



City of Karratha

Environmental Sustainability Strategy



Acknowledgements

The City of Karratha acknowledges the Traditional Custodians, and pays respect to their Elders past, present and emerging. We pay respect to their continuing connection to land, and the continuation of their cultural, spiritual and educational practices.

The City of Karratha acknowledges the contribution of the Environmental Sustainability Advisory Group in the development of this Strategy.

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Mayor's foreword

The City of Karratha strives towards best practice in environmental sustainability. The Council and organisation are committed to ensuring the decisions we make today enable our community and surroundings to thrive into the future.

Our objective is to manage and improve our natural and urban environment for future generations, enhancing our community's liveability and resilience.

This Environmental Sustainability Strategy defines our values regarding environmental sustainability and outlines how this core principle has been embedded within our broader reporting framework, policies, and plans. It references the City's Strategic Community Plan's strategic theme: *Our Natural and Built Environment* – thriving and sustainable and builds on the success of the environmentally sustainable initiatives the City has delivered.

This Strategy details our work to date across five focus areas: energy and climate change, waste, water, natural environment, and sustainable development, planning and infrastructure. Looking ahead, it outlines our short, medium and long term aspirations around energy, water, and waste management efficiency. It outlines our aspirations to deliver leadership in environmental sustainability across our facilities and services to benefit our community.

Our City is located within a recognised national biodiversity hotspot, renowned for its spectacular landscapes and world class recreational experiences, which include boating, camping, fishing, four-wheel driving, and eco-cultural tourism experiences. Our unique environment and enviable outdoor lifestyle are a major drawcard for our growing population and is consistently ranked by the community as one of the top three 'best things' about living in our city.

Council welcomes opportunities to collaborate with government, business, and private and public sectors to improve and advance environmental sustainability across our city. I encourage you to contact our City Growth team to learn more about ways to get involved with our thriving regional city.



Peter Long
Mayor, City of Karratha



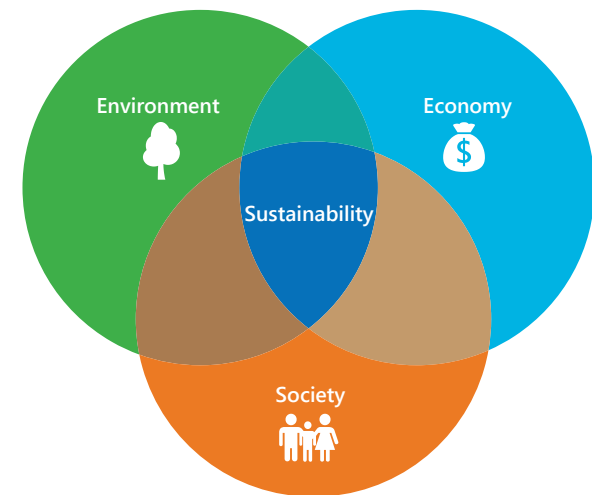
Our vision

The City of Karratha's vision is to become Australia's most liveable regional city and this Environmental Sustainability Strategy helps to achieve this vision. This vision is presented in the Strategic Community Plan which outlines the future of the City of Karratha for the next ten years focusing on the development and support of our local community, the growth of our economy and building a sustainable, attractive and exciting place to live, work and play.

Our mission is to provide community leadership and excellent local governance in an innovative and efficient manner to enhance our community's social, cultural, economic, and environmental wellbeing. The City is committed to a prosperous, sustainable future, through the management, protection, and conservation of our environment, greening our urban spaces, facilitating sustainable development and supporting the region to become leaders in renewable energy and we look towards the future.

What does environmental sustainability mean?

Environmental sustainability focuses on meeting the needs of the present without depleting or degrading our environment, whereby compromising the ability of future generations to meet their needs. There are three widely accepted overlapping pillars that must be managed to ensure sustainability. These include our society, our economy, and our environment. To strive for environmental sustainability, all of earth's environmental systems are kept in balance and ideally improved, while natural resources are accessed by humans to meet their needs.



How do we fit in with the rest of the world?

In September 2015, Australia was one of 193 countries to commit to enacting the United Nations 2030 Agenda for Sustainable Development, comprising 17 Goals. The goals address interconnected issues we all face and aim to stimulate action to create a more sustainable future for all.

The Sustainable Development Goals set out 169 targets against which global progress will be

measured. Australian organisations are focussing on the most relevant targets to our nation. At a local government level, the City cannot address global sustainability issues on its own and needs to work in collaboration with other key stakeholders, including the community. Through our functions and responsibilities, the City is committed to doing our part to help Australia meet the United Nations Sustainable Development Goals.

SUSTAINABLE DEVELOPMENT GOALS





Why prepare an Environmental Sustainability Strategy?

The City strives towards balancing the needs of our growing community, with conserving and enhancing our natural and urban environments for future generations. This Strategy identifies Council's priorities so that they can be implemented, monitored, reported on, to ensure the desired outcomes are achieved.



How has this Strategy been prepared?

Extensive research and consultation has informed the development of this Strategy. This included reviewing the previous Environmental Strategy and other relevant plans, together with an analysis of sustainability actions and trends at a global, national, and state level, as relevant to a local government context.

