversity.....	16	Climate Change Adaptation .....	62
Enhancement of Green Spaces.....	18	Engagement and Education.....	64
Urban Canopy.....	20	Corporate Responsibility .....	68
Sustainable Transport Networks.....	22	How we developed this Strategy.....	72
Water Sensitive Urban Design and Drainage.....	24	How we will deliver this Strategy.....	74
Water Quality.....	26	Implementation Plan.....	78
Woven by waterways.....	28	References.....	102
Coast and Foreshore Management .....	30		
Enhancement of Blue Spaces.....	32		
Estuarine Ecology .....	34		
Lead and serve in equal measures.....	36		
Water Security .....	38		
Waste Minimisation and Management.....	40		
Renewable Energy and Climate Change Mitigation.....	42		
Corporate Energy and Water Efficiency.....	44		

# Acknowledgement of Country

The City of Mandurah acknowledges and pays respect to the Bindjareb people, who are the Traditional Owners and First Peoples of this land. We pay respect to the Elders past and present and acknowledge the continuing contribution they make to the life of this City and this region.



# A message from the Mayor

In 2018, the City of Mandurah launched Mandurah Matters, one of its largest community engagement initiatives to date. At the heart of the conversation, we asked residents “What matters to Mandurah?” The answers help us create a shared vision and aspiration that guides the City’s decision-making for the next 20 years.

Throughout the Mandurah Matters consultation, our community was clear: nature needs a voice in the decisions we make as we plan for the future. As a result, the natural environment is reflected in all four Focus Areas in our Strategic Community Plan.

We know that working with the environment in mind has the potential to influence better outcomes in the areas of Economy, Social and Health. There are numerous studies that show engaging with the environment has benefits that range from improvements in our physical or mental health, to improved concentration and productivity. The natural environment helps us thrive.

It’s also worthy of being protected and cared for in its own right. Mandurah’s environment is uniquely diverse, and we are part of one of the most threatened places on the planet. But we also have a community that is proud to live here, who cares for our environment and wants to see it nurtured...and we’ve developed an Environment Strategy to do just that.

We worked closely with staff, Elected Members, environmental groups, Aboriginal Elders and the broader community to shape a shared vision that reflects our connection to and hope for our natural environment. The City of Mandurah Environment Strategy 2023-2033 brings together all of the City’s environmental work and provides clear direction and priorities for the future, so that our people, our wildlife, our flora and our future generations can all continue to thrive.

We are so excited to share this with you.



# Why an Environment Strategy?

The Mandurah community has always valued our environment. For many, it's what makes living here so special...what makes us love living here.

Mandurah is part of the Southwest Australia Ecoregion, one of a small number of Global Biodiversity Hotspots. These hotspots recognise areas that have a very high number of plants that are found nowhere else in the world, but have lost at least 70% of their native vegetation. In other words, these areas are some of the most unique, yet degraded (and therefore threatened), places in the world.

Even amongst an area of global uniqueness, Mandurah's environment stands out. Much like our cultural history, as Mandjoogoordap - meeting place of the heart - in Mandurah, environments also meet. Here, you can find beaches, foreshores and coastal heath, internationally-recognised wetlands, diverse, native bushland and rivers, all within minutes of each other.

This overlapping of different environments is what makes Mandurah so special, and it's also why we are home to an unusually high number of threatened species of flora and fauna, and Threatened Ecological Communities (TECs).

Our estuary and surrounding wetlands are also an important place for resident and migratory shorebirds. Collectively known as the Peel-Yalgorup Wetlands System, these waterways are listed under the Ramsar Convention on Wetlands of International Importance. Over 30,000 waterbirds rest and feed in these waterways each year, some traveling from as far as Siberia in the Northern Hemisphere.

Being home to such incredible biodiversity comes with great responsibility. We need to protect our natural environment from a variety of new and existing threats, to ensure that it can continue to thrive and we can continue to share it with generations to come.



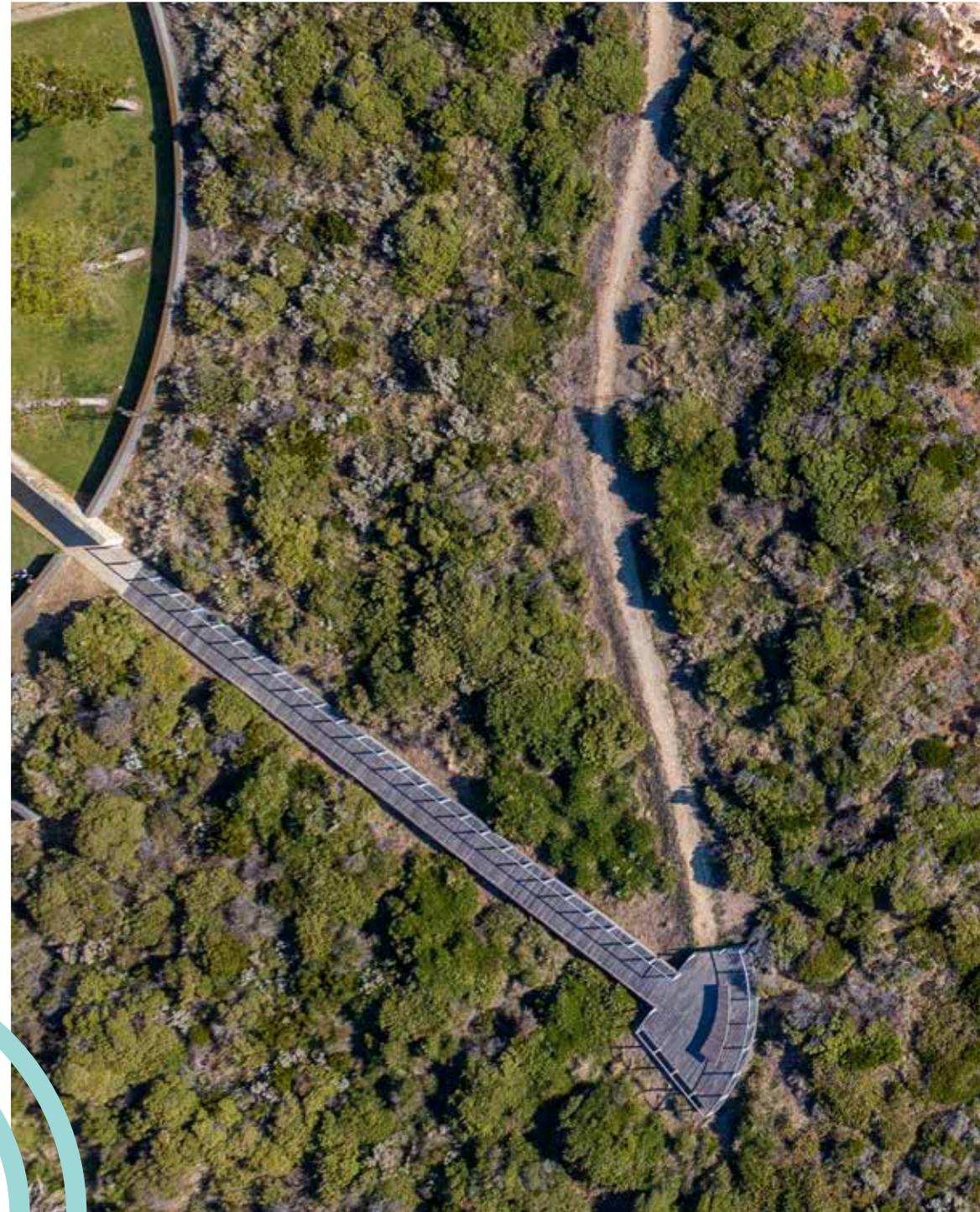
# Environmental Narrative

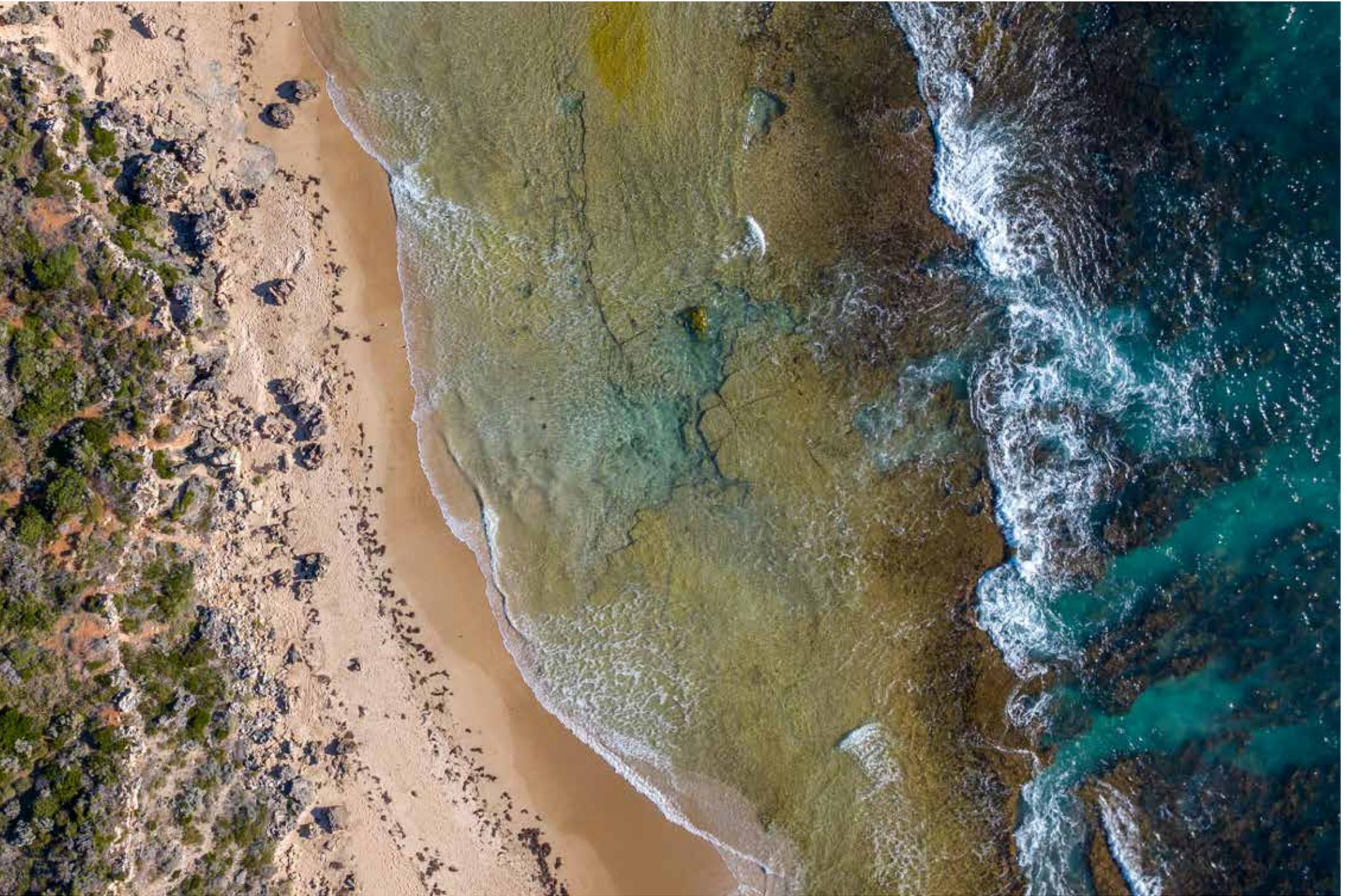
This is our Mandjoogoordap, the meeting place of the heart, and it's where waterways, wildlife and thriving bushland also meet.

We live in one of the most beautiful, unique, and threatened places on the planet. Our natural environment is at the centre of life here, vital to our health and wellbeing, and we are vital to its wellbeing. We want our beaches, rivers and estuary to be pristine, our wildlife to thrive, and our parks and bushland to be diverse and healthy. We want water to be clean and abundant for people, places and wildlife.

Nature needs a voice in the decisions we make as we plan for the future, and in the actions we take each day. With the help of our community, we want to lessen our collective footprint and ensure we walk softly on this land. We want to celebrate the stories of country and community, and elevate nature's place in our neighbourhoods; to preserve, respect, understand and celebrate our local environmental identity so we can share an even more pristine environment with generations to come.

We are guardians of a place that is woven by waterways and bursting with biodiversity...a city that is as active in caring for our environment as we are proud to call it home.





# Environment Strategy Framework

**Strategic Goal**  
 A healthy and diverse natural environment where we walk softly on our Mandjoogordap

**Environmental Constants**

**Climate Change**

- Adaptation and Resilience
- Risk Management
- Future Thinking

**Engagement and Education**

- Collaboration and Communication
- Open to Feedback
- Willing to Adapt
- Advocacy

**Corporate Responsibility**

- Evidence-based
- Continuous Improvement
- Integrated and Holistic Planning

**Themes**

**Built in nature, not on nature**

**Woven by waterways**

**Lead and serve in equal measures**

**Stewards of the environment, custodians of our culture**

**Priorities**

- Supporting Biodiversity (prioritising local, native species)
- Enhancement of Green Spaces
- Urban Canopy
- Sustainable Transport Networks
- Drainage and Water Sensitive Urban Design
- Water Quality

- Coast and Foreshore Management
- Enhancement of Blue Spaces
- Estuarine Ecology

- Water Security
- Waste Minimisation and Management
- Renewable Energy and Mitigation
- Corporate Energy and Water Efficiency
- Sustainable Buildings and Operations
- Ecotourism

- Aboriginal Culture
- Volunteering, Environmental Literacy and Sustainable Living
- Engaging Young People
- Litter and Illegal Dumping

# Framework Breakdown

## Strategic Goal

The Strategic Goal is the overarching aim of the Environment Strategy.

## Environmental Constants

Just like the environment is reflected across all areas of our Strategic Community Plan, there are some concepts that can't be confined to just one area. In our Environment Strategy, we have called these *Environmental Constants*. All of these topics are important in their own right, but we want to make sure they are considered and included in everything we do, to ensure we deliver the best outcomes for our environment and community. The creation of these Environmental Constants aims to support this by embedding these three concepts across all of our environmental work.

## Themes

Four key Themes have been identified through the Environment Strategy engagement process.

The titles of these Themes have been drawn directly from the Mandurah Matters Community Narrative. They are designed to group together priority management areas in a way that actively discourages siloing, as opposed to a traditional approach that addresses areas by subject (e.g. Waterways, Bushland, Parks).

## Priorities

A number of Priority Management Areas have been identified for the City's environmental work. These are listed under Priorities and reflect the areas each Theme will focus on. Related Priorities have been grouped together to enhance collaboration and further improve environmental outcomes.

## Guiding Principles

Guiding Principles have been developed for both the Themes and Environmental Constants. These outline how we want to be thinking and operating when working in these spaces. They also provide a deeper explanation of the intention of each Theme and Environmental Constant.

# Guiding Principles

Guiding Principles have been developed for both the Themes and Environmental Constants. These outline how we want to be thinking and operating when working in these spaces, along with providing a deeper explanation of the intention of each Theme and Environmental Constant.

## Built in nature, not on nature

We are a City built in nature, not on nature, in one of the world's biodiversity hotspots. Our natural environment is as unique as it is threatened and we design and deliver innovative programs to protect, restore, and reduce threats to it.

Our parks and green spaces are accessible and welcoming, and they celebrate our local identity by showcasing local, native species. We use our urban landscape to connect habitat, enable low impact travel and capture and retain water in the ecosystem.

Our work is designed in a way that deeply considers and complements the natural environment, to maximise nature's place in the urban landscape and to ensure it is protected for generations to come.

## Woven by waterways

Our Ramsar-listed waterways are internationally recognised for their ecological significance and we actively preserve and celebrate them.

We know they are, and have always been, an important part of our community identity, and that many people are drawn to our beaches, foreshores, rivers and estuary and choose to spend their free time on and around them... being so close to the water brings joy to so many residents and visitors alike.

We strive to ensure that our coast, foreshores and waterways, and the wildlife that rely on them, are vibrant and healthy, and that our community continues to have appropriate access to them.

## Lead and serve in equal measures

We are committed to making a difference in our community, and to helping create a beautiful, clean and sustainable environment for all. We understand that to do this we must lead by example.

We advocate for the current and future needs of our community, and manage our own environmental footprint in a responsible and considered manner. We invest in furthering our understanding of environmental matters, collecting locally-relevant data, and strengthening regional collaboration.

This enables us to integrate sound consideration of the environment into our planning processes to ensure the best outcome for all.

## Stewards of the environment, custodians of culture

We aim to inspire a community that understands the uniqueness of our natural areas and voluntarily cares for the environment as a priority, not an afterthought. In doing so, we strive to foster a community that makes informed, respectful and responsible decisions, and has responsible behaviours...a community that understands their impact and chooses to nourish and protect the environment.

We ensure that everyone in our community is welcome and able to participate in environmental volunteering opportunities, so that together we can build deep engagement and respect for the environment.

We acknowledge and celebrate the stories of the country, and teach Bindjareb stories to our community. Our local history and culture are honoured and infused in our environmental work, and our environmental volunteers are supported and empowered.

## Climate Change

We are committed to managing the risks of climate change to our community and to our city in the most appropriate manner.

We acknowledge the complexity of this task, and collaborate with relevant stakeholders to develop solutions.

We take the time to develop a response based on a range of influencing factors. We demonstrate regional leadership and advocate for the needs of our community, ensuring that major projects and partners are also factoring climate change into their decision-making.

## Engagement and Education

Our ability to create positive change for our natural environment is directly impacted by our community.

We aim to nurture, build and maintain an engaged and educated community, and provide opportunities for them to learn about what we are already doing and why our environment is so special.

We build strong relationships with all stakeholders, and welcome and listen to their feedback in two-way conversations.

When we communicate, we are transparent, respectful and willing to have the big conversations, even if they are difficult, because we know that's how the best solutions are developed.

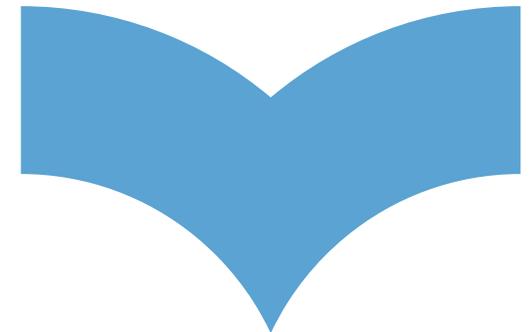
## Corporate Responsibility

We ensure we are walking the walk in the way we think and deliver, and demonstrate consistency in our approach to caring for the environment by considering all our work through an environmental lens.

