

Draft for public comment

Environmental Sustainability **Strategy**



Acknowledgements

The City of Karratha (the City) acknowledges the Ngarluma people as the traditional custodians of the land on which we live and work and recognises their continuing connection to country, waterways and community. We pay respect to the Ngarluma people and their Elders; past, present and emerging.

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

Contents

Acknowledgements	2
Mayor's foreword	5
Executive summary / Our vision	7
What does environmental sustainability mean?	7
How do we fit in with the rest of the world?	8
Why prepare an Environmental Sustainability Strategy?	9
How has this strategy been prepared?	11
How does the strategy work?	12
Integrated Strategic Planning Framework	12
Embedding this strategy into our operations	13
About our region	15
Population	16
Culture	16
Economy	16
Challenges and opportunities	17
Our approach to environmental sustainability	19
Focus areas	20
1. Energy and climate action	20
2. Waste	24
3. Water	27
4. Natural environment	30
5. Sustainable development, planning and infrastructure	33
Implementation	36
How to get involved	37





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.

Sustainability is a key principle embedded in our transparent, responsible decision-making processes. Our objective is to manage and protect our natural and urban environment for future generations; enhancing our community's livability and resilience.

This strategy defines our values regarding sustainability and outlines how this core principle has been embedded within our broader reporting framework, policies and plans. In particular, it references the City's Strategic Community Plan's strategic theme: Our Natural and Built Environment – thriving and sustainable, and builds on the Shire of Roebourne Environmental Strategy in terms of environmental management outcomes.

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 region is recognised as a 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 is 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



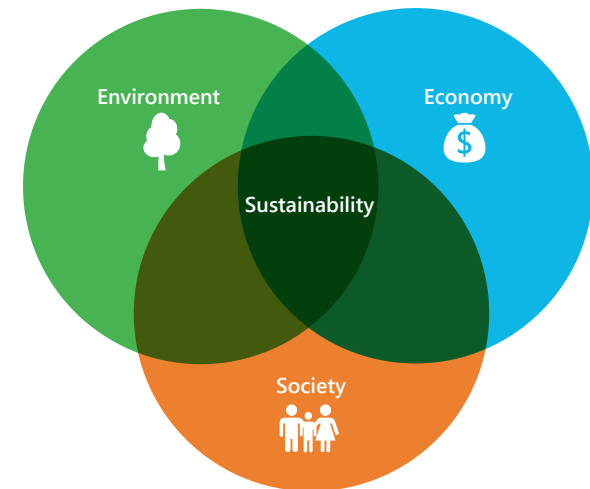
Our vision

The City recognises the importance of a balanced approach when striving for a sustainable future for our region. This approach needs to take into account the City's unique environment, broad economy, diverse community and underpin the City's vision, mission and purpose. The City's vision is to become Australia's most livable regional city and environmental sustainability is a critical component to achieving this vision.

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?

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. Environmental sustainability is maintained, when all of earth's environmental systems are kept in balance while natural resources within them are consumed by humans at a rate where they are able to replenish themselves.



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 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 our natural and urban environment for future generations. This strategy is designed to assist the City to achieve this goal and builds on the Shire of Roebourne Environmental Strategy adopted by Council in 2013.



How has this strategy been prepared?

