# Sustainability Snapshot Report 2018

city of Rockingham

where the coast comes to life

# Foreword from the Mayor

The City of Rockingham is lucky enough to support a diverse natural environment, together with a wonderful community and growing population. Acknowledging that our everyday actions can have a significant impact on the world around us, tracking the City's ongoing journey towards sustainability is paramount to achieve our community aspirations.

The City has long supported climate sensitive behaviour and the Sustainability Snapshot Report is a way for us to capture our collective action across the organisation and consider the best way forward. The first report, produced in 2017, showcased our existing commitment to a sustainable way of life. While this enabled us to recognise the great work already in place across the organisation, it has also been a catalyst to continue to build on these achievements as a united front, working towards the ultimate goal of a safe, equitable and thriving environment for all generations.

# Acknowledgement of Traditional Owners

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

Nyoongar 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 Nyoongar 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.

# Introduction

Located about 40 kilometres southwest of Perth, the City of Rockingham has a wealth of environmental attributes, including a marine park, threatened ecological communities of national significance, expansive areas of Regional Park and numerous Conservation Category Wetlands. The area also supports diverse land uses which include industrial, residential, commercial, recreation and tourism. Currently, the City's population is estimated at almost 140,000 and expected to grow beyond 180,000 by 2030.

Considering the context of a rapidly urbanising Strategic Metropolitan Centre, the City aspires to develop strong communities, recognising that sustainability is fundamental to our prosperity, identity and lifestyle. Sustainable development calls for the consideration of a triple bottom line agenda, balancing concerns of environmental, social and economic prosperity.

Sustainability's most widely accepted definition ensures that the needs of the present can be met without compromising the ability of future generations to meet their own needs.

This report provides a snapshot of the City's collective efforts towards achieving sustainability over the 2017/2018 financial year. This report is the second of its kind, and is intended to continue each year, forming an annual benchmark for sustainability across the City.

As a part of this ongoing commitment, work for the Sustainability Strategy is now underway and due for completion in 2019. The Strategy will set out key directions, priorities and actions to be implemented over the next ten years with all outcomes to be reported in future Sustainability Snapshot Reports against the six key focus areas:

Water | Waste | Energy | Health and nature conservation | Environmental education and engagement | Climate Response

As sustainability is a multidisciplinary field, all actions collectively contribute towards achieving all four community aspirations:

**Aspiration 1:**
Actively Pursue Tourism and Economic Development

**Aspiration 2:**
Grow and Nurture Community Connectedness and Wellbeing

**Aspiration 3:**
Plan for Future Generations

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

# Vision

By tracking sustainability actions undertaken across the City, this report aims to deliver the following aspirations contained in the City's Community Vision, Aspirations and Strategic Objectives 2019-2029;

## Aspiration 1:
## Actively Pursue Tourism and Economic Development

Coastal destination
Attractions and events

## Aspiration 2:
## Grow and nurture community connectedness and wellbeing

Community engagement
Community capacity building

## Aspiration 3:
## Plan for Future Generations

Infrastructure planning
Responsive planning and control of land use
Climate change adaption
Sustainable waste solutions
Alternative energy applications
Preservation and management of bushland and coastal reserves
Liveable suburbs

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

Leadership in sustainability
Strategic and sustainable financial planning

# City of Rockingham Region Overview

Current population estimate (2018)

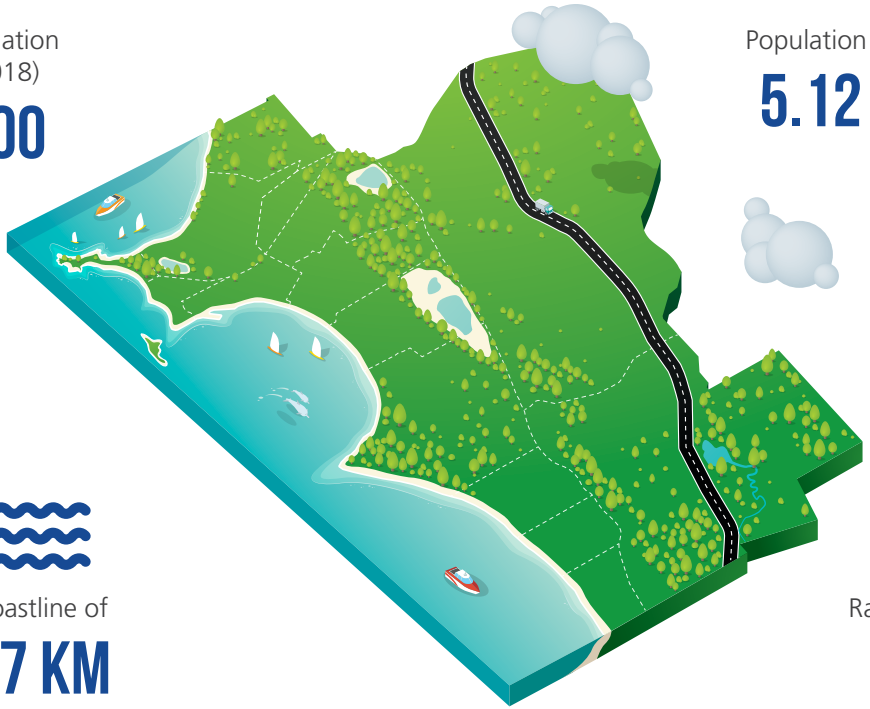
**139,500**

Population projection (2028)

**177,433**

Coastline of

**37 KM**



Population density per hectare

**5.12 PERSONS**

An area of

**260 KM²**

Rateable properties

**58,000**

## Economy

- Gross regional product: $4.56 billion (2016/2017) - This is a 2% decline, the first decline since reporting began in 2001).
- 988 residential building approvals issued in 2017/2018 (772 houses and 216 other).

  Building approvals are used as a leading indicator of the general level of residential development, economic activity, employment and investment. This can however depend on many factors that vary with the state of the economy.

## Employment

- In 2016, 54,838 people living in the City were employed. This is 2% below the State average.
- 5,935 unemployed. This is 2% above the State average.
- Jobs to worker ratio - 0.57. This means that there were less jobs than resident workers, or for every worker there is only 0.57 jobs.
- 38.6% of residents were employed locally.
- Largest employers are:
  Retail trade: 6,232 local jobs (17.5%, State average 9.6%).

  Health care and social assistance: 5,157 Local jobs (14.5%, State average 11.8%).
- Travel to by - Car 69%, Public Transport 9%, Bicycle 0.4% (State average 1%) Walking only 1.6% (State average 2.8%).

## Tourism

- 2015/2016 - 1.8 million visitors - 33.7% international visitors
- 2016/2017 - 2 million visitors - 27% international visitors

1

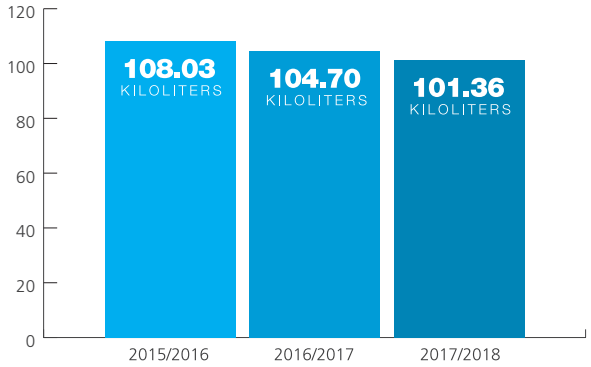
# Water

In a drying climate, responsible use of this invaluable resource has never been more important. The City has made a commitment to reduce water consumption both within City operations and throughout the community. The Water Efficiency Action Plan was prepared in 2016 and details key actions to reduce corporate water consumption, improve water quality and educate the community with methods to conserve water at home. The City also uses best practice irrigation techniques to ensure sustainable use of water on its reserves alongside Water Sensitive Urban Design principles in the design and construction of all new areas of public open space.

