



Cairns  
REGIONAL COUNCIL

STATE OF ENVIRONMENT REPORT 2019

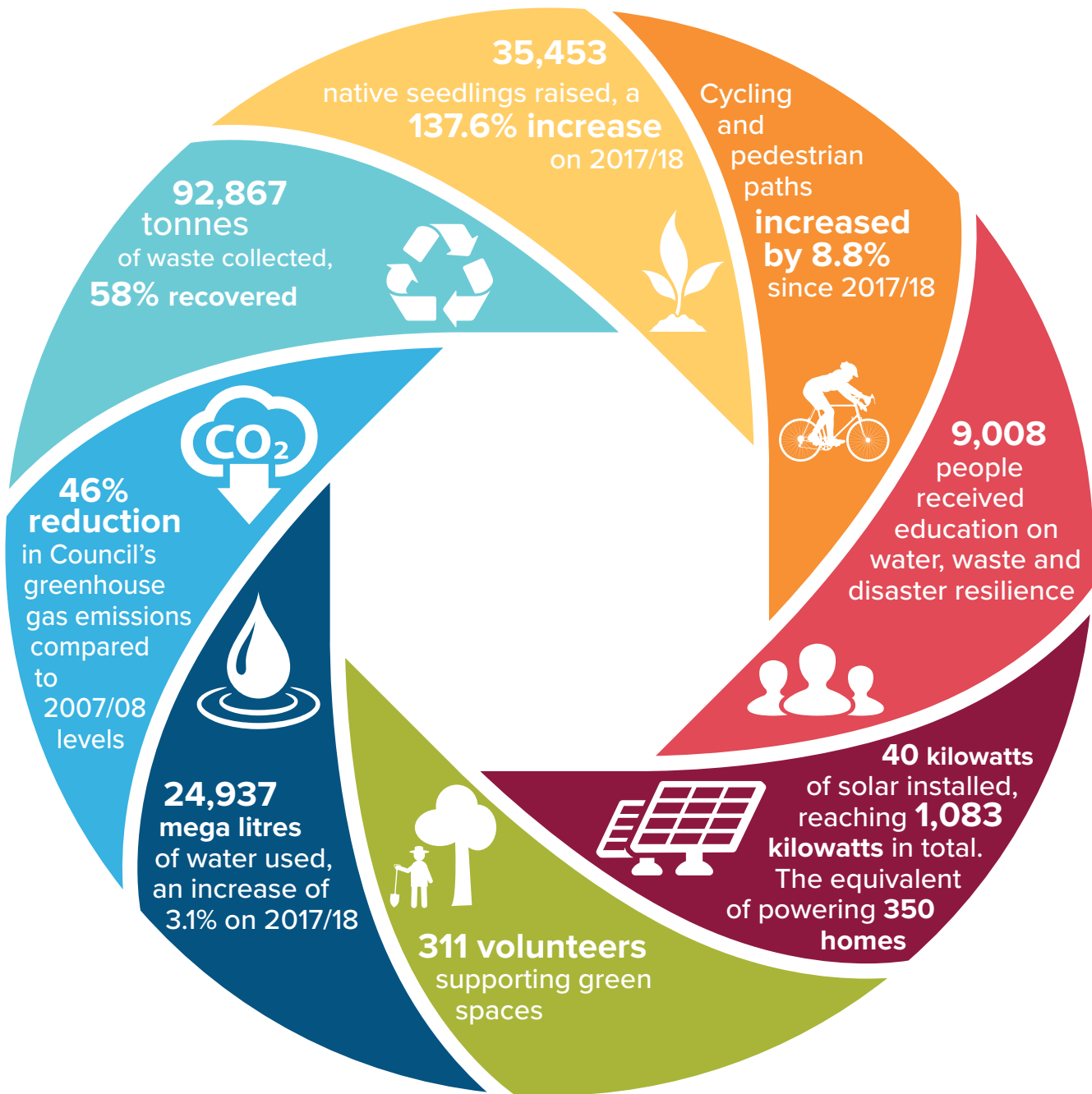
2019

# STATE OF ENVIRONMENT REPORT 2019

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# State of Environment Report

## Snapshot: 2018/19



This report has been produced by Cairns Regional Council (CRC) and endorsed at the Ordinary Meeting on the 22nd July 2020.

Disclaimer: Please note that while every effort has been made to ensure that the information contained within this report is correct and up to date, Cairns Regional Council and all persons acting on its behalf in preparing this report accept no liability for the accuracy or inferences from the material contained in this publication, or for any action as a result of any person's or group's interpretations, deductions or conclusions relying on this material. CRC accepts no liability for any loss, damage or injury (including consequential loss, damage or injury) from the use of this information.



## Preface

The 2019 State of Environment report (SoE) provides an overview of Cairns Regional Council's environmental and urban sustainability initiatives and performance in 2018/19.

The information is presented in a way that shows: the condition, the pressure on the environment, and the response to that pressure. This approach, commonly used in State of Environment reports, provides context for identified pressures on the environment and outlines the relevant management responses from Council.

The report does not provide a complete summary of work done by other agencies in local catchments within the Council boundary. While SoE reporting is not a statutory requirement of local governments in Queensland, Council considers this to be best practice. This is the 14th release of the report. Both the Queensland and Australian Government State of Environment reports can be accessed online for further information at a wider bioregional and national level.