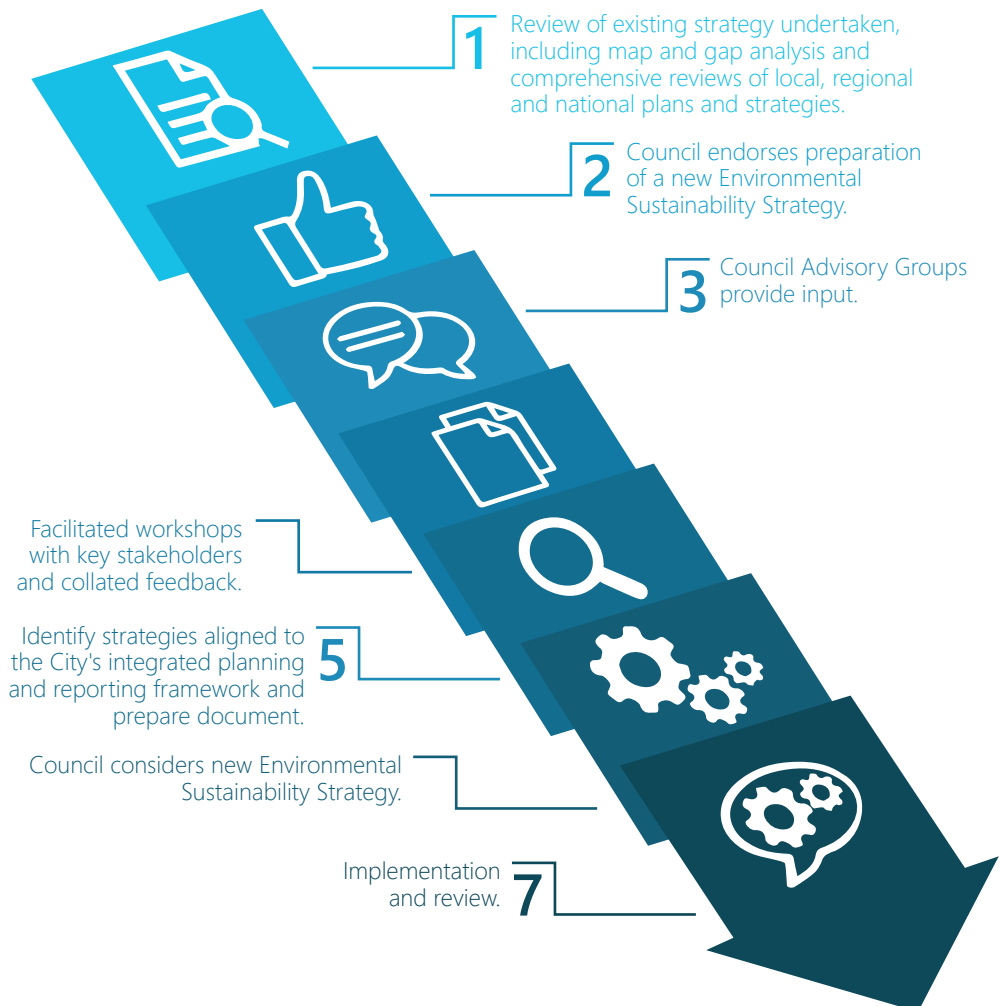
Extensive research and consultation has informed the development of this Environmental Sustainability Strategy. This included reviewing the previous Environmental Strategy and other relevant plans, together with an analysis of sustainability actions and trends at a global, national and state level, as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

Community consultation was undertaken through workshops with community representatives of the Environment and Sustainability 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 2016-2026.

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 Environmental Sustainability Strategy supports all four goal areas and aligns closely with the goal to protect our natural and built environment.



Key steps in the development of our Environmental Sustainability Strategy:





How does the strategy work?

Integrated Strategic Planning Framework

We believe in planning for a bright future that fulfils the needs of current and future generations.

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 of 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

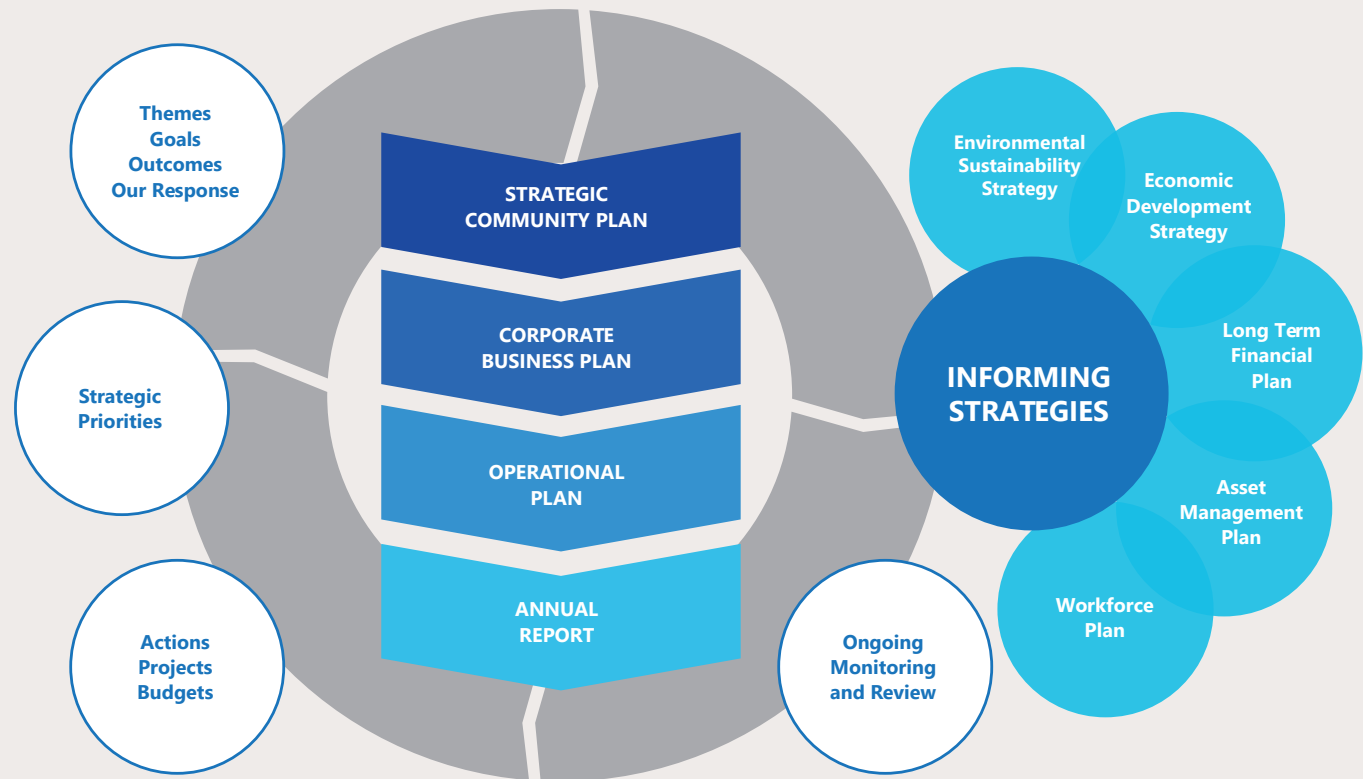
Our Community <i>Inclusive and Engaged</i>	<i>To activate safe, healthy and liveable communities</i>
Our Economy <i>Well Managed and Diversified</i>	<i>To attract diverse and sustainable business and employment opportunities</i>
Our Environment <i>Thriving and Sustainable</i>	<i>To protect our natural 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 implement this strategy, environmental sustainability projects will be planned, budgeted and delivered taking into consideration the City's capacity to deliver. 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 in annual reports and the strategy is 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 to coordinate the implementation of this strategy and report on its progress.



