



City of Rockingham

# Sustainability Strategy

February 2020



[rockingham.wa.gov.au](http://rockingham.wa.gov.au)



## Alternative Formats

This publication is available in alternative formats on request from the City of Rockingham on 9528 0333 or at [customer@rockingham.wa.gov.au](mailto:customer@rockingham.wa.gov.au).

## Community Engagement

*Admin use only: Please select all special interest groups that may be interested in this strategy. Groups selected will be notified using Rock Port.*

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Aboriginal and Torres Strait Islanders | <input type="checkbox"/> Planning and Development                                    |
| <input type="checkbox"/> Arts and Events                                   | <input type="checkbox"/> Roads and Footpaths   |
| <input checked="" type="checkbox"/> Coastal and Marine Environment         | <input type="checkbox"/> Safety Bay / Shoalwater Foreshore Revitalisation Masterplan |
| <input checked="" type="checkbox"/> Community Development                  | <input type="checkbox"/> Seniors Facilities and Activities                           |
| <input type="checkbox"/> Community Safety                                  | <input type="checkbox"/> Sporting Clubs and Facilities                               |
| <input type="checkbox"/> Disability Access and Inclusion                   | <input type="checkbox"/> Strategic Community Planning                                |
| <input checked="" type="checkbox"/> Environmental Interests                | <input type="checkbox"/> Tenders and Quotations                                      |
| <input type="checkbox"/> Grants  | <input type="checkbox"/> Tourism   |
| <input type="checkbox"/> Heritage  | <input type="checkbox"/> Volunteering  |
| <input type="checkbox"/> Libraries and Education                           | <input checked="" type="checkbox"/> Waste and Recycling                              |
| <input checked="" type="checkbox"/> New Community Plan Strategies          | <input type="checkbox"/> Youth   |
| <input type="checkbox"/> New Infrastructure Projects                       |  |

## Disability Access and Inclusion

*Admin use only: Please consider identify the elements from the City's current Disability and Inclusion Plan (DAIP) and identify those that are relevant to, or will be impacted by this strategy as per the table below. If you would like to discuss the impacts and relevance of the DAIP to your strategy, please contact the Manager Community Capacity Building.*

The Seven Outcome Areas of the DAIP	Will the Key Element be impacted by this strategy? "Y" or "N"	If "Y", please explain how the actions under this element will be impacted by this strategy
1. Access to City services and events	N	
2. Access to City buildings and facilities (including outdoor spaces)	N	
3. Access to information	N	
4. Access to quality service from City staff	N	
5. Access to equal complaints procedures	N	
6. Access to participation in public consultation	N	
7. Access to City employment opportunities	N	

## **Acknowledgement to Country**

The City of Rockingham respectfully acknowledges the traditional owners and custodians of the land on which Rockingham stands today, the Nyungar people. We pay our respects to their elders both past and present.

Nyungar people successfully managed and nurtured the land and water for thousands of generations and an enduring spiritual and physical connection remains today. By showing respect for the land and water in the same way, we can continue to work towards the sustainability of the environment for future generations.

We are committed to working with the Nyungar community on matters of land, water, culture, language and cultural heritage. The City's third Reconciliation Action Plan is in development and aims to build a community that demonstrates respect, builds positive relationships and creates opportunities for local Aboriginal and Torres Strait Islander people.

# Contents

1. Executive Summary .....	5
2. Strategic Objective .....	6
3. Background.....	7
4. Current situation.....	9
4.1. Energy and Emissions .....	9
4.2. Water .....	10
4.3. Waste and resources .....	11
4.4. Health and nature .....	13
4.5. Education and engagement .....	16
5. The Way Forward.....	17
5.1. Element 1 - Energy and Emissions .....	17
5.2. Element 2 - Water .....	18
5.3. Element 3 - Waste and Resources .....	19
5.4. Element 4 - Health and Nature .....	20
5.5. Element 5 - Education and Engagement .....	20
6. Measuring success .....	22
7. Risk Management .....	22
8. Actions .....	23
New Actions .....	23
Ongoing actions .....	28
9. Stakeholder Engagement.....	30
10. References.....	30

# 1. Executive Summary

Given the context of a rapidly urbanising Strategic Metropolitan Centre, a sustainable environment is fundamental to our prosperity, identity and lifestyle. The City is committed to protection and enhancement of our environment and working together with the community to ensure it is sustainably managed for future generations to enjoy.

This strategy outlines a path towards a sustainable future for the City, aiming to deliver Aspiration 3 'Plan for Future Generations' as identified in the Strategic Community Plan 2019/2029.

In line with the City's annual Sustainability Snapshot Report, the Strategy sets out directions, priorities and actions to be implemented over the next five years, according to five key focus areas:

1. Energy and Emissions
2. Water
3. Waste and Resources
4. Health and Nature
5. Education and Engagement

The key recommendations contained within this Strategy seek to:

- Prepare an Energy Management Plan.
- Introduce an Integrated Monitoring System to track and communicate energy consumption and sustainability indicators in real time, across all City facilities.
- Prepare an Emissions Reduction Plan.
- Progress investigations into managed aquifer recharge as an alternative water source for irrigation.
- Develop sustainability procurement guideline for the City's consideration, focused on waste minimisation.
- Establish data collection parameters and reporting responsibilities to capture information from existing practices relating to waste management.
- Investigate becoming a Tyre Stewardship Australia (TSA) accredited Council, and ensure environmentally and ethically sound recycling of waste tyres is included in future tender requirements.
- Prepare a Sustainable Transport Plan, building upon existing State transport plans.
- Develop a sustainability education program for schools delivering key messaging and encouraging sustainability.
- Review and update all environmental and sustainability information on the City's website to ensure up to date information and useful resources are available.
- Develop a structured calendar of sustainability events and workshops together with Library Services, Community Capacity Building and Strategic planning and Environment.
- Investigate preparation of a Planning Policy on Environmentally Sustainable Design, to assist with delivery of objectives outlined in relevant State policies.

The Strategy details the basis for each recommendation, together with timeframes for implementation.

In working towards a more sustainable future, it is recognised that these matters are multidisciplinary and require a collaborative effort across teams and the community.

In addition to thanking the community for their input, the City wishes to acknowledge the following teams for their support and contribution towards this document:

- Asset Services
- Community Capacity Building
- Engineering Services
- Land and Development Infrastructure
- Library Services
- Park Services
- Strategic Planning and Environment
- Waste Services

## 2. Strategic Objective

The purpose of this strategy is to provide a framework for working towards a healthy and sustainable City for future generations. The strategy outlines how the City will improve in its own operations and also how it will lead, engage and collaborate with community and stakeholders along the way.