*'Cairns', 'the city', 'the region' and 'LGA' refer to the Cairns Regional Council local government area.*

## Introduction

The Cairns Regional Council local government area (LGA) is located in the Wet Tropics bioregion, one of the most biodiverse regions in Australia. It sits in a coastal strip between the Coral Sea and Great Dividing Range, within the Barron and Russell-Mulgrave river catchments. The landscape includes wetlands, flat coastal lands, mountain ranges, wet sclerophyll forests and metamorphic rocks covered in rainforest. The city is surrounded by the World Heritage listed Wet Tropics Rainforest and Great Barrier Reef; more than half of the Cairns LGA has National Park, State Forest or Forest Reserve listing. Proactive environmental management is crucial for the resilience of biodiversity and ecosystem function in our region. A healthy natural environment sustains local endemic species, the region's iconic natural attractions, enduring traditional connections, industry, and the lifestyle that is enjoyed by residents and visitors to Cairns.



## From the Mayor

The Cairns region sits within an area of exceptional biodiversity, on the doorstep of two World Heritage Areas, the Great Barrier Reef Marine Park and Wet Tropics Rainforest, affording many opportunities for the region.

In 2019, we have upheld our commitment to value and protect these areas, releasing our new Biosecurity Plan and increasing investment in revegetation, particularly along Freshwater Creek. We have grown our renewable energy capacity, reached a 46% reduction in our greenhouse gas emissions and expanded the region's cycling and walking network.

We are continuing to make better use of natural resources, increasing our diversion of items from landfill to the Buy Back Shop by 21% last year and, even with a growing population, maintaining the region's strong waste recovery rate. Pathways for the community to join in caring for the natural environment are encouraged with the educational programs, funding and events you will find in this report.

We look forward to further reducing environmental impacts on behalf of the community and encourage all to join in protecting and enhancing this environment we are all privileged to enjoy.

**Bob Manning**

Mayor of Cairns

## Acknowledgement of Country

Cairns Regional Council acknowledges the Aboriginal Tribes and Clans within the region who are the Traditional Custodians and First Peoples of this country. We recognise and respect your languages and the unique beliefs and pride within your customs and cultures that define your continuing relationships and responsibilities to your shared land and sea boundaries. This respect and honour extends to Elders both past, present and emerging.

# Climate

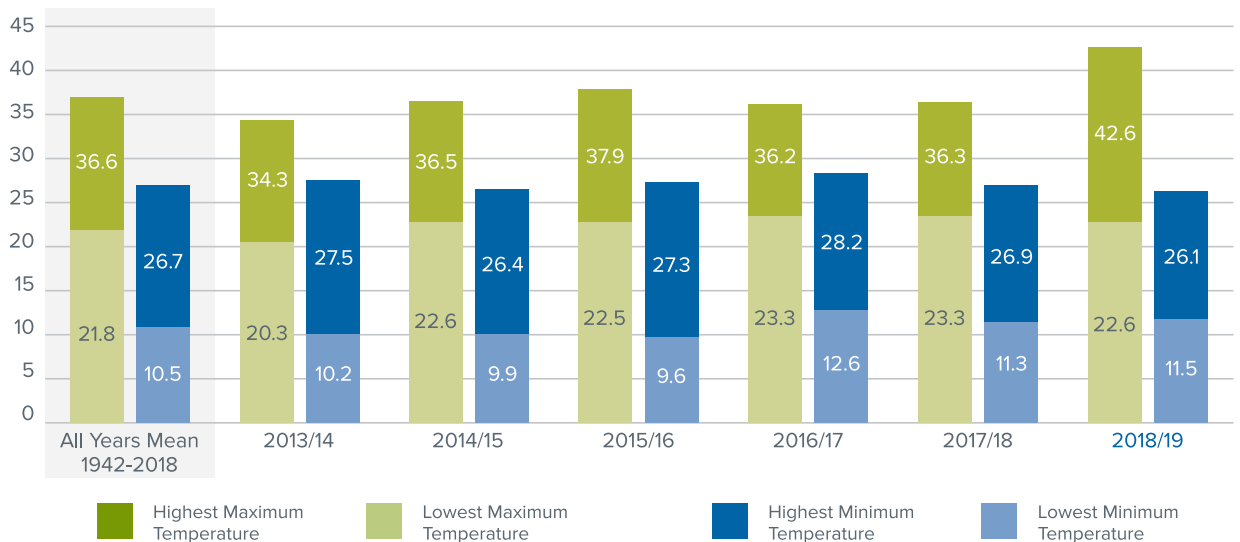
## Condition

### Air temperature

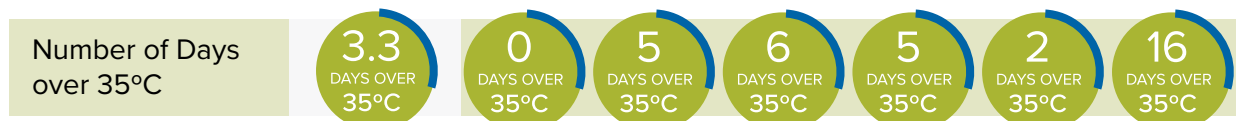
Since 1942, the Cairns Aero Station has shown an average annual maximum air temperature of 29.1 degrees Celsius (°C) and an average minimum of 20.8 °C. For 2018/19, there was a higher annual maximum of 29.9°C and an average minimum of 21.2°C.