We strive for meaningful and continuous improvement, find innovative, evidence-based solutions to complex problems and take the time to assess situations properly before we commit to a course of action.

Our decisions are based on the best available data and, where possible, this data is locally relevant.

We strive to continually learn and improve in both our processes and delivery to ensure nature has a voice in the decisions we make as we plan for our future, and that we deliver on our commitments to make a difference in our community.



# Strategic Alignment

The City's Strategic Community Plan 2020-2040 identifies five Key Focus Areas for Mandurah. These include Economy, Social, Health, Environment and Organisational Excellence. Strategic Objectives and Community Outcomes have been identified for each of these Key Focus Areas.

The Community Outcomes describe what we aim to achieve in each of these areas, based on the community input we received through the Mandurah Matters engagement process, while the Strategic Objectives describe how we aim to achieve this.

## **The following Objectives from the City's Strategic Community Plan relate to the City's environmental work:**

- 1.5 Leverage partnerships with key stakeholders to achieve improved economic outcomes with due consideration to environmental impacts
- 4.1. Advocate for and partner with key stakeholders to ensure environmental impacts are considered in all planning, strategy development and decision making
- 4.2. Protect and manage our local natural environment ensuring our actions don't adversely impact our waterways
- 4.3. Create opportunities for the community to promote and preserve our local natural environment
- 4.4. Educate and provide leadership on environmental and climate change related issues
- 4.5. Partner and engage with our community to deliver environmental sustainability outcomes
- 2.6. Provide diverse and sustainable places and spaces that enable people to lead an active lifestyle
- 3.3. Provide and facilitate quality community infrastructure that is accessible, and conducive to a healthy, active community
- 3.5. Promote the importance of healthy choices, an active lifestyle and the role the natural environment plays in achieving health outcomes
- 5.2. Provide professional customer service, and engage our community in the decision-making process
- 5.5. Ensure that our actions maintain a sustainable balance between economic growth, the environment and social values

## **The following Environment Community Outcomes have been identified through the Strategic Community Plan:**

- Nature having a voice at the table in all decisions
- A beautiful, clean, and sustainable environment for all
- Preserving and celebrating the waterways
- Protecting the natural environment for generations to come
- Deep engagement and respect for the environment

The Environment Strategy builds upon the Strategic Objectives and Community Outcomes identified in the Strategic Community Plan 2020-2040. A breakdown of the Environment Community Outcomes, and how they relate to the Themes and Environmental Constants identified in the Environment Strategy, are included in the following table.

# Strategic Alignment – Community Outcomes

**Environmental Constants** (Climate Change, Engagement and Education and Corporate Responsibility)

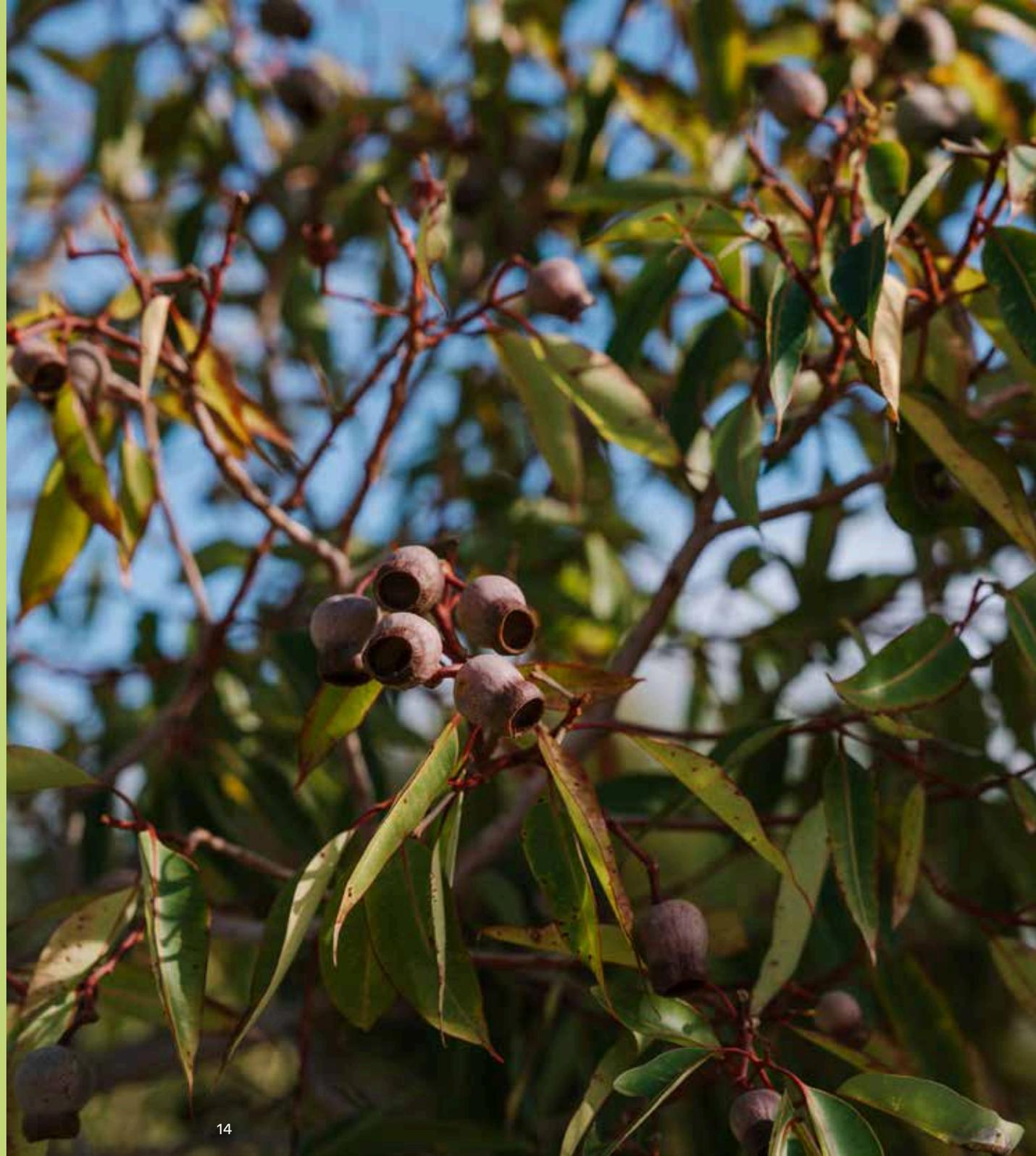
Nature having a voice at the table in all decisions\*

\*This is how we are embedding consideration for the natural environment across the organisation.

<b>Built in nature, not on nature</b>	<b>Woven by waterways</b>	<b>Lead and serve in equal measures</b>	<b>Stewards of the environment, custodians of our culture</b>
Protecting the natural environment for generations to come	Preserving and celebrating the waterways	A beautiful, clean and sustainable environment for all	Deep engagement and respect for the environment



**Built in nature,  
not on nature**



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Supporting Biodiversity (prioritising local, native species)</li> <li>● Enhancement of Green Spaces</li> <li>● Urban Canopy</li> <li>● Sustainable Transport Networks</li> <li>● Drainage and Water Sensitive Urban Design</li> <li>● Water Quality</li> </ul>	<p>We are a City built in nature, not on nature, in one of the world’s biodiversity hotspots. Our natural environment is as unique as it is threatened and we design and deliver innovative programs to protect, restore, and reduce threats to it.</p> <p>Our parks and green spaces are accessible and welcoming, and they celebrate our local identity by showcasing local, native species. We use our urban landscape to connect habitat, enable low impact travel and capture and retain water in the ecosystem.</p> <p>Our work is designed in a way that deeply considers and complements the natural environment, to maximise nature’s place in the urban landscape and ensure it is <b>protected for generations to come.</b></p>	<ol style="list-style-type: none"> <li>1.1. Restore and protect the ecological value of our uniquely diverse natural areas, for generations to come</li> <li>1.2. Ensure appropriate strategies are in place to conserve and support biodiversity, and to minimise threats to it</li> <li>1.3. Grow, maintain and value a healthy, diverse urban canopy to connect people and wildlife and make our city more liveable</li> <li>1.4. Provide accessible, interconnected and welcoming green spaces that support the well-being of the community and improve biodiversity</li> <li>1.5. Champion sustainable and active transport opportunities to deliver an accessible, pedestrian-linked, eco-centric city that maximises nature’s place in our urban environment</li> <li>1.6. Recognise all water as a resource, increase water recycling, improve water quality and support ecosystem services through water sensitive design</li> </ol>	<p>Protecting the natural environment for generations to come</p>

# Supporting Biodiversity

## Why is this important?

Biodiversity underpins all life on Earth. It is key in building a healthy ecosystem of people, wildlife and plants. By preserving our biodiversity, we ensure that our environment continues to thrive and provide us with food, clean air and water, and supports our physical and mental wellbeing.

Southwest Australia is one of the most biodiverse regions in the world. Approximately 50% of the plants and 13% of the animals found here are found nowhere else on Earth. However, biodiversity has been rapidly declining on a global scale. This is due to impacts such as urban development, habitat loss and fragmentation, climate change and population increase<sup>1,2,3</sup>. Based on the past 200 years, Australia has the worst record in the world when it comes to extinction and biodiversity loss<sup>4,5</sup>.

Here in Mandurah, the meeting of many different types of environments has created a collection of species that is truly unique. We are home to many rare flora and threatened species and communities (and a resting or breeding area to others). It is also a place where our local species are embedded in our day-to-day lives, so protecting these unique species also protects our connection to the environment, and sense of place and identity. By managing our biodiversity and prioritising local species we can help to build a City that is happy, healthy, resilient and reflects the uniqueness of who and where we are.

## What we are already doing

- Purchased 150ha of high-value bushland for conservation under the Bushland Protection Strategy
- Retaining and protecting our natural areas through the planning guidelines set out in the Biodiversity Strategy<sup>6</sup>, including the designation of Tree Preservation Areas
- Building a Biodiversity Database to inform the development of Reserve Management Plans and the implementation of these plans
- Undertaking feral pest, weed, and bushfire risk management
- Participating in research partnerships to enhance our understanding of the natural environment, such as the Backyard Bandicoots, Tuart Health and Mandurah Dolphin Research partnerships
- Implementing novel approaches to support wildlife protection, such as the Possum Rope Bridge, Cockatoo Watering Station and protecting nesting Fairy Terns



## What we manage

- Over 1000 hectares of bushland which provides habitat for:
  - 4 Threatened Ecological Communities
  - 12 Priority and 2 Declared Rare Flora
  - 6 Threatened Species, including the Endangered Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest Red Tail Black Cockatoo, the Critically Endangered Western Ringtail Possum, the Vulnerable Fairy Tern and the Near-threatened Phascogale

## Our direction

- Continue to deliver and meet targets for the City's Biodiversity Strategy
- Improve the level of collaboration and sophistication in our feral animal management approach
- Advocate and partner with others to ensure improved wildlife protection



# Enhancement of Green Spaces

## Why is this important?

Green spaces play an important role in supporting our biodiversity and people, particularly in the face of a growing city. Local parks and reserves, green corridors and buffers, and recreation space and sporting fields all support our community to gather, play and connect with nature. Nature also plays an important role in community health, with many studies now showing the clear link between time in nature and increased health and wellbeing<sup>7</sup>.

Along with being attractive places for people of all abilities to spend time, green spaces act as home and refuges for wildlife. They also provide space for native plantings that filter stormwater and cool our city.

With an increasing population and higher-density suburbs, green spaces often compete with demands for new infrastructure and facilities. Enhancement of these green spaces, including retaining and maintaining spaces, improving access, and establishing new spaces, is an important part of balancing our community needs for a healthy, active, and connected City.

## What we are already doing

- Upgrading our major foreshores, including Falcon Bay, Novara and the Eastern and Western Foreshores
- Working with the Access and Inclusion and Youth Advisory Groups and developing Standard Detail Designs to improve the accessibility and useability of our parks and reserves across all user groups
- Fostering appreciation of our green spaces and their environmental significance by involving community in the development of Concept Plans for our parks
- Continuously improving our parks to better meet community needs through the asset maintenance and renewal programs
- Increasing accessibility facilities and services at parks, reserves and environmental community events such as Bins 4 Blokes, accessible floating jetties, Changing Places facilities and the Estuary Pool
- Creation of an accessible parks resource

## What we manage

- 611 parks and reserves
- 348.7ha of recreation space
- 137 playgrounds

## Our direction

- Help to build a healthier, more liveable community by making sure that people all around our city have equitable access to high quality parks and amenities
- Review arterial road and streetscape planting masterplans to ensure our main transport corridors are green and beautiful
- Utilise the Access and Inclusion Advisory Group to inform the availability of accessible features in outdoor spaces
- Review and expand the availability of accessible and inclusive outdoor environments and public spaces





# Urban Canopy

## Why is this important?

Trees are an essential part of our urban community. They provide clean air, shade and cool our homes and streets, and are home and food for wildlife. Urban canopy is not just about the trees in parks and reserves but also captures street trees and private gardens. Improving urban canopy through Mandurah will connect habitat across our city to ensure wildlife can move through our neighbourhoods safely. For people, this canopy will provide shade for us to walk in, make our neighbourhoods more beautiful, support physical health by cooling our city, and help to reduce maintenance costs for key infrastructure (such as roads and footpaths) by protecting them from extreme heat.

Urban development, damage, reduced rainfall and disease, along with an aging canopy, are placing more pressure on our urban trees than ever before. Planting new trees now is key to building a healthy urban canopy in the future, and in ensuring our urban canopy is more resilient to threats.

Choosing tree species which reflect the character of Mandurah, support wildlife and are most suitable for the location will also ensure we have trees that enhance rather than disrupt the amenity of the area, protect our infrastructure and our people, and can be embraced by the surrounding community.

## What we are already doing

- Retaining trees through planning and management guidelines, including the Tree Management Technical Guidelines, Management of Trees and Public Open Spaces Policy, Active Reserve and Public Open Spaces Masterplans and Biodiversity Strategy
- Developed a Pathogen Management Plan
- Protecting significant trees and communities through inclusion on the City's Significant Tree Register and Tree Preservation Areas
- Completing annual street tree audits to assess the condition of our tree assets
- Conducted an Urban Canopy Analysis to develop a baseline for our urban canopy
- Improving the management of our trees to maximise their benefit to our community and extend the life of street trees

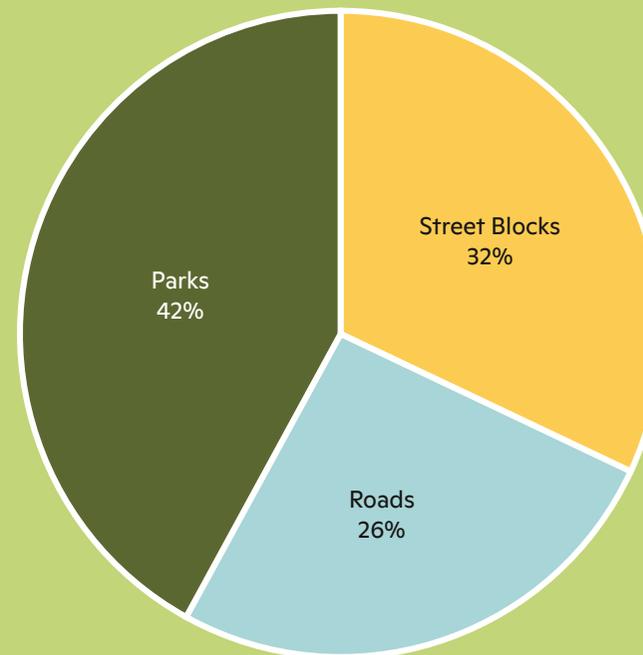
## What we manage

- Over 36,000 street trees (and counting!)

## Our direction

- Implement the Greening Mandurah Framework
- Conduct a 5-yearly Urban Canopy analysis to track the City's canopy coverage
- Implement the Pathogen Management Plan to eliminate and reduce the impact of pathogens on biodiversity
- Review the Management of Trees in Streets and Public Open Space policy to ensure operations can adapt to the changing impacts on our urban canopy

## City of Mandurah canopy cover by land use





# Sustainable Transport Networks

## Why is this important?

Mandurah is known for its relaxed lifestyle – wherever you are in Mandurah, you're never too far away from a beach, foreshore, park or reserve. But despite half of our population working within our City boundary, the 50km distance between our northern and southern ends means most of our community rely on cars for transport. In 2021, 65% of Mandurah residents reported driving to work, while 6% used public transport and just 1% walked.

We know our community want to utilise more sustainable and active transport options, such as walking, public transport, cycling or using more sustainable vehicles, to reduce their environmental impact while also enjoying their travel through the City. However, these options need to be accessible and safe for people to enjoy their use. Connected walking and cycling paths, bus routes, and mobility device and electric vehicle charging stations allow our community to give their car a rest and take in the sights of our City.

## What we are already doing

- Implementing the Long-Term Cycle Network for Perth and Peel<sup>8</sup> in collaboration with the Department of Transport
- Developing an Integrated Transport Strategy
- Introducing hybrid electric vehicles into the City's fleet
- Implementing the Island Shared-use Trail Program



## What we manage

- 742.52km of road network
- 581.42km of path network

## Our direction

- Finalise the Integrated Transport Strategy
- Prepare and Implement District Level Active Transport Plans to encourage active transport options for increased physical activity and community safety
- Develop and implement the Public Transport Action Plan to improve access to public transport options



# Water Sensitive Urban Design and Drainage

## Why is this important?

The waterways which define our meeting place are reliant on the health and movement of water throughout our entire catchment. Water Sensitive Urban Design (WSUD) helps to achieve this by creating urban areas that allow the water cycle to function as it would naturally by capturing and reusing stormwater.

Across Australia, urban development and the increasing popularity of hard surfaces, such as paving and concrete, in our urban areas has significantly increased the amount of stormwater runoff in our cities<sup>9</sup>. With rapid development in our own city, and an expected growth to 56,138 dwellings by 2036<sup>10</sup>, we are facing our own challenges.

With increased stormwater runoff, our urban lakes, estuary and rivers are at risk of large flows of stormwater carrying sediment, nutrients and other pollutants into our waterways<sup>11</sup>. More hard surfaces also prevent groundwater and surface water systems from recharging as they would naturally<sup>12</sup>.

Adopting water sensitive design not only protects the long-term sustainability of Mandurah's waterways but also provides opportunities to support water efficiency and increasing water demands, supports the growth of native vegetation and biodiversity, and creates more liveable spaces for our community and wildlife.