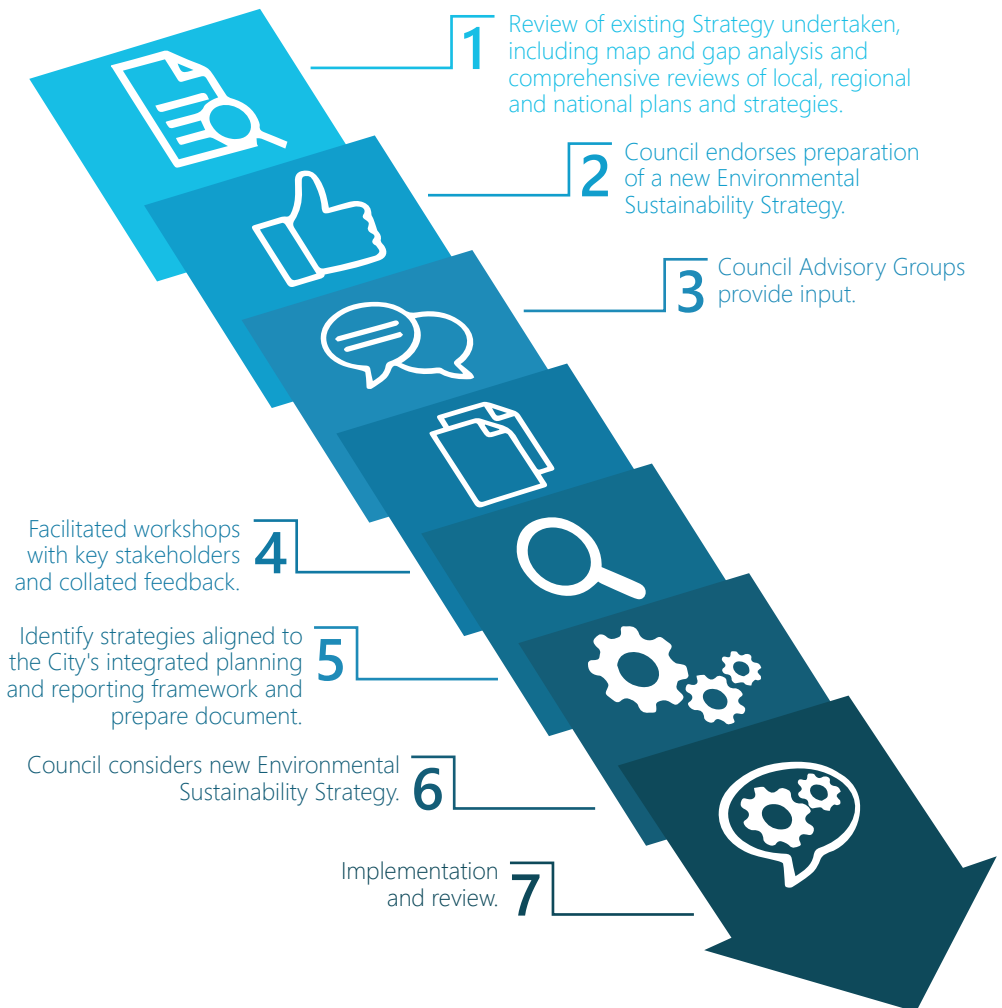
Community consultation was undertaken through two workshops and four meetings with community representatives of the Environment and Sustainability Advisory Group, and a workshop with the Youth Advisory Group, in addition to inviting the wider community to participate in the Strategy's development. This feedback helped identify key issues and inform strategic actions, which align with the objectives of the City's Strategic Community Plan 2020-2030.

This plan sets out our vision for the future of our local government area and outlines how the City and community will achieve that vision, driven by four strategic themes; Our Community, Our Economy, Our Natural and Built Environment and Our Leadership. The Strategy supports all four goal areas and aligns closely with the goal to protect our natural and built environment.



Consultation session with members of the Environment and Sustainability Advisory Group.

Key steps in the development of our Environmental Sustainability Strategy:





How does the Strategy work?

Integrated Strategic Planning Framework

To ensure the best outcomes for our community at each stage of our journey to becoming Australia's most liveable regional city, we have developed strategies for the short, medium, and long term. These plans are integrated so when we are working on short term projects, we are also contributing to the long-term strategies we have in place and ensuring the best use of resources in all our activities.

Our Strategic Community Plan 2020-2030 provides a vision for the future of the local government area and outlines how the City and community will achieve that vision over 10 years. It states our aspirations and objectives, regards the current and future resource capacity and demographic trends of the region, and is adopted by an absolute majority of Council.

Our strategic themes

Our goals

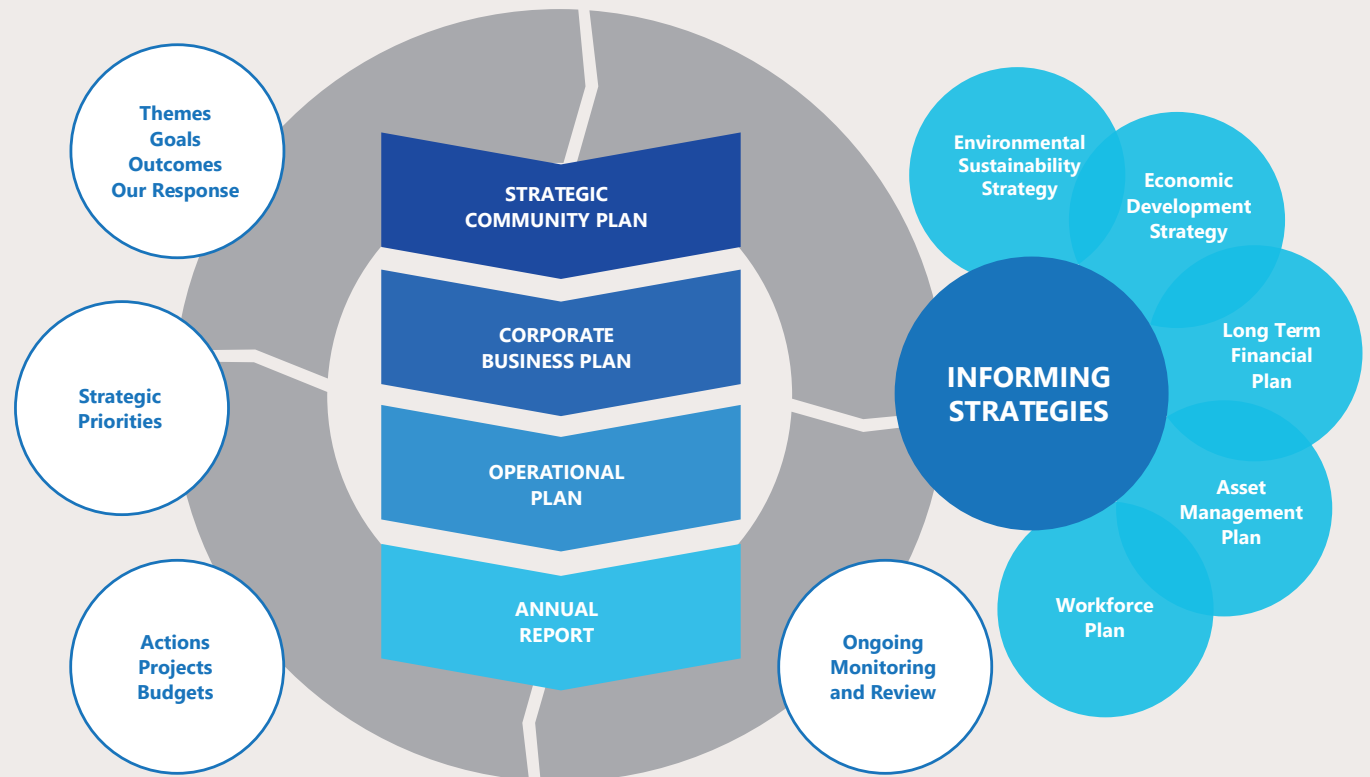
Our Community <i>Inclusive and Engaged</i>	<i>To activate safe, healthy and liveable communities</i>
Our Economy <i>Well Managed and Diversified</i>	<i>To attract diverse and sustainable business and employment opportunities</i>
Our Environment <i>Thriving and Sustainable</i>	<i>To protect our natural and built environment</i>
Our Leadership <i>Proactive and Accountable</i>	<i>To provide accessible, transparent and responsive leadership</i>

Embedding the Strategy into our operations

The Environmental Sustainability Strategy aims to guide specific actions within the organisation to achieve the goals of the City's Strategic Community Plan 2020-2030.