In late 2018, the station recorded its highest temperature in 77 years, reaching 42.6°C and in 2019, the highest maximum was recorded for the month of February (surpassed in 2020), along with the highest minimum for May. There were 16 days over 35°C, compared to an average of 3.3 days per year (Bureau of Meteorology, 2019: Average calculated 1942-2019). Across Australia, 2018/19 was the second-warmest financial year on record (Bureau of Meteorology, 2019).

Air Temperatures: Cairns AERO Station (degrees Celsius)



	All Years Mean (1942-2018)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Highest Maximum	36.6	34.3	36.5	37.9	36.2	36.3	42.6
Lowest Maximum	21.8	20.3	22.6	22.5	23.3	23.3	22.6
Highest Minimum	26.7	27.5	26.4	27.3	28.2	26.9	26.1
Lowest Minimum	10.5	10.2	9.9	9.6	12.6	11.3	11.5
Mean Maximum	29.1	29.2	29.9	29.7	25.7	29.7	29.9
Mean Minimum	20.8	21.1	20.9	19.7	21.8	21.2	21.2



The BOM Cairns AERO Station is one of the 112 stations that make up the Australian Climate Observations Reference Network. Temperatures recorded at the BOM Cairns AERO Station may differ from those experienced in other microclimates within the Cairns LGA.

## Extreme weather events: heatwaves

An unprecedented heat wave occurred in late November 2018 when there were four consecutive days that exceeded previous maximum temperature records at the Cairns Aero Station, peaking at 42.6 °C (BOM, 2019). A second heatwave was also noted in February 2019.

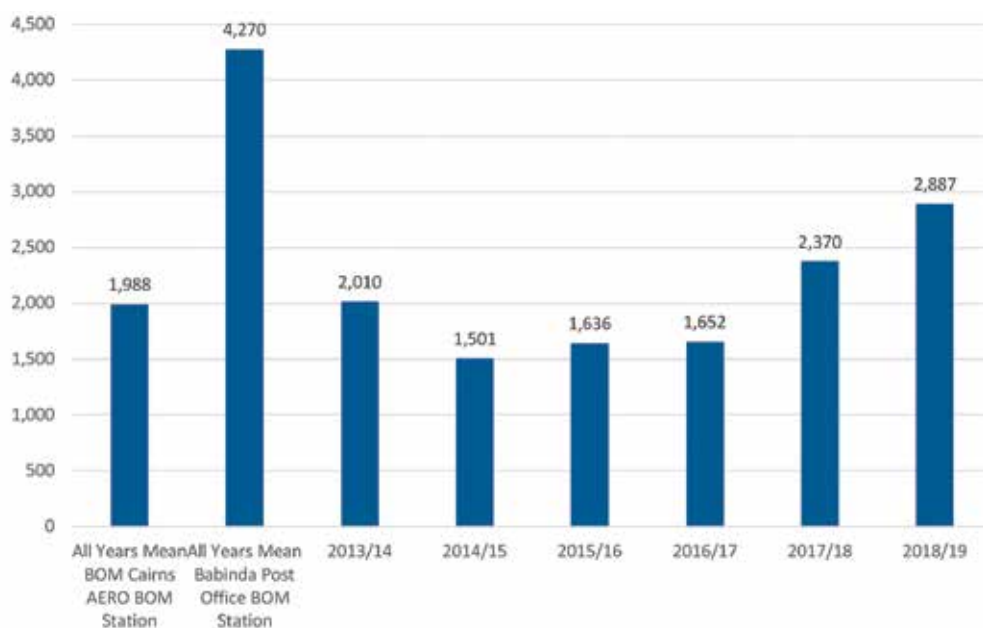
Impacts from the 2018 and 2019 heatwave events included hospital presentations from heat stress, electricity supply faults, death of at least 11 dogs from heatstroke and an estimated loss of over 23,000 spectacled flying foxes, around one third of the endangered species. For more information, on these impacts see: [Wildlife](#)

According to the State Heatwave Risk Assessment, Cairns is one of the most heat exposed local governments in Queensland in terms of urban heat island effect. This was confirmed by James Cook University temperature and humidity sensors that were installed in the Cairns Central Business District, recording temperatures of up to 47°C on Shields Street during the November 2018 heatwave (Queensland Government, 2019).

## Rainfall

Council's gauging station in Aeroglen recorded a significant overall increase of rainfall in 2018/19 (complete rainfall data for 2018/19 period was unavailable for both the Cairns AERO and Babinda BOM Stations at the time of producing this report). An active monsoon trough and slow-moving low-pressure system produced heavy rainfall in late January to early February 2019, which coincided with minor and moderate localised flooding around the region, and landslips along access roads on Lambs Range, Redlynch. This period of heavy rainfall and flooding was considered average.

### Annual Total Rainfall (mm) Gauging Station, Northern Wastewater Treatment Plant Aeroglen



Council data has been used as there are gaps in data for rainfall recorded at the BOM Cairns AERO and Babinda Post Office stations in the 2018/19 period (Bureau of Meteorology, 2019) which will be provided in later releases of this report.

## Oceans and seas

The most recent 2018 State of the Climate Report outlines that since 1910, Australia's climate and oceans have warmed by around 1°C, contributing to longer and more frequent marine heatwaves. Sea levels are also rising, increasing the risk of inundation, and oceans around Australia are acidifying (Bureau of Meteorology, 2018).