## Waterwise Council

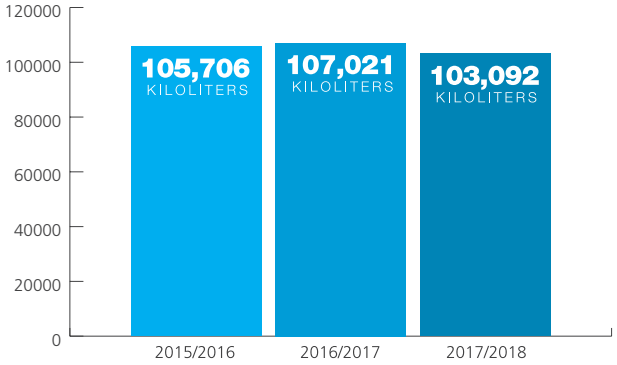
- In February 2018, the City was endorsed for the second year running as a Waterwise Council by the Water Corporation. The endorsement recognises the City's outstanding leadership in sustainable water management and its demonstrated commitment to building water sensitive communities.
- The City has used social media to help advertise the Water Corporation's Winter Sprinkler Ban. Approximately 4.5 billion litres of water are saved each year across the southwest region of Western Australia. The City has also promoted the uptake of water saving appliances to the community via social media (eg. Rainwater tanks and greywater systems).
- The City has begun drafting a Waterwise Procurement Guide to help meet its corporate potable use goal as identified in the Water Efficiency Action Plan. The Guide will establish the minimum acceptable WELS rating for water using appliance to be procured by the City. To maximise water efficiency, all fixtures installed in the City administration buildings and facilities must be certified as Waterwise.
- 146 water devices were audited in 2017/2018. Of those 128 have water saving fixtures and only 31 had isolation valves. Audits will be completed in 2019 at the Aqua Jetty, Aquatic Centre and Depot to identify water saving opportunities, which will be addressed in next year's budget for implementation.

## Community Water Use (per capita)




**6.17% reduction per capita since 2015/2016**

## Scheme Water Usage




- The City's scheme water use for its operations **reduced by 6.02%** compared to the previous financial year.

## Waterwise Initiative - Native Plants Giveaway

- As part of the City's commitment to building water sensitive communities, the City facilitated a Native Plants Giveaway which took place at Carramar Coastal Nursery in Port Kennedy over the first two weekends in May. Residents were able to collect 10 free seedlings per household, encouraging the establishment of a Waterwise garden at home using native species. The giveaway was a resounding success with all plants being collected by lunch time on the first day! The City will run the Giveaway again in 2019 and future arrangements will be reviewed given the success and popularity of the 2018 program.

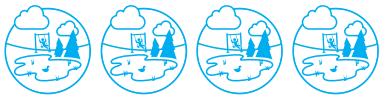
- In support of the giveaway, the City held a free gardening seminar on 18 April 2018 at the Gary Holland Centre. The seminar was a success, with presenters from the Water Corporation sharing their knowledge on growing healthy, waterwise gardens. This was undertaken to work towards the following action identified in the Water Efficiency Action Plan: Promote Waterwise Gardening Techniques to the City's residents.

## **Water Sensitive Urban Design** (WSUD)

- The City incorporates best practice WSUD principles in the design and construction of all new areas of public open space (POS). This improves the quality of stormwater runoff and also provides habitat for native animals such as frogs and waterbirds.
- Two POS areas incorporating WSUD were completed in 2017/2018. Further works are underway in other POS areas that will be captured in next year's report.

**Number of new areas of public open space constructed incorporating best practice WSUD principles**

**2015/2016**



**2016/2017**

**2017/2018**

## WSUD Case Study

Brightwood, Baldivis (Developer: Parcel Property)

**Challenges:**

- Rationalising drainage requirements particularly in the central public open space
- To create amenity for residents including large active turf spaces for the broader community

**Key Elements:**

- Stormwater management maintains the existing hydrological regime relative to the pre-development environment using infiltration at source.
- Implementation of best management practices including a treatment train approach to stormwater management.
- Bioretention basins with water wise nutrient stripping vegetation and amended soils to provide water quality treatment of frequent rainfall events consistent with Water Sensitive Urban Design (WSUD) principles.
- Stormwater runoff from major rainfall events contained within the POS areas using a combination of retention basins and underground storage cells.
- Stormwater is accommodated in a useable landscaped manner to create amenity for residents, including large active turf spaces for the broader community.
- Fit for purpose use of groundwater as a non-potable water source for irrigation during the hotter drier months.

1.1 South Entry POS

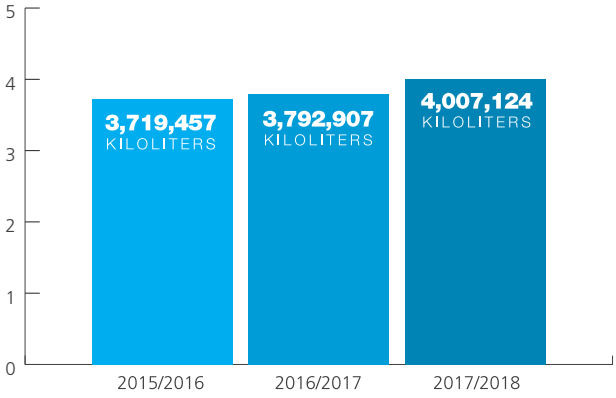
1.2 North Entry POS

1.3 Central POS Underground storage cells

## Waterwise Irrigation

With over 600 hectares of reserves irrigated using groundwater, the City is continually working to be more water efficient by monitoring usage, identifying opportunities for improvement and employing best practice irrigation techniques.

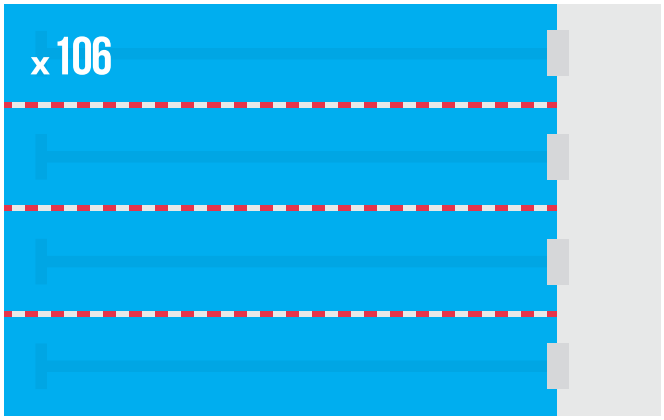
- The City's groundwater usage over the last three financial years was:



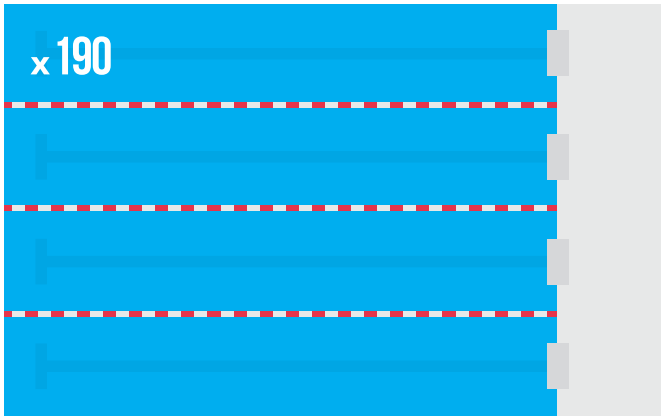

- The City's usage of 4,007,124 kL in the 2017/2018 financial year is 267,360 kL less than the City's groundwater allocation from the Department of Water and Environmental Regulation. This is a saving of 6.25% or 106 olympic sized swimming pools.

While the City saved a significant amount of it's groundwater allocation it was noted that the amount saved has fallen 6% compared to last year. This is reflective of more City managed areas requiring irrigation in 2018.