## What we are already doing

- Implementing Water Sensitive Urban Design principles across the city, such as the Mariner's Cove Snake Train, Soldier's Cove and Grahame Heal wetland projects
- Retrofitting old drainage systems and building new systems in accordance with our Stormwater Management Strategy and Water Sensitive Urban Design Policy<sup>13</sup>
- Guiding developments in state policy through advocacy (e.g. State Planning Policy 2.9 Water Resources<sup>14</sup>, Peel Harvey Water Sensitive Urban Design Local Planning Policy<sup>15</sup> and Technical Guidelines<sup>16</sup>)
- Educating our community via the Waterwise Verge program
- Protecting our waterways by retrofitting stormwater outlets so that stormwater is treated before it enters the estuary
- Treating and reusing stormwater through the construction of wetlands, raingardens, tree pits and vegetated swales

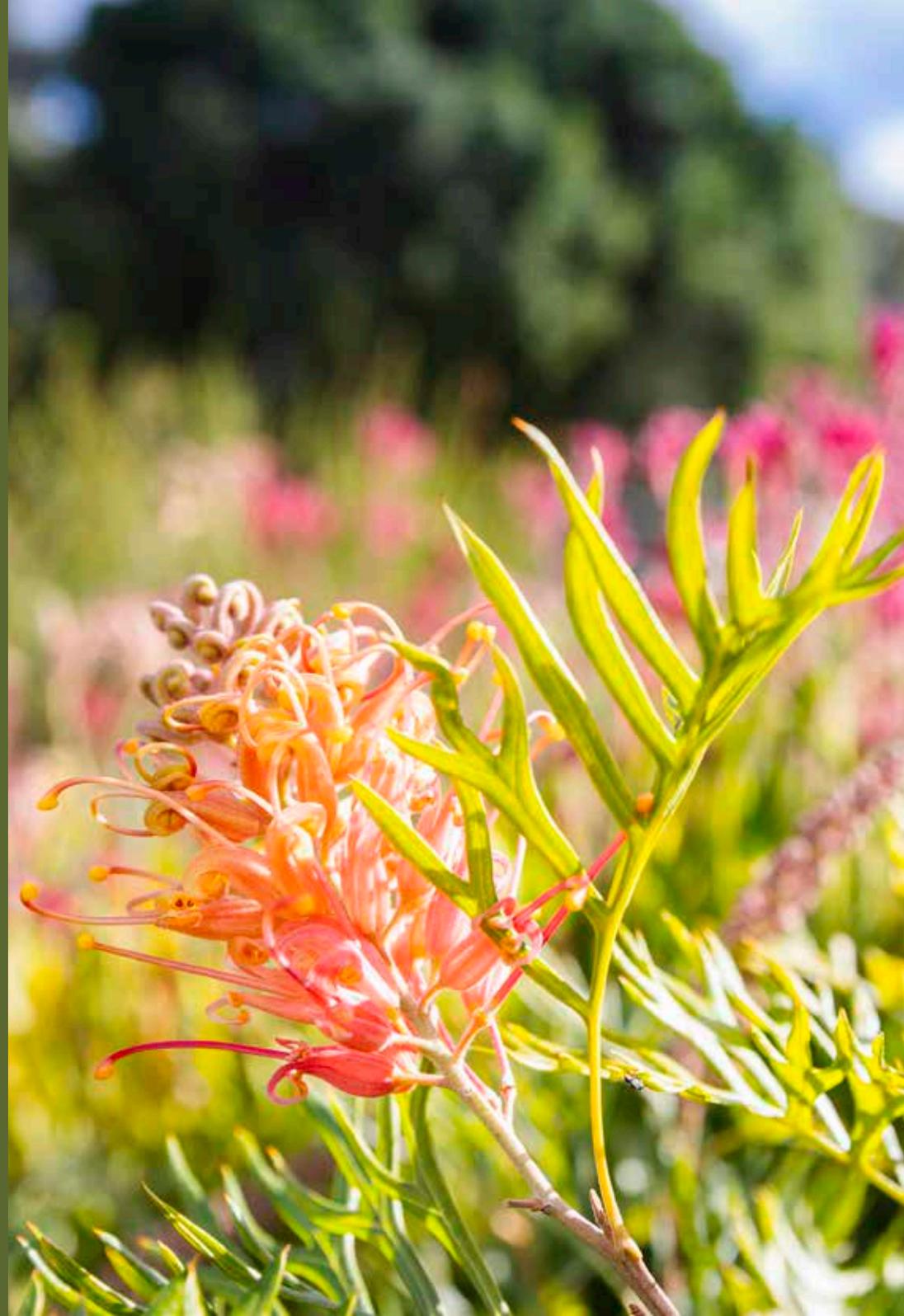


## What we manage

- 341km km of stormwater pipe
- 596 water harvesting devices (consisting of 3,753 stormwater retention cells)
- 50 vegetated swales
- 65 sumps
- 37 biological retention basins
- 69 rain gardens
- 79 Gross Pollutant Traps

## Our direction

- Review drainage assets within the Asset Management Plan to improve stormwater and sewer infrastructure
- Revise and update our Water Sensitive Urban Design Policy
- Develop a Stormwater Management Strategy for the City, developers and lot owners



# Water Quality

## Why is this important?

Water quality refers to both the quality of water in our urban lakes and wetlands, but also of our groundwater, which is used for both drinking and watering our parks and gardens.

Globally, many water bodies are experiencing the stress of growing populations and urban development, and changes in climate<sup>17,18,19</sup>. These factors change how water flows throughout our City, increase nutrient levels, impact waterside vegetation, and introduce pest species which are all key factors in the decline of water quality in the wetlands of the Swan Coastal Plain<sup>20</sup>.

In the last thirty years, Mandurah has quickly grown into a thriving city. As our population has grown, so has our need for clean water. Along with providing some of our drinking water, groundwater enables us to maintain the spaces that we love in our city through the watering of parks and sporting fields.

How we manage what goes into our stormwater systems, how we use water in our homes and businesses, and how we monitor the health of our urban lakes all contribute to the resilience of both our water supply, our urban lakes and wetlands, and the ongoing health of our Ramsar-listed wetlands.

## What we are already doing

- Conducting quarterly monitoring of 20 urban lakes to assess and treat their condition against water quality objectives
- Encouraging responsible water and gardening practices at home, and reducing the impact on our waterways, by delivering community education workshops such as the Love Our Lakes campaign, and the Waterwise Verge and Blue Crab programs
- Collaborating with Peel-Harvey Catchment Council (PHCC) and the Department of Water and Environmental Regulation (DWER) to monitor and protect the estuary's health
- Ensuring our community and waterways are safe and healthy by monitoring key swimming areas

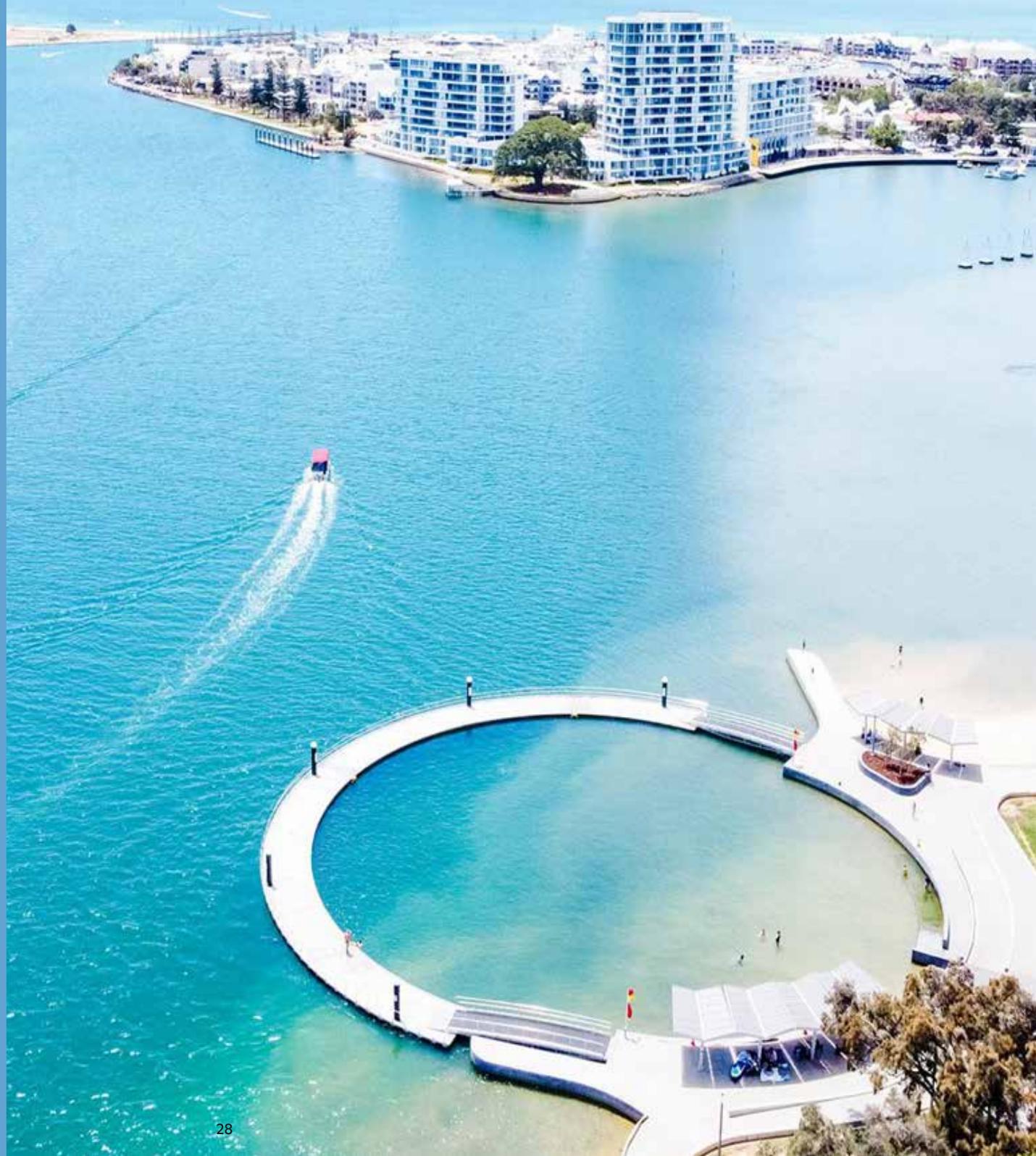
## Our direction

- Improve and expand our water quality testing capacity to detect excess nutrients and pollution in our groundwater, lakes and waterways, from sources such as fertilisers, pesticides and herbicides
- Continue regional collaboration with external stakeholders to address water quality issues in the Peel-Harvey Estuary





# Woven by waterways



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Coast and Foreshore Management</li> <li>● Enhancement of Blue Spaces</li> <li>● Estuarine Ecology</li> </ul>	<p>Our Ramsar-listed waterways are internationally recognised for their ecological significance and we actively <b>preserve and celebrate them</b>.</p> <p>We know they are, and have always been, an important part of our community identity, and that many people are drawn to our beaches, foreshores, rivers and estuary and choose to spend their free time on and around them...being so close to the water brings joy to so many residents and visitors alike.</p> <p>We strive to ensure that our coast, foreshores and waterways, and the wildlife that rely on them, are vibrant and healthy, and that our community continues to have appropriate access to them.</p>	<ol style="list-style-type: none"> <li>2.1. Ensure our coastal areas and waterways are healthy and vibrant for both nature and people, now and in the future</li> <li>2.2. Manage and preserve an appropriate level of access to our coast, foreshores and waterways, to facilitate community interaction with them</li> <li>2.3. Provide and maintain infrastructure to help foster appreciation and enable environmentally sensitive use of our coastal areas and waterways</li> <li>2.4. Support the proper functioning of a dynamic coastal interchange by effectively managing the City's coastal and estuarine reserves</li> </ol>	<p>Preserving and celebrating the waterways</p>

# Coast and Foreshore Management

## Why is this important?

Beaches and foreshores are an important connection point for Mandurah's community to the environment around them. Through our community surveying, beaches and coastlines are always highly valued all around our city. This tells us that our community cares deeply about these spaces.

However, these sensitive coastal areas are at risk due to loss of coastal vegetation, sea level rise, flooding, and erosion. They are also impacted by human activities such as urban development and inappropriate human behaviour, such as camping or four-wheel driving outside of permitted areas and trampling from motorbikes or walking through dune vegetation.

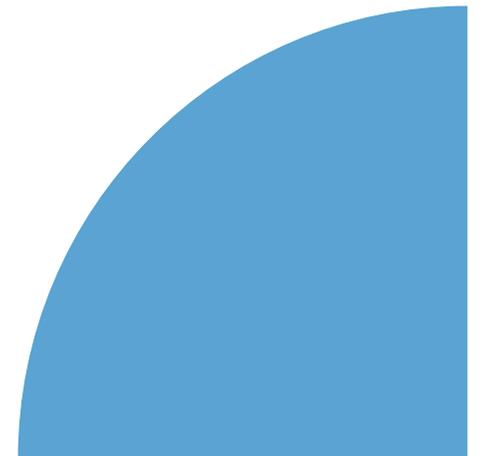
Our coasts are a changing and dynamic environment, and it's important for us to understand how they change, both naturally and due to human impact. Everyone can have a part to play in caring for our coasts to ensure we can enjoy sandy beaches and foreshores for generations to come.

## What we are already doing

- Developed a Coastal Hazard Risk Management and Adaptation Plan for Mandurah's Northern Beaches (Madora Bay to Roberts Point)
- Regularly monitoring the coastline through photo monitoring, tide and wave data, hydrographic surveys, and cross-sectional beach surveys
- Supporting the natural migration of sand northward to build the northern beaches by working with the Department of Transport to complete annual sand bypassing (dredging) works
- Maintaining seaweed and seagrass bed along foreshores to prevent erosion, support coastal wildlife and recycle nutrients back into the environment
- Developing foreshore management plans to manage access and recreation, erosion, dune stability, and quality of coastal vegetation

## What we manage

- 185,000m<sup>3</sup> of sand bypassed annually
- 43km of coastal waterways and foreshores
- 38km estuarine waterways and foreshores
- 8km of riverine waterways and foreshores
- 6 rock groynes
- 8km of seawalls



## Our direction

- Implement a 10-year Action Plan for managing erosion risks along Mandurah's northern beaches
- Develop Coastal Hazard Risk Management Plans for Mandurah's Southern Beaches and Estuary
- Continue regional collaboration through participation in the Peron Naturaliste Partnership.
- Advocate for holistic coastal adaptation and management through the City's Coastal Hazard Risk Management and Adaptation Plans



# Enhancement of Blue Spaces

## Why is this important?

At its very heart, Mandurah is home to an iconic estuary of international significance. This is cradled from the west by approximately 43kms of partially modified coastline, bordered by 38kms of estuarine shoreline, and is partially fed from 8kms of the Serpentine River. Collectively known as Mandurah's waterways, these vastly differing water-based environments are at the centre of our identity as a city and a community.

For many, the waterways are why they choose to live here. They make this place more beautiful, embody the rich Aboriginal heritage that provides a deep connection to land and water, and provide widespread social and recreational opportunities for residents and visitors alike. Providing areas and infrastructure that enable environmentally sensitive use of our waterways is an important part of caring for and protecting these much-loved areas now and in the future.

## What we are already doing

- Managing the Mandurah Ocean Marina, including the park and garden areas, to enable environmentally-sensitive interaction with the waterways and provide a beautiful environment for visitors and residents
- Trialling litter collection technologies in the marina, and collecting litter to ensure it is disposed of properly
- Encouraging appropriate boat management practices and monitoring seaworthiness of boats in the marina to prevent oil spillage and other contamination
- Monitoring the water in the marina to identify spills and contain as required
- Cleaning and maintaining the City's swimming enclosures and pontoons
- Maintaining maritime infrastructure and beach accessways to provide appropriate access for the community to enjoy our beaches and foreshores

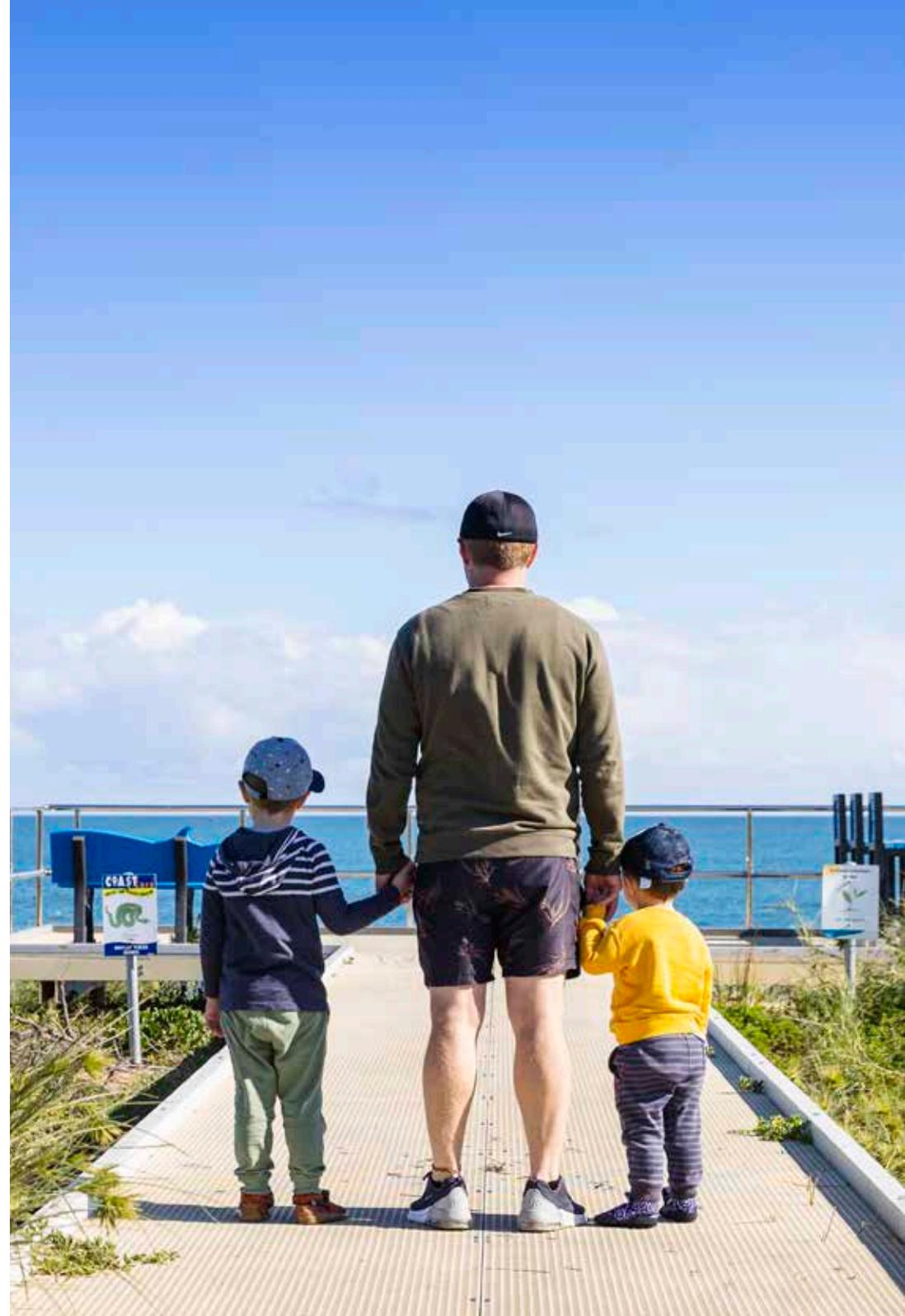
## What we manage

- 83.6716ha of developed foreshores
- 1 ocean marina
- 8 boat ramps
- 35 jetty licences
- 2 swimming enclosures and 2 swimming pontoons
- 7 non-powered launch ramps
- 6 canal estates



## Our direction

- Develop a Waterways Master Plan for Mandjar Bay to complement the City Centre Master Plan
- Continue to manage the Mandurah Ocean Marina, including litter and oil spillage prevention and management
- Design and develop infrastructure upgrades with due consideration of the City's Coastal Hazard Risk Management Plans
- Maintain or install coastal infrastructure to provide appropriate community access to foreshore areas and prevent damage to dune areas
- Utilise the Access and Inclusion Advisory Group to inform the availability of accessible features in blue spaces



# Estuarine Ecology

## Why is this important?

Bindjareb Djilba, the Peel-Harvey estuary, is the largest inland waterbody in Southwestern Australia and part of the globally significant, Ramsar-listed Peel-Yalgorup wetlands. It is central to Mandurah's identity and connects the Bilya Maadjit, Waangaamaap Bilya, and Harvey Bilya (Murray, Serpentine and Harvey rivers, respectively) with the ocean. Every day, people walk, swim, kayak or boat in and around this complex ecosystem for its cultural, environmental and economic significance.