This strategy addresses the Community's Vision for the future and specifically the following Aspiration and Strategic Objectives contained in the Strategic Community Plan 2019-2029:

**Aspiration 3:** *Plan for Future Generations*

**Strategic Objectives:** *Preservation and management of bushland and coastal reserves - encourage the sustainable management and use of the City's bushland and coastal reserves.*

*Climate Change adaptation – Acknowledge and understand the impacts of climate change, and identify actions to mitigate and adapt to those impacts.*

*Sustainable waste solutions – Incorporate new opportunities that support responsible and sustainable disposal of waste.*

*Alternative energy applications – Embrace new technology and apply alternative energy solutions to City facilities and services.*

*Liveable suburbs – Plan for attractive sustainable suburbs that provide housing diversity, quality public open spaces, walkways, amenities and facilities for the community.*

**Aspiration 4:** *Deliver Quality Leadership and Business Expertise*

**Strategic Objective:** *Leadership in sustainability - provide community education on the management of waste and provide opportunities for community involvement in sustainability programs.*

The overarching objectives of this strategy are to:

- improve the City's environmental performance and practices;
- integrate sustainability into the planning and delivery of infrastructure, services, facilities and planning functions;
- ensure the City is resilient to a changing climate;
- protect and enhance the local natural environment; and
- support the community to adopt sustainable practices.

### **3. Background**

With a growing global population, demand on the earth's finite resources is higher than ever before. The effects of this are being seen all over the world, with rising average temperatures, rising sea levels and ocean acidification. The year 2018 was the fourth hottest year on record, and the 42nd consecutive year of above average temperatures. Studies show that up to 93% of excess heat is being absorbed by the oceans, affecting marine ecosystems, while sea level rise has accelerated three times its rate compared to the 1990s (IPCC, 2018).

A warming climate is also changing the frequency and severity of extreme weather events. While this is affecting the global population, Australia is one the most vulnerable developed countries to these impacts with longer, hotter heatwaves and reduced rainfall increasing bushfire risk, affecting agriculture, natural environments, tourism and both human and animal lives (Climate Council, 2019).

While these concerns are not unique to the City, nor the sole responsibility of any one party, it is important the City plays a role in working towards sustainability within the municipality. The City has a population of approximately 140,000, which is expected to grow to 178,000 in the next ten years. While delivering additional services and facilities to meet the needs of a growing population, strategic direction is required to ensure a sustainable environment.

Living sustainably is about preserving everything that makes our City great while planning for a prosperous future, in response to the challenges that come with a changing climate, a growing population and the need to maintain a healthy, diverse ecosystem.

#### International context

The most widely used definition of sustainability comes from the Brundtland report, published in 1987 by the World Commission on Environment and Development. The document surmises that sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". More modern interpretations cite the shortcomings of this explanation, and acknowledge the need to address ecological sustainability in conjunction with human development.

In 2015, the United Nations (UN) introduced a blueprint for sustainable development, with all UN member States adopting the 17 universal Sustainable Development Goals (SDGs). The agenda aims for a 2030 target to achieve global sustainability, recognizing that a multifaceted approach is needed, and must go hand in hand with strategies to improve health and education, reduce inequality and spur economic growth, all while tackling climate change and preserving our oceans and forests.

These global sustainability goals will require action from all levels of government, industry and individuals, and it is clear that current habits of consumption and lifestyle do not meet this criteria.

### National context

Upon ratifying the Paris Agreement in 2016, Australia indicated that it would reduce emissions by 26-28 per cent on 2005 levels by 2030. A National Climate Resilience and Adaptation Strategy was released by the Australian government in 2015, identifying a set of principles to guide effective adaption and resilience building across key sectors such as coasts, cities and the built environment, water resources, natural ecosystems and health and wellbeing.

In February 2019 the Federal Government announced a further \$2 billion to the Climate Solutions Fund. This was intended to continue purchasing of low cost energy abatement measures, build upon the successes of the Emissions Reduction Fund and aim towards reaching Australia's 2030 emission reduction target.

### State context

The first State Sustainability Strategy was released in 2003, aimed at shaping and advancing the sustainability agenda throughout Western Australia, following on from global recognition of climate change. The Strategy emphasised that local governments play a critical role in planning and decision making for sustainability, as many issues are best addressed at the local level.

### Local context

The City has long been committed to integrating sustainable practices throughout the organisation and facilitating strong networks within the community. In 2011, the City formally acknowledged the mounting potential implications from climate change by signing a Climate Change Declaration prepared by WALGA, along with 40 other local governments. 'A Sustainable Environment' was identified a key community aspiration in the Strategic Community Plan 2015-2025. The City's latest Strategic Community Plan 2019-2029 also highlights 'Planning for Future Generations' as one of the four key aspirations.

The City released its first Sustainability Snapshot Report in 2017, which aimed to capture collective efforts from across the City, highlight our achievements so far and act as a baseline for future projects and initiatives. The report is now produced annually and available publicly. Existing achievements have served as a platform for development of this strategy.

### Community attitudes and behaviours

To inform preparation of this Strategy, the City conducted an online community survey in January 2019 to gain an understanding of the environmental behaviours and attitudes of the City's residents. Of the 41 survey respondents, 100% were concerned about the need to live sustainably, with 73% of those articulating that they are very concerned. Almost 60% of respondents placed equal importance on all aspects or 'focus areas' of sustainability and importantly, 60% of respondents felt that the community is not well informed about sustainability issues, what is being done in the City and what needs to be done. Almost 98% of respondents would like to see more sustainability related events offered to the community.

Respondents also indicated that the most relevant definition of sustainability to them was: "Living within the resources of the planet without damaging the environment now or in the future".

## 4. Current situation

Below is a summary of the current situation, the City's sustainability achievements to date and key issues for consideration moving forward.

### 4.1. Energy and Emissions

#### Key energy achievements:

- Strategies to reduce energy consumption are implemented through the City's Energy Efficiency Program, managed by the City's Asset Services team. The program began in 2012 and is delivered through a \$400,000 annual budget identified in the City's business plan.
- The City has completed installing photo voltaic (PV) solar panels on over 80 of its buildings. One of the City's largest facilities, the Aqua Jetty, received a state of the art 340kW PV system comprising of 988 x 290w panels, installed in October 2018. The installation will produce around 430 MWh per year, reducing carbon dioxide emissions by 354 tonnes every year.
- Each year, the City progressively upgrades existing lights to Light Emitting Diode (LEDs), saving up to 85% of the energy compared to a standard halogen or incandescent globe. So far this has reduced energy consumption from lighting by 50%.

#### Key issues:

The Energy Efficiency Program has been successful in rolling out fundamental renewable energy technologies. To date, energy efficiency upgrades have been largely focused on the 'low hanging fruit' such as solar PV panels and LED lighting upgrades, however, the City has reached a stage where these works have largely been implemented. With this strong foundation, long term planning is now required to guide future improvements in the City's energy performance and continued delivery of a sustainable energy future.