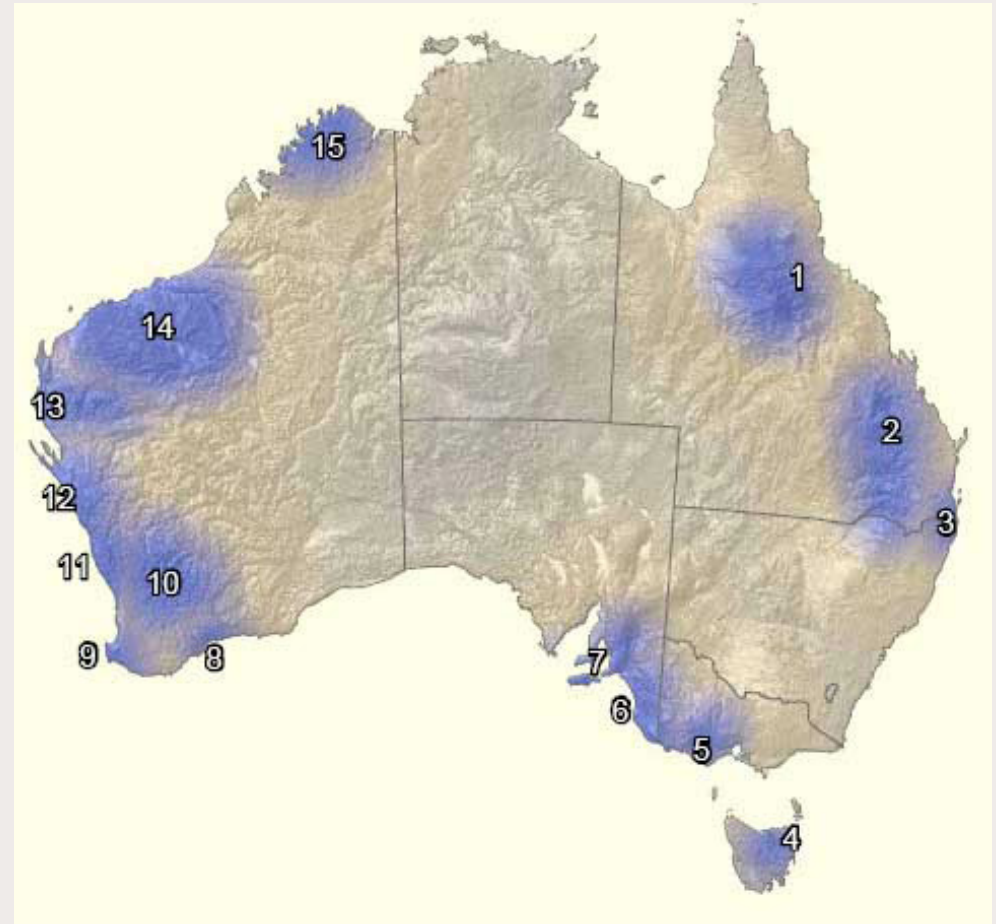


About our Region

The City of Karratha is the regional capital of the North West located in the Pilbara biogeographic region. The Pilbara is recognised by the Australian Government as one of Australia's fifteen National Biodiversity hotspots, for providing habitat for a number of threatened and endemic species and 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 and unique natural, cultural and heritage values and diverse landscapes, flora and fauna. The City of Karratha local government area is surrounded by three spectacular national parks: Millstream-Chichester National Park, Murujuga National Park including the Burrup Peninsula, and Karijini National Park.