Many threatened and endemic species, including over 30,000 resident and migratory waterbirds who use this area to rest, feed and breed each year.

Historical agriculture and land clearing in the catchment area has led to high nutrient loads, poor water quality and habitat loss. The construction of the Dawesville Cut in 1994 allowed a significant amount of nutrients to be flushed from the estuary, but also changed salinity and hydrological regimes. This also impacted fringing vegetation. Unfortunately, the estuary is now experiencing high nutrient loads once again. Coupled with continued development and further loss of estuarine habitat, its ability to remove excess nutrients is compromised.

The estuary itself is managed by the Department of Water and Environmental Regulation (DWER), but the City has a large role to play in advocating for the ongoing and increased protection of it. By reducing the nutrient load, preventing habitat loss, and educating the community about its unique nature, we can make sure as a community we are doing everything we can to help nurse the estuary back to health.

## What we are already doing

- Supporting and collaborating with research, volunteer and other organisations that help us understand and protect our estuary and wetlands
- Participating in the Marine Stewardship Certification to identify risks to estuarine ecology and collaborative management approaches

## Our direction

- Advocate for a Waterways Centre for Excellence to be established in Mandurah
- Continue participation in estuary health programs including the Marine Stewardship Certification, Bindjareb Djilba Policy and Planning Committee, and Peel-Harvey Estuary research such as the Mandurah Dolphin Research Partnership





**Lead and serve in  
equal measures**



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Water Security</li> <li>● Waste Minimisation and Management</li> <li>● Renewable Energy and Climate Change Mitigation</li> <li>● Corporate Energy and Water Efficiency</li> <li>● Sustainable Buildings and Operations</li> <li>● Planning</li> <li>● Ecotourism</li> <li>● Sustainable Economy</li> </ul>	<p>We are committed to making a difference in our community, and to helping create a <b>beautiful, clean and sustainable environment for all</b>. We understand that to do this we must lead by example.</p> <p>We advocate for the current and future needs of our community, and manage our own environmental footprint in a responsible and considered manner. We invest in furthering our understanding of environmental matters, collecting locally-relevant data, and strengthening regional collaboration.</p> <p>This enables us to integrate sound consideration of the environment into our planning processes to ensure the best outcome for all.</p>	<ol style="list-style-type: none"> <li>3.1. Strive to be a carbon neutral city that is a powerhouse of renewable energy research, production, utilisation and technology</li> <li>3.2. Prioritise efficient design and use of materials, water and energy in City buildings and operations</li> <li>3.3. Plan for water security to ensure our community and environment have sustainable access to clean and fit-for-purpose water supply, now and in the future</li> <li>3.4. Strive towards zero landfill to reduce our environmental footprint and protect the environment from the impacts of waste and litter</li> <li>3.5. Ensure our planning processes and mechanisms are designed and used in a way that protects ecological values and maximises environmental outcomes</li> <li>3.6. Inspire greater connection to and celebration of our natural environment through the delivery of nature-based and ecotourism opportunities</li> <li>3.7. Enhance our understanding of our regional environmental strengths to lead the development of sustainable economic outcomes</li> </ol>	<p>A beautiful, clean and sustainable environment for all</p>

# Water Security

## Why is this important?

Water is a limited resource in Western Australia, due to both its geography and the increasing demands of our growing population. Rainfall in the south-west has already decreased by 20% since 1970, and we expect this to decline by a further 30% by 2030<sup>21</sup>.

At the same time, Mandurah's population is estimated to increase by 15,000 in the next 10 years. This will place more pressure on our water supplies and it is predicted that our city's overall water requirement will be 21.76 Gigalitres by 2036. This includes an estimated increase in suburban scheme water use from 9.2 Gigalitres in 2021 to 11.74 Gigalitres in 2036.

To meet our own operational water needs, it is estimated that we will need 4.34 Gigalitres per annum of groundwater and 103,577 kilolitres per annum of potable scheme water under a business-as-usual approach.

Due to this high demand on such a precious resource, we all need to carefully manage our water use and make the most of what we have. This will help ensure we have enough water for our population, to continue to maintain our 240 parks and reserves for us and our wildlife, and to protect the groundwater-dependent ecosystems from saline intrusion and dry conditions.

## What we are already doing

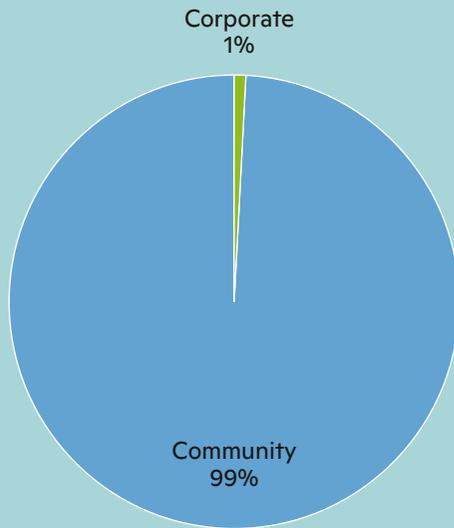
- Developed Managed Aquifer Recharge projects in conjunction with the Caddadup and Gordon Road Wastewater Treatment Plants, which enabled us to use recycled water in some of our parks
- Monitoring and managing our groundwater and surface water consumption to stay within our groundwater licence limits
- An active Waterwise Council since 2009, including Platinum status in 2017
- Developed a Water Resources Management Operating Strategy for groundwater use
- Collaborating with other local governments as part of the Water Sensitive Transition Network and the Peel Alliance



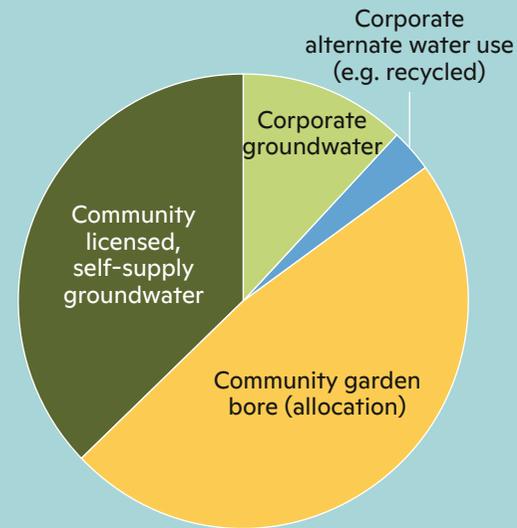
## Our direction

- Continue to increase our use of recycled water to irrigate green spaces through Managed Aquifer Recharge
- Continue to collaborate with the Peel Alliance to determine the water balance amongst local governments, industry, agriculture and mixed-use requirements in the Peel region
- Work in partnership with the Water Corporation to deliver education programs to empower the community to reduce their water consumption
- Develop a Water Resources Management Operating Strategy for groundwater use

## Potable water use 2021/22



## Non-potable water use 2021/22



# Waste Minimisation and Management

## Why is this important?

The average Australian generates 2.95 tonnes of waste annually, a number that is growing every year<sup>22,23</sup>. Waste impacts our environment in many ways: the waste management process contributes to 3% of Mandurah's carbon footprint. This includes when rubbish is collected from our homes, sorted at a waste transfer station, and sent to landfill or to be recycled<sup>24</sup>. What we don't see is the mining, growing, manufacturing and transportation of goods and materials that produce CO<sub>2</sub> emissions, consume large volumes of water and other resources, and require large amounts of human labour to sustain our lifestyles - only for the products to be discarded within moments of reaching our hands.

The circular economy model addresses these compounding factors, looking closely at the life cycle of products that we use every day and addressing how we can use resources more efficiently. Moving towards this model can help us achieve a lower impact on the environment, while also fostering creativity and self-sufficiency in our community through the innovative use of resources – something our community is passionate about.

## What we are already doing

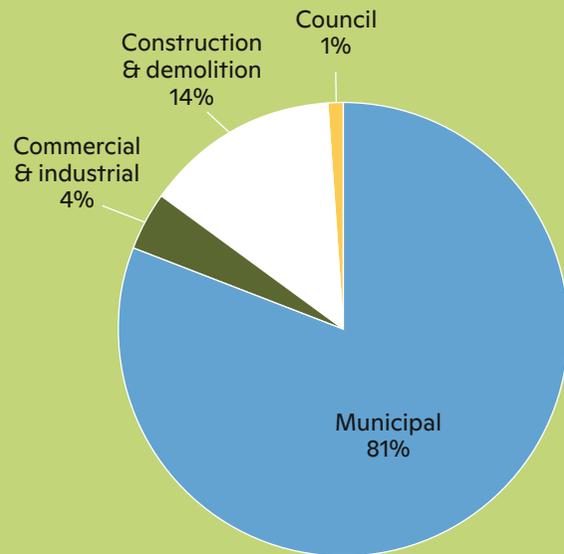
- Developed the Strategic Waste Plan 2020-2025 and associated Implementation Plan
- Developed the Waste Education Plan 2022-2025 and associated Implementation Plan
- Deliver waste management initiatives, including drop off days, eWaste collection days, and recycling hubs at all City libraries for problematic waste
- Committing to send all of our residual waste to Waste to Energy
- Delivering waste education initiatives, including Grow It Local, school education programs, bin tagging and the annual Waste and Recycling Guide



## Our direction

- By 2025:
  - Generate no more than 633kg of waste per person, per year
  - Increase resource recovery by 40% (to 67%)
  - Move towards zero landfill
- By 2030:
  - Reduce waste generation to no more than 600 kg per person, per year
  - Increase resource recovery by 43% (to 70%)
  - Move towards zero illegal dumping
  - Move towards zero littering
- Continue to conduct an annual review of the Strategic Waste Plan
- Deliver a comprehensive Waste Education Campaign

## Breakdown of Mandurah's waste by type



# Renewable Energy and Climate Change Mitigation

## Why is this important?

With energy costs and blackouts becoming more common, and the risk of fire, drought and extreme weather events increasing, many communities around the world have already started to transition to alternative energy technologies. These technologies continue to become cheaper than ever before and exciting new developments, such as hydrogen, such as hydrogen, have the potential to completely transform industries. These technologies continue to become cheaper than ever before and exciting new developments, such as hydrogen, have the potential to completely transform industries tech transform industries

The City and our community have an important part to play in the global transition to renewable energy and reaching the Federal Government's ambitious new target of net zero emissions by 2050. As a leader in renewable technology investment and innovation, we will continue to invest in developing energy security at the local level, and helping our community to do the same.

## What we are already doing

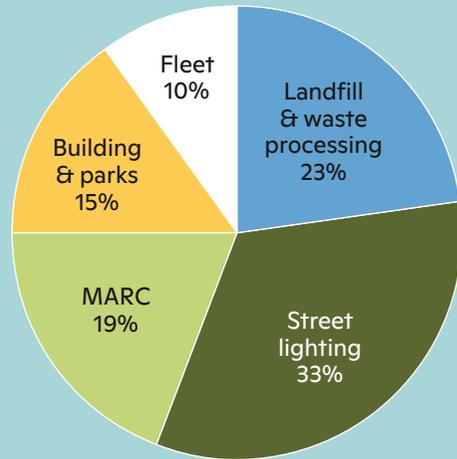
- Through the City's Solar Plan, we have installed 444kW of solar panels on City facilities to date (as of 2022)
- Played an important role in the development of Australia's first Power Purchase Agreement with WALGA, which enabled 51 local governments to purchase renewable energy for their contestable sites<sup>25</sup> and will save up to \$5million for the participants
- Participating in the Perth and Peel Hydrogen Cluster to create green business and market opportunities for hydrogen
- Supported Western Power's first Community Battery Trials in Meadow Springs and Falcon
- Installed Geothermal Pool Heating at the Mandurah Aquatic and Recreation Centre



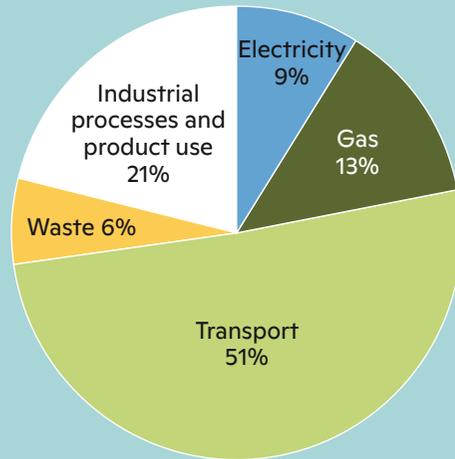
## Our direction

- Review the Carbon Emissions Reduction Plan and update our Renewable Energy Target
- Continue to support innovation in renewable energy technologies
- Encouraging our community to utilise renewable energy alternatives
- Continue to roll-out the City's Solar Plan

## Operational CO<sub>2</sub> emissions



## Community CO<sub>2</sub> emissions



# Corporate Energy and Water Efficiency

## Why is this important?

The City uses water and energy to provide many services to the community, such as maintaining our parks, lighting up our streets and parks at night, and running community facilities such as the Mandurah Aquatic and Recreation Centre. As our city grows, so do our operational energy and water demands. It is the City's goal to meet the growing needs of the community and achieving the best value for money while also protecting our environment. We know that it's our responsibility to lead by example and reduce our own footprint by becoming more efficient in our use of water and energy.

## What we are already doing

- Selecting our City fleet based on the most fuel-efficient vehicles on the market, and introducing hybrid electric vehicles
- Installed LED lighting at community facilities and replaced decorative street lighting with LED alternatives
- Developed a Water Efficiency Action Plan to increase water efficiency in City buildings
- Conducting energy and water audits at City facilities to track and reduce water usage
- Received a Gold Waterwise recognition for the Mandurah Aquatic and Recreation Centre

## Our direction

- Develop a business case for LED retrofitting to streetlights
- Maintain a minimum Gold-level Waterwise Council accreditation
- Implement and maintain an automated utilities monitoring platform to inform corporate energy and water efficiency decision making

## Consumption breakdown

2021/22 corporate water use:

- Potable water: 105,325kL (12,000kL more than the previous year)
- Non-potable water: 1,538,589kL (approx. 192,000 more than the previous year)
- 63% increase in recycled water use





# Sustainable Buildings and Operations

## Why is this important?

In Australia, buildings account for 19% of total energy use and 18% of direct carbon emissions<sup>26</sup>. At a local level, the City's building and park infrastructure account for 15% of total operational emissions, providing a significant opportunity for improvement.

In 2021, Mandurah was home to 44,099 private dwellings, and this is expected to increase to 56,138 by 2036<sup>27</sup>. In the face of this growth, sustainable buildings create an avenue to separate our city's growth from the use of finite and unsustainable resources. New and renovated green buildings have the potential to reduce energy use by up to 33% and CO2 emissions up to 38% alongside cost savings and improved health and wellbeing of building users<sup>28</sup>.

By committing to sustainable building design for City-owned buildings, putting in place policies which protect the natural environment during development, and providing opportunities to learn and engage with sustainable buildings and choices, we are working towards a City that not only is reducing our footprint on the local environment but creating healthier and more productive spaces for our community to enjoy.

## What we are already doing

- Created the Sustainable Mandurah Home as a demonstration project for sustainable building
- Developed a suite of downloadable sustainable house plans, including an online walkthrough
- Enforcing planning guidelines under the Local Planning Scheme No.12<sup>29</sup> and Biodiversity Strategy to reduce the footprint of new housing and encourage sustainable home design in new developments
- Introduction of geothermal heating at the MARC and monitoring of water efficiency for certification as a waterwise facility
- Developed an Environmentally Sustainable Design Checklist for new Council buildings



## Our direction

- Building a proposed 5-star community centre in Dawesville
- Continue to promote the development of sustainable housing, retrofitting, and adopting sustainable practices at home through community education
- Encourage energy efficient behaviour in City staff to ensure our buildings run as efficiently as possible
- Develop a policy on Sustainable Building Design and operating procedures to the improve energy performance of local government buildings
- Develop a business case and action plan for transitioning the City's fleet to vehicles using alternative fuel sources such as electricity and green hydrogen



# Ecotourism

## Why is this important?

Mandurah is a popular tourism destination for Perth residents looking to escape the hustle and bustle for a day or weekend away. Our visitors love to stay and explore, staying 18.3 days longer than the Western Australian average<sup>30</sup>. We expect these numbers to grow as Perth's population grows, public transport options increase, and we continue to develop our infrastructure and facilities. In supporting this tourism growth, we need to be mindful of the environmental impact of increased visitors, which also presents an exciting opportunity to share our unique part of the world with others.