**Key issue 1:** Strategic direction is required to guide future energy upgrades in accordance with best practice emerging technologies and to prioritise allocation of resources.

Currently the City does not have a central system to monitor real time energy use. An energy monitoring platform was trialed for a number of years, up until October 2019. The program had a number of shortcomings, including reliance on data being provided monthly from Synergy. This means that energy efficiency could not be observed, acted upon and reported in real time, limiting its usability in a practical sense as well as limiting an effective response.

**Key issue 2:** A comprehensive real-time monitoring platform is required to enable accurate reporting, rapid identification of faults, prioritisation and measurement of energy performance.

#### Key emissions achievements:

- Methane emitted from the Millar Road Landfill Facility is captured in a system of pipes, then converted into electricity and delivered back into the grid. By diverting gas from entering the atmosphere, this reduces the overall greenhouse gas emissions from the City. In 2017/2018, 126,448 tonnes of methane was collected, generating 22,605MWh of electricity. That is more than 1.8 times the City's total energy use.

- The City engages Carbon Neutral to offset fleet emissions through an accredited and verified carbon offsets program. In 2017/2018 the City's total vehicle fleet produced approximately 3,372 tonnes of carbon dioxide.

#### Key issues:

To date, existing carbon offsetting has only been focused on the City's vehicle fleet, rather than total emissions from all facilities and operations. Part of this is due to the City's existing energy monitoring platform being unable to accurately calculate total emissions in the first instance. Once a platform is established, the City will be able to accurately measure and then offset total emissions, bring the City in line with several other 'carbon neutral' Councils.

Despite significant momentum towards carbon neutrality in various sectors, Australia is not on track to reach its Paris Agreement 2030 climate target, with emissions actually rising over the past four years (Climate Council, 2019). Studies have shown that in order to meet the Paris Agreement goal of less than 2 degrees global warming, all sectors should be aiming to be negative not only carbon neutral (Climate Council, 2019). Being carbon negative involves sequestering carbon from the environment, so that total offsets are greater than total emissions.

The City has an opportunity to go beyond efforts of other local governments certified as or working towards carbon neutral status, by aiming to become carbon negative through reducing emissions, using renewable energies and offsetting more emissions than we create.

#### **Key issue 3:**

The City is not currently working towards carbon neutral or carbon negative status, in line with best practice climate change adaptation.

## **4.2. Water**

#### Key achievements:

- The City employs Water Sensitive Urban Design principles in all new public open space and has introduced Planning Policy 3.4.3 – Urban Water Management.
- The City committed to reducing its water consumption through the development and implementation of a Water Efficiency Action Plan 2016. This earned the City endorsement as a Waterwise Council by the Water Corporation and the Department of Water and Environmental Regulation in March 2017, achieving Gold Waterwise status in May 2019.

#### Key issues:

Despite average water use per person decreasing over recent years, Perth still remains one of the highest water using cities in Australia, being heavily reliant on sourcing the majority of its water from desalination and groundwater supplies.

Groundwater is an extremely valuable resource in the City of Rockingham. The City relies heavily on groundwater resources to irrigate over 600 hectares of parks, reserves and streetscapes which provide liveable communities for residents. The City is also home to numerous groundwater dependent ecosystems, including Conservation Category Wetlands and Threatened Ecological Communities. It is widely acknowledged that groundwater resources are coming under increasing pressure due to the compounding effects of ongoing use, a drying climate and population growth.

To explore alternative sustainable groundwater supply options for future irrigation purposes, the City commissioned an extensive desktop assessment into the viability of Managed Aquifer Recharge (MAR) to maintain water balance at source. MAR typically involves collecting water above ground (such as stormwater runoff) and then injecting or infiltrating it back into groundwater aquifers under controlled conditions. This water can be stored in the aquifer for added abstraction, whilst also providing a range of environmental, social and economic benefits and efficiencies.

The feasibility study identified a number of options for MAR, which should be further explored as a means of improving diversity of water sourcing and reducing groundwater dependency.

**Key issue 4:**

Alternative water sources to groundwater are required to improve the City's long term resilience in a drying climate.

In accordance with the Department of Water and Environmental Regulation's groundwater licensing requirements, the City measures standing water level and other key parameters at a number of monitoring bores across the municipality. At present, this information is not specifically analysed to detect the impacts of climate change, nor are the monitoring bores located strategically for that purpose.

**Key issue 5:**

Additional groundwater monitoring and analysis may be required to detect significant impacts to the City's aquifers and implement contingency actions accordingly.

The City's Groundwater Operating Strategy accompanies the water licenses granted by the Department of Water and describes how groundwater resources will be used to provide sustainable irrigation supply. It is noted that this Strategy is currently under review and will assist in assessing regional impact.

### **4.3. Waste and resources**

Key achievements:

- The rapid response Litterbusters team was first deployed in 2015 and has since responded to over 6,500 reports of litter and illegal dumping.
- Rollout of the three bin system (additional bin for garden waste) resulted in the waste recovery rate increasing from 23% to 46% in the first three months of its implementation.
- In response to growing community concern and observed impacts on the marine environment, Council recently endorsed a policy on Single Use Plastics and Balloons (the Policy). The Policy aims to control the use and distribution of these materials and while other local governments have introduced similar positions, this was the most extensive of its kind in WA. The Policy was also supported by an educational guideline 'Turn the Tide on Plastic, to promote broader awareness and understanding on the issue.

### Key issues:

The Policy requires that compostable products be used as alternatives to single use plastic. This will contribute to establishing a viable organic waste stream in support of the State Government's direction for all local governments in the Perth and Peel region to implement a Food Organics, Garden Organics (FOGO) system by 2025. The commercial management of this organic waste stream has the potential to divert a large percentage of municipal waste from landfill, however the practical application of FOGO for the City of Rockingham remains unclear, as current infrastructure required to process this stream is currently unavailable, and there is no apparent market for the FOGO product on a commercial scale.

#### **Key issue 6:**

There is no known FOGO solution in the market capable of sustaining City of Rockingham FOGO waste streams.

Until recently, China was a large importer of recyclable materials, accepting more than 30 million tonnes of waste each year from all over the world. Australia alone sent 1.25 million tonnes of recyclables to China in 2016/2017. In January 2018, China announced the National Sword Policy to restrict the import of recyclable materials. This highlighted the vulnerability of Australia's recycling system, together with the need for more circular waste management and ongoing community education. The National Sword policy was introduced in response to the high volume of contaminated recyclable material being imported and the lack of an adequate demand for this resource.

The State Government is now starting to work towards a circular economy, with the announcement of a Container Deposit Scheme to be implemented in 2020. This will bring WA in line with most other Australian states and territories. A circular economy is a system aimed at minimizing waste and maximizing reuse of materials, contrary to the largely 'linear' system where a product has a predetermined useful lifecycle.