## Pressure

### Natural variations

#### *El Niño – Southern Oscillation (ENSO)*

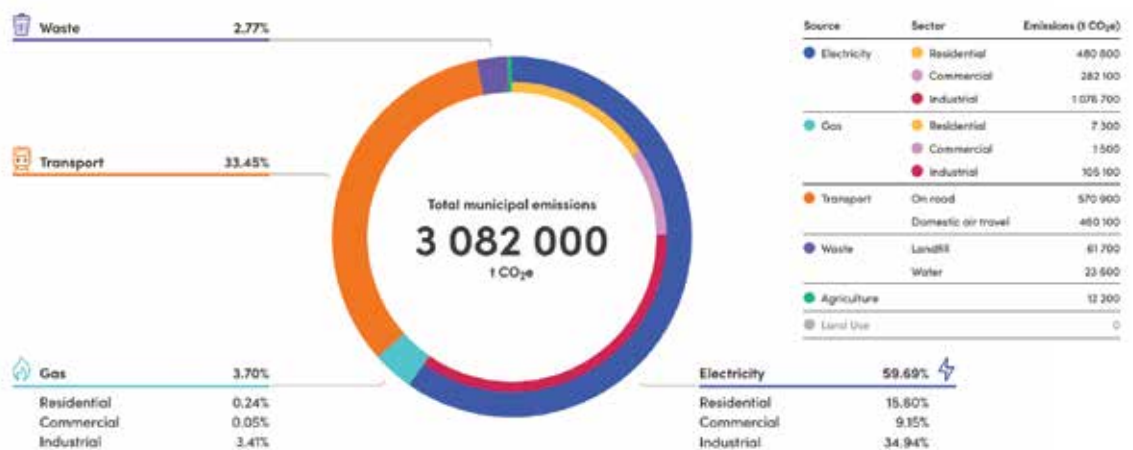
The ENSO outlook in 2018/19 for Australia was mostly neutral, with no El Niño or La Niña declared in the 2018/19 period (Bureau of Meteorology, 2019).

### Climate change from greenhouse gas pollution

Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (IPCC, 2019). Burning fossil fuels continues to be the main contributor to rising levels, as well as changed land use, land clearing and agricultural factors (Bureau of Meteorology, 2018). Global warming is likely to reach 1.5°C between 2030 and 2052 if emissions continue to increase at the current rate (IPCC, 2019).

Municipal emissions for the Cairns Regional Council LGA were independently profiled in 2019 in accordance with the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories. Using the most recent data available, this included the following sector break down:

#### Cairns Local Government Area Municipal Emissions, 2017

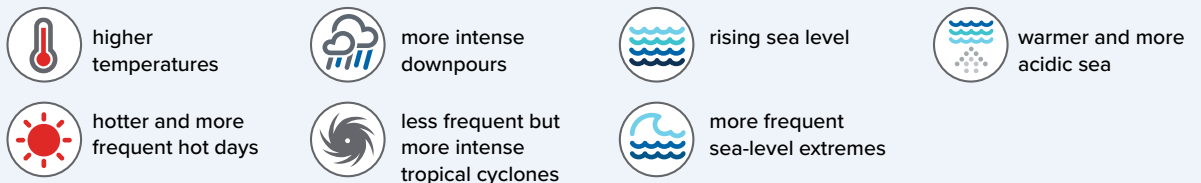


(Snapshot Community Climate Tool, Ironbark and Beyond Zero Emissions, 2019)

In the Far North Queensland region, impacts of a warming climate generally include:

#### Climate Change in the Far North Queensland Region

In the future, the region can expect:



Information sourced from: Queensland Department of Environment, [Far North Queensland Climate Change Impact Summary](#)

To explore more details on projected changes for the Cairns LGA under different trajectories of greenhouse gas concentration (Representative Concentration Pathways), please visit the [Queensland Future Dashboard](#).

Climate change is a major threat to biodiversity and ecosystems. These impacts, including species loss and extinction, are projected to be lower at 1.5°C of global warming compared to 2°C.



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## Response

### Emissions reduction

Council is committed to reducing its greenhouse gas emissions in all areas of its operations, with a 46% reduction on 2007/08 levels achieved in 2018/19, and a goal to meet a 50% reduction by the end of the 2020/21 financial year. Council also promotes opportunities, education and initiatives for the community to reduce its emissions. This is underpinned by Council's Corporate Sustainability and Energy and Emissions Management policies, for more detail, refer to:

[Built environment: community engagement](#)

[Built environment: waste reduction & recovery](#)

[Built environment: transport](#)

[Council operations: energy & emissions management](#)

### Climate adaptation

Cairns Regional Council is a member of the United Nations Resilient Cities campaign and is a part of the Queensland Climate Resilient Councils program and the Queensland Coastal Councils Adaptation Taskforce, which provide advice on best practice climate adaptation for local governments.

### Disaster management and resilience

The Cairns Local Disaster Management Plan informs Council's planning, training, partnerships, delivery of strategic exercises and education to help the community prevent, plan, respond and recover from disasters (exacerbated by a changing climate).

Council hosts the region's multi-agency Local Disaster Management Group, with additional staff available in the event of an incident. The Local Disaster Management Unit supports community and business resilience to extreme events through seasonal campaigns with the call to 'Be Ready, Cairns', household tools like free sandbags, an annual open day of the Local Disaster Coordination Centre and through ongoing direct education and targeted engagement with high risk groups, reaching 2,596 people in 2018/19.