To deliver on this Strategy, an Implementation Plan is under development to plan, budget and deliver environmental sustainability projects. The Strategy will be embedded into operational plans and key actions identified to ensure that what is planned is delivered. Reporting of progress and performance is captured annually and presented to Council. The Strategy will be regularly reviewed to ensure it is responsive to the changing environment of the City and the broader region.

The City employs a dedicated Sustainability Officer within the City Growth team to coordinate the implementation of this Strategy and report to Council on its progress.





About our Region

The City of Karratha is the regional capital of the Northwest located in the Pilbara region. The Pilbara is recognised by the Australian Government as one of Australia's fifteen biodiversity hotspots and provides habitat for a number of threatened and endangered species and ecological communities.

The City encompasses a vast land area of 15,882 square kilometers and five towns: Karratha, Dampier, Roebourne, Wickham and Point Samson, and the historical village of Cossack. The City is renowned for its rich social, artistic, cultural and heritage values and the diverse natural landscapes, biodiversity and environmental values that are of state, national and international significance.

The City of Karratha local government area features the spectacular Murujuga National Park in the Burrup Peninsula and is adjacent to the Millstream-Chichester National Park. The City's inland biogeographical features are characterized by expansive plains of spinifex and tussock grasses, open shrub lands, tree-lined gorges, rivers and catchments, rocky slopes and the escarpments of the Chichester Range in the south. The coastline stretches approximately 350km between Port Weld and Balla Balla Creek. It features sandy beaches, tidal mudflats, rocky headlands, mangrove-lined bays and creeks, and islands that make up the Montebello Islands, part of the Sandy Island Nature Reserve and the Dampier Archipelago, off the coast of Dampier. The marine areas within the region are considered to be some of the most biologically diverse in the state.



Population

The City is home to more than 23,000 residents. Thirty-two per cent of residents are couples with children, which represents a 27 per cent increase in families over the past 10 years. Through economic diversification and enhanced livability, this population growth is anticipated to continue and City infrastructure such as power, water and sewerage have been upgraded in preparation for this anticipated expansion. A significant proportion of our population are of working age and some resource industries rely on fly-in, fly-out workforces. This impacts the community in many ways including the sense of responsibility for the natural and built environment.

Culture

The City recognises the Ngarluma people as the traditional custodians of the land on which we live and work. The City also acknowledges other traditional custodians in the local government area including the Yaburara, Mardudhunera, Wong-Goo-Tt-Oo and Yindjibarndi people who together with the Ngarluma people have a deep historical, spiritual, and enduring connection to the country, waterways, and seas within our region. Aboriginal people are recognised as having the oldest living culture in the world and it is vital their connection to country is acknowledged and respected. In addition, our multicultural community includes many other Aboriginal and Torres Strait Islander peoples from other regions and a diversity of nationalities. The City acknowledges the traditional custodians of the land and pays respect to their Elders; past, present and emerging.

Economy

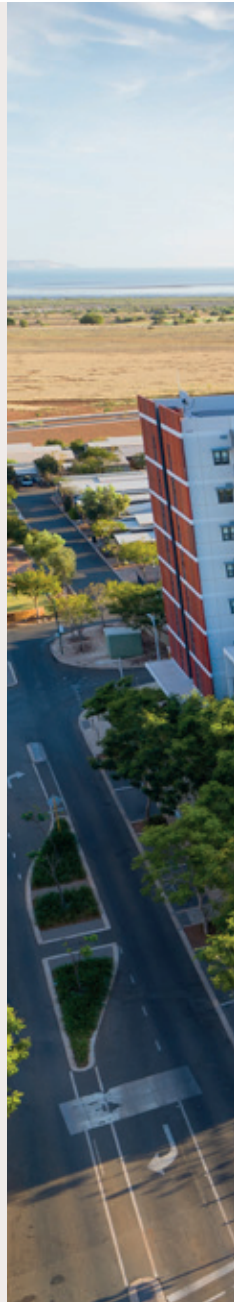
The City is of global economic significance and is emerging as the regional capital of the northwest. Its economy is underpinned by the resources sector, with iron ore, liquefied natural gas, salt, and ammonia exports worth approximately \$7.76 billion in 2019/20. Prior to the discovery of iron ore and other deposits, the region was a pearling, whaling and pastoral center, with stations still in use today.

The City is the region's major service, processing and export hub where port, private rail, government, and industry intersect. However, the lack of economic complexity leaves the City vulnerable to commodity price fluctuations and rising costs of living, which is a major economic challenge. To date, the resource industries rely on a combination of residential and fly-in fly-out workforces which has shaped the demographic of the community and the provision of facilities and services. Future growth will be underpinned by the City's ability to diversify the economy and enhance liveability. The City, in collaboration with state and federal government counterparts and industry partners, aims to leverage the extensive natural assets to attract business investment and nurture the emergence of new sustainable industries.

The City's Economic Development Strategy has four strategic outcomes, which include:

- Establishing Karratha as the regional capital of the North West.
- More people living, working and visiting the City.
- A diversified economy with a strong and stable small business sector
- Improvement in air, sea and land connectivity for passenger and freight movements.

It is important to acknowledge the City's continued co-existence with the resources sector, which will shape our community and workforce into the future.





Challenges and opportunities

On a national and global scale, environmental sustainability issues such as water scarcity, climate change and biodiversity loss are increasing, and local solutions are critical to address these challenges. There is a growing community expectation for local government to play a role in developing actions to tackle these issues. The City acknowledges that it cannot single-handedly fix the various global issues that have impacted our environment. The City is, however, committed to implementing best practice changes within its power and responsibility, and to raise community awareness of changes they can make within their homes and lifestyles.