In response to China's announcement, local waste recovery facilities agreed on a universal recycling stream with consistent messaging across all local government areas. The aim was to create a cleaner waste stream and increase recycling opportunity.

Results from the Customer Satisfaction Survey 2018 survey indicated that 93% of the community rate rubbish collecting and recycling services of high/extremely high importance, with 84% rating litter management as being of the same importance.

As a result of recent changes, there is overall community concern and confusion on waste management issues and a growing lack of faith in the recycling system. In early 2018, an audit of several recycling and general waste bins was undertaken following two community events. The audit confirmed that there was a lack of understanding about what items could be recycled, with all waste needing to be sent to landfill due to contamination.

In addition to the Council Policy on Single Use Plastics and Balloons, the City is currently preparing a new Waste Strategy due for completion at the end of 2019, which will seek to address these matters in greater detail, with a continued focus on community education.

#### **Key issue 7:**

The City needs to be proactive in seeking alternative management options for the compostable waste stream until a suitable FOGO solution can be identified. Continual improvement to internal practices and community education is required through a range of mediums to ensure best practice waste separation and management.

A review of current processes indicated that the City's existing tyre disposal is not consistent with the strategic community objective for sustainable waste solutions, which seeks to *'incorporate new opportunities that support responsible and sustainable disposal of waste.'*

The existing tender agreement for the supply and fit of the City's fleet tyres does not include any requirements to ensure recycling of this product at the end of its useful life. In 2017, an addendum was issued to include tyre disposal as a part of the contract, although the means of disposal is at the discretion of the contractor. The contractor engages a third party, licensed to carry controlled waste, who collects the waste tyres and transports them to a tyre processing company, where it is understood that the tyres are compressed and exported, with the location of export and ultimate disposal methods unidentified, but presumably dependent on the market at the time of sale.

This issue with transparency around end of life tyre disposal is not limited to the City, with only 10 per cent of the 56 million EPU (Equivalent Passenger Unit) or standard passenger car tyres, discarded annually in Australia being recycled locally. Nearly 30 per cent are exported for re-use, processing or consumption as a tyre derived fuel. With a lack of transparency or regulated reporting, there is no definite way to determine export location or exactly what processes and management methods are in place. The Commonwealth endorsed TSA (Tyre Stewardship Australia) suggests that at best, baled tyres are exported to Malaysia, Thailand or Indonesia for incineration and at worse, infiltrate small unregulated back yard operations, are inappropriately managed or dumped in Australia or overseas. Without appropriate reporting mechanisms, monitoring the number of tyres the City uses and disposes of each year can only be based on rough calculations and estimates. This in itself is problematic.

The Tyre Stewardship Australia (TSA) is currently investing in development and research to stimulate local markets for recycled tyres. This includes the role of local governments to procure goods and services from recycled rubber content. TSA is also implementing a downstream vendor verification program to better understand the processes and outputs of overseas tyre recycling facilities and safeguard against practices with substantial environmental and health risks, creating greater transparency.

Relative to the City's risk management framework, it is important that the City take initiative in this space to ensure ethical and environmentally responsible disposal of our fleet tyres. With a lack of action from local government on this issue, there is a significant opportunity to display leadership in this space.

**Key issue 8:**

The City has no procurement or reporting measures in place to ensure the sourcing and disposal of its fleet tyres are environmentally and ethically sound.

## **4.4. Health and nature**

Key achievements:

- The City is currently implementing the Greening Plan 2017, which aims to increase canopy cover to 14.5% by planting 15,000 trees in public open space and streetscapes over the next five years, working towards a long term canopy target of 20%.
- The Natural Area Conservation Strategy was adopted by Council in 2017.
- A suite of environmental management plans and monitoring programs are in place, to guide the protection and enhancement of the City's coastal, wetland and bushland

environments. This includes the Baldivis Tramway Reserve Master Plan (2014), Reserve Prioritisation Report (2015), Foreshore Management Plan (2016) and Wetland Management Plan (2018).

- A new Bushland Management Plan, Lake Richmond Management Plan and Tamworth Hill Swamp Management Plan are also in preparation, together with an Environmental Protection Strategy, which aims to better protect the environmental values and natural areas located on private property.
- Since 2015, 10 new nature based play facilities have been developed in the City.
- An Environmental Protection Strategy is being prepared by the City. The objective of this document is to protect and enhance priority local natural areas, particularly on private land

#### Key issues:

Natural spaces are an integral part of maintaining a resilient community and the City prides itself on its 37kms of coastline. These natural areas support biodiversity, optimise carbon sequestration, and are important to providing a sense of place and wellbeing. The City aspires to promote the integration of natural spaces alongside the urban environment in order to foster quality, liveable and sustainable places.

The City has a well maintained network of public open space, streetscapes and conservation reserves, which contribute significantly to community wellbeing and the liveability of our suburbs. In response to the significant population growth and urban development experienced in recent decades, there is a need for strategically placed infrastructure to better provide for active forms of sustainable transport, such as pedestrian and cycle ways. If prioritised in strategic locations, this infrastructure can significantly improve connectivity, tourism and community inclusion. The Heart Foundation has developed a set of principles to help guide the strategic delivery of healthy built environments which are being utilized by local governments around Australia. Healthy Active by Design provides evidence, practical advice, checklists and case studies to help with the development of healthy neighbourhoods and communities that promote walking, cycling and an active public life. When implemented alongside Livable Neighbourhoods guidelines.

Providing infrastructure for safe active transport is also an important part of promoting healthy lifestyle choices in the community.

#### **Key issue 9:**

To date, there has been no overarching strategic framework for the analysis, prioritisation and provision of sustainable transport infrastructure.

The current planning framework outlines a range of sustainability objectives which seek to achieve optimal living environments, however, consideration relative to other competing planning and development objectives can impede their overall performance, relevance and application.

#### State framework

The Western Australian Planning Commission's Design WA Guidelines (draft), Liveable Neighbourhoods and R-Codes identify several parameters relating to sustainability in the context of urban development including: energy efficiency, water management and conservation, walkable neighbourhoods and sustainable transport, building design (solar and daylight access, natural ventilation), landscape design and quality, and waste management.

Liveable Neighbourhoods outlines a performance approach to structure planning and subdivision, with preferred approaches to well defined, sustainable, self-sufficient and healthier urban communities. This guides the delivery of basic infrastructure for movement networks, however, this is not a State Planning Policy and the opportunity to optimise the desired outcome is limited without local individual requirements for new developments.

The State Planning Policy 7.0- Design of the Built Environment provides an overarching framework to guide design quality and assess development proposals at structure plan and public works level. The State Planning Policy 3.1 Residential Design Codes incorporates design elements for all dwellings in areas coded less than R40. These principles ensure that development demonstrates some minimum solar access requirements.