Following the 2018 heatwave, the Local Disaster Management Unit also established a multi-agency Bureau of Meteorology (BoM) Special Weather Forecast Working Group to better plan and respond to heatwaves and 'other' non-traditional hazards and extreme weather events.

### Natural areas management

Council encourages ecosystem resilience to human settlement and climate change pressures by focusing management efforts on water quality to reduce pressures on reef health, biosecurity and revegetation. Refer to:

[Terrestrial biodiversity](#)

[Waterways](#)



Winning entrants of the Barron River flood awareness colouring competition with Deputy Mayor Councillor Terry James

### *Holloways Beach Erosion Management*

Holloways Beach has been the subject of various beach nourishment activities and projects over the years due to ongoing sand loss and erosion. In 2018, Council commissioned a review of the coastal processes influencing sediment supply and shoreline position at Holloways Beach. Different shoreline erosion management options were also explored, with the aim to reduce wave impacts on the existing rock revetment and reduce the need for large-scale beach nourishment projects in future - by increasing the probability of sand being deposited on the beach. Community feedback was sought for two key management options – the reinstatement of the existing groyne or installation of additional rock groynes.



Community engagement, Holloways Beach Markets

### *Coastal Hazard Adaptation Strategy – Our Cairns Coast*

Work has continued with the Coastal Hazard Adaptation Strategy (CHAS) to respond to coastal erosion, storm tide inundation and rising sea levels resulting from climate change. This work is part of the Queensland Government's [QCoast2100](#) program. The CHAS aims to support the future resilience of coastal environments, communities, cultural assets and infrastructure.

In 2018/19, Council engaged with more than 1,000 people as a part of the CHAS. This included key stakeholder workshops, a community survey to determine coastal values and information sessions at local events. Updated mapping has been produced for each of these coastal hazards in 20-year timescales from 2020 to 2100 and key impacted assets identified. Next steps will include assessing the risks to built and natural assets and identifying adaptation options. More information can be found on the [Our Cairns Coast](#) webpage.



Saltwater intrusion at Portsmith



Erosion on Holloways Beach

# Built environment

## Condition

The Cairns LGA spans a total of 1,693.3km<sup>2</sup> and is the major commercial hub and service centre for Far North Queensland, consisting of people with a diverse range of cultural backgrounds. This land is primarily managed for a range of values, including:

- Residential/industrial
- Nature conservation
- Tourism and recreation
- Cultural heritage
- Grazing, cropping and horticulture
- Mining

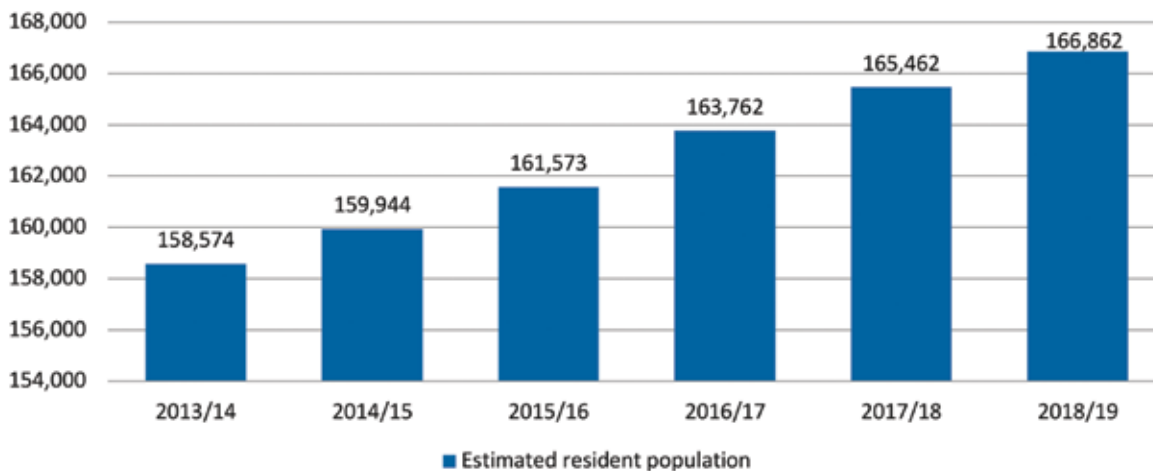
## Pressure

Environmental pressures typically associated with the built environment include:

- Increased urban footprint and an associated reduction in the size, function and connectivity of natural ecosystems
- Air pollution and end-point greenhouse gas emissions
- Waste generation
- Diffuse source and point source waterway pollution (e.g. stormwater and waste water)
- Water supply demands on the ecosystems

Increased population growth is likely to increase these pressures, with an estimated residential population of 166,862 people in 2018/19 – up 5.2% from five years ago. Adding to this local population, the region receives an estimated 2.86 million visitors per year, staying an average of five nights (Tourism Australia, 2019). On any given day, this can see an average of 31,000 visitors in Cairns, in addition to the resident population (Economy Id, 2019).