The major impacts to our local environment have been from the pastoral and resource industries. These industries continue to be vital contributors to the local, regional, state, and national economies as well as our community. The City faces the challenge of having limited influence over the resource industries, and that people see these as contributing towards global impacts. These impacts need to be acknowledged as well as promoting our role to mitigate these impacts by being environmental stewards and building a positive culture of environmental sustainability.

The City has the challenge of servicing the needs of a growing population, paving the way to create economic diversification with less reliance on the resources sector, while managing the impacts on the environment. Underpinning this economic and population growth will be the City's strong commitment to sustainability. This Strategy clearly defines this commitment and embeds this within the broader reporting framework of the Strategic Community Plan.





Our approach to environmental sustainability

The City's approach seeks to communicate the intrinsic connection between the environment, economy and society when striving for responsible and sustainable management. These dimensions align directly with the City's Strategic Community Plan: Our economy; Our natural and built environment; Our community; and Our leadership.

The scope of the Strategy is to provide a framework with five focus areas, to progress the City and our community towards a more sustainable future.

The focus areas are:

1. Energy and climate action;
2. Waste;
3. Water;
4. Natural environment; and
5. Sustainable development, planning and infrastructure.

Each focus area aligns with the most relevant UN Sustainable Development Goals. Within this framework, each focus area has clear objectives and a list of strategic actions. To achieve these actions, the City adopts one or a combination of three roles:

- › **Deliver** and implement projects and activities that will contribute to our outcomes.
- › **Enable** and facilitate initiatives by creating the right conditions for projects, activities, and partnerships to occur; or
- › **Advocate** for commitment and investment to address challenges for the adoption of the sustainability initiative.

To deliver on the desired outcomes of the Strategy, an Implementation Plan is under development. The actions will be prioritised by their level of sustainability impact and the City's capacity to deliver.

The objectives and strategies contained in the five focus areas of the Strategy apply in varying degrees to every employee, business operator and community member in the City. While there are variable degrees of responsibility and involvement, everyone has a role to play in achieving the City's environmental sustainability objectives.

It is intended that this Strategy will provide a blueprint for the City and our community that guides and motivates all parties towards best practice environmental sustainability. Its implementation will enable the City to build on its commitment to a sustainable future and embed environmental sustainability within its core operations. This will ensure our natural and built environment, our community and our economy are managed sustainably as we strive towards our vision to become Australia's most liveable regional city.





1. Energy and climate action

The case for action:

Climate change is a global threat. The Intergovernmental Panel on Climate Change has advised that Australia is a nation with relatively high per capita greenhouse gas emissions due to its hydrocarbon industries. Australia has committed to act on climate change as a signatory to the Paris Agreement under the United Nations Framework Convention on Climate Change and the Sustainable Development Goals. Action is required by all tiers of government to transition to a low carbon economy and reduce emissions. Local governments can be part of the solution by reducing emissions, maximising energy efficiency, offsetting emissions through carbon sequestration, and monitoring and reporting emissions.

The Western Australian Government released its Climate Policy in November 2020, which aims for net zero emissions by 2050. The City is progressing towards a low carbon future by reducing our corporate carbon footprint and supporting the development of the renewable energy industry. Due to its location, the City faces unique challenges and opportunities relating to energy. The arid Pilbara climate can be extreme and air conditioning costs are a major factor influencing the cost of living in the region. To address this, many employers subsidise their employee's power bills, leaving little incentive to reduce consumption. In addition, a large proportion of homes are rental properties, which limits tenants' ability to retrofit energy efficient technologies.

As one of the sunniest landscapes in the world, receiving an average of more than nine hours of sunshine per day, northern Western Australia has been identified internationally as one of the best global locations for large scale solar power generation. This represents a significant opportunity to reduce reliance on fossil fuels, diversify the economy, reduce power costs for residents, and contribute towards mitigating climate change.

Action we have taken:

- ▶ Commissioned a renewable hydrogen industry study for the region.
- ▶ Secured seed funding to establish the Pilbara Hydrogen Technology Cluster.
- ▶ Karratha Airport has one of Australia's largest airport solar arrays, a 1-megawatt solar power system with cloud predictive technology, which supplies 40% of the airport's electricity each year.
- ▶ The Youth Shed – 12-kilowatt solar power system.
- ▶ Operations Centre – 85-kilowatt solar power system.
- ▶ Wickham Community Hub – 15-kilowatt solar power system.
- ▶ Eleven City-owned residential properties have 6.6-kilowatt solar power systems.
- ▶ Installed solar powered LED lighting to pedestrian paths.
- ▶ Converted the Karratha Leisureplex and the Roebourne Basketball courts lighting from mercury vapour to LED.
- ▶ Converted CCTV infrastructure at 7 Mile Waste Facility to solar.
- ▶ Developed an Energy Efficiency Action Plan 2017-2022, which outlines how the City can utilise innovative, best practice energy saving initiatives and policies.
- ▶ Developed a Coastal Hazard and Risk Management Adaptation Plan, to manage growth and development considering sea level rise and the effects of climate change.
- ▶ Joined the Climate Council Cities Power Partnership.

Our objectives:

1. Measure and report energy use and carbon emissions as a key performance indicator.
2. Reduce energy usage by implementing a range of efficiency measures.
3. Increase the use of renewable energy sources.
4. Reduce or offset carbon emissions to mitigate climate change.