The City's 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. The coastline stretches approximately 350km between Gnoorea (40 Mile Point) and Cossack and is recognised for its social, cultural, economic and environment values that are of state, national and international significance. It features sandy beaches, tidal mudflats, rocky headlands, mangrove-lined bays and creeks, and the chain of 42 islands and islets that make up the Dampier Archipelago, off the coast of Dampier, which is the richest area of marine biodiversity in WA. The marine areas within the region are considered to be some of the most biologically diverse in the state.



Australia's fifteen National Biodiversity hotspots. Source: Australian Government, Department of Agriculture, Water and the Environment. Accessed June 2020

Population

The City is home to more than 22,400 residents, which represents an increase in population of 31 per cent over the last decade. According to the 2018-19 Annual report, thirty-five per cent of residents are couples with children, which represents a 27 per cent increase in families over the past 10 years. The largest age group within our population is 30-39 years.

Through economic diversification and enhanced livability, 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's sense of responsibility for the environment and the number of people available to volunteer.

Culture

The City of Karratha recognises the Ngarluma people as the traditional custodians of the land, who have a deep historical and spiritual connection to country, waterways, rivers and seas within our region. Aboriginal people are recognised as one of the oldest living populations 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 and a diversity of nationalities.

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 \$5.8 billion in 2018-19. Prior to the discovery of iron ore and other deposits, the region was an agricultural and pastoral centre, with stations still in use today.

The City is the region's major service and extraction hub where port, rail, government and industry intersect. However, the lack of economic complexity leaves the City vulnerable to commodity price fluctuations and rising costs, 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.

Other key focus areas include:

- Addressing housing availability and affordability;
- Improving access to health and medical services;
- Ensuring high quality education;
- Providing a range of formal and informal recreational amenities;
- Enhancing the diversity of retail and other commercial services;
- Attracting and retaining a skilled workforce; and
- Maintaining efficient transport linkages.

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 grassroots level 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, however the City is 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 environment; Our community; and Our leadership.

This Environmental Sustainability Strategy provides a framework with five focus areas designed 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 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.

The strategic actions will be prioritised by their level of sustainability impact, ease of implementation, and the City's capacity to deliver, as follows:

- ▶ Immediate action within 1-3 years, of high importance, requiring a proactive approach and opportunities to be created;
- ▶ Mid-term action within 3-5 years, of medium urgency, requiring proactive planning; or
- ▶ Aspirational, within 5-10 years, of high importance with lower urgency, requiring planning consideration.

The actions apply in varying degrees to every employee, business operator and community member of 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 livable 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 a 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 City is progressing toward 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 impacting 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, according to the Pilbara Development Commission, 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:

- › 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;
- › Eight City-owned residential properties have solar power systems;
- › Installed solar powered LED lighting to pedestrian paths;
- › Converted the Leisureplex and the Roebourne Basketball courts lighting from mercury vapour to LED;
- › Developed an Energy Efficiency Action Plan 2017-2022, which outlines how the City can utilise innovative, best practice energy saving initiatives and policies that ensure the ongoing provision of an environmentally sustainable, reliable and affordable energy source for generations to come;
- › 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 objective;
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	1. Measure and report	2. Less energy used	3. More renewable energy	4. Less carbon emissions
Energy Efficiency					
1.1 Implement an energy team to progress efficiency actions and report on energy consumption.	› Reduced energy use.	✓	✓	✓	✓
1.2 Conduct optimisation studies of all high energy using facilities.	› Audit complete and reduced energy use.	✓	✓		✓
1.3 Incorporate energy efficiency principles and technologies in the design of new facilities and retrofit existing where economically feasible.	› Reduced energy use.		✓	✓	✓
1.4 Review procurement process to include energy efficiency technologies, renewable energy in new City facilities.	› Process updated and evaluated.		✓	✓	✓
1.5 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.		✓	✓	✓
1.6 Upgrade street lighting maintained by Horizon Power to LED.	› Reduced energy expenditure.		✓	✓	
1.7 Recognise organisations that demonstrate innovation to reduced energy use.	› Number of promotional activities completed.		✓	✓	✓
1.8 Advocate for the development of an energy efficient demonstration site.	› Demonstration site developed.		✓	✓	✓
Energy Transformation					
1.9 Implement an energy team to progress the adoption of renewable energy technology with an emphasis on solar and renewable hydrogen.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.10 Use renewable energy technology for new City facilities and residences and retrofit existing where economically feasible.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.11 Seek solutions to store excess renewable energy generated at City solar farms.	› Increased ratio of renewable energy (Renewable kWh/Total kWh)			✓	✓
1.12 Advocate for partnerships and subsidies that encourage use of renewable energy in homes and businesses.	› Increased ratio of renewable energy (Renewable kWh/Total kWh).			✓	✓
1.13 Advocate employers subsidise renewable energy technologies for employees instead of electricity subsidies.	› Number of companies that subsidise renewable technologies.			✓	✓
1.14 Explore opportunities to develop a renewable energy microgrid and virtual power plant for facilities or developments.	› Feasibility study completed.			✓	✓