The State Planning Policy 7.3: Residential Design Codes Volume2- Apartments builds on these principles by including some minimum requirements key to sustainable living, however, these provisions only apply to multiple dwellings (apartments) in areas coded R40 and above. Considering medium or high density dwellings only account for around 10% of housing types in the region, it is important to establish requirements applicable to private dwellings that are consistent with the intention of the State Planning Policies (Profile.id 2019).

If the infill development coded below R40 requires Subdivision Approval or Development Approval, there are limited mechanisms whereby sustainable design elements can be required through the assessment process.

#### Local framework

The City's Town Planning Scheme 2 includes some broad sustainability objectives relating to sustainable land use, transport and economic growth, however, does not currently contain provisions requiring new developments to demonstrate sustainable design elements, further to the new WAPC's Design WA (draft) and Liveable Neighbourhoods requirements.

Planning Policy 7.4 Design Review Panel outlines considerations for good design, optimising sustainability of the built environment, however, lacks specific parameters or minimum requirement to ensure application. Further, PP 7.4 only applies to applications considered by the Design Review Panel.

A detailed review of the City's planning policy framework relative to sustainable design requirements should be undertaken to identify and address any gaps, further to the objectives in WAPC's Design WA Guidelines, Liveable Neighbourhoods and R-Codes, to ensure the desired patterns of development can be achieved. For example, the City of Fremantle has a Local Planning Policy for energy efficiency and sustainability requirements which applies to land with a split density code.

#### **Key issue 10:**

Environmentally sustainable design principles and green infrastructure initiatives are encouraged through the existing planning framework in broad terms, however, the need for a local policy position to address gaps and promote sustainable development outcomes requires further investigation.

## 4.5. Education and engagement

### Key achievements:

- The City produced its first annual Sustainability Snapshot Report in 2017, communicating actions undertaken across the City which collectively work towards a more sustainable future.
- The City currently hosts a number of environmental or sustainability related community events and workshops, hosted via the libraries.
- The City delivers tailored presentations on waste, climate change and coastal planning to schools, upon request.
- The annual Castaways Sculpture Exhibition promotes creative reuse of recycled materials with many local schools participating and 17,000 people attending.
- Over 500 volunteers participated in community planting days in 2017/2018.
- Waste education workshops were delivered to over 1,200 students and community members.

### Key issues:

Social connectivity and involvement is a key factor in achieving a resilient, sustainable community. While the City is currently undertaking a number of significant measures towards sustainability, dissemination of this information and engagement has been limited.

The City's website is a key tool for the City to information share with its residents and key stakeholders. There is potential to increase engagement through this platform, as it offers a way to instantly update information and appear on external search engines. A new website is being developed, which is expected to greatly assist in communicating the work being undertaken by the City and to further support the community in adopting sustainable practices. This is dependent on the structure being navigable and the content being continually monitored for accuracy and relevance.

#### **Key issue 11:**

The City's website content requires updating to better communicate the achievements of the City, support community action and engage a wider audience in understanding the importance of sustainable practices.

While the City currently hosts a range of education and engagement initiatives, these are undertaken separately through Waste Services, Library Services, Parks Services and Strategic Planning and Environment, without a centralised calendar of sustainability related workshops and events. As such, there may be duplication in effort or gaps in the existing engagement initiatives offered.

#### **Key issue 12:**

Existing community education and engagement measures are run on an ad-hoc basis across several teams, without an overarching framework for planning and a coordinated approach.

All respondents to the community values survey on Sustainability indicated they were concerned about the need to live sustainability, with 72% being highly concerned. Just over half of respondents felt that there is a lack of awareness or engagement on these issues, with 52% believing that their community is not well informed about sustainability issues or what the City is doing to plan for the future and 100% indicating they would like to see more sustainability related initiatives offered to the community.

**Key issue 13:**

New incentives and initiatives should be investigated to encourage sustainable behaviors at home including energy efficiency, water management and waste minimisation.

Feedback received on the Sustainability Snapshot Report highlighted that there was a lack of awareness, both public and internal, on the wide range of important work being undertaken by the City. Acknowledging that many sustainability issues concerning the community are best addressed at a state and federal level, it is also important that the City shows support for action on a broader scale, as part of communicating our commitment to a sustainable future.

**Key issue 14:**

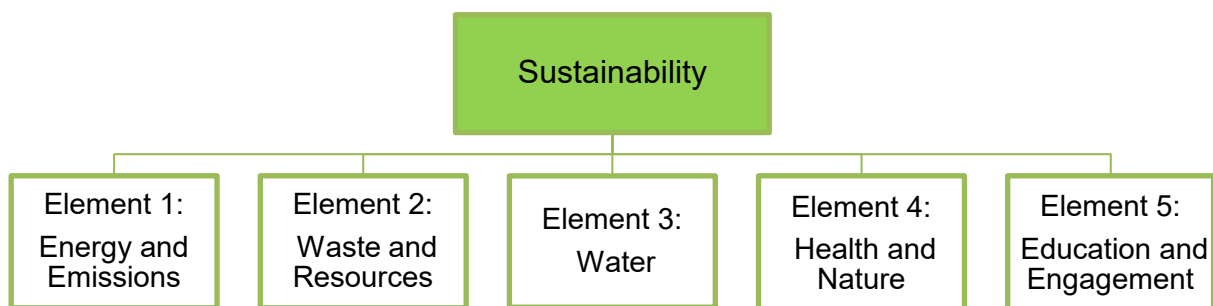
The City's commitment to being a progressive, climate responsive and environmentally minded local government should continue to be promoted, showing leadership and aiming to instigate change on a broader scale where required.

## 5. The Way Forward

Acknowledging the interdisciplinary nature of sustainability, this Strategy aims to assemble and embed sustainability aspects into planning, operational management and community values, ensuring there is a streamlined approach to reaching the community vision and aspirations. Appreciating this, each of the actions outlined in this Strategy align with at least one of the UN Sustainable Development Goals, meaning the City's approach also aligns with the global agenda.

Given the variety, significance and scale of issues associated with sustainability, strategic direction is required to ensure effective allocation of resources and delivery of positive outcomes.

The key issues identified in this Strategy will be addressed according to five overarching elements:



### 5.1. Element 1 - Energy and Emissions

**Goals**

- ✓ Increase renewable energy opportunities for the City.
- ✓ Decrease overall energy demand.
- ✓ Reduce carbon emissions and work towards a long term goal of becoming 'Carbon Negative'.

**Key Issue 1** - Strategic direction is required to guide future energy upgrades in accordance with best practice emerging technologies and to prioritise allocation of resources.

**Action** - Prepare an Energy Management Plan to:

- Identify and prioritise energy efficiency opportunities for City facilities;
- Investigate emerging technologies and initiatives;
- Analyse energy usage data and establish pragmatic energy reduction targets; and
- Identify actions and responsibilities for a corporate energy reduction education program.

**Key Issue 2** - A comprehensive real-time monitoring platform is required to enable accurate reporting, rapid identification of faults, prioritization and measurement of new energy saving initiatives.