Strategy	Measure	Measure and report	OBJECTIVES		
			Less energy used	More renewable energy	Less carbon emissions
Energy Efficiency					
1.1 Implement a Utility Management Team to report on energy consumption and progress energy efficiency actions.	› Reduced energy use and expenditure.	✓	✓	✓	✓
1.2 Expand facilities using smart metering and connection to the central control data aggregation information system and utility monitoring software to enable greater management and reporting of consumption, expenditure and greenhouse gas emissions.	› Number of facilities monitored centrally. Reduced energy use and expenditure.	✓	✓	✓	✓
1.3 Conduct optimisation studies of all high energy using facilities.	› Number of facility audits complete. › Reduced energy use and expenditure	✓	✓		✓
1.4 Incorporate energy efficiency principles and smart technologies in the design of new facilities and retrofit existing where economically feasible.	› Reduced energy use.		✓	✓	✓
1.5 Review procurement policy to include energy efficiency technologies, renewable energy in new City facilities.	› Policy updated and evaluated.		✓	✓	✓
1.6 Provide information to employees and the public on ways to reduce living costs and greenhouse gas emissions through building design, retrofits, and behaviour changes.	› Number of promotional activities completed. › Hits on the City website.		✓	✓	✓
1.7 Advocate utility provider upgrade street lighting lamps to LED.	› Proportion of streetlights upgraded to LED.		✓	✓	
1.8 Recognise organisations that demonstrate innovation to reduce energy use.	› Number of promotional activities completed.		✓	✓	✓
1.9 Advocate for the development of an energy efficient demonstration site.	› Demonstration site developed.		✓	✓	✓
Energy Transformation					
1.10 Implement an energy management team to progress the adoption of renewable energy technology including solar, wind, renewable hydrogen and geothermal.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.11 Use renewable energy technology for new City facilities and retrofit existing where economically feasible.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.12 Seek solutions to store excess renewable energy generated at City solar farms.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.13 Advocate for partnerships and subsidies that encourage use of renewable energy in homes and businesses.	› Increased ratio of renewable energy (Renewable kWh/Total kWh).			✓	✓
1.14 Advocate employers subsidise renewable energy technologies for employees instead of subsidising electricity consumption.	› Number of times the City has advocated companies that subsidise renewable technologies.			✓	✓
1.15 Advocate for the development of a renewable energy microgrid and virtual power plant for facilities or developments.	› Feasibility study completed.			✓	✓
1.16 Explore opportunities to pilot hydrogen projects within the City.	› Pilot studies implemented.			✓	✓
1.17 Facilitate the development of the Pilbara Hydrogen Technology Cluster.	› Self-sustaining Cluster established.			✓	✓

Strategy	Measure	Measure and report	OBJECTIVES		
			Less energy used	More renewable energy	Less carbon emissions
Transport					
1.18 Activate footpaths and cycle ways. (Refer to Karratha Revitalisation Strategy).	› Number of KRS strategies implemented.		✓	✓	✓
1.19 Accelerate uptake of low or zero emission vehicles for the community and in City fleet where available and appropriate.	› Number of low/zero emission fleet vehicles. › Reduced use of hydrocarbon fuel.			✓	✓
1.20 Advocate for increased public transport services with the revitalisation of suburbs (Refer to Karratha Revitalisation Strategy).	› Number of times the City has advocated for increased services.			✓	✓
Climate Change					
1.21 Make a climate change declaration and develop a climate change policy.	› Declaration and policy complete.	✓	✓	✓	✓
1.22 Develop a corporate and community climate adaptation & mitigation plan.	› Plan endorsed and number of actions implemented.	✓	✓	✓	✓
1.23 Review the City's Risk Policy and Risk Register to include climate change.	› Review and changes made.	✓	✓	✓	✓
1.24 Engage consultant to conduct baseline carbon accounting for City facilities and services.	› Baseline measurement completed.	✓			✓
1.25 Commit to an emissions reduction target and report as a key performance indicator.	› Emissions reduction target set and reported to Council.	✓			✓
1.26 Provide leadership to the community on climate change action (e.g., promotions, education, and alignment with external programs).	› Number of programs, or promotions achieved.			✓	✓
1.27 Expand the organic waste recovery system (Refer to #2 Waste Management).	› Volume of organic waste diverted from landfill. › Reduction in GHG emissions from waste.				✓
1.28 Maximise carbon sequestration and reduction of urban heat through use of urban greening strategies. (Refer to #4 Natural Environment and the Karratha Revitalisation Strategy).	› Number of KRS greening strategies implemented.				✓
1.29 Explore phasing out of refrigerants for alternatives with a lower ozone depletion and global warming potential in line with state policies. (Refer to #2 Waste Management).	› Performance against GHG targets.				✓





2. Waste

The case for action:

Western Australian's waste generation rates are higher and recovery rates are lower compared to other states and territories. Solid waste that ends up in landfill is a loss of valuable resources, can lead to land contamination and can generate greenhouse gases. There are three sources of solid waste: municipal, commercial and industrial, and construction and demolition waste. Commercial and industrial waste accounts for more than half the waste sent to landfill. Recovery of this waste reduces demand on landfill, significantly reduces greenhouse gas emissions and enables businesses to become more sustainable.

The City manages waste in accordance with the guiding principles of a circular economy and the waste hierarchy as outlined in the WA Waste Avoidance and Resource Recovery Strategy and Action Plan 2030. A circular economy uses products for as long as possible, then recovers and recycles the materials instead of throwing them away. The waste hierarchy outlines how waste is handled from not generating waste being most preferable, through to recovery, and disposal being the least preferred. In addition to the City's guiding principles for managing waste, the City has a clear direction on operations and works required to facilitate the future rehabilitation and post-closure management of landfill sites. Through these guiding principles, we will become a sustainable, low-waste, circular economy in which health and the environment are protected from the impacts of waste.



Action we have taken:

- › 8,657 tonnes of waste diverted from landfill during 2018/2019 financial year.
- › Provide a residential kerbside general waste and recycling service.
- › Operate a free household waste disposal service at 7-Mile and Wickham transfer stations.
- › Introduced a hazardous household waste program at 7-Mile transfer station.
- › Provide collection points for e-waste, mobile phones, paint, batteries, and metals.
- › Operate a tip shop diverting waste from landfill and promoting resource recovery.
- › Provide community waste education to promote improved recycling practices.
- › Introduced biodegradable doggie bags in dog-friendly parks.
- › Distributed reusable coffee cups and water bottles to all employees.
- › Developed the Internal Strategy to minimise the Use of Single Use Plastics, which eliminated 71,000 plastic bags, almost 16,000 disposable cups, more than 5000 disposable water bottles and nearly 3000 straws and utensils.

Our objectives:

1. Minimise waste generation.
2. Recover more value and resources from waste.
3. Protect the environment by managing waste responsibly.