**OLYMPIC SWIMMING POOLS OF GROUND WATER SAVED IN 2018:**




**OLYMPIC SWIMMING POOLS OF GROUND WATER SAVED IN 2017:**



## Groundwater Monitoring

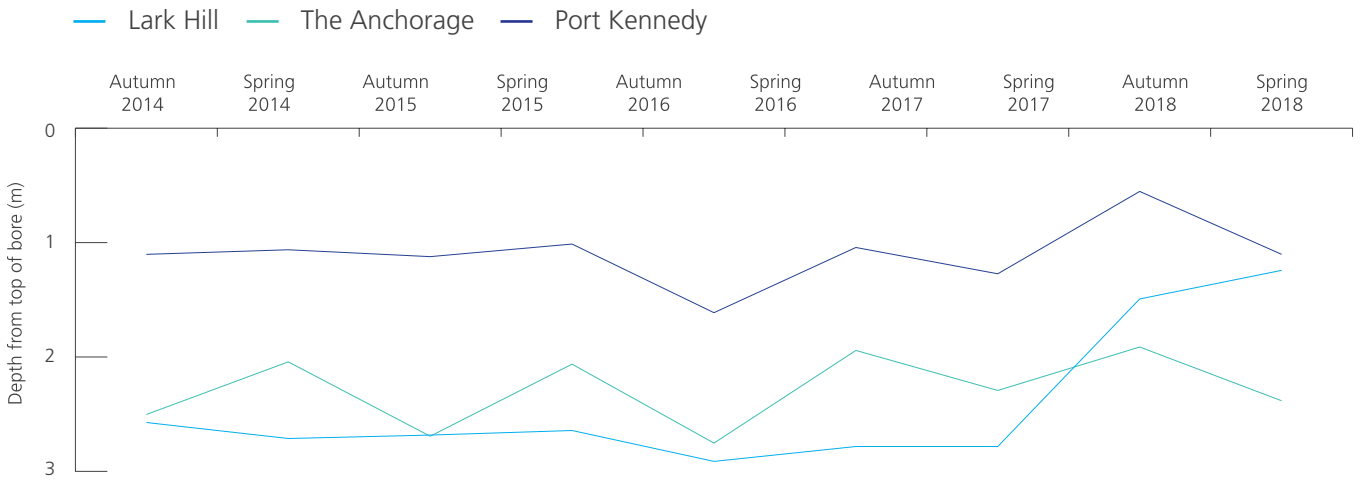



**Figure 1.1** Standing water level (SWL) measurements at three groundwater monitoring sites

- An analysis of historical rainfall data shows that the increase in the SWL can be attributed to increased monthly rainfall compared to previous years.
- The groundwater monitoring data displays normal seasonal fluctuations. The unusual rise of the SWL at Lark Hill during spring 2017 can be attributed to a significant increase of monthly rainfall compared to previous years. The conditions specific to this site mean that large rainfall events can result in inundation to the bore. These rainfall events do not significantly impact the Anchorage bore as it is situated in a residential area with prevalent hardstand. The bore is in proximity to Lake Richmond which means SWL remains relatively consistent and instead rainfall may influence water levels of the Lake.
- Groundwater levels and a number of key quality parameters are measured, including salinity, pH and nitrate. This data is used to establish a long term database and enables the City to detect changes which may indicate a potential contamination source or leaching of pollutants.
- Analysis of data collected for 2017/2018 indicates that water quality in these areas meets national standards as per the Australian and New Zealand guidelines for fresh and marine water quality.

# 2

# Waste

There are a number of environmental impacts associated with waste, including the space required for landfill, potential contamination and greenhouse gas emissions. Considering this, waste management is a crucial element to sustainability. Best practice waste management is continually evolving in Australia and the City is committed to delivering sustainable waste management and minimising waste generation both within the organisation and across the community.

## Millar Road Landfill

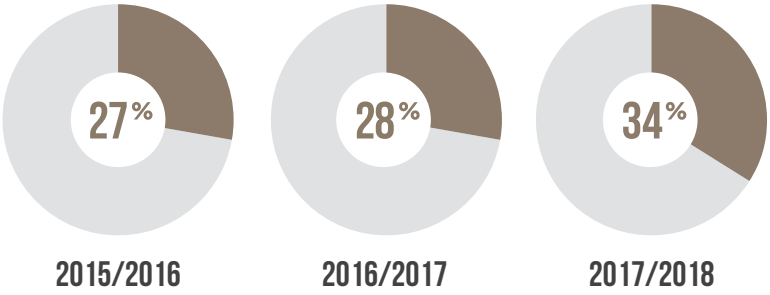
- 52,197 tonnes of residential landfill waste was collected through the Millar Road Landfill in 2017/2018. This is the equivalent to the weight of 7 Eiffel towers and represents a significant decrease from last year where the equivalent of 8.5 Eiffel towers were collected for landfill.
- An additional 26,727 tonnes of residential recycling was collected, the equivalent to 3.6 Eiffel towers. Last year 17,200 tonnes (2.5 Eiffel towers) of recycling was collected.

While the total waste and recycling collected dropped almost 1% (a total of 78,924 tonnes) the rate of recycling increased 6%. This is a notable achievement considering the population increased 3.5%

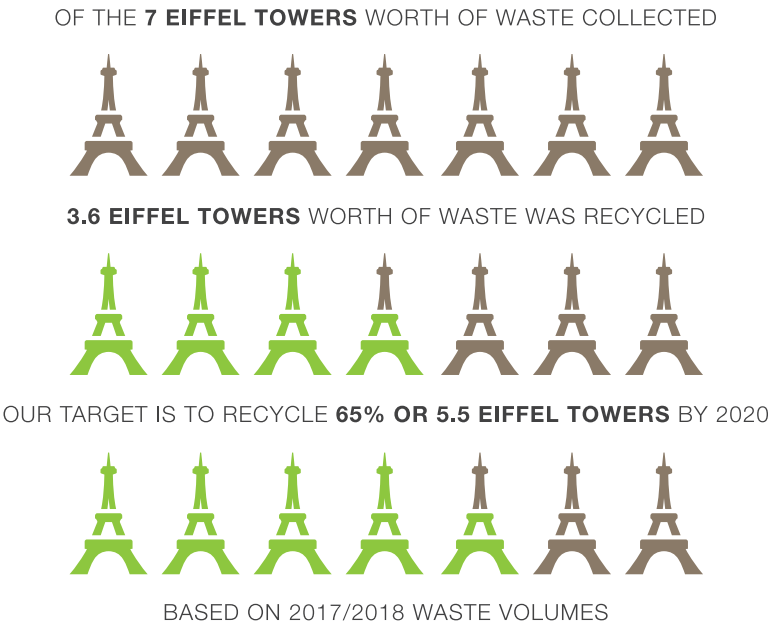
- The Western Australian Waste Strategy aims to achieve a 65% municipal waste recovery rate in the metropolitan region by 2020.
- 2017/2018 was the first full financial year where the Green Waste bin was in operation with almost 10,000 tonnes being collected through this service and diverted from landfill.

To meet this target, the rate of recycling must continue to increase a further 7% per year.