Strategy	Measure	1. Measure and report	2. Less energy used	3. More renewable energy	4. Less carbon emissions
Transport					
1.15 Activate footpaths, cycle ways and provide end of trip facilities. (Refer to Karratha Revitalisation Strategy).	› Number of KRS strategies implemented.		✓	✓	✓
1.16 Accelerate uptake of low or zero emissions vehicles in City fleet, community and public transport.	› Number of low/zero emission fleet vehicles. › Fleet fuel expenditure.			✓	✓
1.17 Advocate for increased public transport services with the revitalisation of suburbs (Refer to Karratha Revitalisation Strategy).	› Frequency of use.			✓	✓
Climate Change Mitigation					
1.18 Develop a climate change declaration and policy.	› Policy developed	✓	✓	✓	✓
1.19 Develop a corporate and community climate mitigation plan.	› Number of actions implemented	✓	✓	✓	✓
1.20 Conduct baseline carbon accounting for City facilities and services.	› Baseline measurement completed.	✓			✓
1.21 Commit to an emissions reduction target and report as a key performance indicator.	› Performance against GHG targets.	✓			✓
1.22 Provide leadership to the community on climate change action (e.g. promotions, education and alignment with external programs).	› Number of programs, or promotions achieved.			✓	✓
1.23 Implement organic waste recovery system with a community education program to reduce greenhouse gas emissions (Refer to #2 Waste Management).	› Performance against GHG targets.				✓
1.24 Maximise carbon sequestration through urban greening principles. (Refer to #4 Natural Environment and the Karratha Revitalisation Strategy).	› Number of KRS greening strategies implemented.				✓
1.25 Explore phasing out of refrigerants with alternatives with a lower ozone depletion and global warming potential.	› Performance against GHG targets.				✓
Climate Change Adaptation					
1.26 Develop a corporate and community climate adaptation plan.	› Plan endorsed.		✓	✓	✓
1.27 Review the risk policy, guidelines and register to consider climate change.	› Review and changes made.	✓	✓	✓	✓
1.28 Implement the Karratha Revitalisation Strategy to reduce urban heat.	› KRS strategies implemented.		✓	✓	✓

Key supporting documents and reports:

- › Australian Government - Department of the Environment, Bureau of Meteorology and CSIRO Climate Change in Australia Resource Website
- › Western Australian Local Government Association - Climate Change Policy Statement July 2018
- › The Intergovernmental Panel on Climate Change - Summary For Policy Makers (2018) and IPCC Website
- › Australian Government Bureau of Meteorology State of the Climate Report 2018
- › Department of Primary Industries and Regional Development - Western Australian Renewable Hydrogen Strategy
- › Government of Western Australia - Department of Treasury - Energy Transformation Strategy 2019