Strategy	Measure	OBJECTIVES		
		Avoid	Recover	Protect
Avoid waste				
2.1 Review City procurement processes to avoid and reduce waste, increase recycling and increase the use of recycled products.	<ul style="list-style-type: none"> › Purchasing Policy amended and evaluated. › Recovered value from waste. 	✓	✓	
2.2 Replace single use plastics with biodegradable or reusable products across food traders, City operations, facilities, and events.	<ul style="list-style-type: none"> › Annual audit of kerbside bins. 	✓	✓	
2.3 Expand the range of recycling systems available within City facilities and at events, including implementing the Better Bins infrastructure.	<ul style="list-style-type: none"> › Number of events and facilities using recycling systems. 	✓	✓	
2.4 Encourage businesses through procurement processes to avoid single use plastics, retain responsibility for SUP packaging and adopt compostable, reusable, or recyclable alternatives.	<ul style="list-style-type: none"> › Implementation and evaluation of the waste practices as part of the procurement process. 	✓	✓	✓
2.5 Provide community and staff education programmes in line with WA Waste Avoidance and Resource Recovery Strategy 2030.	<ul style="list-style-type: none"> › Promotion of Plastic Free July Program. › Reduction in contamination rates. › Number of education programs delivered. 	✓	✓	✓
Recover resources				
2.6 Promote consistent community education messaging on waste reduction behaviours and resource recovery for all programs including the household hazardous waste and the WA Container Deposit Scheme.	<ul style="list-style-type: none"> › Number of times promoted to the community. 		✓	✓
2.7 Increase the amount of construction & demolition waste recovered and used in City infrastructure projects.	<ul style="list-style-type: none"> › Tonnes diverted from landfill. 		✓	
2.8 Increase resource recovery efforts of commercial & industrial waste.	<ul style="list-style-type: none"> › Value recovered from waste. 		✓	
2.9 Expand organics recovery and composting system.	<ul style="list-style-type: none"> › Volume of organic waste diverted from landfill › Reduction in GHG emissions from waste. 		✓	✓
2.10 Capture refrigerants from going into landfill.	<ul style="list-style-type: none"> › Reduction in GHG emissions from waste. 			
2.11 Explore the phasing out of Hydrochlorofluorocarbon gas and exchange with refrigerants/propellants with a lower ozone depletion and global warming potential in line with State Policies.	<ul style="list-style-type: none"> › Reduction in GHG emissions from waste. 		✓	✓

Strategy	Measure	OBJECTIVES		
		Avoid	Recover	Protect
Protect				
2.12 Introduce initiatives tackling illegal dumping, including promoting the Report It application.	› Reduction in the number of illegal dumping incidents reported.	✓	✓	✓
2.13 Conduct regular landfill facility commercial waste audits to ensure ongoing compliance and licencing conditions.	› Compliance with licencing conditions.			✓
2.14 Partner with community organisations and the Keep Australia Beautiful Council program to conduct community clean-up days (e.g., Bucks for Bags and Captain Clean-up).	› Number of waste-related partnership programs delivered per year.		✓	✓
2.15 Cell zero closure remediation and rehabilitation.	› Remediation completed in accordance with the Victorian Best Practice Environmental Guidelines.			✓





3. Water

The case for action:

The City experiences a hot subtropical climate along the coastal areas, transitioning to an arid climate throughout the inland region. According to the Bureau of Meteorology, the average annual rainfall is 286mm with over 50 percent associated with the infrequent cyclonic events during summer. Coupled with very low rainfall, the region experiences over 3200mm in annual evaporation, causing most surface water sources to dry up during extended dry periods. The effect of climate change is expected to see the Pilbara become warmer during all seasons, experience less frequent but more intensive rainfall events, and experience increased drought. This warming and drying climate is a key concern, particularly for the health of our natural systems and to meet the drinking water needs of our projected growth in population.

Access to safe, clean drinking water is recognised globally as a vital, yet increasingly scarce resource. Currently the City has a population of over 23,000 people who are supplied with water from the West Pilbara Water Supply Scheme, which sources water from the Harding Dam, the Millstream Water Reserve and the Bungaroo Borefield. The annual water consumption per capita is nearly double the national average and the number of industries that consume water is growing. It is vital that water efficiency is optimised and surface and groundwater reserves are protected in order to support healthy ecosystems and future population and economic growth.

Action we have taken:

- ▶ Enrolled in the Water Corporations water efficiency program and have been recognised as a Waterwise Council since 2017 in recognition of excellent water efficiency.
- ▶ Karratha Leisureplex and the Roebourne Aquatic Centre recognised as a Waterwise Aquatic Centres.
- ▶ Upgraded the effluent reuse scheme articulated network to

supply high quality treated recycled water for use in grassed public open spaces in Karratha.

- ▶ Treated recycled water used for irrigating grassed open spaces and gardens in Wickham and Dampier.
- ▶ Treated recycled water used for irrigation, toilet facilities and washing hire cars at Karratha Airport.
- ▶ Using pool filter backflush for irrigating playing fields and gardens at Karratha Leisureplex.
- ▶ Introduced plant grouping with similar water requirements in landscaping plans to conserve water.
- ▶ Improved irrigation and reticulation practices and upgraded poorly performing systems.
- ▶ Using data loggers, a central control system, and smart metering applications to optimise water efficiency with irrigation.
- ▶ Developed and implemented a Water Management Strategy and Water Efficiency Action Plan to optimise water efficiency.
- ▶ Platinum recognition under the Water Corporation's Efficiency Management Program for achieving more than 50% improvement in water efficiency at Karratha Airport.
- ▶ Led the state for water efficient showerhead swaps as part of the Water Corporation's 2019 Waterwise Towns Program.

Our objectives:

1. Reduce overall water use and optimise fit for purpose use of water resources.
2. Enhance community awareness of sustainable use in a changing climate.
3. Deliver functional, water efficient and sustainable public open spaces.
4. Protect and enhance waterways, wetlands and groundwater sources to protect the health of the environment.