When correctly planned for and designed, tourism has the potential to enrich people's lives, expand an economy, be sensitive and protective of environments, and be integrated into a community with minimum impact. Ecotourism and nature-based tourism encourage visitors to experience and appreciate the environment, along with more consistent maintenance of the natural area and revenue for maintenance and facilities.

It is important that tourism development in Mandurah's natural environment is focussed on attracting high quality products and tourism providers that are led by a shared vision for both economic development and the ongoing protection and enhancement of our local environmental assets. This, along with continued investment in the management and protection of our natural environment, will ensure ecotourism remains a viable industry in Mandurah for generations to come.

## What we are already doing

- Promoting local ecotourism and nature-based tourism businesses
- Developing the Eastern and Western Foreshores
- Worked with the Department of Biodiversity, Conservation and Attractions to develop Recreation Planning for Yalgorup National Park

## Our direction

- Support nature-based tourism by improving the visitor experience at Creery Wetlands and the thrombolites by incorporating environmental and cultural education
- Develop a Beach Access Management Plan to improve conservation, recreation and safety outcomes on beaches adjoining the Yalgorup National Park
- Develop a 100km+ network of new ecotourism and recreation trails through the Islands Shared Use Trail and Round the Estuary Trail programs





**Stewards of the  
environment,  
custodians of our  
culture**



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>• Aboriginal Culture</li> <li>• Volunteering, Environmental Literacy and Sustainable Living</li> <li>• Engaging Young People</li> <li>• Litter and Illegal Dumping</li> </ul>	<p>We aim to inspire a community that understands the uniqueness of our natural areas and voluntarily cares for the environment as a priority, not an afterthought. In doing so, we strive to foster a community that makes informed, respectful and responsible decisions, and has responsible behaviours...a community that understands their impact and chooses to nurture and protect the environment.</p> <p>We ensure that everyone in our community is welcome and able to participate in environmental volunteering opportunities, so that together we can <b>build deep engagement and respect for the environment.</b></p> <p>We acknowledge and celebrate the stories of the country and teach Bindjareb stories to our community. Our local history and culture are honoured and infused in our environmental work, and our environmental volunteers are supported and empowered.</p>	<ol style="list-style-type: none"> <li>4.1. Raise the environmental literacy of our community to inspire voluntary change in behaviour for the benefit of our environment</li> <li>4.2. Support and facilitate volunteer groups to deliver projects that help achieve our environmental vision and provide a community benefit</li> <li>4.3. Contribute to the well-being of our community by providing opportunities for people of all ages and abilities to connect with nature</li> <li>4.4. Apply a Mandjoogoordap cultural lens across all our environmental work to infuse Aboriginal culture in our sense of place</li> <li>4.5. Celebrate our unique environment and support cultural development through creative engagement and art</li> <li>4.6. Advocate for and build an engaged and skilled community who are empowered to manage wildlife, natural areas and the urban canopy appropriately</li> </ol>	<p>Deep engagement and respect for the environment</p>

# Aboriginal Culture

## Why is this important?

As the traditional custodians of Mandjoogoordap (Mandurah) the Bindjareb people of the Noongar Nation have had, and continue to have, an enduring connection to this boodja (land) that has spanned tens of thousands of years. Meaning 'meeting place of the heart', Mandjoogoordap represents the connection between people and the land that sustains them. For millennia the Bindjareb people walked softly on this land, sea and waterways, so they could continue providing for future generations.

As a City and community, it is important to acknowledge this connection and the role Bindjareb people play in how we manage and interact with our environment. We have a collective responsibility to empower the people and practices that shaped this environment. From the cultural burning that protects and enhances our biodiversity, to the harvesting of food according to the six seasons that ensures there is always enough, caring for boodja is ingrained in Bindjareb culture and this is recognised and respected.

## What we are already doing

- Reviewing and updating our STRETCH Reconciliation Action Plan in conjunction with the National Reconciliation movement, the RAP Steering Group and our wider community
- Developed the Koolbardi Bidi Cultural Garden and associated Educators Journal at Contemporary Art Spaces Mandurah
- Formalised the Joseph and Dulcie Nannup trail along the Serpentine River, including the installation of a new 150m boardwalk
- Created a Six Seasons Garden at Duverney Park in conjunction with the Bindjareb Rangers
- Supported Winjan to establish the Winjan Ranger group
- Incorporated Aboriginal stories into our Western Foreshore upgrade

## Our direction

- Collaborate with the local Aboriginal community and create opportunities for greater participation in environmental activities
- Increase the representation of Bindjareb people and culture in our public spaces and communications
- Investigate the implementation of cultural burning practices to manage bushland reserves
- Create opportunities for Aboriginal Ranger groups to care for our natural areas





# Volunteering, Environmental Literacy and Sustainable Living

## Why is this important?

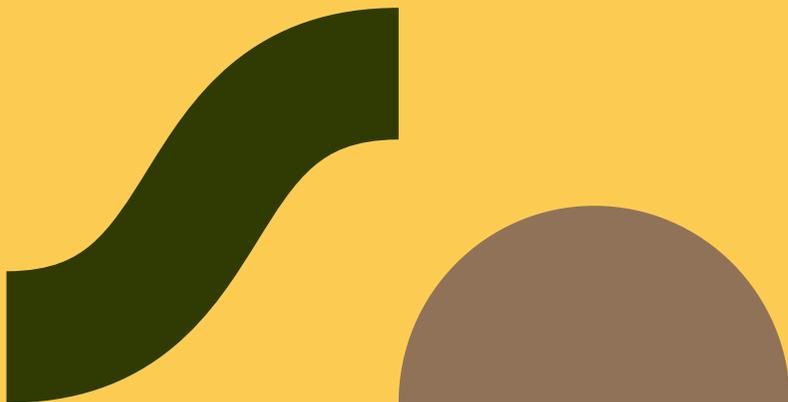
In Australia, volunteers contribute around 100 hours per year to their community, and make up 30% of our population<sup>31</sup>. A significant proportion of these volunteers are dedicated to protecting and caring for our environment, and Mandurah is appreciative of the many dedicated volunteers who care for our reserves, parks, waterways, and the unique flora and fauna within them.

Not only do these environmental volunteers improve conservation outcomes, they also help shape our community's identity by educating others about our environment, and providing people with opportunities to connect with nature, live active lifestyles, and spend time with like-minded people.

Educating the broader community about our unique natural environment is an important first step in building a community that is active in caring for our natural environment and empowered to make positive change for both people and the environment. After all, people protect what they care about, care for what they know about, and know what they've learnt about.

## What we are already doing

- Connecting our community to nature through environmental volunteering opportunities and supporting environmental groups
- Hosted the 2021 Australian Association for Environmental Education Biennial National Conference and the 2022 WA State Natural Resource Management and Coastal Conference
- Developed the Community Household Electricity Reduction Program to help our community to reduce their electricity use
- Delivering the Kids Teaching Kids Conference to help students learn about the environment
- Helping our community become more waterwise through the Waterwise Verge Program and Water Efficiency Action Plan
- Participated in the Living Smart trial to help our community learn how to live more sustainably
- Joined Grow It Local, an online education platform that provides residents with free access to online workshops and information about growing food, composting, worm farming and environmentally sustainable gardening
- Promoting creative engagement in the environment by supporting the delivery of the environmentally focused art programs
- Supporting community groups to deliver accessible projects which promote healthy and active lifestyles for people with disability



## Our direction

- Review the City's approach to Environmental Engagement, in line with the new Environment Strategy
- Continue to support and build the capacity of local environmental groups and volunteers
- Develop Community Engagement Plans for major environmental projects, including the Environment Strategy and Greening Mandurah Framework, to get our community involved
- Developing and sharing more regular educational content relating to our natural environment, including the City's Environmental Newsletter
- Create more volunteer opportunities within the City's environment for youth and people with disability under the advisement of the Youth Advisory Group and Access and Inclusion Advisory Group
- Targeted and increased communication about accessible and inclusive features of outdoor spaces, environmental services and events



# Engaging Young People

## Why is this important?

Through the development of the City's Youth Strategy 2021-2026, Mandurah's young people made it clear that they care about our natural environment. They love living close to nature and being surrounded by beautiful waterways and natural bushland. They are also deeply concerned about the degradation of our natural environment, the amount of rubbish around our City, and climate change.

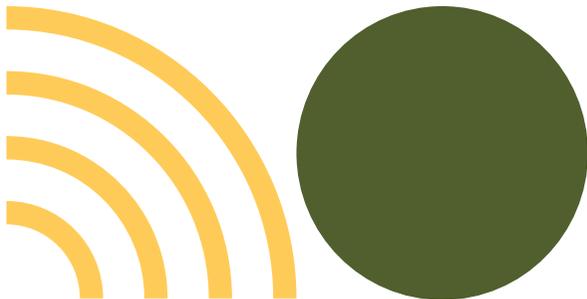
Through the City's Youth and Environment Strategies, we aim to create more opportunities for young people to connect with nature and be involved in caring for our natural environment. This will also help us to better support improved mental health outcomes in our community, another area of concern for Mandurah's young people, as spending time in or near nature is scientifically proven to have a positive impact on our sense of purpose, concentration, mood, health, and productivity<sup>32,33,34,35</sup>.

## What we are already doing

- Providing opportunities for young people to connect with nature through youth programming, such as the Junior Council
- Delivering the Kids Teaching Kids Conference
- Funded an Environmental Education Research Project that investigated the impact of non-formal youth environmental education programs on Resilience, Personal Leadership, Empowerment and Environmental Citizenship behaviours in teenagers

## Our direction

- Continue to work together to provide opportunities for young people to connect and unite around protecting our natural landscape, as well as spending time in nature for wellbeing
- Review the delivery of the Kids Teaching Kids Conference
- Continue to consult with the Youth Advisory Group on relevant environmental initiatives, concepts and programs





# Litter and illegal Dumping

## Why is this important?

A constant concern amongst our community is the amount of litter that ends up in our environment, particularly our waterways, bushland and parks. In Australia, around 130,000 tonnes of plastic enters our marine environments every year<sup>36</sup>. In 2021, 24.8 cubic metres of waste was collected and removed from gross pollutant traps (the mechanisms that capture waste from our stormwater drains) across Mandurah. That's around the size of two large skip bins. Meanwhile, illegal dumping continues to spoil bushland with 187 instances investigated in 2022/23.

Preventing waste from entering our environment is a simple yet impactful way to protect the home and health of our wildlife, and provide our community with pristine natural amenities. By disposing of waste responsibly, we can also increase the amount of materials recovered for reuse and reduce our resource consumption.

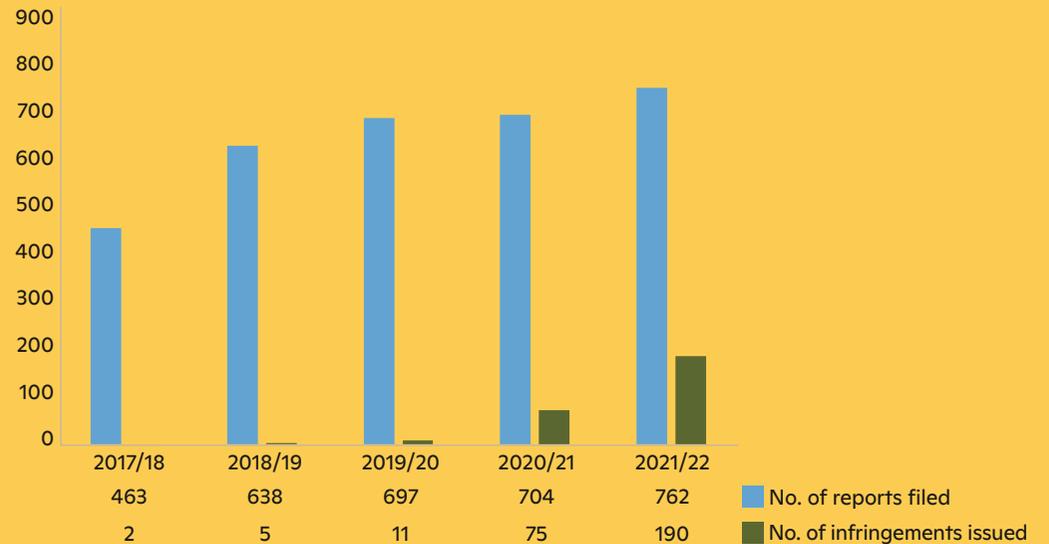
## What we are already doing

- Attend to illegal dumping service requests, to ensure this waste is disposed of appropriately and in a timely manner
- Supporting community clean-ups and environmental groups such as Estuary Guardians and Coastal Waste Warriors
- Developed a Waste Education Plan
- Developed the Plastic Free Mandurah Simple Switches Guide to assist our community to reduce their use of single-use plastic
- Participating in the Reel It In program, and installed Fishing Line Bins near popular fishing spots

## Our direction

- Develop a Litter and Illegal Dumping Plan
- Implement the Waste Education Plan and empower the community to dispose of their waste responsibly
- Improve data collection regarding illegal dumping to help us provide more targeted education
- Investigate the use of online mapping tools to help identify and address illegal dumping

## Reported littering and illegal dumping





# Climate Change



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Adaptation and Resilience</li> <li>● Risk Management</li> <li>● Future Thinking</li> </ul>	<p>We are committed to managing the risks of climate change to our community and to our city in the most appropriate manner.</p> <p>We acknowledge the complexity of this task, and collaborate with relevant stakeholders to develop solutions.</p> <p>We take the time to develop a response based on a range of influencing factors.</p> <p>We <b>demonstrate regional leadership and advocate for the needs of our community</b>, ensuring that major projects and partners are also factoring climate change into their decision making.</p>	<p>5.1. Manage climate change associated risk according to both short and long-term timescales to identify fit-for purpose solutions</p> <p>5.2. Demonstrate leadership by advocating for climate change to be factored into the decision-making of relevant external stakeholder organisations and major regional projects</p>	<p>Nature having a voice at the table in all decisions</p> <p>Demonstrate regional leadership and advocate for the needs of our community*</p> <p><i>*SCP Key Focus Area 5 (Organisational Excellence) Objective 5.1</i></p>

# Climate Change Adaptation

## Why is this important?

As the climate changes in southwest Australia, we are becoming drier and hotter. We are also more likely to experience coastal erosion and flooding, and extreme weather events<sup>37</sup>. This places stress on the natural environment and infrastructure that our wildlife and community call home.

These and a number of other risks associated with a changing climate were identified in the City's Climate Change Response Plan, along with strategies to mitigate these risks to our city and community.

However, we know we cannot address climate change in isolation and have an important role to play in advocating for State and Federal Government policy and action and providing education and opportunities for our community to adapt at home. Acting now means protecting our current environment and responding to the challenges of the future.

## What we are already doing

- Developed the Corporate Climate Change Response Plan
- Conducted urban heat education to assist our vulnerable community to stay healthy in heatwaves
- Partnered with nine local governments in the Peron Naturaliste Partnership for coastal adaptation to better understand the impact of climate change on our coasts
- Between 2019-2022, attracted \$714,000 in funding from the Department of Fire and Emergency Services to manage bushfire risk in urban reserves

## Our direction

- Regularly review and update the Climate Change Response Plan in line with the Intergovernmental Panel on Climate Change Assessment Reports
- Advocate on behalf of our community to ensure effective response to climate change by State and Federal Governments





# Engagement and Education



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Collaboration and Communication</li> <li>● Open to Feedback</li> <li>● Willing to Adapt</li> <li>● Advocacy</li> </ul>	<p>Our ability to create positive change for our natural environment is directly impacted by our community.</p> <p>We aim to <b>nurture, build and maintain an engaged and educated community</b>, and provide opportunities for them to learn about what we are doing and why our environment is so special.</p> <p>We build strong relationships with all stakeholders, and welcome and listen to their feedback in two-way conversations.</p> <p>When we communicate, we are transparent, respectful and willing to have the big conversations, even if they are difficult, because we know that's how the best solutions are developed.</p>	<p><b>6.1.</b> Maintain a shared vision by ensuring organisational activities are complementary with environmental priorities, and that all relevant stakeholders are consistently engaged in the direction-setting process</p> <p><b>6.2.</b> Listen to and engage with our community, communicate with integrity and transparency, be open to feedback and having difficult conversations, and recognise our community's local knowledge</p> <p><b>6.3.</b> Lead by example and foster a reputation as a reliable and trustworthy environmental advocate and defender</p>	<p>Nature having a voice at the table in all decisions</p> <p>Demonstrate regional leadership and advocate for the needs of our community*</p> <p><i>*Links to Mandurah Matters <a href="#">Community Narrative</a></i></p>

# Engagement and Education

## Why is this important?

As a local government, the work we do impacts our community on a daily basis. We play an important role in ensuring that our community has access to quality services and facilities, which includes our natural areas, green and blue spaces, and waterways.

It is important that our community are engaged in, and educated on, our environmental work. This will help to make sure that our environment and our community can continue to thrive, for generations to come. It also means we must be committed to listening to our community's feedback, having honest and straight-forward conversations, providing accurate and timely information to our community, and that everyone is willing to work together to create the best possible solutions.

Through this Environment Strategy, we have created a clear environmental vision in partnership with our community, and we are committed to continuing to foster this culture of engagement in our environmental work. We also aim to make the most of opportunities to educate our staff and our community on environmental issues and projects, to embed collaboration in our way of working.

## What we are already doing

- Created a designated Environmental Engagement team
- Appointed an Environmental Communications Officer to help raise the profile of our environmental work, and develop educational content relating to the natural environment
- Developed a Community Engagement Strategy

## Our direction

- Develop an environmental education campaign to keep our community informed and engaged with environmental priorities identified through the Environment Strategy





# Corporate Responsibility



Priority Areas	Guiding Principle	Objectives	Community Outcome
<ul style="list-style-type: none"> <li>● Evidence based</li> <li>● Continuous Improvement</li> <li>● Integrated and Holistic Planning</li> <li>● Policies and Guidelines</li> </ul>	<p>We ensure we are walking the walk in the way we think and deliver, and demonstrate consistency in our approach to caring for the environment by considering all our work through an environmental lens.</p> <p>We strive for meaningful and continuous improvement, find innovative, evidence-based solutions to complex problems and take the time to assess situations properly before we commit to a course of action.</p> <p>Our decisions are based on the best available data and, where possible, this data is locally relevant.</p> <p>We strive to continually learn and improve in both our processes and delivery to ensure <b>nature has a voice in the decisions we make as we plan for our future</b>, and that we <b>deliver on our commitments to make a difference in our community</b>.</p>	<ol style="list-style-type: none"> <li>7.1. Uphold a culture of continuous improvement based on thorough evaluation and integrated decision-making to ensure that protection of the environment is actively embedded throughout the organisation</li> <li>7.2. Base decisions on the best available science and evidence, and prioritise the collection and utilisation of locally relevant data</li> <li>7.3. Develop, maintain and advocate for clear and consistent positions on environmental matters that are routinely reviewed, and applied consistently across the organisation</li> <li>7.4. Acknowledge the role the environment plays in mental and physical wellbeing</li> </ol>	<p>Nature having a voice at the table in all decisions</p> <p>An organisation that delivers on its commitments to make a difference in our community*</p> <p><i>*SCP Key Focus Area 5 (Organisational Excellence) Community Outcome</i></p>

# Corporate Responsibility

## Why is this important?

Environmental management is a complex and challenging field. Researchers and practitioners are learning more about our unique natural environment all the time.