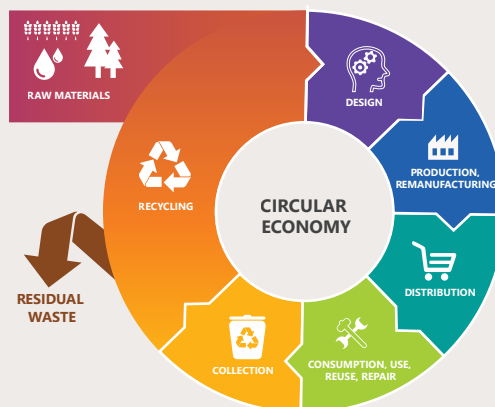


2. Waste

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 waste of valuable resources, can lead to land contamination and can generate greenhouse gases. There are three sources of solid waste: municipal solid waste, commercial and industrial waste, and construction and demolition waste. Commercial and industrial waste accounts for more than half the waste sent to landfill. Recovery of this resource 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 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 avoiding 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 free residential kerbside general waste and recycling service to the community;
- 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	1. Avoid	2. Recover	3. Protect
Avoid waste				
2.1 Review City procurement process to reduce waste, increase recycling and use of recycled products, and support local market development.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 	✓	✓	
2.2 Replace single use plastics with biodegradable or reusable products across City operations, facilities and events, where possible.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 	✓	✓	
2.3 Expand the range of recycling systems available within City facilities and at events and explore potential for implementing the Better Bins infrastructure.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 	✓	✓	
2.4 Advocate that businesses avoid SUP, retain responsibility for SUP packaging and adopt compostable, reusable or recyclable alternatives.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 	✓	✓	✓
2.6 Provide community and staff education in line with WA Waste Avoidance and Resource Recovery Strategy 2030.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. Litter reports received 	✓	✓	✓
2.7 Partner with community groups and organisations to implement waste reduction education programs.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 	✓	✓	✓
Recover resources				
2.8 Promote the WA Container Deposit Scheme to optimise community use.	<ul style="list-style-type: none"> Volume of waste to landfill. 			✓
2.9 Increase the amount of construction and demolition waste recovered and used in City infrastructure projects.	<ul style="list-style-type: none"> Value recovered from waste. 			✓
2.10 Increase resource recovery efforts of commercial industrial waste and explore options to re-sell recovered commodities back to the open market.	<ul style="list-style-type: none"> Value recovered from waste. 			✓
2.11 Investigate feasibility of a kerbside food organics and garden organics residential bin system to convert waste to compost.	<ul style="list-style-type: none"> Volume of organic waste recovered. Reduction in GHG emissions from waste 			✓
2.12 Explore the phasing out of Hydrochlorofluorocarbon gas and exchange with refrigerants/propellants with a lower ozone depletion and global warming potential.	<ul style="list-style-type: none"> Reduction in GHG emissions 			✓
2.13 Develop educational resources to communicate the benefits of resource recovery to minimise contamination in collection systems.	<ul style="list-style-type: none"> Volume of waste to landfill. Value recovered from waste. 			✓

Strategy	Measure	1. Avoid	2. Recover	3. Protect
Protect				
2.14 Introduce initiatives tackling illegal dumping, including promoting the Report It application.	› Reduction in the number of illegal dumping reported.		✓	✓
2.15 Conduct regular landfill facility commercial waste audits.	› Number of audits completed		✓	✓
2.16 Implement a Hazardous Household Waste program.	› Prevention of environmental and public harm.		✓	✓
2.17 Partner with community organisations and the Keep Australia Beautiful Council program to conduct community clean-up days.	› Illegal dumping reports received.		✓	✓

Key supporting documents and reports:

- › WA Waste Avoidance and Resource Recovery Strategy 2030
- › WA Waste Avoidance and Resource Recovery Strategy 2030 Action Plan





3. Water

The case for action:

Western Australian's waste generation rates are higher and recovery The City experiences a hot subtropical climate along the coastal areas, transitioning to an arid climate throughout the central and eastern parts. 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 will see the Pilbara become warmer during all seasons, experience less frequent but more significant 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 22,000 people who are supplied with water from the West Pilbara Water Supply Scheme, which sources water from the Harding Dam and the Millstream Water Reserve. 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;
- Treated recycled water used for irrigating grassed open spaces and gardens in Wickham and Dampier;

- 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 irrigation, toilet facilities and washing hire cars at Karratha Airport;
- Using pool filter backflush for irrigating playing fields and gardens at Karratha Leisureplex;
- Introduced grouping plants with similar water requirements in landscaping plans to conserve water;
- Improved to irrigation and reticulation practices and upgraded poorly performing systems;
- Using data loggers, a central control system, and smart metering applications for 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, sustainable public open spaces;
4. Protect and enhance waterways, wetlands and groundwater sources to protect the health of the environment.