Strategy	Measure	OBJECTIVES			
		Reduce water use	Enhance community awareness	Sustainable public open spaces	Protect water sources & ecology
Monitoring and reporting					
3.1 Develop a Water Management Team to progress water efficiency initiatives and programs across the City.	› Water Management Team meeting regularly and delivery of water initiatives.	✓		✓	✓
3.2 Implement utility monitoring software to provide annual water consumption and expenditure reports and to track progress towards water conservation goals.	› Utility monitoring system installed and providing regular reports to Council.	✓		✓	
3.3 Audit City facilities and public open spaces with the highest water consumption and develop individual water budgets.	› Water usage for each facility.	✓		✓	
Educate and engage					
3.4 Engage with schools in the Waterwise Schools Program.	› Number of engagements.	✓	✓		✓
3.5 Engage with businesses to promote water efficiency and encourage direction of wastewater to the reticulated wastewater system.	› Number of engagements.	✓	✓		✓
3.6 Partner with the Water Corporation to cross promote water efficiency education campaigns and protect surface water supplies.	› Number of cross-promotional campaigns.	✓	✓		
Resource efficiency					
3.7 Increase water use efficiency, optimise water recycling and reuse throughout City-owned facilities and public open spaces.	› Potable water usage per facility. › Ratio of recycled water used.	✓		✓	✓
3.8 Investigate the use of bore water for irrigating public open spaces as part of the ERS system upgrade.	› Potable water usage per facility.	✓		✓	✓
3.9 Investigate potential application of Managed Aquifer Recharge technology for irrigation.	› Potable water usage per facility.	✓		✓	✓
3.10 Provide sources of information on domestic rainwater collection and grey-water re-use systems for residential areas.	› Hits on City website.	✓	✓		✓
Water sensitive facilities and urban design					
3.11 Progress the City towards Gold Waterwise Council status and Water Sensitivity City functionality.	› Successful recognition.	✓	✓	✓	✓
3.12 Encourage developers to participate in the Water Corporation's Waterwise Development Program.	› Number of times the City has engaged with developers.	✓	✓		✓
3.13 Mandate principles of water sensitive urban design for new developments and consider a sustainability demonstration site/eco village.	› Community water use.	✓	✓	✓	✓

Strategy	Measure	OBJECTIVES			
		Reduce water use	Enhance community awareness	Sustainable public open spaces	Protect water sources & ecology
Water sensitive facilities and urban design					
3.14 Encourage principles of water sensitive urban design for new developments and consider a sustainability demonstration site/house.	› Improved community water usage.	✓	✓	✓	✓
3.15 Review procurement processes to ensure principles of water efficiency and water sensitive design are included.	› Reviewed procurement procedure.	✓	✓	✓	✓
3.16 Progress Wickham Aquatic Centre towards Waterwise Aquatic Centre status.	› Successful recognition.	✓			
3.17 Provide information to the community about water sensitive home landscaping, reticulation and waterwise plants.	› Number of hits on the website.	✓	✓		✓
3.18 Apply best practice water sensitive urban design to new and existing City owned facilities. Fit or retrofit with above 3-star WELS rated appliances.	› Water usage per facility.	✓	✓	✓	
3.19 Provide community information on storm surge risk management and emergency response.	› Information available on website.		✓		
Public open spaces and ecological health					
3.20 Develop and promote a waterwise verge policy.	› Number of website hits and promotions.	✓	✓	✓	✓
3.21 Remodel and revegetate shoulders and upper batters of target drainage swales with native plants to increase amenity, reduce erosion and treat storm water before discharge into the ocean.	› Amenity of drainage swales.			✓	✓
3.22 Optimise effectiveness of irrigation by using best practice specifications, conducting audits and implementing a SCADA centralised irrigation control system.	› Corporate water usage.	✓		✓	
3.23 Review and optimise access to vandal-proof drinking fountains in public open spaces.	› Number of facilities available.			✓	✓
3.24 Conduct targeted community clean-up days in drainage swales prior to summer.	› Number of events promoted.				✓





4. Natural environment

The case for action:

The Pilbara is recognised by the Australian Government as one of Australia's fifteen biodiversity hotspots and is an important economic, social and cultural asset. The City's local government area has less than nine percent of the total land area of the Pilbara region but more than 35 per cent of the population call it home. Threats to the environment include the clearing of native vegetation; urbanisation; pastoral activities; overfishing; mineral extraction; industrial development; weeds degrading habitat and biodiversity; feral animals; changes in fire regimes; and climate change. These pressures, coupled with an anticipated growth in population and economic diversification, mean it is imperative the City demonstrates responsible environmental stewardship to protect our assets for future generations. The challenge will be integrating social and economic development with strategies to protect our natural environment into the future.

Action we have taken:

- ▶ Established the Environment and Sustainability Advisory Group which enables community members to provide advice on environment and sustainability matters.
- ▶ Created a new Natural Areas Officer position assigned to the Parks and Gardens department to increase the management of natural assets.
- ▶ Developed the City of Karratha Coastal Management Strategy and six foreshore management plans
- ▶ Developed the Karratha Revitalisation Strategy, improve liveability, amenity including a focus on urban greening strategies.
- ▶ Developed a Coastal Hazard and Risk Management Action Plan to consider the impacts of climate change on the coastal assets and infrastructure.
- ▶ Restored eroded dunes at Karratha and Wickham beaches to promote biodiversity and enhance amenity.
- ▶ Developed a partnership with the Department of Justice to grow plants for restoration and assist with restoring natural areas.

Our objectives:

1. Sustainably manage our environment by protecting biodiversity while enhancing and promoting our unique natural assets.
2. Improve appearance of streetscapes and increase urban greening strategies.
3. Recognise and celebrate cultural values associated with natural areas and promote a collaborative approach for natural asset management that includes Traditional Owners.

Strategy	Measure	OBJECTIVES		
		Protect biodiversity	Urban Greening	Collaborative management
Planning and reporting				
4.1 Develop a local biodiversity plan that identifies areas of ecological significance, outlines conservation priorities and guides management action plans.	› Implementation and endorsement of the plan.	✓		✓
4.2 Ensure principles of environmental sustainability, biodiversity and cumulative impacts are considered with new developments and land use planning.	› Review of development approval process.	✓	✓	
4.3 Develop a process to aggregate progress of all environmental management plans.	› Annual reporting.	✓		
Management				
4.4 Review landscaping policies for businesses and developments that include planting waterwise, native and exotic cyclone tolerant species and weed management.	› Completion of policy and number of downloads.	✓	✓	
4.5 Develop community resources that support greening strategies including landscaping, weed management, irrigation and using water sensitive native, endemic and cyclone tolerant plants.	› Number of website hits and downloads.	✓	✓	
4.6 Review the Tree, Verge and Significant Tree policies (see also Water – action 3.20)	› Policies reviewed.		✓	
4.7 Develop an inventory of waterwise plants including locally endemic species suitable for City landscaping and restoration.	› Completion of list and number of downloads.	✓	✓	
4.8 Develop a comprehensive weed management plan that includes chemical use and collaboration with other agencies.	› Plan developed, endorsed and implementation reported on.	✓		✓
4.9 Develop a river and wetland environmental management plan to protect habitat, ecological health and to increase amenity.	› Plan developed, endorsed and implementation reported on.	✓		✓
4.10 Promote state, national and international environmental events.	› Number of events promoted and social media engagement.	✓		✓
4.11 Implement waste management education strategies to protect natural areas and waterways from litter and illegal dumping.	› Number of education strategies completed.	✓		✓
Regeneration				
4.12 Rehabilitate and protect natural assets identified in the local biodiversity plan to address erosion, track management, litter and weeds.	› Area (hectares) protected.	✓		✓
4.13 Optimise vegetation cover in natural areas, including shoulders and upper batters of drainage swales to reduce erosion, promote soil water retention, ecological health and amenity.	› Area (hectares) protected.	✓	✓	