**Figure 2.1** - Percentage of waste diverted from landfill to recycling facilities from the bin and verge collections:



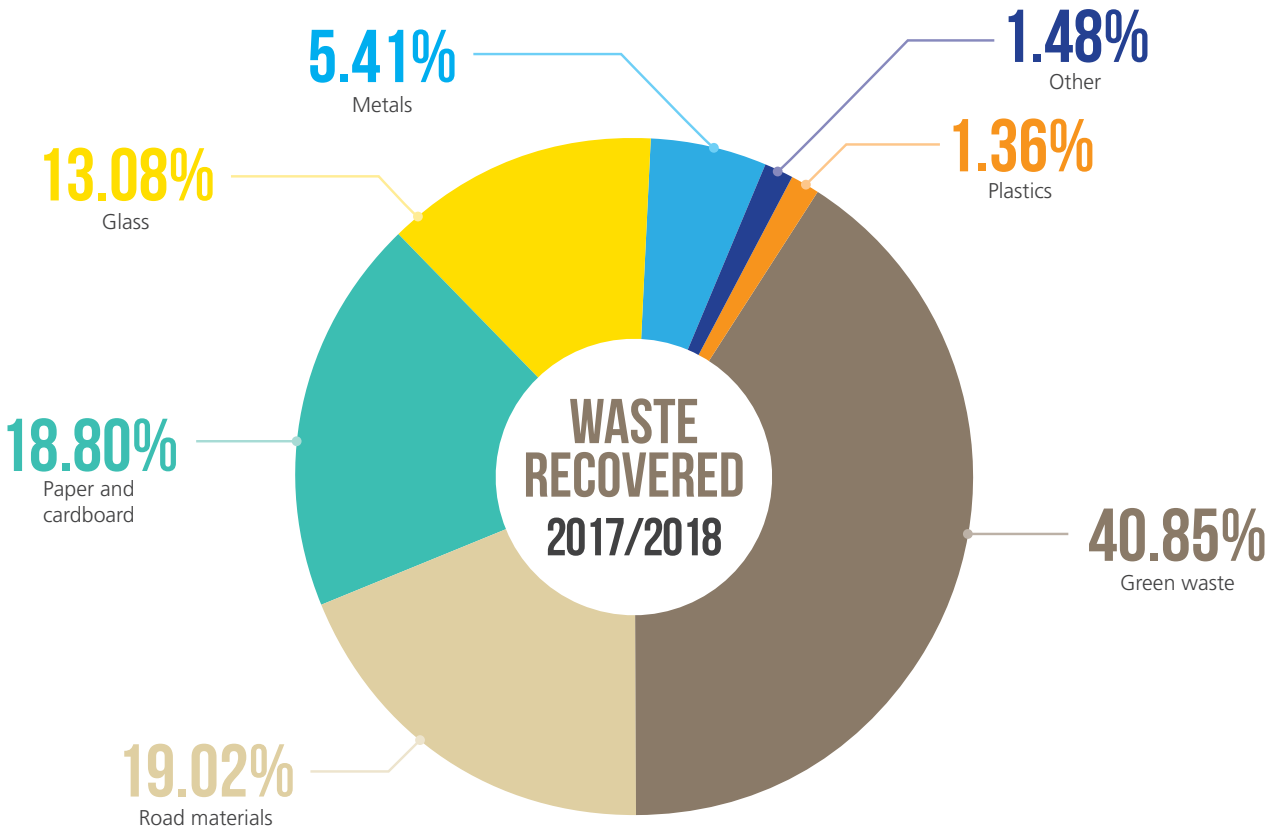

Overall waste recovery rate **increased 6%** compared to last year




- At the Millar Road facility, many items are recycled and diverted from landfill in addition to the items recycled in the yellow and green top bins. A percentage breakdown of these products can be seen in the figure below:

**Figure 2.2** - Total products recovered or recycled in 2017/2018 by weight

Note these figures represent waste from a number of different councils utilising the facility.

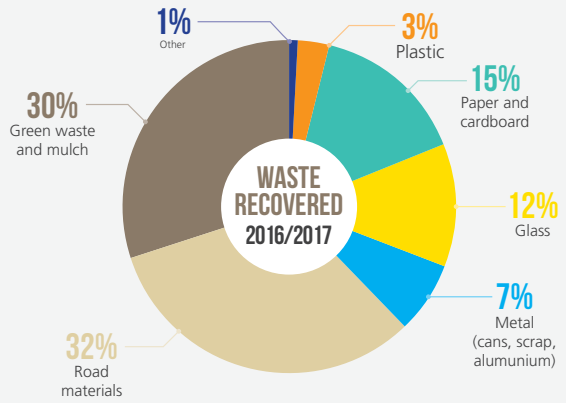


**Compared to 2016/2017 financial year:**
Total mass recycled increased 27.5% (9,500 tonnes). The top three recycling groups remain unchanged, however, percentage composition varied:

**Road materials**
32%

**Green waste and mulch**
30%

**Paper and cardboard**
15%




- Greenwaste and mulch recycling increased 10% (up from 30%).
- Of the total 36,734 tonnes of recyclables collected, 14,671 tonnes were directly diverted from landfill, including mattresses, waste oil and scrap metal. The remainder was collected through green waste and recycling streams (Materials Recovery Facility).
- The City also recycles printer cartridges with 253kg recycled since 2015.
- Waste sent to landfill is put in large 'cells' in the ground. New cells are required about every 2.5-3.5 years. Both cell 16 and 17 are being filled concurrently and are at 13% capacity.
- The City also supports and facilitates the recycling of all construction and demolition waste generated from civil construction projects and maintenance works. All concrete, brick and asphalt waste materials are stockpiled at the landfill for recycling, where a contractor removes the materials for processing as required. The City also has the ability to purchase and use this material in its own road construction projects where possible.

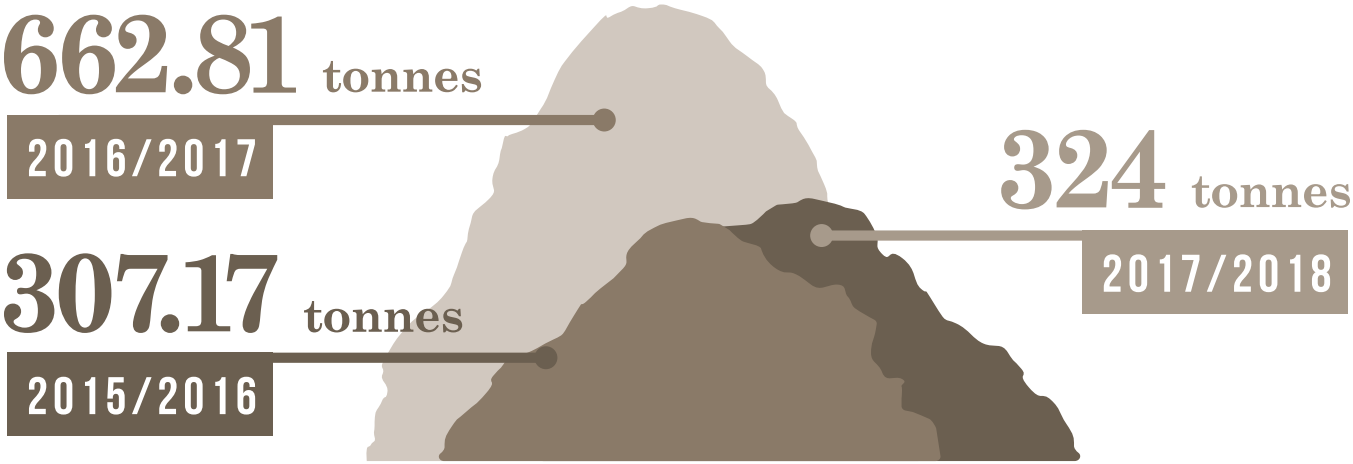
**In the 2017/2018 financial year this arrangement saw 3,792 tonnes of recyclable materials (concrete, brick, asphalt) captured and processed for recycling.**

## LitterBusters

- The City's Litter Busters team responded to 2,474 reports, with 324 tonnes of litter being sent to landfill (2017/2018).
- Since 2015, LitterBusters have now responded to over 6,500 reports of litter.
- The amount of litter cleaned up and sent to landfill by LitterBusters over the last three years is shown below:

That's almost 1,300 tonnes of litter collected from streets and public areas in Rockingham over the last three years.

Although the tonnage of litter collected was reduced from the previous year, it is worth noting that there was minimal difference in the total number of callouts.




LITTERBUSTERS
City of Rockingham


LITTERBUSTERS

# 3

# Energy

As our population continues to grow, we are presented with the challenge of providing additional facilities, services and infrastructure while aiming to reduce our greenhouse gas emissions. With the development of the Sustainability Strategy, the City's key objective in this space is to be a leader in renewable energy, energy and emissions management and supporting community action in this space.

The City used just over 12 million kWh of power. This accounts for all City facilities operations and administration, in addition to park and street lighting.

Compared to last financial year, **this is a reduction of almost 2 million kwh or more than 13%.**

## Total Energy Use

**2016/2017**
14,110,910 kWh

Equivalent of powering 2,475 households

**2017/2018**
12,216,814 kWh

Equivalent of powering 2,143 households

While a significant energy saving was realised, more data is required to understand where exactly this saving was achieved. The City is working towards implementing a real-time monitoring platform that will allow better interpretation of this data and inform future energy saving measures.

## Highest energy users

### Facilities

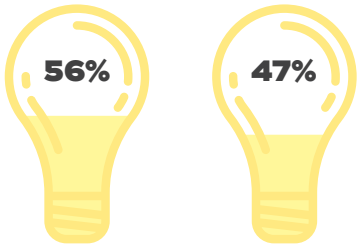
The City's five highest energy consuming facilities are as below, all of which have been fitted with solar PV systems;

- Administration Centre - 90kWh
- Aqua Jetty Aquatic Centre - 30 kWh + 290kWh
- Lark Hill Sporting Complex - 42.5kWh
- Autumn Centre - 30kWh
- Mary Davies Library - 30 kWh

### Streetlights

In 2017/2018, street lighting accounted for 56% of total energy use across City facilities.