**Action** - Introduce an integrated energy and sustainability monitoring system, with the ability to communicate and analyse real time data from all City facilities.

**Key Issue 3** - The City is not currently working towards carbon neutral or carbon negative status, in line with best practice climate change adaptation.

**Action** - Prepare an Emissions Reduction Plan to:

- Establish an accurate and transparent emissions reporting system;
- Identify actions required to become a carbon neutral Council by 2025;
- Establish progressive emissions reduction targets, cognisant of the national target for a 26-28% emissions reduction by 2030 (on 2005 levels) (DotEE), in working towards a long term carbon negative goal;
- Investigate and support viable emerging technologies and initiatives;
- Support electrical vehicle infrastructure and investigate uptake into fleet; and
- Incentivise low carbon travel options for fleet and staff travel.

**Action** – Engage with the community and developers to encourage uptake of renewable energy systems and measures to reduce energy use.

## 5.2. Element 2 - Water

### Goals

- ✓ Continue delivery of the Water Efficiency Action Plan to reduce water use across City operations and promote water wise practices in the community, ensuring the existing water reduction targets are met.
- ✓ Maintain Gold Waterwise status.

**Key Issue 4** - Alternative water sources to groundwater are required to improve the City's long term resilience in a drying climate.

**Action** - Progress investigations into managed aquifer recharge as an alternative water source for irrigation, as per recommendations outlined in the Managed Aquifer Recharge Feasibility Study 2018.

**Key Issue 5** - Additional groundwater monitoring and analysis may be required to detect significant impacts to the City's aquifers and implement contingency actions accordingly.

**Action** – Review and analyse existing groundwater monitoring to establish trends and ensure data is accessible and usable. Additional data collection or analysis may be required to better detect changes in aquifer characteristics and inform necessary responses.

## 5.3 Element 3 - Waste and Resources

### Goals

- ✓ Work towards the State Waste Strategy target of 20% waste reduction per capita by 2030.
- ✓ Increase community understanding and uptake of best practice waste separation and home composting.
- ✓ Become a leader in single use plastic reform and education, through implementation of the Single Use Plastics and Balloons Policy.

**Key Issue 6** – There is no known FOGO solution in the market capable of sustaining City of Rockingham FOGO waste streams.

**Action** – Ensure prior to 2025 that new waste management contracts reflect the need for FOGO treatment.

**Action** – Advocate to the Waste Authority to use State Landfill levy funds to support FOGO initiatives.

**Key Issue 7** – The City needs to be proactive in seeking alternative management options for the compostable waste stream until a suitable FOGO solution can be identified. Continual improvement to internal practices and community education is required through a range of mediums to ensure best practice waste separation and management.

**Action** – Support the establishment of a viable composting stream by introducing incentives for home composting.

**Action** – Investigate educational programs and initiatives to encourage better separation and management of recycling and composting streams, particularly at events.

**Action** - Increase the number of recycling bins in key activity areas and develop standardised informative signage.

**Action** - Investigate measures to improve waste separation and management in City facilities

**Action** – Provide and clearly sign container only recycle bins at all events to align within the Container Deposit Scheme rollout and in view of the high levels of contamination observed at events.

**Action** - Develop sustainability procurement criteria for the City's consideration, focused on waste minimisation (i.e. minimal packaging, opportunities for recycling/disposal) in addition to criteria for energy efficiency and emissions.

**Action** - Continue to deliver community education and engagement measures on waste avoidance, separation and management, including investigation of new initiatives.

**Action** – Establish data collection parameters and reporting responsibilities to capture information from existing practices, including:

- Additional parameters for Litterbusters collections.
- Commencement of data collection from key beach tractor clean ups.
- Commencement of data collection from key gross pollutant traps.
- Regular corporate waste audits to track waste generation and reduction goals.

**Key Issue 8** - The City has no procurement and reporting measures in place to ensure the sourcing and disposal of its fleet tyres is environmentally and ethically sound.

**Action** - Include environmentally responsible sourcing and processing of used fleet tyres in accordance with the federal government Tyre Stewardship Australia (TSA) advice as a requirement in the next tender for provision and disposal of fleet tyres.

**Action** - Investigate becoming a TSA accredited council, Green Tyre Project or similar.

## 5.4 Element 4 - Health and Nature

### Goals

- ✓ Aim to improve connectedness, accessibility and physical health benefits associated with active transport options.
- ✓ Protect and enhance the City's natural environments and green spaces.
- ✓ Provide more opportunities for healthy lifestyle choices according to the Heart Foundation's Healthy Active by Design principles.

**Key Issue 9** - To date, there has been no overarching strategic framework for the analysis, prioritisation and provision of sustainable transport infrastructure.

**Action** - Prepare a Sustainable Transport Plan to:

- Build upon the existing Perth and Peel @ 3.5 million Transport Plan and the transport analysis work undertaken as part of the City's Local Planning Strategy;
- Analyse demand to improve connectivity and accessibility of the existing shared path network;
- Identify and prioritise actions for the provision of infrastructure, to ensure the delivery of safe, active transport links between key locations; and
- Establish a position to better advocate for improved public transport from the State Government.

**Key Issue 10** – Environmentally sustainable design principles and green infrastructure initiatives are encouraged through the existing planning framework in broad terms, however, the need for a local policy position to address gaps and promote sustainable development outcomes requires further investigation.

**Action** – Investigate preparation of a Planning Policy on sustainable design parameters, building upon the requirements outlined in the several higher order state planning documents, to ensure that new development demonstrates best practice in environmentally sustainable design where possible, incorporating measures to minimise energy consumption, water usage, emissions and waste.

**Action** – Develop an easy to understand guideline for residents to incorporate environmentally sustainable design parameters when building or renovating

**Action** - Investigate inclusion of a 'Green Award' category for developers and builders, to incentivise best practice environmentally sustainable design.

## 5.5 Element 5 - Education and Engagement

### Goals

- ✓ Increase community awareness and involvement on environmental sustainability issues.
- ✓ Foster strong relationships with industry, community and schools to continue to build the sustainability agenda.

**Key Issue 11** - The City's website content requires updating to better communicate achievements, support community action and engage a wider audience in understanding the importance of sustainable practices.

**Action** – All sustainability and environmental content reviewed and updated, with any new content to be approved by the Sustainability and Environment team. New content must provide educational resources for key issues such as home energy efficiency, water efficiency and waste minimisation.

**Key Issue 12** - Existing community education and engagement measures are run on an ad-hoc basis across several teams, without an overarching framework for planning and delivery.

**Action** – Relevant teams to collaborate and prepare an annual calendar of sustainability related events, to ensure improved planning and delivery of community focused initiatives.

**Action** – Investigate delivery of a centralized program for sustainability focused events in the community.

**Key Issue 13** - New incentives and initiatives are required to continue encouraging sustainable behaviors at home including energy efficiency, water management and waste minimization.