Strategy	Measure	OBJECTIVES		
		Protect biodiversity	Urban Greening	Collaborative management
Regeneration				
4.14 Promote community programs that convert verges and vacant land in cul-de-sacs to waterwise native gardens that promote biodiversity.	› Number of verges		✓	✓
4.15 Explore options to establish a local nursery or secure partnerships to supply endemic species for use in City plantings and for the wider community.	› Nursery or partnerships established.	✓	✓	✓
Engagement				
4.16 Promote education programs that educate the community about the uniqueness of the Pilbara environment, the threats to biodiversity, and encourages shared management responsibility.	› Number of campaigns completed and social media engagement.	✓		✓
4.17 Partner with government and non-government organisations, industry and community groups to manage natural areas, control introduced fauna and flora and fire management.	› Number of external groups involved in natural area management.	✓		✓
4.18 Engage with Traditional Owners to incorporate cultural knowledge and explore partnership opportunities for the management of natural areas.	› Number of groups involved in natural area management.	✓		✓
Leadership				
4.19 Explore establishing a botanical garden as a demonstration site for Pilbara and Northern Australian flora species.	› Establishment of garden.	✓	✓	✓
4.20 Collaborate with research/education organisations to support research into the adaptation of a drying and heating climate.	› Partnerships developed.	✓		✓





5. Sustainable development, planning and infrastructure

The case for action:

Living within our environmental limits is one of the central principles of sustainable development. It involves decision making that meets the current needs of the community without compromising the capacity of future generations, and striking a balance between economic growth, social wellbeing and care for the environment. The City is anticipated to experience population growth and the diversification of the local economy, which will increase the demand on natural resources. To plan for this outcome, accurate forecasting data is necessary to inform decisions regarding land supply, land use, and urban and infrastructure planning. In addition, the City acknowledges that the cost of living and construction costs are higher in the Pilbara than in metropolitan areas, which may impact building decisions and the use of sustainable technologies. By implementing a coordinated approach and long-term strategic view to planning, the City aims to reduce the potential for serious environmental impacts and progress Council's overarching vision to become Australia's most liveable regional city.

Action we have taken:

- ▶ Developed the Karratha Revitalisation Strategy that identifies actions to improve liveability, amenity and infrastructure of Karratha.
- ▶ Completed a future land supply study to ensure market availability meets future demand.
- ▶ Developed an Economic Development Strategy to improve the capacity and diversity of our local business economy.

Our objectives:

1. Develop a greater understanding of the environmental performance of current infrastructure and transition towards improved performance.
2. Manage the expansion of urban infrastructure to meet the needs of the growing population while minimising the impact on the environment.
3. Promote sustainable developments, foster innovation and provide sustainability leadership to the community.

Strategy	Measure	OBJECTIVES		
		Improve infrastructure performance	Minimise expansion impact	Promote sustainable developments
Housing				
5.1 Complete cost analysis of current sustainability initiatives in City-owned residences and promote findings on the cost of living to the community.	› Analysis complete and number of times the findings are promoted.	✓		
5.2 Provide residents with references and resources via the City's website on sustainable housing design, sustainability retrofits and behaviour changes to promote sustainability and reduce the cost of living.	› Website hits.	✓	✓	✓
5.3 Support partnerships with external agencies and financial incentives that reduce barriers and cost of adopting sustainable technologies in houses.	› Number of partnerships established.		✓	✓
5.4 Promote sustainable living initiatives and events to the community (e.g., Sustainable House Day).	› Number of promotions.	✓	✓	✓
City Infrastructure				
5.5 Complete an analysis of existing sustainability technologies in current City infrastructure and promote findings to the community.	› Analysis complete and number of times the findings are promoted.	✓		
5.6 Design new City facilities with consideration to environmentally sustainable technologies and design principles.	› Adoption of Procurement Policy.		✓	✓
5.7 Implement the Karratha Revitalisation Strategy to promote use of public transport, pedestrian routes, bicycles and end of trip facilities.	› Number of initiatives implemented.		✓	
5.8 Accelerate the uptake of low or zero emission vehicles, by increasing electric vehicle charging infrastructure.	› Number of charging points and usage data.		✓	✓
5.9 Work with government and industry to coordinate transport infrastructure alongside social infrastructure and using smart systems to future-proof the City.	› Rate of public transport use.			✓
Procurement				
5.10 Review procurement procedures for goods and services to include sustainability technologies or specifications.	› Process implemented and evaluated.			✓
5.11 Promote the development of small-scale local industries that employ residents and use local produce. Refer to Economic Development Strategy.	› Adoption of Procurement Policy.			✓
5.12 Support local technology development, business development, innovation, education and research into sustainability in developments.	› Number of small businesses.			✓
Planning				
5.13 Develop a referral criterion for development and/or building applications to trigger a sustainability review.	› Referral criteria developed.		✓	✓



Implementation

To deliver on the desired outcomes of the Strategy, an Implementation Plan is under development. The strategies will be prioritised by their level of sustainability impact, and the City's capacity to deliver.

The Implementation Plan will inform the development of the City's Corporate Business Plan and the annual Operational Plan. Funding decisions for environmental sustainability initiatives as part of the Operational Plan will be considered during the annual budget process. Actions that have not been implemented in the next 5 years, or have been identified to be delivered beyond 2025, will inform the next iteration of the Strategy and the associated Implementation Plan. This is a dynamic process that aims to ensure an organisation-wide approach to environmental sustainability, with responsibility shared by all departments. Our approach to environmental sustainability and the implementation of this Strategy has been designed to be flexible and responsive to community feedback and opportunities as necessary.





How to get involved

The City is a progressive organisation committed to exploring the limits of what a local government can achieve for our community. We are entering an exciting new phase of economic diversification and an increased commitment to environmental sustainability. Our Council recognises that striving towards a sustainable future requires a collaborative approach, and embraces opportunities to facilitate partnerships with government, business and the public and private sectors on innovative initiatives that will improve environmental sustainability. For further information, please contact the City of Karratha Growth team.

Contact details:

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