Lighting energy consumption




6,839,798 kWh
**2017/2018**

6,627,413 kWh
**2016/2017**

This highlights the importance of progressively upgrading to LEDs.

More street lighting upgrades are planned for 2018/2019

## Energy Efficiency Program

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.

Rollout of solar photo voltaic (PV) systems on all City facilities has nearly been completed.

In 2017/2018, three more installations were carried out, together with three more installations of solar lighting. This will continue into 2018/2019, however, the majority of this project has now been completed.

Works will now switch focus, with greater emphasis on monitoring energy production, consumption and identifying further energy reduction potential. The City will also continue to investigate best practice mechanisms as they arise.

### Energy production

Specific elements of the program include:

- Photo Voltaic (PV) solar panels on 94 buildings
- Photo Voltaic (PV) solar lighting on 50 public facilities
- **The total energy produced by these measures over 2017/2018 was 801,171 kWh, enough to power 123 average households for a year. Power produced from these sources equates to around 6.5% of the City's total energy use.**
- A methane harvest facility at the landfill generates power by capturing gas released from decomposing waste at the landfill. More details on this can be found in the emissions section on page 30.

### Energy reduction

- LED lights are currently recognised as best practice in energy efficient lighting technology, saving up to 85% energy compared to a standard halogen or incandescent globe. Along with energy saving, this also presents a significant cost saving for the City as well.
- **Upgrades to LED street lighting at 10 different locations resulted in a 105,343 kWh energy saving in 2017/2018.**

  **This includes:**
  - » Park lighting – 223 lights upgraded
  - » More street lighting upgrades are planned for 2018/2019

## Monitoring energy consumption

- An energy audit was conducted at the Administration building. Through this it was identified that an in depth review of the Heating, Ventilation and Air Conditioning (HVAC) system was required.
- The City currently has 282 facilities monitoring through the Greensense platform, which monitors energy use and sustainability parameters through an online portal.
- The City used approximately 332GJ of gas in 2017/2018. This is a 13% reduction from the previous financial year, equivalent to 752 9kg gas bottles instead of 866 as in 2016/2017.

**382** GJ gas

2016/2017

**332** GJ gas

2017/2018

9KG x **114** GAS BOTTLES

The equivalent of 114 gas bottles were saved, compared to last year

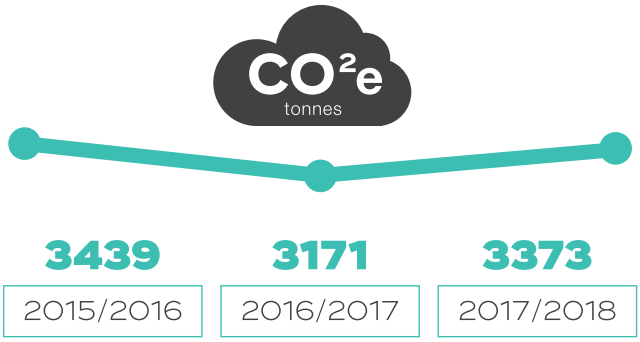
# 3. Energy

## Emissions

- The City actively monitors greenhouse gas emissions generated from day to day operations. Our vehicle fleet, machinery, natural gas and electricity use all contribute to the City's emissions.

- In 2017/2018 the City's total emissions generated from these sources totaled 137,748 tonnes $CO^2e$.

### Emissions from the City's fleet




## Carbon Neutral

- In 2017/2018 the City total vehicle fleet produced around 3,372 tonnes of $CO^2e$. Emissions attributed to fleet are entirely offset by an accredited and verified carbon offset program, Carbon Neutral.

  This year, the City invested its Carbon Neutral offsets into the local Yarra Yarra project.

### Yarra Yarra Biodiversity Corridor

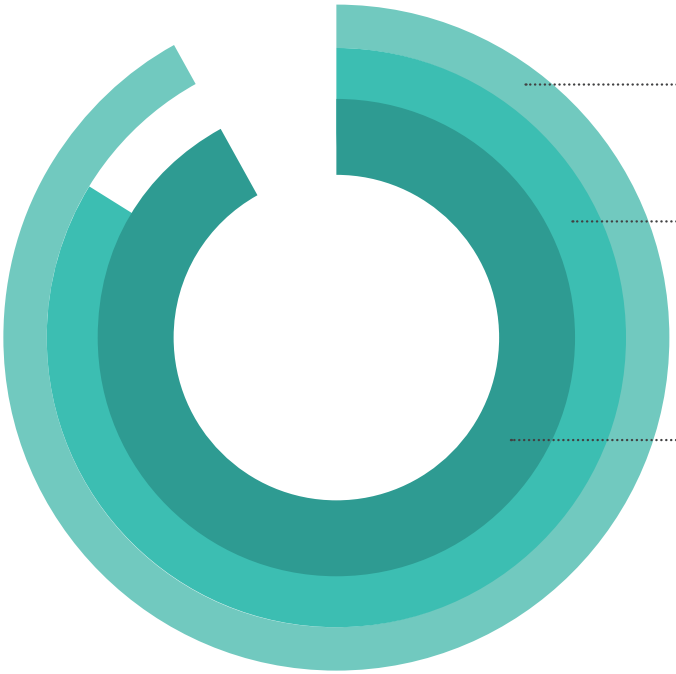
- The Yarra Yarra Biodiversity Corridor is a native reforestation project located roughly 400kms north of Perth. The project was established on degraded, semi-arid, former agricultural land with the goal of returning the area to its origins by replanting local endemic native species, linking together 12 nature reserves. So far, this project has planted over 29.5 million mixed native species, trees and shrubs across 12,000 hectares. This project is expected to remove over 1.257 million tonnes of carbon over 50 years and create valuable conservation space.

**3.1** Yarra Yarra region prior to planting

**3.2** Planting being undertaken in Yarra Yarra 2018

## Emissions at the Landfill

- The biggest source of City emissions is attributed to decomposition of waste at the Millar Road Landfill Facility, as seen in the figure below.
- Methane is the most dominant greenhouse gas produced at the landfill, which is proven to be one of the most harmful greenhouse gases contributing to climate change. Due to its heat storing abilities, methane can trap up to 80 times more heat in the atmosphere than carbon (over a 20 year time frame).
- A Methane Harvest Facility operates at the City's landfill, which significantly reduces the amount of methane released into the atmosphere. This system involves a network of pipes to capture the gas as it is generated during decomposition. The gas is then converted to electricity and put back into the grid.



**2015/2016**

92%

emmisions from landfill

105,546

tonnes of City $CO^2e$

**2016/2017**

84%

emmisions from landfill

104,767

tonnes of City $CO^2e$

**2017/2018**

92%

emmisions from landfill

137,748

tonnes of City $CO^2e$

## 3. Energy

Methane collection increased almost 38,000 tonnes compared to the same period last year. This resulted in the City producing almost two times the energy it used, compared to last year where the facility generated 1.5 times the City's power usage.

- It is worth noting that the Millar Road facility accepts waste collected from several surrounding municipalities. This financial year the City's waste attributed around 30% of overall waste to landfill.

2016/2017 **207,267** tonnage landfilled

2017/2018 **169,276** tonnage landfilled

**126,448**
tonne of
**methane**
COLLECTED

**22,605**
mega watts
**electricity**
GENERATED

**3,966**
average
**households**
POWERED YEARLY

**This is the equivalent of removing 37,191 cars from the road for one year**

**The energy generated from the Millar Road Landfill facility is more than 1.8 times the City's total energy use in 2017/2018.**

4

# Health and Nature Conservation

The City boasts a diverse range of natural environments with 37 km of pristine coastline, the deepest freshwater lake on the Swan Coastal Plain, several conservation significant wetlands, nationally recognised ecological communities, over 870 hectares of well-maintained public open space and approximately 940 hectares of nature reserves. The City also recognises that health and wellbeing are intrinsically linked to the quality of our natural environments, and is committed to ensuring best practice measures are in place.

## Wetland Management Plan 2018

- The City's first Wetland Management Plan was finalised in June 2018. The Plan was developed to identify the environmental attributes and condition of the City's wetland reserves and to provide key directions for the ongoing use and management of these areas over the next five years.

- The Plan was informed by detailed on ground environmental surveys, which identified that the majority of the City's wetland reserves are in 'very good' condition (61%) with 10% in 'excellent' condition. The Plan outlines key management strategies to protect and enhance conservation values through removal of threatening processes by undertaking revegetation, weed control, and feral animal control as well as controlling access, installing signage and bins with dog waste bags.