Strategy	Measure	1. Reduce water use	2. Enhance community awareness	3. Sustainable public open spaces	4. Protect water sources & ecology
Monitoring and reporting					
3.1 Develop a water management team to progress the Water Efficiency Action Plan (WEAP).	› Progress towards implementing the WEAP.	✓		✓	✓
3.2 Provide annual water use reports to Council to track progress towards water conservation goals.	› Regular reports to Council.	✓		✓	
3.3 Audit City facilities and public open spaces with the highest water consumption, and develop individual water budgets.	› Water use for each facility.	✓		✓	
Educate and engage					
3.4 Engage with schools in the Waterwise Schools Program.	› Community water use.	✓	✓		✓
3.5 Engage with businesses to promote water efficiency and encourage direction of wastewater to the reticulated wastewater system.	› Community water use.	✓	✓		✓
3.6 Partner with the Water Corporation to cross promote water efficiency education campaigns.	› Water use per capita.	✓	✓		
Resource efficiency					
3.7 Increase water use efficiency, optimise water recycling and reuse throughout City-owned facilities and public open spaces.	› Water use per facility. › Ratio of recycled water used.	✓		✓	✓
3.8 Investigate the use of bore water for irrigating public open spaces in lieu of potable and recycled water.	› Water use per facility.	✓		✓	✓
3.9 Investigate potential application of Managed Aquifer Recharge technology for irrigation.	› Water use per facility.	✓		✓	✓
3.10 Partner with the Water Corporation and industry with programs that promote the use of recycled water, water conservation behaviours, and protect surface water sources.	› Community and corporate water use.	✓	✓		✓
3.11 Provide sources of information on grey-water re-use systems for residential areas.	› Community water use.	✓	✓		✓
Water sensitive facilities and urban design					
3.12 Progress the City towards Gold Waterwise Council status and Water Sensitive City functionality.	› Corporate and community water use.	✓	✓	✓	✓
3.13 Encourage developers to participate in the Water Corporation's Waterwise Development Program.	› Community water use.	✓	✓		✓
3.14 Mandate principles of water sensitive urban design for new developments and consider a sustainability demonstration site/eco village.	› Community water use.	✓	✓	✓	✓

Strategy	Measure	1. Reduce water use	2. Enhance community awareness	3. Sustainable public open spaces	4. Protect water sources & ecology
Water sensitive facilities and urban design					
3.15 Review procurement processes to ensure principles of water efficiency and water sensitive design are included.	› Reviewed procurement procedure.	✓	✓	✓	✓
3.16 Progress Roebourne and Wickham aquatic centres towards Waterwise Aquatic Centre status.	› Water use per facility.	✓			
3.17 Provide information to the community about water sensitive home landscaping, reticulation and waterwise plants (endemic, native and exotic).	› Community water use.	✓	✓		✓
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 use 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, street tree and significant tree policies.	› Community water use.	✓	✓	✓	✓
3.21 Develop an urban forest management plan.	› Urban canopy calculation.	✓	✓	✓	✓
3.22 Remodel and revegetate target drainage swales with native plants to increase amenity and treat stormwater before discharge into the ocean.	› Amenity of drainage swales.			✓	✓
3.23 Promote waterwise landscaping, irrigation and water sensitive and cyclone resistant plant selection within the City.	› Corporate water use. Green waste after storms.	✓		✓	✓
3.24 Optimise effectiveness of irrigation by using best practice specifications, conducting audits and implementing a centralised irrigation control system.	› Corporate water use.	✓		✓	
3.25 Review and optimise access to drinking fountains in public open spaces.	› Volume of waste to landfill.			✓	✓
3.26 Conduct targeted community clean-up days in drainage swales prior to summer.	› Volume of litter collected.				✓

Key supporting documents and reports:

- › Karratha Water Management Strategy
- › Karratha Water Efficiency Action Plan
- › City of Karratha Coastal Hazard and Risk Management Adaptation Plan





4. Natural environment

The case for action:

The Pilbara is recognised by the Department of Agriculture, Water and the Environment as one of Australia's fifteen biodiversity hotspots and is an important economic, social and cultural asset. The City of Karratha 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 and urbanisation; agriculture; minerals and industrial development; the introduction of exotic plants and 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 and implemented several Foreshore Management Plans increasing the management of coastal assets;
- › 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. Protect 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.

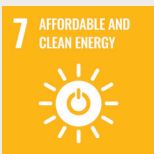
Strategy	Measure	1. Protect biodiversity	2. Urban Greening	3. Collaborative management
Planning and reporting				
4.1 Develop a local biodiversity plan that identifies areas of ecological significance, outlines conservation priorities and a management action plans.	› Implementation of the plan.	✓		✓
4.2 Ensure principles of environmental sustainability and biodiversity are considered with new developments and land use planning.	› Review of development approval process.	✓	✓	
4.3 Develop a corporate and community climate adaptation plan. See 1.26 under 'Energy'.	› Plan endorsed.	✓	✓	✓
4.4 Develop a process to aggregate progress of all environmental management plans.	› Annual reporting.	✓		
Management				
4.5 Review landscaping policies for businesses and developments that include waterwise, native and endemic and cyclone tolerant species.	› Completion of policy and number of downloads	✓	✓	
4.6 Develop community resources that support greening strategies including landscaping, irrigation and using water sensitive native, endemic and cyclone tolerant plants.	› Number of website hits and downloads.	✓	✓	
4.7 Develop urban forest management plan, including verge, street tree and significant tree policies (see also Water – action 3.21)	› Conduct urban canopy assessment.		✓	
4.8 Develop an inventory of waterwise plants including locally endemic species suitable for City landscaping and restoration.	› Completion of list and number of downloads.	✓	✓	
4.9 Develop a weed management plan and mapping system that includes collaboration with other agencies.	› Plan developed and implementation reported on.	✓		✓
4.10 Develop a river and wetland management plan to protect habitat, ecological health and to increase amenity.	› Plan developed and implementation reported on.	✓		✓
4.11 Promote state, national and international environmental days.	› Number of days promoted and social media engagement.	✓		✓
4.12 Implement waste management education strategies to protect natural areas and waterways from litter and illegal dumping.	› Number of education strategies completed.	✓		✓
Regeneration				
4.13 Rehabilitate and protect natural assets identified in the local biodiversity plan to address erosion, track management, litter and weeds.	› Area (hectares) protected.	✓		✓
4.14 Optimise vegetation cover in natural areas, including drainage swales to reduce erosion, promote soil water retention, ecological health and amenity.	› Area (hectares) protected.	✓	✓	
	› Completion of drainage swale remodelling.			