**Action** - Prepare and offer a Sustainable Schools educational program to all local schools covering a broad range of sustainability issues. Consider partnering with external organisations to deliver.

**Action** – Establish a Green Award for local businesses to recognise sustainable practices and encourage voluntary uptake of the Single Use Plastics and Balloons Council Policy objectives.

**Action** – Encourage edible vegetation through support for community gardens and use of fruit trees in suitable locations.

**Key Issue 14** - The City's commitment to being a progressive, climate responsive and environmentally minded local government should continue to be promoted, showing leadership and aiming to instigate change on a broader scale where required.

**Action** - Expand communications on local environmental sustainability issues and City efforts through a range of mediums.

**Action** – Investigate adoption of rating tools such as ISCA, NABERS, Greenstar for new and existing City infrastructure, to set an example and improve community awareness on building and energy efficiency.

**Action** - Continue to liaise with WALGA and State Government on issues of best practice waste management.

## 6. Measuring success

What will be measured?	Implementation of actions.
When will it be measured?	Annually, through collation of data from various teams in preparation of the Sustainability Snapshot Report.
How will it be reported to Council?	Sustainability Snapshot Report (reported in the Bulletin with hard copies distributed to Council).

What will be measured?	Community awareness and engagement.
When and how will it be measured?	Annually, through the Customer Satisfaction Survey.
How will it be reported to Council?	Sustainability Snapshot Report (reported in the Bulletin with hard copies distributed to Council).

## 7. Risk Management

A review of strategy planning and implementation risks has been conducted in line with the City's Risk Management Framework. The following operational risks were identified:

Risk description	Risk rating	Action required
Inadequate planning for climate resilience through sustainability results in social, environmental and financial impacts for the City.	High	Implementation of the actions identified in this Strategy together with ongoing monitoring to ensure potential impacts can be identified and responded as required.
Lack of accountability for ultimate disposal of the City's fleet tyres may be result in negative environmental and health impacts.	High	Revise existing tender agreements to include disposal accountability in accordance with TSA requirements.

## 8. Actions

### New Actions

Key Element 1 – Energy and Emissions				
Task	Cost	Team	Commence	Complete
Introduce an integrated energy and sustainability monitoring system, with the ability to communicate and analyse real time data from all City facilities.	TBC	Asset Services with input from Strategic Planning and Environment	2019/2020	
Prepare an Energy Management Plan.	\$30,000	Strategic Planning and Environment with input from Asset Services	Subject to implementation of Integrated Monitoring System.	
Prepare an Emissions Reduction Plan.	\$15,000	Strategic Planning and Environment	2020/2021	
Engage with the community and developers to encourage uptake of renewable energy systems and measures to reduce energy use.	Officer time	Strategic Planning and Environment	2020/2021	

Key Element 2 - Water				
Task	Cost	Team	Commence	Complete
Progress investigations into managed aquifer recharge as an alternative water source for irrigation, as per recommendations outlined in the Managed Aquifer Recharge Feasibility Study 2018.	\$140,000	Land and Development Infrastructure, input from Strategic Planning and Environment	2019/2020	

## Key Element 2 - Water

Task	Cost	Team	Commence	Complete
Review existing groundwater monitoring and identify where additional bores or data analysis may be required to better detect influences from climate change.	Officer time	Strategic Planning and Environment with input from Land and Development Infrastructure	2010/2021	
Continue community engagement measures to reduce community water consumption (i.e. Native Plants Giveaway).	\$15,000	Strategic Planning and Environment	Ongoing	

## Key Element 3 – Waste and Resources

Task	Cost	Team	Commence	Complete
Support the establishment of a viable composting stream by introducing incentives for home composting	\$15,000/yr	Strategic Planning and Environment	2019/2020	
Investigation of onsite event composting systems.	Officer time	Waste Services with input from Strategic Planning and Environment	Ongoing	
Investigate measures to improve waste separation and management in City facilities	Officer time	Strategic Planning and Environment with input from Waste Services and Asset Services	2019/2020	
Investigate educational program and incentives to encourage prioritisation of recycling and composting streams.	Officer time	Strategic Planning and Environment with input from Waste Services	2019/2020	

### Key Element 3 – Waste and Resources

Task	Cost	Team	Commence	Complete
Advocate to the State government for application of landfill levy funds to support FOGO infrastructure and initiatives	Officer time	Strategic Planning and Environment with input from Waste Services	Ongoing	
Increase the number of recycling bins in key activity areas and implement standardised informative signage.	Officer time	Waste Services with input from Strategic Planning and Environment	Ongoing	
Provide and clearly sign bottle only recycle bins at all events to align within the Container Deposit Scheme rollout and in view of the high levels of contamination observed at events.	\$10,000	Waste Services, with input from Strategic Planning and Environment	2019/2020	
Develop sustainability procurement guideline, focused on waste minimisation in addition to criteria for energy efficiency and emissions.	Officer time	Strategic Planning and Environment, with input from Procurement	2020/2021	
Establish data collection parameters and reporting responsibilities to capture information from existing practice (i.e. from Litterbusters or occasional beach tractor cleans after large events).	Officer time	Strategic Planning and Environment, with input with Engineering Services and Parks Services	2019/2020	
Investigate becoming a TSA accredited council, Green Tyre Project or similar.	Officer time	Strategic Planning and Environment	2019/2020	
Update tender scope for Tender No T17/18-27 and T17/18-26 for: Standing offer for the supply, fit and repair of tyres 'to heavy plant equipment' and	Officer time	Engineering Services	2019/2020 (Current contract expires August 2020)	

'to passenger, light commercial vehicles, trailers and mowers' to require environmentally responsible sourcing and disposal of fleet tyres in accordance with the Federal Government Tyre Stewardship Australia advice				
--	--	--	--	--

#### Key Element 4 – Health and Nature

Task	Cost	Team	Commence	Complete
Prepare a Sustainable Transport Plan.	\$150,000	Strategic Planning and Environment, in liaison with Engineering Services	2020/2021	
Investigate preparation of a Planning Policy on sustainable design parameters, to ensure that new development demonstrates best practice in environmentally sustainable design.	Officer time	Strategic Planning and Environment, with input from Statutory Planning	2019/2020	
Develop an easy to understand guideline for residents to incorporate environmentally sustainable design parameters when building or renovating	Officer time	Strategic Planning and Environment	2020/2021	
Investigate inclusion of a 'Green Award' category for developers and builders, to incentivise best practice environmentally sustainable design.	Officer time	Strategic Planning and Environment	2020/2021	