## Brush-tailed Phascogale
*(Phascogale tapotafa wambenger)*

The Brush-tailed Phascogale is a 'Conservation Dependent' species listed under the Western Australian *Wildlife Conservation Act 1950*. Most of the recorded occurences within the City have been in Paganoni Swamp, which forms part of the Rockingham Lakes Regional Park.

In 2017, a Brush-tailed Phascogale was found during a fauna trapping and relocation program on a degraded development site in Baldivis.

This highlights that the species can be found in degraded urban areas, in fact they have a preference for hollow-bearing trees over a sparse understorey.

Photo credit:
Australasian Ecological Services

## 4. Health and Nature Conservation

### Update on the Little Penguin Research Project

The City has supported the Little Penguin Research Project since 2012, which aims to better understand the health, ecology and resilience of Little Penguins and the marine habitats they occupy. These seabirds are recognised as key bioindicators for the health of the marine ecosystems and therefore supply critical information regarding the local marine parks and coastal environments.

The latest monitoring report, released in April 2018 indicated that the local penguin population has decreased at least 50% from 2007 numbers. This can be attributed to both indirect and direct impacts such as injuries from watercraft, entanglement in fishing line and interaction with marine litter, reduction in local prey due to sea temperature rise and bioaccumulation of contaminants from ocean pollution.

The City continues advocacy and management actions to support this research in collaboration with the Department of Biodiversity Conservation and Attractions, and is planning advocacy actions to be carried out in the 2018/2019 financial year and beyond.

**4.1** Juvenile Southern Brown Bandicoot found during monitoring at Golden Bay

(photo courtesy of Peet)

- The City collaborated with developer Peet to undertake feral animal control in the Golden Bay Foreshore reserve, to help manage the predation pressure on the Southern Brown Bandicoot.
- Since 2015, the City has undertaken a Frog Population Monitoring Program in a number of wetland reserves to provide an indication of overall wetland health, looking specifically at the Squelching Frog *(Crinia insignifera)*.
- Monitoring will be carried out biennially (every two years) with the most recent monitoring results from winter 2018 to be reported in the next Sustainability Snapshot Report.
- The City's Natural Area Conservation Strategy was endorsed by Council in September 2017, providing a framework for the conservation of approximately 940 hectares of natural areas under management by the City, including bushland, foreshore and wetland environments.
- In 2017/2018, the City monitored water quality in 20 of its lakes, costing $37,500.

## Local Natural Areas Assessment

- In early 2017, an assessment was undertaken of all ecological values on both public and private land to identify priority areas for protection and management. This desktop assessment provides a foundation for further detailed analysis undertaken in 2018. This will inform the Environmental Planning Strategy (EPS) to be developed in 2019.
- A total of 11,516 ha of natural areas exist within the City, with 8,265 ha (72%) on public land and 3,251 ha (28%) on private freehold land.
- 46% of natural areas are reserved as 'Parks and Recreation' under the Metropolitan Region Scheme, predominantly under the management responsibility of the City of Rockingham and the Department of Biodiversity, Conservation and Attractions (DBCA).
- The ecological values considered in the assessment of natural areas include:

Threatened and priority flora, fauna and ecological communities

Carnaby's Cockatoo feeding, breeding and roosting habitat

Resource Enhancement Wetlands (REWs), Conservation Category Wetlands (CCWs), watercourses and their buffers

Bush Forever sites

Low represented vegetation complexes in the Swan Coastal Plain region and the City

Patch sizes of remnant vegetation; and

The presence of ecological linkages.

## Parks in the City

**464**

Total number of local public open spaces*

**808 HA**

Total area of local public open space

**88**

Number of field staff managing public open space

**3.274 KM**

New bike paths installed across 14 different locations in 2017/2018

*Total number of POS includes passive parks, active playing fields, bushland and nature reserves, foreshores and drainage corridors

The City's Greening Plan provides a framework to increase our tree canopy in streetscapes and public open space, with 15,000 trees to be planted over the next five years.

- As of July 2018, a team of 88 City Officers were responsible for managing an area of more than 800 hectares of public open space. That is more than double the area of Kings Park.
- The Winter Street Tree Planting Program provides an opportunity for residents to request a free street tree to be planted on their verge. In 2017/2018, the City installed over 470 trees through the program. In 2016/2017, another 500 were completed.
- An additional 25,000 native seedlings were planted in City conservation areas during this financial year, equalling an average of 42,000 per year.

**NUMBER OF SEEDLINGS USED IN REVEGETATION OF CITY CONSERVATION RESERVES**

| | |
|---|---|
| 2015/2016 | 49,273 |
| 2016/2017 | 52,668 |
| 2017/2018 | 25,725 |

- A large portion of revegetation undertaken in previous years was for environmental offset sites. Offset funding (from WA Limestone) was supplied for works at Tamworth Hill Swamp in which 20,000 and 27,600 native seedlings were planted in 2015 and 2016, respectively. Planting at the site has now been completed.
- As the City has no additional environmental offsets, future native revegetation works will now target 15,000 plants per season, with a focus on ensuring establishment and maintenance of the existing large sites.
- Last financial year, a total of three new areas of public open space have been designed with a focus on 'nature play' through the use of natural materials and elements. These parks are located at:
  - Highbury POS Stage 13 Bloomfield Parkway, Highbury Park, Baldivis
  - Laurie Stanford Reserve Nature Play, Cavender Street, Singleton
  - Rhonda Scarrott Reserve Nature Play, Arizona Parade, Golden Bay
- Since 2015, a total of 10 new nature based play facilities have been developed in the City.

**4.2** Highbury Park, Baldivis

5

# Environmental Education and Engagement

Social connectivity and involvement is a key factor in achieving sustainability. The City plays a significant role in providing a range of opportunities for environmental education and engagement which assists residents, schools and community groups to adopt more sustainable practices.

5.1 Australian Sea Lion entangled in a plastic bag on Seal Island, May 2018

(Image courtesy of Department of Biodiversity Conservation and Attractions)

## Key Achievements

### Community movie screening

In support of Plastic Free July (a global initiative aimed at reducing the use of single use plastic), the City held a free community screening of the award-winning documentary A Plastic Ocean. The event was a resounding success, with over 60 attendees on the night. Some feedback received from residents on the night include:

> **It was a very inspirational film and it has inspired me to do whatever I can to help stop pollution**

> **A real eye opener especially the micro plastic problem!**

> **Lovely initiative. Would love to be informed in a public way about Rockingham Council changes to waste management**

Given the high turnout and positive responses received, the City will look to host more events like this in the future as it provides an accessible way to engage all ages on important topics and relevant issues such as plastic waste and pollution.

## 5. Environmental Education and Engagement

- The City has used the following participant organisations for volunteer planting over the last financial year:

  Conservation Volunteers Australia, Work for the Dole, CoastCare and various Primary Schools.

- An average of 516 volunteers attended community planting days over the last financial year.

**Average number of volunteers for community planting days**

547 2015/2016

391 2016/2017

516 2017/2018

**Number of plants planted on community planting days**

7,110 2015/2016

4,780 2016/2017

5,850 2017/2018

- Over $40,000 in grant funding was awarded to community groups to undertake various environmental activities in 2017/2018 (including major grants and general grants).

- The City's Castaways Sculpture Exhibition is an annual art competition that combines the theme of recycling and environmental awareness. The exhibition has been running since 2008, promoting creative re-use of materials and innovative sculptures

**Number of Castaways school submissions**

11 FIVE PRIMARY SIX HIGH SCHOOL
15,000 ATTENDANCE
2015/2016

22 SIXTEEN PRIMARY SIX HIGH SCHOOL
17,000 ATTENDANCE
2017/2018

- Waste and environmental education workshops were delivered to a total of 1,500 students and community members. A small decrease in total project delivery for school students was recognised and efforts to increase this number are under way.