In order to continue to care for our natural environment in the best possible way, we need to ensure that we stay up to date with developments in the field, and also apply a methodical and scientific approach in our work. We need to learn from local examples, and collect local data so we understand what's happening at a local level and be ready to adapt or change course when necessary.

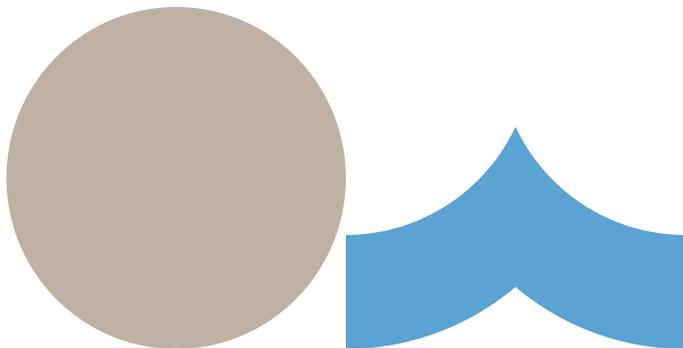
We also need to invest in developing rigorous yet practical processes that encourage strategic thinking and collaborative planning in our staff and stakeholders, so that we can truly ensure nature has a voice in the decisions we make as we plan for the future. By embedding consideration of the environment in these decisions, we'll better deliver on the commitments we make to help our local species, and our local people, to thrive.

## What we are already doing

- Developed the City's first-ever Environment Strategy and associated Implementation Plan, in partnership with our staff and community
- Developed an advocacy framework that captures the City's position on community environmental priorities to guide submissions to State and Federal Government

## Our direction

- Review the City's procurement process to deliver more sustainable outcomes
- Review environmental components of the advocacy framework
- Regularly review and monitor outcomes of the Environment Strategy to ensure it remains correct, up-to-date and is actively implemented





# How we developed this Strategy



## Review of existing work

▼

We reviewed the work we are already doing in this space, along with Environment Strategies from other Councils and our previous community consultation, to help us understand what our community loves most about our environment.



## Internal engagement

▼

We worked with Elected Members and City staff to identify current environmental priorities, including what we already do well in this space and our opportunities to improve.



## Targeted community engagement

▼

We workshopped our environmental priorities with local environmental volunteers and groups, and they helped us shape community visions for each of these areas. We also engaged with groups such as the Mandurah Environmental Advisory Group, Access and Inclusion Advisory Group, Youth Advisory Group and Winjan Reference Group.



## Partner organisation engagement

▼

We asked local organisations that we regularly work closely with, such as environmental, government and non-government organisations, for their input. We also identified areas where we can work more closely together.



## Broadscale community engagement

▼

We gave everyone in our community to opportunity to comment on the final draft of the Environment Strategy.



# How we will deliver this Strategy

## **Strategic Planning Framework**

The City of Mandurah follows the Integrated Planning and Reporting Framework (IPRF) set out by the Department of Local Government, Sport and Cultural Industries. The objective of the approach is to create a process of continuous improvement in local government strategic planning. Keeping in line with the requirements of the IPRF, Mandurah's first Strategic Community Plan 2013-2033 was adopted in April 2013.

This plan is reviewed every four years, and is informed by a combination of community engagement priorities, Council's long-term vision and a range of informing strategies. It is also impacted by a range of external and internal strategies and plans, including those by the Federal and State Government.

Outcomes of the Strategic Community Plan are incorporated into the City of Mandurah's Four Year Corporate Business Plan. The Corporate Business Plan outlines specific detailed actions to be undertaken by the City, and informs existing Council plans such as asset management plans, financial plans, workforce plans, annual budgets, land use and business plans.



## 20 Year Strategic Community Plan

Outlines the community's aspirations and vision.

### Economic

Growing our economy

### Social

Strengthening our community

### Health

Creating a healthier community

### Environment

Nature has a voice at the table in all decisions

Underpinned by

### Organisational Excellence

City of Mandurah being a high performance organisation

## Information into the process

- Community vision and aspiration
- Long Term Financial Plan
- Workforce Plan
- Asset Management Plans
- Issue Specific Strategies
- Federal and State Government Strategies
- Local and Regional Planning Strategies
- External Influences (Government, Regulatory, Competitive)
- Emerging Trends/Best Practice
- Community Perceptions Survey
- Performance Results

# Integrated planning and reporting framework

## 4 Year Corporate Business Plan

Describes how the City will implement the vision.

### Management and implementation:

- 1 Year Operational Plans
- Annual Budgets
- Performance Measurement Framework

## Delivery of Services and Programs

- Measuring
- Reporting
- Performance

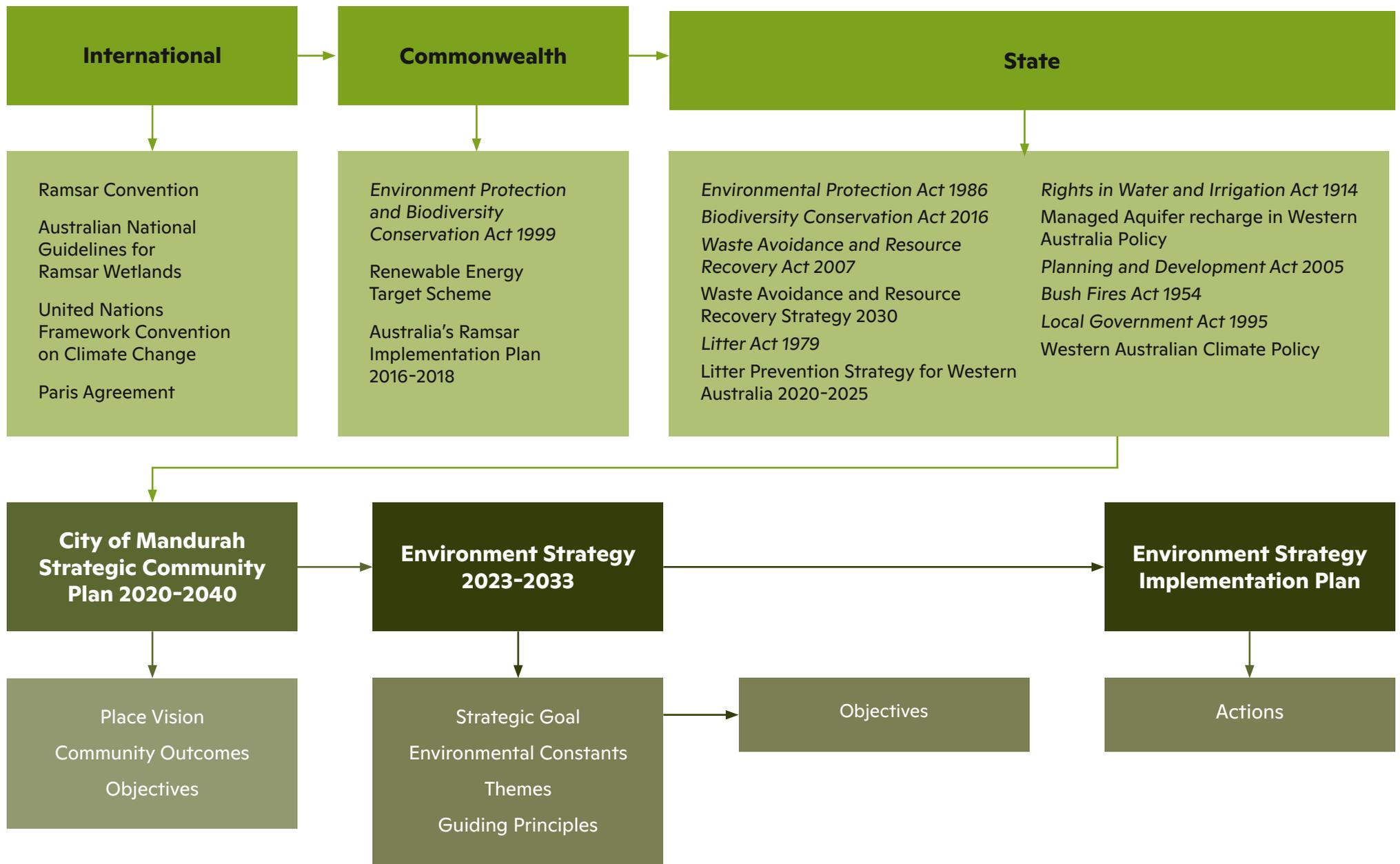
## How the Environment Strategy fits in

The Environment Strategy 2023-2033 has been developed to support the delivery of the Environment Community Outcomes listed in the Strategic Community Plan. It considers a number of International, Commonwealth and State directions and provides a comprehensive, consistent, and integrated approach for all of the City's environmental work. This includes ambitious objectives and targets for the future.

Alongside this Strategy, we have developed the Environment Strategy Implementation Plan, which identifies the actions we will implement to help us achieve these environmental outcomes.

The Strategy will be reviewed every four years to align with the review of the Strategic Community Plan, and this will include community engagement. The Implementation Plan will be updated every year to ensure it remains consistent with actions in the Corporate Business Plan.





# Environment Strategy Implementation Plan 2023-2033

## Theme 1: Built in nature, not on nature

### Objectives

- 1.1. Restore and protect the ecological value of our uniquely diverse natural areas, for generations to come
- 1.2. Ensure appropriate strategies are in place to conserve and support biodiversity, and to minimise threats to it
- 1.3. Grow, maintain and value a healthy, diverse urban canopy to connect people and wildlife and make our city more liveable
- 1.4. Provide accessible, interconnected and welcoming green spaces that support the well-being of the community and improve biodiversity
- 1.5. Champion sustainable and active transport opportunities to deliver an accessible, pedestrian-linked, eco-centric city that maximises nature’s place in our urban environment
- 1.6. Recognise all water as a resource, increase water recycling, improve water quality and support ecosystem services through water sensitive design

## Supporting Biodiversity and Prioritising Local, Native Species

### Measures of Success

1. % weed coverage across bushland areas
2. Population stability of locally occurring priority native species

### Targets

1. Average weed coverage at bushland reserves is less than 30%
2. No net loss of locally occurring priority species

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Mandurah Biodiversity Strategy	1.1, 1.2	Internal staff resources	-	-	-	Existing Operating Budget	-	-	-	-	-	-	1. Biodiversity Strategy revised 2. Biodiversity Strategy Implementation Plan developed	Bushland Management/Strategic Planning
		Consultancy support	-	-	-	(\$40k) Subject to LTFP review	-	-	-	-	-	-		
Implement the recommended actions of the Mandurah Biodiversity Strategy	1.1, 1.2	Internal staff resources	Existing Operating Budget										1. Bushland Management Plans developed 2. Amendments to planning mechanisms that better protect environmental values	Bushland Management/Strategic Planning
Review the Bushland Conservation and Management Policy	1.1	Internal staff resources	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	1. Updated policy endorsed by Council on 3-yearly cycle	Bushland Management
Develop an Ecological Corridors Plan and associated Implementation Plan	1.1, 1.2, 1.3, 1.4	Internal staff resources	-	-	Existing Operating Budget	-	-	-	-	-	-	-	1. Ecological Corridors Plan developed 2. Ecological Corridors Plan Implementation Plan developed	Bushland Management/Landscape Management
		Consultancy support	-	-	(\$40k) Subject to LTFP review	-	-	-	-	-	-	-		

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Implement the Ecological Corridors Plan Implementation Plan	1.1,1.2, 1.3, 1.4	Internal staff resources	-	-	-	Subject to consideration at LTFP review						1. Actions completed as defined in the Ecological Corridors Plan Implementation Plan	Bushland Management/Landscape Management	
		Capital funds	-	-	-	Subject to consideration at LTFP review								
Develop a Fauna Conservation and Management Plan for priority native faunal species present in City reserves and associated Implementation Plan	1.1, 1.2	Internal staff resources	-	-	-	-	Existing Operating Budget	-	-	-	-	-	1. Fauna Conservation and Management Plan developed 2. Fauna Conservation and Management Plan Implementation Plan developed	Bushland Management
		Consultancy support	-	-	-	-	(\$60k) Subject to LTFP review	-	-	-	-	-		
Implement the Fauna Conservation and Management Plan Implementation Plan	1.1, 1.2	Internal staff resources	-	-	-	-	-	Subject to consideration at LTFP review					1. Actions completed as defined in the Fauna Conservation and Management Plan Implementation Plan	Bushland Management
		Capital funds	-	-	-	-	-	Subject to consideration at LTFP review						
Advocate for and support regional biosecurity action through active participation on the Peel-Harvey Biosecurity Group Committee	1.1	Internal staff resources	Existing Operating Budget										1. City of Mandurah representation on the Peel Harvey Biosecurity Group general committee	Bushland Management/Executive Manager Natural Environment
Review the City's biosecurity program related to control of feral animal species and targeted pest plants	1.1, 1.2, 1.3	Internal staff resources	Existing Operating Budget										1. Updated list of priority feral animal and pest plant species for the City 2. Targeted species management plans for all priority species	Bushland Management
		Consultancy support	(\$25-30k per annum) Existing Operating Budget											
Implement the City's biosecurity program related to the control of feral animal species and targeted pest plants	1.1, 1.2, 1.3	Internal staff resources	Existing Operating Budget										1. Annual performance reports of on-ground efforts to control priority species	Bushland Management

# Enhancement of Green Spaces

## Measures of Success

1. Community satisfaction of public open space facilities in City parks and reserves

## Targets

1. Meet or exceed previous results for the community satisfaction rating on parks and public open space components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the City's Park Hierarchy and Facility Provision Plan	1.4	Internal staff resources	-	Existing Operating Budget	-	-	-	Existing Operating Budget	-	-	-	-	<ol style="list-style-type: none"> <li>1. Revised Park Hierarchy and Facility Provision Plan</li> <li>2. 10-year Parks and Open Space Upgrade Program</li> </ol>	Landscape Management
Review the Asset Management Plan for the Parks and Open Space asset portfolio	1.4, 1.6	Internal staff resources	Existing Operating Budget	-	-	Existing Operating Budget	-	-	-	Existing Operating Budget	-	Existing Operating Budget	<ol style="list-style-type: none"> <li>1. Revised Parks and Open Space Asset Management Plan</li> <li>2. 10-year parks and open space asset renewal program</li> <li>3. Annual parks and open space asset maintenance schedule</li> </ol>	Landscape Management
Review the Arterial and Distributor Roads Streetscape Masterplan and create an Implementation Plan to roll-out upgrades and maintenance of significant road reserves	1.4, 1.5, 1.6	Internal staff resources	Existing Operating Budget			-	-	-	-	-	-	-	<ol style="list-style-type: none"> <li>1. Revised Arterial and Distributor Roads Streetscape Masterplan</li> <li>2. Arterial and Distributor Roads Streetscape implementation program</li> </ol>	Landscape Management/Landscape Services
Implement the Arterial and Distributor Roads Streetscape Masterplan	1.4, 1.5, 1.6	Internal staff resources	-	-	Subject to consideration at LTFP review								<ol style="list-style-type: none"> <li>1. Actions completed as defined in the Arterial and Distributor Roads Streetscape Masterplan Implementation Plan</li> </ol>	Landscape Services
		Capital funds	-	-	Subject to consideration at LTFP review									

# Urban Canopy

## Measures of Success

1. Urban Canopy coverage
2. Urban Canopy health

## Targets

1. District level coverage targets all met or exceeded
2. No negative change in MSAVI values between urban canopy monitoring intervals

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Greening Mandurah Framework and associated Action Plan	1.2, 1.3, 1.4	Internal staff resources	Existing Operating Budget	-	-	-	-	Existing Operating Budget	-	-	-	-	<ol style="list-style-type: none"> <li>1. Revised Greening Mandurah Framework and Implementation Plan</li> <li>2. Established urban canopy targets for each district in the City</li> </ol>	Landscape Management
Implement the Greening Mandurah Framework Action Plan	1.2, 1.3, 1.4	Internal staff resources	Existing Operating Budget						Subject to consideration at LTFP review				<ol style="list-style-type: none"> <li>1. Actions completed as defined in the Greening Mandurah Framework Implementation Plan</li> </ol>	Landscape Management
		Operating funds	Existing Operating Budget						Subject to consideration at LTFP review					
Conduct a 5-yearly Urban Canopy analysis to track the City's canopy coverage	1.3	Internal staff resources	Existing Operating Budget	-	-	-	-	Existing Operating Budget	-	-	-	-	<ol style="list-style-type: none"> <li>1. Urban Canopy analysis report capturing urban canopy extent and health</li> </ol>	Landscape Management
		Consultancy support	(\$30k) Existing Operating Budget	-	-	-	-	(\$30k) Existing Operating Budget	-	-	-	-		
Review the Management of Trees in Streets and Public Open Spaces Policy	1.3	Internal staff resources	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	<ol style="list-style-type: none"> <li>1. Updated policy endorsed by Council on a 2-3 yearly cycle</li> </ol>	Landscape Management

# Sustainable Transport Networks

## Measures of Success

1. Community carbon emissions related to transport
2. Footprint of land space dedicated to carbon intensive, single user transport modes

## Targets

1. Reduction in community transport related emissions
2. Land space dedicated to multi-user, green transport modes is greater than land space dedicated to carbon intensive, single user transport modes

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Deliver the Active Mobility Transport outcomes within the Integrated Transport Strategy	1.4, 1.5	Internal staff resources	-	Subject to consideration at LTFP review									1. Active mobility related actions completed as defined in the Integrated Transport Strategy Implementation Plan	Strategic Planning/Technical Services
		Capital funds	-	Subject to consideration at LTFP review										
Deliver the Public Transport outcomes within the Integrated Transport Strategy	1.5	Internal staff resources	-	Subject to consideration at LTFP review									1. Public transport related actions completed as defined in the Integrated Transport Strategy Implementation Plan	Strategic Planning/Technical Services
Develop an Emerging Transport Technologies Plan within the Integrated Transport Strategy	1.5	Internal staff resources	-	-	-	Existing Operating Budget	-	-	-	-	-	-	1. Emerging Transport Technologies Plan developed	Environmental Engagement/Strategic Planning
		Consultancy support	-	-	-	(\$50k) Subject to LTFP review	-	-	-	-	-	-		