#### Key Element 5 - Education and Engagement

Task	Cost	Team	Commence	Complete
------	------	------	----------	----------

Prepare and offer a Sustainable Schools educational program to all local schools covering a broad range of sustainability issues.	Officer time	Community Capacity Building, with input from Strategic Planning and Environment	2020/2021	
Establish a regular calendar of sustainability related workshops and events.	Officer time	Strategic Planning and Environment, Community Capacity Building, Waste Services and Library Services	2019/2020	
Review and update all sustainability and environmental content on the City's website. Ensure information is kept up to date and approved by the City's Sustainability Officer.	Officer Time	Strategic Planning and Environment	2019/2020	
Establish a Green Award for local businesses to recognise sustainable practices and encourage voluntary uptake of the Single Use Plastics and Balloons Council Policy objectives.	\$5,000	Strategic Planning and Environment	2019/2020	
Support edible vegetation through support for community gardens and use of fruit trees in suitable locations.	Officer time	Strategic Planning and Environment and Park Services	2020/2021	
Expand communications on local environmental sustainability issues and City efforts through a range of mediums.	Office time	Strategic Planning and Environment, with input from Strategy, Tourism, Marketing and Communications	Ongoing	
Investigate adoption of rating tools such as ISCA, NABERS, Greenstar for new and existing City infrastructure, to set an example and improve community awareness on building and energy efficiency.	Officer time	Strategic Planning and Environment	2020/2021	

Form a collaborative internal working group for Sustainability within the organization	Officer time	Strategic Planning and Environment	2020/2021	
--	--------------	------------------------------------	-----------	--

### Ongoing actions

Key Element 1 – Energy and Emissions		
Task	Cost	Team
Energy Efficiency Program.	\$400,000/ year	Asset Services

Key Element 1 – Energy and Emissions		
Task	Cost	Team
Continue to upgrade existing lights to more efficient LEDs as required.	~\$500,000/ year	Asset Services
Continue to offset fleet emissions via Carbon Neutral program.	~\$55,000/ year	Engineering Services
Continue Methane Harvest Facility at the Millar Road Landfill.	-	Waste Services

Key Element 2 - Water		
Task	Cost	Team
Maintain status as a Gold Waterwise Council from the Watercorp, and continue to roll out associated actions.	Officer time	Strategic Planning and Environment
Continue to investigate alternative water management options such as Managed Aquifer Recharge.	Officer time	Land Development Infrastructure

Key Element 3 – Waste and Resources		
Task	Cost	Team
Continue to deliver community education and engagement measures on waste avoidance and management.	Officer time	Waste Services and Strategic Planning and Environment

Continue to advocate to State departments on best practice waste mitigation and management measures, and liaise with WALGA especially on the issue of plastics.	Officer time	Strategic Planning and Environment
Corporate waste reduction initiatives.	-	Strategic Planning and Environment

#### Key Element 4 – Health and Nature

Task	Cost	Team
Continue to carry out planting works outlined in the Greening Plan 2017.	\$200,000 p/a	Parks Services

#### Key Element 4 – Health and Nature

Task	Cost	Team
Continue to allocate funding towards to the Little Penguin Research Project and respond to the findings of the reports as required.	\$20,000 p/a	Strategic Planning and Environment
Promote local biodiversity through Native Plants Giveaway.	\$15,000 p/a	Strategic Planning and Environment
Maintain a focus on establishing Nature based play facilities in new and existing developments.	-	Land Development and Infrastructure
Support and enable active transport inc. walk to school initiatives	-	Community Capacity Building

#### Key Element 5 – Environmental Education and Engagement

Task	Cost	Team
Support volunteer planting days through Perth NRM.	Officer time	Parks Services
Waste education program at the landfill.	Officer time	Waste Services
Waste education initiative 'Upcycle' and 'Castaways' sculpture exhibition.	TBC	Community Capacity Building

Support local volunteer groups wishing to conduct beach/waterways clean-ups and volunteer groups with an environmental focus.	Officer time	Waste Services, Parks Services, Community Capacity Building, Strategic Planning and Environment
Continue online and print communications to build understanding of key issues.	TBC (chronicle cost)	Strategy, Tourism, Marketing and Communications, Strategic Planning and Environment
Support community groups to deliver environmental benefits and outcomes through the City's Community Grants Program	Officer time	Community Capacity Building

## 9. Stakeholder Engagement

Key Stakeholders invited to participate	Contributed? (Yes/No)	Engagement method used
Community	Yes	Online Survey
Waste Services	Yes	Email and meetings
Asset Services	Yes	Email and meetings
Library Services	Yes	Email and meeting
Parks and Engineering Services	No	Email
CCB		

## 10. References

Australian Government, 2015. *Australia's 2030 Climate Change Target*. Department of Environment and Energy. <https://www.environment.gov.au/climate-change/publications/factsheet-australias-2030-climate-change-target>

Australian Tyre Recyclers Association, 2016, "Why baled whole tyre exports fail the test of 'environmentally sound use'- A report for Tyre Stewardship Australia. <http://atra.org.au/wp-content/uploads/2017/06/TSA-baling-report.pdf>

Department of Fire & Emergency Services. *Guidance Note: GN02 , Bulk storage of rubber tyres including shredded and crumbed tyres.*  
<https://www.dfes.wa.gov.au/regulationandcompliance/buildingplanassessment/Special%20Operations%20Guidance%20Notices/GN-2-Bulk-Storage-of-Rubber-Tyres-including-Shredded-and-Crumbed-Tyres.pdf>

Climate Council, 2019 'Weather Gone Wild: Climate Change- Fuelled Extreme Weather in 2018' <https://www.climatecouncil.org.au/wp-content/uploads/2019/02/Climate-council-extreme-weather-report.pdf>

Forecast id. Population Forecast. City of Rockingham. 2019.  
<https://forecast.id.com.au/rockingham>

Global Footprint Network, 2019 - <https://www.footprintnetwork.org/>

Heart Foundation- Healthy Active By Design, 2018,  
[www.healthyactivebydesign.com.au/design-features/movement-networks](http://www.healthyactivebydesign.com.au/design-features/movement-networks)

Profile id. Demographic Resources. City of Rockingham, community profile. 2016.  
<https://economy.id.com.au/rockingham/workers-key-statistics>

Profile id. Dwellings. City of Rockingham , community profile. 2016  
<https://profile.id.com.au/rockingham/dwellings?WebID=10>

United Nations. Sustainable Development Goals. 2019.  
<https://sustainabledevelopment.un.org/sdgs>

Tyre Stewardship Australia- <https://www.tyrestewardship.org.au/>

Water Corporation, <https://www.watercorporation.com.au/water-supply>

World Commission on Environment and Development: Our Common Future, 1987,  
[https://www.are.admin.ch/are/en/home/sustainable-development/international-cooperation/2030agenda/un-\\_milestones-in-sustainable-development/1987--brundtland-report.html](https://www.are.admin.ch/are/en/home/sustainable-development/international-cooperation/2030agenda/un-_milestones-in-sustainable-development/1987--brundtland-report.html)