Cairns Regional Council Estimated Resident Population

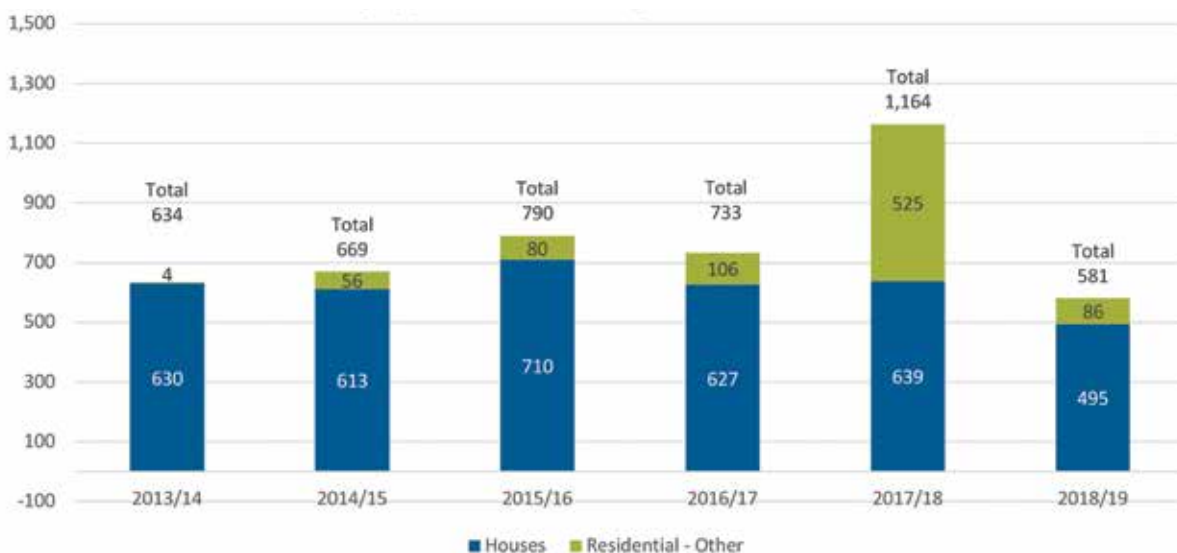


Economy Id, Australian Bureau of Statistics, 2019.



Building approvals in 2018/19 totalled 581. This total was significantly below (50%) the total recorded in the previous year. 2017/18 saw a sharp increase in non-residential building approvals mainly due to construction of three multi-storey hotels in the CBD by the Crystalbrook Group. Residential construction has been subdued over recent years and fell to a six-year low in 2018/19, reportedly flowing from restraints on finance as a result of the Banking Royal Commission and tightening by the Australian Prudential Regulation Authority.

### Building Approvals in Cairns Regional Council



Economy Id, Australian Bureau of Statistics, 2019.

## Response

### Planning and development

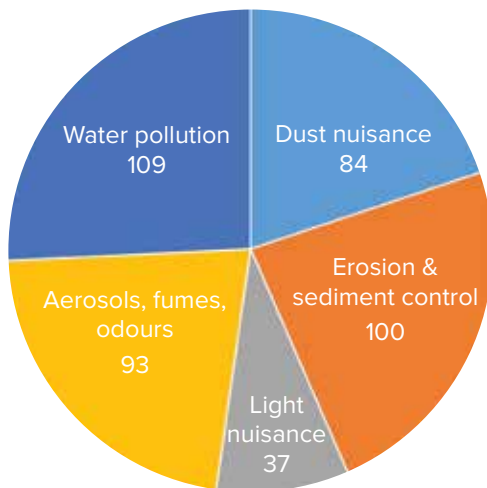
#### *Strategic planning and development assessment*

The CairnsPlan 2016 sets the parameters for land use and development across the region. It aims to balance settlement patterns, natural areas and features, and infrastructure to encourage growth, while also upholding the qualities that make the area special. This includes overlays for environmental management and natural values, triggering Council to form specific conditions depending on the type of development. Often, this requires developers to formulate plans for vegetation protection and removal, revegetation, climate appropriate landscaping, weed management, erosion and stormwater control or reports on acid sulphate soils.

### Compliance

Council monitors compliance on sites before and during building, providing education to developers for improved environmental outcomes. Allegations of non-compliance are investigated by Council, which can respond to a range of events under the *Environmental Protection Act 1994*. In 2018/19, Council investigated 423 customer requests relating to environmental protection and environmental nuisance matters such as noise, dust, odour, light, aerosols/fumes, water pollution and extractive industries. From the customer requests received, approximately 85% of investigations conducted result in further compliance and enforcement action being taken by Council against offenders.

Customer Requests for Investigation 2018/19



### Open spaces

Council manages 620 designated open spaces, making up 3,555,920 square metres of the LGA. The majority of these spaces support visual amenity, recreation or sport and 137 are designated bushland or conservation areas, with additional drainage reserves and waterways. Under Council's Open Space Policy, these areas aim to support the public's appreciation of the natural environment by providing enhanced access and educational experiences and aim to maintain biodiversity, with the retention of vegetation communities and wildlife corridors. Council undertakes strategic planning to best service and renew these natural assets, supported by the Green Space Our Place program.

### Urban tree management

In 2018/19, Council invested in a new mapping tool for urban trees on Council managed land. It provides a detailed inventory of specific trees and future planting sites, tracking their management needs. The database captures information including the tree species, condition, age and significance (based on factors such as habitat, size, heritage and culture). It also enables economic valuation and quantifies benefits like carbon storage and sequestration, shading, stormwater or reduced air pollution. Local botanists have been engaged to assist in populating the database, with over 30,000 unique trees mapped. It is anticipated that the new tool will enable public participation to map further tree sites.

Overall, beyond Council-managed land, the Cairns regional local government area has an estimated total 78.9% of tree coverage (Parks Base, 2016), largely due to the extent of protected natural areas in the region.