# Drainage and Water Sensitive Urban Design

## Measures of Success

1. Number of City projects that incorporate Water Sensitive Urban Design principles
2. Catchment area incorporating Water Sensitive Urban Design infrastructure

## Targets

1. All City drainage and road projects to incorporate Water Sensitive Urban Design principles
2. Increase in catchment area incorporating Water Sensitive Urban Design infrastructure

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop an Urban Stormwater Retrofit Upgrade Program	1.3, 1.4, 1.6	Internal staff resources	Existing Operating Budget	-	-	-	-	-	-	-	-	-	1. Urban stormwater retrofit program developed 2. Funding strategy to maximise external contributions to stormwater retrofits	Engineering Services
		Capital funds	-	-	-	-	-	-	-	-	-	-		
Implement the Urban Stormwater Retrofit Upgrade Program	1.3, 1.4, 1.6	Internal staff resources	-	Subject to consideration at LTFP review									1. Stormwater upgrades completed as defined in the Urban Stormwater Retrofit Upgrade Program	Engineering Services/Operation Services
		Capital funds	-	Subject to consideration at LTFP review										
Review the Asset Management Plan for the Stormwater Drainage asset portfolio	1.4, 1.6	Internal staff resources	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	1. Revised Stormwater Drainage Asset Management Plan 2. 10-year stormwater drainage asset renewal program 3. Annual stormwater drainage asset maintenance schedule	Engineering Services
Revise the Water Sensitive Urban Design Policy	1.3, 1.4, 1.6	Internal staff resources	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	1. Updated policy endorsed by Council on a 3-yearly cycle	Engineering Services

# Water Quality

## Measures of Success

1. Water quality at urban lakes across Mandurah
2. Water quality of the Peel Harvey estuary

## Targets

1. Water quality parameters maintained within ANZECC guidelines
2. Achievement of targets set in the Peel Harvey Estuary Water Quality Improvement Plan

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Continue implementing the urban lakes monitoring and management program	1.4, 1.6	Internal staff resources	Existing Operating Budget										1. Quarterly report of water quality at urban lakes across Mandurah	Landscape Management
		Consultancy support	(\$30k per annum) Existing Operating Budget											
Continue regional collaboration to address estuary water quality issues through participation on the Bindjareb Djilba Policy and Planning Committee	1.2, 1.6	Internal staff resources	Existing Operating Budget										1. City of Mandurah representation on the Bindjareb Djilba Policy and Planning Committee	Executive Manager Natural Environment

## Theme 2: Woven by Waterways

### Objectives

- 2.1. Ensure our coastal areas and waterways are healthy and vibrant for both nature and people, now and in the future
- 2.2. Manage and preserve an appropriate level of access to our coast, foreshores and waterways, to facilitate community interaction with them
- 2.3. Provide and maintain infrastructure to help foster appreciation and enable environmentally sensitive use of our coastal areas and waterways
- 2.4. Support the proper functioning of a dynamic coastal interchange by effectively managing the City's coastal and estuarine reserves

## Coast and Foreshore Management

### Measures of Success

1. Protection of identified coastal values

### Targets

1. Effective delivery of CHRMAP Action Plans

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Northern Beaches CHRMAP and associated Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	-	-	-	Existing Operating Budget		-	-	-	Existing Operating Budget		1. Northern Beaches CHRMAP updated 2. Northern Beaches CHRMAP Action Plan updated	Marina and Waterways
		Consultancy support	-	-	-	(\$60k) Subject to consideration at LTFP review		-	-	-	(\$60k) Subject to consideration at LTFP review			
Implement the Northern Beaches CHRMAP Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	Existing Operating Budget									-	1. Actions completed as defined in the Northern Beaches CHRMAP Action Plan	Marina and Waterways
		Capital funds	-	Subject to consideration at LTFP review										
Develop and review the Southern Beaches CHRMAP and associated Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	Existing Operating Budget			Subject to consideration at LTFP review						1. Southern Beaches CHRMAP developed 2. Southern Beaches CHRMAP Action Plan developed	Marina and Waterways	
		Consultancy support	(\$280k) Existing Operating Budget			-	-	-	(\$60k) Subject to consideration at LTFP review	-	-			
Implement the Southern Beaches CHRMAP Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	-	-	Subject to consideration at LTFP review						1. Actions completed as defined in the Southern Beaches CHRMAP Action Plan	Marina and Waterways		
		Capital funds	-	-	-	Subject to consideration at LTFP review								

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop and review the Estuary Foreshores CHRMAP and Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	-	Existing Operating Budget			Subject to consideration at LTFP review						1. Estuary Foreshores CHRMAP developed and endorsed by Council 2. Estuary Foreshores CHRMAP Action Plan developed	Marina and Waterways
		Consultancy support	-	(\$280k) Existing Operating Budget			-	-	-	(\$60k) Subject to consideration at LTFP review	-			
Implement the Estuary Foreshores CHRMAP Action Plan	2.1, 2.2, 2.3, 2.4	Internal staff resources	-	-	-	Subject to consideration at LTFP review						1. Actions completed as defined in the Estuary Foreshores CHRMAP Action Plan	Marina and Waterways	
		Capital funds	-	-	-	-	Subject to consideration at LTFP review							
Continue regional collaboration of coastal adaptation via the Peron Naturaliste Partnership	2.1, 2.4	Internal staff resources	Existing Operating Budget			Subject to Consideration at LTFP review						1. City of Mandurah representation on the Peron Naturaliste Partnership board	Executive Manager Natural Environment	
		Operating funds	Existing Operating Budget			Subject to consideration at LTFP review								
Develop a holistic coastal adaptation and management advocacy campaign derived from City's three CHRMAPs to secure external support required to implement them effectively	2.1, 2.4	Internal staff resources	-	-	Existing Operating Budget						1. Coastal advocacy plan developed and incorporated into the City's advocacy framework	Marina and Waterways/Office of the Mayor and Councillors		

# Enhancement of Blue Spaces

## Measures of Success

1. Community satisfaction of public open space facilities at foreshores, marinas and on waterways

## Targets

1. Meet or exceed previous results for the community satisfaction rating on coastal and waterways components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop the Mandjar Bay Masterplan to facilitate improved water-based activation	2.1, 2.2	Internal staff resources	Existing Operating Budget	-	-	-	-	-	-	-	-	-	1. Mandjar Bay Masterplan developed	Marina and Waterways/ Strategic Planning
Implement the Mandjar Bay Masterplan	2.1, 2.2	Internal staff resources	-	Subject to consideration at LTFP review			-	-	-	-	-	-	1. Mandjar Bay Masterplan delivered	Marina and Waterways/ Project Management
		Capital funds	-	-	Subject to consideration at LTFP review		-	-	-	-	-	-		
Review the Asset Management Plan for the coastal and marine asset portfolio	2.2, 2.3	Internal staff resources	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	1. Revised Coastal and Marine Asset Management Plan 2. 10 year coastal and marine asset renewal program 3. Annual coastal and marine asset maintenance schedule	Marina and Waterways

# Estuarine Ecology

## Measures of Success

1. Fisheries located in the estuary
2. Population of estuarine apex predators

## Targets

1. Fisheries maintain certification under Marine Stewardship Council
2. Dolphin populations within estuary do not decline

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Support the investigation into the feasibility of a Waterways Centre of Excellence	2.1	Internal staff resources	Existing Operating Budget	-	-	-	-	-	-	-	-	-	1. Needs analysis and feasibility study developed	Transform Mandurah
		Consultancy support	(\$150k) Existing Operating Budget	-	-	-	-	-	-	-	-	-		
Participate in state government and industry collaborations to improve management of estuarine ecology, such as the Marine Stewardship Certification process	2.1, 2.2	Internal staff resources	Existing Operating Budget										1. City of Mandurah representation on state government and industry groups	Executive Manager Natural Environment
Deliver an estuary management advocacy campaign that describes improved outcomes for estuary management and stakeholder collaboration	2.1, 2.2	Internal staff resources	Existing Operating Budget										1. Estuary management advocacy campaign developed and incorporated into City's advocacy framework	Executive Manager Natural Environment/ Office of the Mayor and Councillors
Support the development of a research proposal designed to improve management outcomes for the Peel Harvey Estuary dolphin population	2.1, 2.2	Internal staff resources	Existing Operating Budget	-	-	-	-	-	-	-	-	-	1. Research proposal presented to Council	Environmental Engagement
		Operating funds	Existing Operating Budget	Subject to consideration at LTFP review			-	-	-	-	-	-		

## Theme 3: Lead and serve in equal measures

### Objectives

- 3.1. Strive to be a carbon neutral city that is a powerhouse of renewable energy, research, production, utilisation and technology
- 3.2. Prioritise efficient design and use of materials, water and energy in City buildings and operations
- 3.3. Plan for water security to ensure our community and environment have sustainable access to clean and fit-for-purpose water supply, now and in the future
- 3.4. Strive towards zero landfill to reduce our environmental footprint and protect the environment from the impacts of waste and litter
- 3.5. Ensure our planning processes and mechanisms are designed and used in a way that protects ecological values and maximises environmental outcomes
- 3.6. Inspire greater connection to and celebration of our natural environment through the delivery of nature-based and ecotourism opportunities
- 3.7. Enhance our understanding of our regional environmental strengths to lead the development of sustainable economic outcomes

## Water Security

### Measures of Success

1. Secured water allocations
2. Community water consumption

### Targets

1. Water allocations match the modelled water supply needs for City public open space irrigation
2. Reduce community per capita water use below 110kL per annum

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop an overarching operational plan for management and required upgrade for the City's public open space irrigation needs	3.3, 3.5	Internal staff resources	Existing Operating Budget		-	-	-	-	-	-	-	-	1. Public Open Space Operational Plan developed 2. Water Supply Infrastructure Upgrade Program developed	Landscape Management
		Consultancy support	(\$30k) Existing Operating Budget	-	-	-	-	-	-	-	-	-		
Implement the Water Supply Infrastructure Upgrade Program	3.3, 3.5	Internal staff resources	Existing Operating Budget				Subject to consideration at LTFP review						1. Water supply infrastructure upgrades completed as outlined in the Water Supply Infrastructure Upgrade Program	Landscape Management
		Capital funds	Existing Capital Budget				Subject to consideration at LTFP review							
Continue the community outreach elements of the Waterwise Council program	3.3	Internal staff resources	Existing Operating Budget										1. Continued accreditation under the Waterwise Council program	Landscape Management

# Waste Management and Minimisation

## Measures of Success

### 1. Waste sent to Landfill

## Targets

### 1. Zero waste sent to Landfill

Projects/Actions/ Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Deliver and review the Strategic Waste Plan in accordance with legislative requirements	3.4	Internal staff resources	Existing Operating Budget										<ol style="list-style-type: none"> <li>Strategic Waste Plan and Implementation Plan developed</li> <li>Compliance with waste legislation</li> </ol>	Waste Management
Continue regional partnerships to improve waste management outcomes such as Council participation in the Rivers Regional Council /Subsidiary	3.4, 3.7	Operating funds	Existing Operating Budget										<ol style="list-style-type: none"> <li>City representation on regional industry groups</li> </ol>	Waste Management
Implement the Waste Education Plan Implementation Plan	3.4	Internal staff resources	Existing Operating Budget										<ol style="list-style-type: none"> <li>Actions completed as defined in the Waste Education Plan Implementation Plan</li> </ol>	Environmental Engagement/ Waste Management

# Renewable Energy and Climate Change Mitigation

## Measures of Success

1. City's corporate carbon footprint

## Targets

1. Meet or exceed the National target of reducing greenhouse gas emissions to 43% below 2005 levels by 2030

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Energy Management and Carbon Emission Reduction Plan including establishing new targets in relation to the City's energy consumption and carbon emissions	3.1	Internal staff resources	-	Existing Operating Budget		-	-	-	-	-	-	-	1. Energy Management and Carbon Emission Reduction Plan and Implementation Plan developed	Environmental Engagement
Implement the Energy Management and Carbon Emission Reduction Plan Implementation Plan	3.1	Internal staff resources	-	Existing operating Budget									1. Actions completed as defined in the Energy management and Carbon Emissions Reduction Plan Implementation Plan	Environmental Engagement
		Capital funds	-	-	Subject to consideration at LTFP review									
Review and manage the City's procurement of electricity, fuel and gas to maximise green options	3.1, 3.2	Internal staff resources	Existing Operating Budget										1. Contract management of City contestable sites and reticulated gas supply contracts	Environmental Engagement
Finalise the solar plan to install Solar photovoltaic systems to key City facilities	3.1	Capital funds	Existing Capital Budget			-	-	-	-	-	-	-	1. Solar PV systems operating at prioritised facilities underneath the solar plan	Environmental Engagement/Project Management
Support the Perth and Peel Hydrogen Cluster	3.1, 3.7	Internal staff resources	Existing Capital Budget				-	-	-	-	-	-	1. Advocate for decarbonisation opportunities for Mandurah	Transform Mandurah
		Operating budget	Existing Operating Budget				-	-	-	-	-	-		

# Corporate Energy and Water Efficiency

## Measures of Success

1. City's corporate carbon footprint
2. City's corporate water consumption

## Targets

1. Meet or exceed the National target of reducing greenhouse gas emissions to 43% below 2005 levels by 2030
2. Maintain potable water use within 5% of 2020 consumption

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Energy Management and Carbon Emission Reduction Plan including establishing new targets in relation to the City's energy consumption and carbon emissions	3.1	Internal staff resources		Existing Operating Budget		-	-	-	-	-	-	-	1. Energy Management and Carbon Emission Reduction Plan, and associated Implementation Plans, developed	Environmental Engagement
Implement the Energy Management and Carbon Emission Reduction Plan Implementation Plan	3.1	Internal staff resources	-	Existing operating Budget									1. Actions completed as defined in the Energy Management and Carbon Emissions Reduction Plan Implementation Plans	Environmental Engagement
		Capital funds	-	-	Subject to consideration at LTFP review									
Continue the corporate consumption related exercises of the Waterwise Council Program	3.2, 3.3	Internal staff resources	Existing Operating Budget										1. Continued accreditation under the Waterwise Council program	Landscape Management
Deliver the Lighting Renewal Plan to rollout replacement of light fittings with LEDs at City facilities	3.2	Capital funds	Existing Capital Budget										1. All renewed lighting is replaced with LED lighting	Technical Services
Maintain a water and electricity consumption platform and improve automation of monitoring to provide real-time data	3.2	Internal staff resources	Existing Operating Budget										1. Automated platform providing real-time information on City's consumption of water and electricity maintained	Environmental Engagement/ICT

# Sustainable Buildings and Operations

## Measures of Success

1. City's corporate carbon footprint
2. City's corporate water consumption

## Targets

1. Meet or exceed the National target of reducing greenhouse gas emissions to 43% below 2005 levels by 2030
2. Maintain potable water use within 5% of 2020 consumption

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop a policy and associated operating procedure for City facilities' energy performance (design and operating)	3.2, 3.3	Internal staff resources	-	-	-	Existing Operating Budget		-	-	-	-	-	<ol style="list-style-type: none"> <li>1. Sustainable Buildings Policy developed and endorsed by Council</li> <li>2. Operating procedure for delivering and monitoring sustainable performance of facilities created</li> </ol>	Environmental Engagement/Project Management
Develop a business case for transitioning the City's fleet to vehicles using alternative fuel sources such as electricity and green hydrogen	3.1, 3.2	Internal staff resources	-	-	-	Existing Operating Budget		-	-	-	-	-	<ol style="list-style-type: none"> <li>1. Business case and implementation plan developed to guide transition to vehicles using sustainable fuel sources</li> </ol>	Environmental Engagement/Fleet Management
		Consultancy support	-	-	-	(\$60k) Subject to consideration at LTFP review		-	-	-	-	-		

# Ecotourism

## Measures of Success

1. Community satisfaction of public open space facilities in City parks and reserves
2. Community satisfaction of public open space facilities at foreshores, marina's and on waterways

## Targets

1. Meet or exceed previous results for the community satisfaction rating on parks and public open space components of community scorecard
2. Meet or exceed previous results for the community satisfaction rating on coastal and waterways components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Support the visitor experience at key nature-based tourism locations across Mandurah, including Creery wetlands, Coodanup foreshore	3.6	Internal staff resources	Existing Operating Budget		-	-	-	-	-	-	-	-	1. Business case to develop Creery Wetlands visitor experience (City support) 2. Report and implementation Plan identifying other key nature-based tourism locations managed by the City developed	Visit Mandurah
		Consultancy support	(\$40k) Existing Operating Budget		-	-	-	-	-	-	-	-		
		Capital funds	-	Subject to consideration at LTFP review			-	-	-	-	-	-		
Develop the ecotourism experience at Yalgorup National Park in partnership with DBCA and industry	3.6, 3.7	Internal staff resources	Existing Operating Budget				-	-	-	-	-	-	1. Creation of public access to Yalgorup National Park 2. New tourist accommodation offerings available	Transform Mandurah
		Consultancy support	(\$100k) Existing Operating Budget		Subject to consideration at LTFP review		-	-	-	-	-	-		
		Capital funds	Existing Capital funds			Subject to LTFP review		-	-	-	-	-		
Develop the nature-based trails visitor experience throughout Mandurah and connecting with other regional locations	3.6, 3.7	Internal staff resources	Existing Operating Budget		-	-	-	-	-	-	-	-	1. Improved local health & wellbeing outcomes 2. Increased use of active transport connections	Transform Mandurah
		Consultancy support	(\$200k) Grant funding		-	-	-	-	-	-	-	-		
		Capital funds	Existing Capital funds			-	-	-	-	-	-	-		
Support Geoparks WA to investigate to establish a Geopark in Mandurah	3.6, 3.7	Internal staff resources	Existing Operating Budget	Subject to consideration at LTFP review								1. Signage installed at key sites around Mandurah 2. Bindjareb Peel Aspiring Geopark meetings attended	Transform Mandurah/Visit Mandurah/Geoparks WA	