**Waste Education program - Community members**

260 2016/2017

460 2017/2018

**Waste Education program - School students**

1,350 2016/2017

805 2017/2018

**Environmental education and awareness session - including upcycle workshop**

132 2016/2017

235 2017/2018

- Over 4,500 students from 30 schools participated in the Walk Safely to School Day in 2017/2018. It is estimated that on a normal day around 3,650 students walk to school.

| 2016/2017 | 2017/2018 |
|---|---|
| 24 SCHOOLS PARTICIPATED | 30 SCHOOLS PARTICIPATED |
| **4,425** students provided with a free healthy breakfast | **5,870** students provided with a free healthy breakfast |

- 8 free sustainability workshops were run at the City's libraries in 2017/2018 covering various sustainability themes. These events were:

| | |
|---|---|
| Urban beekeeping | Green cleaning |
| Preserving the harvest | DIY balms and scrubs (x2) |
| Practical sustainability | Recycled Christmas crafts |
| Worm Café | |

- This is a 28% decrease from last year where 11 events were held. This has been identified as an opportunity for improvement and will be addressed through the Sustainabilty Strategy currently under development

- By the end of 2017/2018 192 people were signed up for Environmental Interests and 442 for Coastal and Marine Environment through RockPort, the City's community engagement portal.

- The City hosted a waste themed community event known as the Garage Sale Trail over one weekend in October. The event is a nation-wide initiative that encourages people to hold garage sales to avoid sending useful items to landfill. The event aims to promote reselling and reusing, as well as facilitate network-building in the community. In 2017, 302 stalls were registered and an estimated 4,053 shoppers attended.

- The City held a free gardening seminar in April 2018 at the Gary Holland Centre. The seminar was a success, with presenters from South Metropolitan TAFE sharing their knowledge on growing healthy, waterwise gardens.

6

# Climate Response

There is a consensus among scientists dealing with climate hypotheses and observations that increasing levels of greenhouse gases are contributing to global warming. This recent increase in global average air and ocean temperature is affecting atmospheric and ocean circulation, which influence rainfall and wind patterns. This is predicted to have significant and adverse impacts on global communities, and as such, it is important that we build resilience at a local level. All actions mentioned throughout this report work collectively to mitigate the impacts of climate change.

Records show that the decade of 2001 - 2010 was the world's warmest decade on record. In Australia, each decade has been warmer than the previous decade since the 1950s. The City recognises the importance of long term strategic planning and managing our environment in a way which ensures resilience for the future.

The following two documents are currently being prepared to addess these issues:

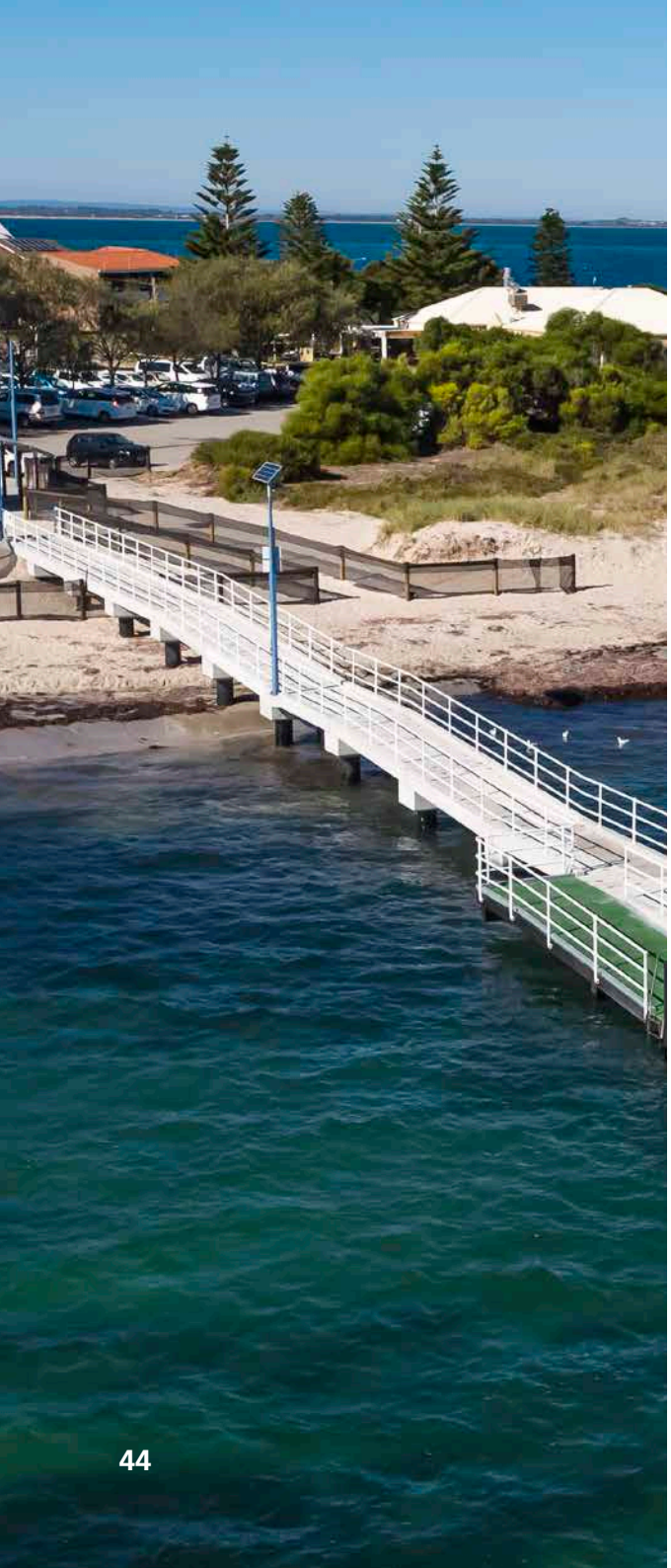
- In May 2018, Council resolved to become a Power Partner, and the City was officially accepted into the Climate Council's 'Cities Power Partnership' (CPP) in October. The CPP is a national coalition of local governments that are committed to accelerating emissions reduction and clean energy successes of Australian towns and cities. Upon joining, all Councils pledge to undertake five key actions in the areas of renewable energy, efficiency, transport and working together, with the goal to achieve a sustainable energy future.
- The City's draft Bushfire Risk Management Plan (BRM Plan) was reviewed by the Office of Bushfire Risk management (OBRM) in October 2017. Subsequently the City incorporated OBRM's suggestions and submitted its revised BRM Plan to ORM in May 2018 and endorsed by Council in September 2018
- The second year of the Warnbro Dunes Bushfire Risk Management Plan was successfully implemented by landowners and the City over the 2018 Fire Season.

### Coastal Hazard Risk Management and Adaptation Plan

A Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) is being developed to manage and plan for the potential future risks associated with predicted sea level rise, due to climate change. With four parts to the project in total, the City progressed to Part 3 in 2018.

### Sustainability Strategy

A Sustainability Strategy is currently being developed which will build upon the existing work undertaken by the City and provide a framework for delivering key objectives across the six key focus areas identified in this report; water, waste, energy, health and nature conservation, environmental education and climate response. The Strategy was earmarked in the Strategic Community Plan 2015-2025 under Strategic Objective 13: Climate Change to achieve Aspiration D: A Sustainable Environment. The Strategy is due for completion in mid-2019.



## Green Spaces

- The City continues to maintain over 50,000 trees along streets and in parks. These provide a cooling effect, habitat for native birds and reduce stormwater runoff.

## Coastal Management

- Construction of the new Mersey Point jetty was completed in February 2018. The jetty is located 150m north of the previous jetty in a much more stable shoreline location. The old jetty was no longer suitable to support continued commercial activity and was extremely vulnerable to severe weather events. This was evidenced when the jetty was severely damaged during a storm event in June 2018, shortly after the new jetty was completed. What remained of the jetty timbers was removed with some jetty timber piles salvaged for reuse into future interpretive artworks.

- The purpose of the Point Peron sand trap is to manage the natural sand build up west of the Garden Island Causeway which would otherwise impact on the functionality of the Point Peron boat ramp. The City is required to excavate sand from the trap every year as it builds up. This sand is typically used to replenish parts of the coast subject to significant erosion, either in the City or in other local governments.

- A total of 15,943m$^3$ of sand was excavated from the Point Peron Sand Trap and boat ramp in 2017/2018 with 13,000m$^3$ dedicated to 'cell capping' at the City's Millar Road Landfill Facility, completed in June 2018. Almost 20% more sand was removed from the sand trap, compared to last year where around 13,000 m$^3$ was removed. The City is licensed by DBCA to remove a total of 20,000m$^3$ of sand from the sand trap and boat ramp, outside of the marine park boundary.