## Community engagement

Council provides ongoing environmental and sustainability education through targeted programs, events, partnerships, in-kind support and with grant funding.

Community Engagement	2015/16	2016/17	2017/18	2018/19
Resilience, Waste, Water education reach (persons)	4,625	7,016	9,869	9,008
Green Space Our Place program (volunteers)	N/A	200	289	311

### Green Space Our Place program

This program provides significant benefits to local gardens, parks, reserves and walking tracks, with 311 volunteers providing hands-on revegetation, maintenance and guided tours across the region throughout the year.

In 2018/19, volunteers at Council's Stratford Nursery propagated more than 26,000 seedlings for revegetation in the region and directly planted more than 2,000 trees at sites including Barron Waters Park, Moody Creek, Rainy Mountain Park, Jalarra Park, South Side Mountain Bike Park, Saltwater Creek and Cattana Wetlands.



Green Space Our Place volunteers - Weedbusters alongside Council Land Management Officers



[Green Space Our Place](#) volunteers also support the popular 'Little Taccas' children's nature activities program, with the aim of connecting children, aged five and under, and their parents with nature.

### Seed library and pocket gardens

Cairns Libraries distributed more than 3,000 seed packets to the community in 2018/19. The initiative encourages accessible, seasonally appropriate diets with a reduced carbon footprint. In 2019, this service was made available at four library branches - Smithfield, Stratford, Manunda and Gordonvale. Further demonstrating these community benefits, Council approved a new neighbourhood - run 'pocket garden' on Torrance Ave, in Edge Hill.



Stratford Nursery and pocket gardens

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### Eco Events

- **Cairns Ecofiesta:** The 2019 EcoFiesta hosted 120 market stalls, a hybrid car and a tropical tiny home display. Council's fifth annual sustainability festival connected an estimated 13,000 attendees with pathways for environmental protection and low-impact living in the tropics. Workshops included calculating household carbon footprints, making the most of household solar PV panels, supporting injured wildlife, tropical food gardening, waste avoidance and presentations from local environmental leaders. Event delivery supported low-waste dining with a large-scale dish wash system and water café to further limit waste at the single use plastic-free event.
- **Making Cents of Solar and Battery Storage:** Council delivered this workshop alongside Energy Queensland to more than 100 attendees, supporting a practical, low-cost transition to low-carbon energy in households and businesses.
- **JCU Design Sprint:** Council supported 100 Information Technology and Engineering students in their development of design responses to regional sustainability challenges with briefings, feedback and collaboration on projects.
- **Future Leaders Eco Challenge:** Council provided mentoring in a series of reef protection workshops with a focus on water quality monitoring in the Barron River.

### Community Sustainability Grant

A funding pool of \$25,000 was provided for community-led projects that deliver biodiversity and sustainability improvements. In 2018/19, the following projects were funded:

- **Gordonvale Community Garden:** Infrastructure, plants and essential materials
- **Manoora Community Garden:** Seeds of Change educational program
- **Junk Weavers:** Community weaving workshops using upcycled materials
- **Balaclava After School & Vacation Care:** Environmental Minds excursion program
- **Straw No More:** Animated campaign film
- **C&K White Rock Community Kindergarten:** Vegetable gardens & rainwater system
- **Stratford Community Garden:** Water-saving wicking beds
- **Babinda District Community Association:** Boomerang Bags Babinda

### Nature Based Learning Grant

Further funding of \$20,000 was available to support local students in accessing environmental and cultural heritage education. In 2018/19, this grant supported 875 students from the following schools:

- **Trinity Beach State School:** Outer Reef excursion
- **Trinity Bay High School:** Cairns Aquarium & Fitzroy Island
- **McDonnell Creek State School:** Fitzroy Island Turtle Rehabilitation Centre and Reef excursion
- **Freshwater Christian College:** Outer Reef excursion
- **Bentley Park College:** Cairns Botanic Gardens and Waste Re-discovery excursions
- **Smithfield State School:** Fitzroy Island sustainability camp
- **Our Lady Help of Christians School:** Fitzroy Island Turtle Rehabilitation Centre and Reef excursion
- **Gordonvale State School:** Cairns Aquarium excursion and Flynn Reef excursion
- **Gordonvale State High School:** Flynn Reef excursion
- **Isabella State School:** Flynn Reef excursion
- **Aloomba State School P&C:** Cairns Aquarium excursion

## Cairns District Schools Science and Environmental Sustainability Student Enrichment Program

This Council-supported program run by the Holloways Beach Environmental Education Centre (HBEEC) mentors talented year 5 students in their design and delivery of sustainability projects, with guidance from teachers and environmental practitioners in the sector. In 2019, it featured projects on feral pig management, reducing water and electricity use, creating a living litter filter for waterways out of reeds, and the installation of a basketball bin at the Trinity Beach skate park to tackle litter.



Student project: Proposal for a Basketball Bin to encourage responsible disposal at the Trinity Beach Skate Park



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# Transport

## Condition

Nine out of 10 Australians travel to school, university or work by car (Climate Council, 2019) and in 2019, some 128,604 vehicles were registered in the Cairns region (Department of Transport and Main Roads, 2019). Council maintains 1,034km of sealed roads and 664km of rural roads in the Cairns LGA, with the exception of highways.