## Theme 4: Stewards of the environment, custodians of our culture

### Objectives

- 4.1. Raise the environmental literacy of our community to inspire voluntary change in behaviour for the benefit of our environment
- 4.2. Support and facilitate volunteer groups to deliver projects that help achieve our environmental vision and provide a community benefit
- 4.3. Contribute to the well-being of our community by providing opportunities for people of all ages and abilities to connect with nature
- 4.4. Apply a Mandjoogordap cultural lens across all our environmental work to infuse Aboriginal culture in our sense of place
- 4.5. Celebrate our unique environment and support cultural development through creative engagement and art
- 4.6. Advocate for and build an engaged and skilled community who are empowered to manage wildlife, natural areas and the urban canopy appropriately

## Aboriginal Culture

### Measures of Success

1. Targets as defined in the Reconciliation Action Plan

### Targets

1. Targets as defined in the Reconciliation Action Plan

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Deliver the environment-related Aboriginal cultural outcomes within the City's Reconciliation Action Plan	4.4	Internal staff resources	-	Existing Operating Budget									1. Environment-related outcomes delivered as defined in the Reconciliation Action Plan	Community Development/Environmental Engagement
Facilitate projects for the Winjan Aboriginal Rangers program to deliver on City managed land	4.4, 4.6	Internal staff resources	Existing Operating Budget										1. Active Winjan Rangers program	Bushland Management
		Operating funds	Existing Operating Budget											

# Volunteering, Environmental Literacy and Sustainable Living

## Measures of Success

### 1. Active Environmental Volunteer Register

## Targets

### 1. Volunteer register is growing and is representative of the demographics in the community

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility	
Review the Environmental Volunteer and Education Program	4.2, 4.3	Internal staff resources	-	Existing Operating Budget	-	-	-	-	-	Existing Operating Budget		-	1. Environmental Volunteer and Education Program and Implementation Plan developed	Environmental Engagement	
Implement the Environmental Volunteer and Education Program Implementation Plan	4.2, 4.3	Internal staff resources	Existing Operating Budget										1. Actions completed as defined in the Environmental Volunteer and Education Program Implementation Plan	Environmental Engagement	
		Operating funds	Existing Operating Budget												
Deliver the environment-related outcomes of the Youth Strategy	4.1, 4.3	Internal staff resources	Existing Operating Budget										1. Environment-related outcomes delivered as defined in the Youth Strategy	Environmental Engagement/Youth Services	
		Operating funds	Existing Operating Budget												
Deliver the environment-related outcomes of the Access and Inclusion Plan	4.3	Internal staff resources	Existing Operating Budget										1. Environment-related outcomes delivered as defined in the Access and Inclusion Plan	Environmental Engagement/Community Development	
		Capital funds	Existing Capital Budget												
Deliver the environment-related components of the Arts and Culture Strategy	4.1, 4.3, 4.5	Internal staff resources	-	Existing Operating Budget										1. Environment-related outcomes delivered as defined in the Arts and Culture Strategy	Environmental Engagement/Arts and Culture

# Litter and Illegal Dumping

## Measures of Success

1. Litter and illegal dumping incidents

## Targets

1. Reduced incidents of litter and illegal dumping

Projects/Actions/ Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Implement the Waste Education Plan Implementation Plan	4.1, 4.2	Internal staff resources	Existing Operating Budget										1. Actions completed as defined in the Waste Education Plan Implementation Plan	Environmental Engagement/Waste Management

# Environmental Constant 1: Climate Change

## Objectives

- 5.1. Manage climate change associated risk according to both short and long-term timescales to identify fit-for-purpose solutions
- 5.2. Demonstrate leadership by advocating for climate change to be factored into the decision-making of relevant external stakeholder organisations and major regional projects

## Climate Change

### Measures of Success

- 1. City's public reputation related to environmental performance

### Targets

- 1. Meet or exceed previous results for the community satisfaction rating on environmental components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Climate Change Response Plan in line with the updated Intergovernmental Panel on Climate Change reports	5.1	Internal staff resources	-	-	Existing Operating Budget		-	-	-	-	-	-	1. Revised Climate Change Response Plan and Implementation Plan developed and endorsed by Council	Executive Manager Natural Environment/Executive Manager Governance Services
Review the City's climate change advocacy position papers in line with the City's Advocacy Framework	5.2	Internal staff resources	-	-	-	Existing Operating Budget	-	-	-	-	-	-	1. Revised climate change advocacy position papers endorsed by Council	Executive Manager Natural Environment/Office of the Mayor and Councillors

# Environmental Constant 2: Engagement and Education

## Objectives

- 6.1. Maintain a shared vision by ensuring organisational activities are complementary with environmental priorities, and that all relevant stakeholders are consistently engaged in the direction-setting process
- 6.2. Listen to and engage with our community, communicate with integrity and transparency, be open to feedback and having difficult conversations, and recognise our community's local knowledge
- 6.3. Lead by example and foster a reputation as a reliable and trustworthy environmental advocate and defender

## Engagement and Education

### Measures of Success

- 1. City's public reputation related to environmental performance

### Targets

- 1. Meet or exceed previous results for the community satisfaction rating on environmental components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Review the Environmental Promotion and Awareness Campaign to keep community informed and engaged with environmental priorities identified through the Environment Strategy	6.1, 6.2, 6.3	Internal staff resources	Existing Operating Budget	-	-	-	-	-	-	-	-	-	<ul style="list-style-type: none"> <li>1. Environmental Promotion and Awareness Campaign reviewed</li> <li>2. Environmental Promotion and Awareness Campaign Implementation Plan developed</li> </ul>	Environmental Engagement/Corporate Communications
Deliver the Environmental Promotion and Awareness Campaign	6.1, 6.2, 6.3	Internal staff resources	Existing Operating Budget	Subject to consideration at LTFP review								<ul style="list-style-type: none"> <li>1. Actions completed as defined in the Environmental Promotion and Awareness Campaign Implementation Plan</li> </ul>	Environmental Engagement/Corporate Communications	
		Operating funds	Existing Operating Budget	Subject to consideration at LTFP review										
Ensure all relevant stakeholders are consistently involved in the direction-setting process	6.1, 6.3	Internal staff resources	Existing Operating Budget										<ul style="list-style-type: none"> <li>1. Internal review process developed to ensure environmental implications are efficiently identified and addressed</li> <li>2. Where required, subject-specific internal working groups developed</li> </ul>	Executive Manager Natural Environment

# Environmental Constant 3: Corporate Responsibility

## Objectives

- 7.1. Uphold a culture of continuous improvement based on thorough evaluation and integrated decision-making to ensure that protection of the environment is actively embedded throughout the organisation
- 7.2. Base decisions on the best available science and evidence, and prioritise the collection and utilisation of locally relevant data
- 7.3. Develop, maintain and advocate for clear and consistent positions on environmental matters that are routinely reviewed, and applied consistently across the organisation
- 7.4. Acknowledge the role the environment plays in mental and physical wellbeing

## Corporate Responsibility

### Measures of Success

1. City's public reputation related to environmental performance

### Targets

1. Meet or exceed previous results for the community satisfaction rating on environmental components of community scorecard

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility	
Review the City's procurement process in relation to delivering more sustainable outcomes	7.1, 7.2, 7.3	Internal staff resources	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	Existing Operating Budget	-	-	1. Updated sustainable procurement guidelines	Procurement Services	
Develop and maintain the City's environmental databases	7.2	Internal staff resources	Existing Operating Budget										1. Internal energy, emissions and water monitoring platform developed 2. The City's biodiversity database maintained	ICT/Environmental Engagement/Bushland Management/Marina and Waterways	
		Operating funds	Existing Operating Budget	Subject to consideration at LTFP review											
Deliver the environment-related components of the Public Health Plan	7.4	Internal staff resources	Existing Operating Budget				-	-	-	-	-	-	-	1. Environment-related outcomes delivered as defined in the Public Health Plan	Health Services/Environmental Engagement
		Operating funds	Existing Operating Budget				-	-	-	-	-	-			
Deliver the environment-related components of the Place Enrichment Strategy	7.4	Internal staff resources	Existing Operating Budget				-	-	-	-	-	-	1. Environment-related outcomes delivered as defined in the Place Enrichment Strategy	Place and Community/Landscape Services	
		Operating funds	Existing Operating Budget				-	-	-	-	-	-			
Regularly review the City's environmental advocacy positions in line with the City's Advocacy Framework	7.3	Internal staff resources	Existing Operating Budget										1. As required, revised advocacy position papers endorsed by Council	Executive Manager Natural Environment/Office of the Mayor and Councillors	

Projects/Actions/Initiatives	Objectives	Resourcing	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	Deliverables	Responsibility
Develop a Corporate Environmental Responsibility Plan to ensure environmental consideration is embedded across the organisation	7.1	Internal staff resources	Existing Operating Budget										<ol style="list-style-type: none"> <li>1. Corporate Environmental Responsibility Plan developed</li> <li>2. Actions completed as defined in the Environmental Responsibility Implementation Plan</li> </ol>	Executive Manager Natural Environment/Environmental Engagement
Conduct a review of the Environment Strategy, including community engagement	7.1, 7.2, 7.3	Internal staff resources	-	-	-	Existing Operating Budget	-	-	-	Existing Operating Budget	-	-	<ol style="list-style-type: none"> <li>1. Review of Environment Strategy completed</li> <li>2. Environment Strategy updated as per the outcomes of the review</li> </ol>	Executive Manager Natural Environment/Environmental Engagement
Review and update the Environment Strategy Implementation Plan	7.1, 7.2, 7.3	Internal staff resources	Existing Operating Budget										<ol style="list-style-type: none"> <li>1. Review of Environment Strategy completed</li> <li>2. Corporate Business Plan actions aligned to the Environment Strategy Implementation Plan</li> </ol>	Executive Manager Natural Environment

# References

- 1 T. P. Hughes, J. T. Kerry, T. Simpson. 2017. Large-scale bleaching of corals on the Great Barrier Reef. <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/ecy.2092>
- 2 DCCEEW. 2022. Biodiversity conservation. [www.dcceew.gov.au/environment/biodiversity/conservation#:~:text=Over%20the%20last%20200%20years,fragmentation%20and%20degradation%20of%20habitat](http://www.dcceew.gov.au/environment/biodiversity/conservation#:~:text=Over%20the%20last%20200%20years,fragmentation%20and%20degradation%20of%20habitat)
- 3 Commonwealth of Australia. 2021. Australia State of the Environment. <https://soe.dcceew.gov.au/overview/environment/biodiversity>
- 4 The Conversation. 2017. Australia among the world's worst on biodiversity conservation. <https://theconversation.com/australia-among-the-worlds-worst-on-biodiversity-conservation-86685>
- 5 Deakin University. 2022. Shining a light on Australia's biodiversity crisis. <https://this.deakin.edu.au/society/shining-a-light-on-australias-biodiversity-crisis>
- 6 City of Mandurah. 2013. Mandurah Planning Strategy Biodiversity Strategy. <https://www.mandurah.wa.gov.au/-/media/files/com/downloads/learn/strategies-and-plans/planning-strategies/mandurah-planning-strategy-biodiversity-strategy.pdf>
- 7 Mathew P. White, Ian Alcock, James Grellier, Benedict W. Wheeler, Terry Hartig, Sara L. Warber, Angie Bone, Michael H. Depledge and Lora E. Fleming. 2019. Spending at least 120 minutes a week in nature is associated with good health and wellbeing. <https://www.nature.com/articles/s41598-019-44097-3>
- 8 Department of Transport. 2023. Long-term cycle network. <https://www.transport.wa.gov.au/activetransport/long-term-cycle-network.asp>
- 9 Commonwealth of Australia. 2015. Stormwater management in Australia. [www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/Stormwater/Report/c02](http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Stormwater/Report/c02)
- 10 .id. 2023. City of Mandurah Population Forecast. <https://forecast.id.com.au/mandurah/population-households-dwellings>
- 11 Department of Water and Environmental Regulation. 2023. Condition of Peel-Harvey. <https://estuaries.dwer.wa.gov.au/estuary/peel-harvey-estuary/estuary/condition/>
- 12 Richard G. Luthy, Sybil Sharvelle, and Peter Dillon. 2019. Urban Stormwater to Enhance Water Supply. <https://pubs.acs.org/doi/10.1021/acs.est.8b05913>
- 13 City of Mandurah. 2019. Water Sensitive Urban Design Policy POL-RDS 07. <https://www.mandurah.wa.gov.au/-/media/files/com/downloads/council/governance/policies/roads/water-sensitive-urban-design-policy.pdf>
- 14 Government of Western Australia. 2022. State Planning Policy 2.9 – Water resources. <https://www.wa.gov.au/government/publications/state-planning-policy-29-water-resources>
- 15 EPA. 2006. Peel-Harvey WSUD Local Planning Policy. <https://www.mandurah.wa.gov.au/-/media/files/com/downloads/council/governance/policies/roads/water-sensitive-urban-design-policy.pdf>
- 16 Peel Development Commission. 2006. Peel-Harvey Coastal Catchment Water Sensitive Urban Design Technical Guidelines. <https://www.newwaterways.org.au/downloads/Resources%20-%20Policy%20and%20Guidelines/PH%20Tech%20GL.pdf>
- 17 A. Lintern, J.A. Webb, D. Ryu, S. Liu, U. Bende-Michl, D. Waters, P. Leahy, P. Wilson, and A. W. Western. 2017. Key factors influencing differences in stream water quality across space. <https://wires.onlinelibrary.wiley.com/doi/full/10.1002/wat2.1260>
- 18 Md Sayed Iftekhar, James Fogarty. 2017. Impact of water allocation strategies to manage groundwater resources in Western Australia: Equity and efficiency considerations. <https://doi.org/10.1016/j.jhydrol.2017.02.052>
- 19 Le Lan, Md Sayed Iftekhar, James Fogarty, and Steven Schilizzi. 2021. Performance of a uniform proportional “cut” to manage declining groundwater in Western Australia. <https://doi.org/10.1016/j.jhydrol.2021.126421>
- 20 Amar V. V. Nanda, Leah Beesley, Luca Locatelli, Berry Gersonius, Matthew R. Hipsey, and Anas Ghadouani. 2021. Resilience and Adaptive Capacity of the Swan Coastal Plain Wetlands. <https://www.frontiersin.org/articles/10.3389/frwa.2021.754564/full>
- 21 Water Corporation. 2023. Climate and Southern WA. <https://www.watercorporation.com.au/Our-water/Climate-change-and-WA/Climate-and-Southern-WA>

- <sup>22</sup> Department of Climate Change, Energy, the Environment and Water. 2023. National Waste Report 2022. <https://www.dcceew.gov.au/environment/protection/waste/national-waste-reports/2022>
- <sup>23</sup> Australian Bureau of Statistics. 2020. Waste Account, Australia, Experimental Estimates. <https://www.abs.gov.au/statistics/environment/environmental-management/waste-account-australia-experimental-estimates/latest-release>
- <sup>24</sup> Department of Climate Change, Energy, the Environment and Water. 2023. National Waste Report 2022. <https://www.dcceew.gov.au/environment/protection/waste/national-waste-reports/2022>
- <sup>25</sup> WALGA. 2021. Local Government Leading Shift to Renewable Energy. <https://walga.asn.au/news,-events-and-publications/media/local-government-leading-shift-to-renewable-energy>
- <sup>26</sup> Department of Climate Change, Energy, the Environment and Water. 2023. Buildings. <https://www.energy.gov.au/government-priorities/buildings#:~:text=Data%20from%20the%20department%20shows,businesses%20and%20the%20wider%20economy.>
- <sup>27</sup> .id. 2023. City of Mandurah Dwellings and development map. <https://forecast.id.com.au/mandurah/dwellings-development-map?mYear3=2036&thempty=ChangeY1Y3>
- <sup>28</sup> Osman Balaban and Jose A. Puppim de Oliveira. 2017. Sustainable buildings for healthier cities: assessing the co-benefits of green buildings in Japan. <https://doi.org/10.1016/j.jclepro.2016.01.086>
- <sup>29</sup> City of Mandurah. 2022. Local Planning Scheme No 12 – Scheme Text. <https://www.mandurah.wa.gov.au/-/media/files/com/downloads/learn/strategies-and-plans/planning-strategies/local-planning-scheme-12-scheme-text.pdf>
- <sup>30</sup> .id. 2023. City of Mandurah Visitors and nights. <https://economy.id.com.au/mandurah/tourism-visitors-nights>
- <sup>31</sup> Australian Institute of Health and Welfare. 2021. Volunteers. <https://www.aihw.gov.au/reports/australias-welfare/volunteers>
- <sup>32</sup> Kristine Engemann, Carsten Bøcker Pedersen, Lars Arge, Constantinos Tsirogiannis, Preben Bo Mortensen, Jens-Christian Svenning. 2019. Residential green space in childhood is associated with lower risk of psychiatric disorders from adolescence into adulthood. <https://pubmed.ncbi.nlm.nih.gov/30804178/>
- <sup>33</sup> Frances E. Kuo. 2001. Coping with Poverty: Impacts of Environment and Attention in the Inner City. <https://journals.sagepub.com/doi/abs/10.1177/00139160121972846>
- <sup>34</sup> Gregory N. Bratman, Christopher B. Anderson, Marc G. Berman, Bobby Cochran, Sjerp De Vries, Jon Flanders, Carl Folke, Howard Frumkin, James J. Gross, Terry Hartig, Peter H. Kahn Jr., Ming Kuo, Joshua J. Lawler, Phillip S. Levin, Therese Lindahl, Andreas Meyer-Lindenberg, Richard Mitchell, Zhyun Ouyang, Jenny Roe, Lynn Scarlett, Jeffrey R. Smith, Matilda Van Den Bosch, Benedict W. Wheeler, Mathew P. White, Hua Zeng, and Gretchen C. Daily. 2019. Nature and mental health: An ecosystem service perspective. <https://www.science.org/doi/10.1126/sciadv.aax0903>
- <sup>35</sup> Qing Li. 2022. Effects of forest environment (Shinrin-yoku/Forest bathing) on health promotion and disease prevention -the Establishment of “Forest Medicine”. <https://pubmed.ncbi.nlm.nih.gov/36328581/>
- <sup>36</sup> Department of Climate Change, Energy, the Environment and Water. 2021. National Plastics Plan summary. <https://www.dcceew.gov.au/environment/protection/waste/publications/national-plastics-plan-summary>
- <sup>37</sup> The University of Western Australia. 2021. Why nature in Australia’s southwest is on the climate frontline. <https://www.uwa.edu.au/news/Article/2021/October/Why-nature-in-Australias-southwest-is-on-the-climate-frontline>





3 Peel St, Mandurah, Western Australia 6210  
Email [council@mandurah.wa.gov.au](mailto:council@mandurah.wa.gov.au)  
Phone (08) 9550 3777