Strategy	Measure	1. Protect biodiversity	2. Urban Greening	3. Collaborative management
Regeneration				
4.15 Promote community programs that convert verges and vacant land in cul-de-sacs to waterwise native gardens that promote biodiversity.	› Number of verges			
4.16 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				
4.17 Conduct campaigns that educate the community about the uniqueness of the Pilbara environment and encourages shared management responsibility.	› Number of campaigns completed and social media engagement.	✓		✓
4.18 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.	✓		✓
4.19 Engage with Traditional Owners to incorporate traditional knowledge in the management and protection of natural areas.	› Number of groups involved in natural area management.	✓		✓
Leadership				
4.20 Establish a botanical garden as a demonstration site for Pilbara and Northern Australian flora species.	› Establishment of garden.	✓	✓	✓
4.21 Collaborate with research/education organisations to support research into the adaptation of a drying and heating climate.	› Partnerships developed.	✓		✓

Key supporting documents and reports:

- › City of Karratha Coastal Management Strategy
- › Karratha Revitalisation Strategy Stage 1 Karratha Revitalisation strategy Stage 2 - Public Domain Design Guidelines
- › Karratha Foreshore Management Plan
- › Gnoorea (40 Mile) Foreshore Management Plan
- › Port Samson Foreshore Management Plan
- › Hearson Cove Foreshore Management Plan
- › Wickham Boat Beach Area Foreshore Management Plan
- › Cleaverville Foreshore Management Plan





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 livable 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 minimizing the impact on the environment;
3. Promote sustainable developments, foster innovation and provide sustainability leadership to the community.

Strategy	Measure	1. Improve infrastructure performance	2. Minimise expansion impact	3. 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.	› Number of facilities completed.	✓		
5.2 Provide residents with references and resources via the City's website on low energy sustainable housing design retrofits and behaviour changes to promote sustainability and reduce the cost of living.	› Website hits.	✓	✓	✓
5.3 Support partnerships and financial incentives with external agencies to introduce programs that reduce the cost barriers to adopting sustainable technologies.	› Number of partnerships established.		✓	✓
City Infrastructure				
5.4 Complete cost analysis of existing sustainability technologies in City infrastructure.	› Number of facilities completed.	✓		
5.5 Retrofit City infrastructure with sustainable technologies where economical.	› Energy consumption.	✓	✓	
5.6 Design new City facilities with increased adoption of environmentally sustainable technologies and design principles.	› Energy consumption.		✓	✓
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 take up of low or zero emission vehicles, including fleet, by providing battery charging infrastructure.	› Number of battery 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.	› Number of small business applications.			✓
5.12 Support local technology development, business development, innovation, education and research into sustainability in developments.	› Number of small businesses.			✓
Planning				
5.13 Develop referral criteria for development and/or building applications to trigger a sustainability review.	› Number of applications referred for sustainability review.		✓	✓
5.14 Explore incentives with stakeholders to achieve housing supply targets.	› Percentage of home ownership.		✓	✓

Key supporting documents and reports:

- › Economic Development Strategy 2019
- › Karratha Revitalisation Strategy Stage 1
- › Karratha Revitalisation strategy Stage 2 - Public Domain Design Guidelines



Implementation

The actions highlighted in this strategy will be reviewed and prioritised on an annual basis to develop a yearly works plan. This is a dynamic process that aims to ensure an organisation-wide approach to environmental sustainability, with responsibility shared by all departments. Future actions will be prioritised based on the impact on sustainability, project readiness, the City's capacity to deliver, and the estimated timeframe for delivery. Our approach to environment sustainability and the implementation of this strategy has been designed to be flexible and responsive to community feedback and opportunities as necessary.

Funding decisions for environmental sustainability actions as part of the Operational Plan will be considered during the annual budget process.





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 Growth team.

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