- Rock Armour Protection upgrades at the Palm Beach boat ramp was completed in October 2017

**6.1** Sand being excavated from Point Peron

**6.2** Rock Armour at Palm Beach boat ramp

## Regional Coastal Partnerships

- **Cockburn Sound Coastal Alliance**
  The Cockburn Sound Coastal Alliance was formed in 2011 between four local governments (Fremantle, Cockburn, Kwinana and Rockingham), with support from the Departments of Transport, Planning, Water and Environment Regulation, Defence, the Cockburn Sound Management Council, and Perth Region NRM.

  Key achievements include the development of coastal hazard mapping and adaptation reports for the Cockburn Sound coastline.

  The CSCA provides a valuable forum for information sharing between local governments, to ensure consistency in coastal planning and management along the Cockburn Sound coastline.

- **Peron Naturaliste Partnership**
  The Peron Naturaliste Partnership is an incorporated collective group of nine local governments between Point Perron and Cape Naturaliste (Bunbury, Busselton, Capel, Dardanup, Harvey, Mandurah, Murray, Rockingham, Waroona). The partnership was formed in 2001 and key achievements to date include regional coastal hazard modelling and research into adaptation pathways and coastal values.

  The City continues to carry out collaborative works as a part of the local government collective PNP. In 2018, this included participation in a Coastal Values Study, as well as monthly coastal monitoring to establish a regional scale long term dataset which will be used to inform future coastal hazard modelling, management and adaptation.

7

# Taking Action

This report is the City's primary method for communicating its progress towards achieving its vision of a more sustainable future and will be published annually. The following section reports on the status of projects outlined in last year's report and highlights actions currently in progress, as target areas for completion in 2019.

These key projects, together with actions identified in the City's Sustainability Strategy (to be completed in 2019), will feature in the next Sustainability Snapshot Report.

On hold  In progress  Completed and/or ongoing

The table below summarises the City's progress in delivering key actions identified in last year's Sustainability Snapshot Report. Over the next 12 months, the City will aim to complete all actions currently 'in progress', in addition to new actions identified through the Sustainability Strategy in 2019.

## Water

| Project | Team | Status |
|---|---|---|
| At least two audits completed at highest water using facilities | Asset Services | In progress |
| $55,000 irrigation upgrade at Baldivis Reserve | Parks Services | Completed and/or ongoing |
| Audits of irrigation systems at:<br>► Baldivis Reserve<br>► Koorana Reserve<br>► Secret Harbour Reserve | Parks Services | In progress |
| Following reserves connected to each of the four weather stations:<br>► Delphinus Reserve<br>► Centenary Park<br>► Harmony Park<br>► Avena Gardens | Parks Services | On hold |
| Develop local Planning Policy 3.4.3: Urban Water Management to deliver best practice consistent with water sensitive urban design principles | Land, Development and Infrastructure | Completed and/or ongoing |
| Ensure water efficient appliances are installed as per the Water Efficiency Action Plan | Asset Services, Strategic Planning and Environment | Completed and/or ongoing |
| Public Toilet Strategy and Asset Management Plan | Asset Services | In progress |
| Parks without water saving devices to be retrofitted through operational budgets | Asset Services | Completed and/or ongoing |

## Waste

| Project | Team | Status |
|---|---|---|
| Millar Road Landfill Cells 12 and 13 along with 14 and 15 will be capped at a cost of $3.3 million | Waste Services | |
| Set up reporting system to capture waste collected via City operations i.e. LitterBusters, beach tractor. | Strategic Planning and Environment, Engineering Services, Parks services | |
| Council Policy relating to Single Use Plastics and Balloons at events and in City operations | Strategic Planning and Environment | |

## Energy

| Project | Team | Status |
|---|---|---|
| Budgeted $1.5 million for all LED, PV, metering, software and HVAC retrofit projects to improve energy efficiency and management | Asset Services | |
| Review of the administration building HVAC system to identify where energy efficiency improvements can be made | Asset Services | |
| Install solar PV on the following facilities:<br>► Aqua Jetty<br>► Kent St Arts Centre<br>► Lark Hill maintenance shed<br>► Warnbro Recreation Centre | Asset Services | |
| Replace existing park and street lights with LEDs at 9 key locations | Asset Services | |
| Install an EMS at Gary Holland centre | Asset Services | |
| Install smart software to integrate monitoring of solar PV systems | Asset Services | |
| Install a vehicle charging station at the Rockingham Foreshore (timing dependant on progress of foreshore revitalisation project) | Asset Services | |

## Health and Nature Conservation

| Project | Team | Status |
|---|---|---|
| Prepare an Environmental Planning Strategy which will identify natural areas and vegetation on private property to be prioritised for protection and management. This will be informed by the Natural Areas Technical Assessment undertaken in 2016/2017 | Strategic Planning and Environment | |
| Prepare a local Planning Procedure and Information Sheet outlining expectations for environmental assessment of proposed urban development | Strategic Planning and Environment | |
| Establishment of a Native Plants Program for 2018 to provide residents with free native seedlings to promote waterwise and wildlife friendly gardens | Strategic Planning and Environment | |
| Prepare a Wetland Management Plan for ten of the City's wetland reserves including Conservation Category Wetlands and Resource Enhancements Wetlands | Strategic Planning and Environment | |
| Preparation of a revised Lake Richmond Management Plan which will include a landmark assessment of thrombolite microbial communities and recommend management actions specific to the unique environmental and recreational attributes of this significant wetland | Strategic Planning and Environment | |
| Investing $360,000 to install 13 new shared use paths with a combined length of 2,247m | Engineering Services | |
| Plant new street and parkland trees as per the City's Greening Plan working towards the goal of 15,000 trees over 5 years | Parks Services | |
| Continue to fund research of Little Penguins and carry out advocacy actions in 2018 | Strategic Planning and Environment | |

# Environmental Education and Engagement

| Project | Team | Status |
|---|---|---|
| Community coastal adaptation workshop and information evening to inform the Coastal Hazard Risk Management Plan (CHRMAP) project | Strategic Planning and Environment | |
| Castaways Sculpture Exhibition | Community Capacity Building | |
| Waste Education Program | Waste Services | |
| Sustainability workshops | Library Services, Community Capacity Building | |
| Develop a Council Policy on Single Use Plastics and Balloons | Strategic Planning and Environment | |
| Prepare a Green Guideline further to the Single Use Plastics and Balloons Policy to assist the City, local businesses and event organisers in adopting more sustainable practices | Strategic Planning and Environment | |
| Install signage at boat ramps to raise awareness about Little Penguins and litter in the local marine environment | Strategic Planning and Environment | |
| Introduce corporate waste reduction initiatives | Strategic Planning and Environment | |
| Host a free community movie screening for Plastic Free July | Strategic Planning and Environment | |

# Climate Response

| Project | Team | Status |
|---|---|---|
| Preparation of a CHRMAP for our 37km coastline, which will outline key directions for a coastal adaptation over a 100 year planning timeframe and prioritise management works over the next 10 years | Strategic Planning and Environment | |
| Undertake monthly coastal monitoring at 18 set points to establish a database for estimating long term shoreline change, in collaboration with the PNP and UWA | Strategic Planning and Environment | |
| Investing approximately $2 million construction of the new Mersey Point jetty at a more stable shoreline location approximately 150m north of the old jetty | Engineering Services | |
| Investing $250,000 upgrading rock armour protection at Palm Beach eastern boat ramp | Engineering Services | |
| Plant 15,000 trees over the next five years in public open space and streetscapes | Parks Services | |
| Preparation of a Community Plan Strategy - Sustainability | Strategic Planning and Environment | |
| Continue to fund research of Little Penguins and carry out advocacy actions in 2018 | Strategic Planning and Environment | |
| Undertake Frog Population Monitoring Program, to detect long term changes in ecosystem health in a drying climate | Strategic Planning and Environment | |

# Acknowledgements

The City wishes to acknowledge the following teams who collectively work to implement the various environmental sustainability actions detailed in this report:

Parks Services

Asset Services

Waste Services

Library Services

Engineering Services

Community Capacity Building

Strategic Planning and Environment

Land and Development Infrastructure