## Pressure

Dependence on car-based transport can cause many adverse pressures on the natural environment, including:

- Climate change - the transport sector is the second largest source of greenhouse gas pollution in Australia after electricity (Climate Council, 2019)
- Stormwater pollution – impermeable surfaces associated with transport infrastructure create stormwater discharges and associated pollution of local waterways
- Impacts on fauna – increased vehicle use typically leads to a proportional increase in wildlife injuries and road kills
- Altered vegetation – roads and associated roadside vegetation maintenance typically increase the potential for weed dispersal and habitat modification

## Response

### Active travel

The National Cycling Participation survey shows that around 20% of Cairns residents ride a bike in a typical week and Council continues to support a pedestrian and cycling friendly region through its Cycling and Walking Strategy.

### Planning and infrastructure

In 2018/19, the cycling and walking network reached 555.8km, an increase of 8.8% since 2017/18. Significant works were undertaken to extend the network in Clifton Beach, north for the Northern Beaches Leisure Trail this year.

Under the Cairns Plan 2016, Council requires the provision of bicycle paths, parking and end-of-trip facilities for certain developments and parking facilities, with 9.3km of shared paths contributed by developers in 2019.



Clifton Beach foreshore bike path

### *Community engagement*

Council delivers an annual Ride 2 Work Day event to promote bicycle commuting and collects annual figures for bicycle commuters' movements. This Super Tuesday Bike Count 2019 recorded 2,886 active cyclists in one day.

### *Public transport*

In 2019, Translink reported patronage numbers of 3,058,957, a 10.5% increase since 2017/18 but a figure that is 12.6% below 2013/14 levels.

Bus shelters are installed and maintained by Council around the region on behalf of the Queensland Government. In 2019, a \$2 million bus stop, funded by Translink, was installed at Raintrees Shopping Centre, Mooroolbool.

### *Vehicle use*

#### *Electric vehicles*

There were 16 personal electric vehicle (EV) passenger vehicles registered in the Cairns LGA in 2018/19, compared with six in 2013/14. The Cairns public EV charging station, installed in the Council-managed Cairns Lagoon car park, is part of the Queensland Government's Electric Super Highway and services local and visiting EVs. In 2018/19 it delivered 9,010 kWh of electricity through 459 charges, more than doubling its usage since 2016/17.



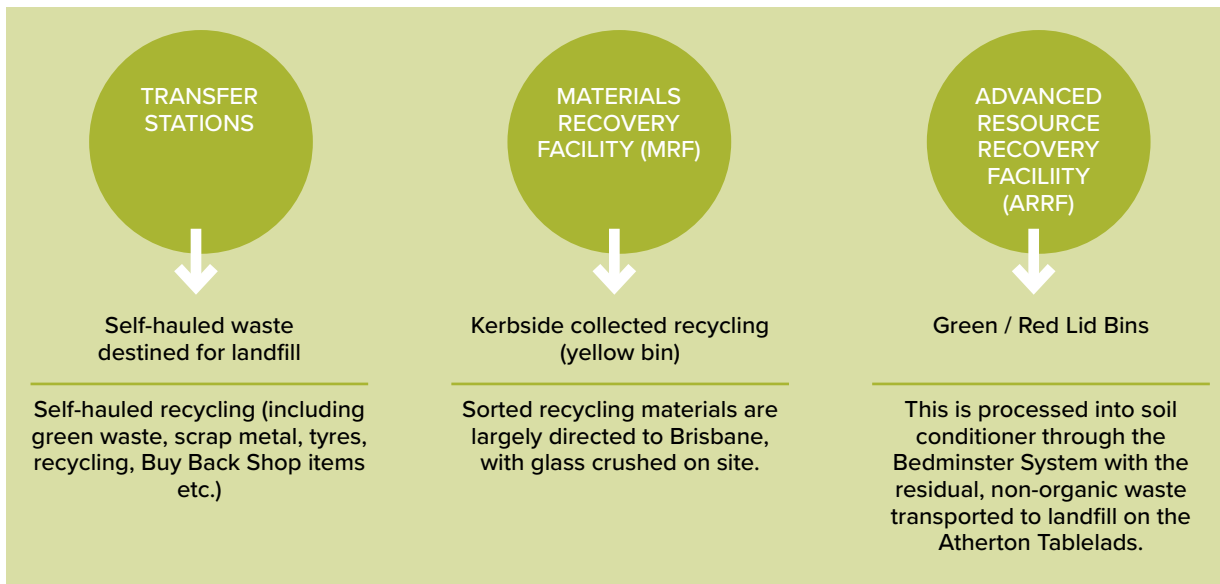
Cairns Lagoon Electric Super Highway EV charging station

# Waste

## Condition

Waste generation and disposal typically has significant social, economic and environmental impacts within the municipality and across the supply chain. A total of 92,867 tonnes of waste was received by Council in 2018/19, a reduction of over 3% from the previous year. Of this, 92% was from the residential sector, 6.3% from commercial and industrial and 1.6% from construction and demolition.

Since 2013/14, the Cairns residential population has increased by 5.2%, yet total waste received by Council in 2018/19 remains 1.6% lower than 2013/14, indicating a reduced rate of material disposed. Council receives waste at three major facilities:



Three smaller private waste disposal facilities also operate in the Cairns LGA, which receive commercial, industrial, construction and demolition waste, and are not reported on in this report.



Cairns Advanced Resource Recovery Facility and Cairns Regional Council green waste and metals recycling



## Pressure

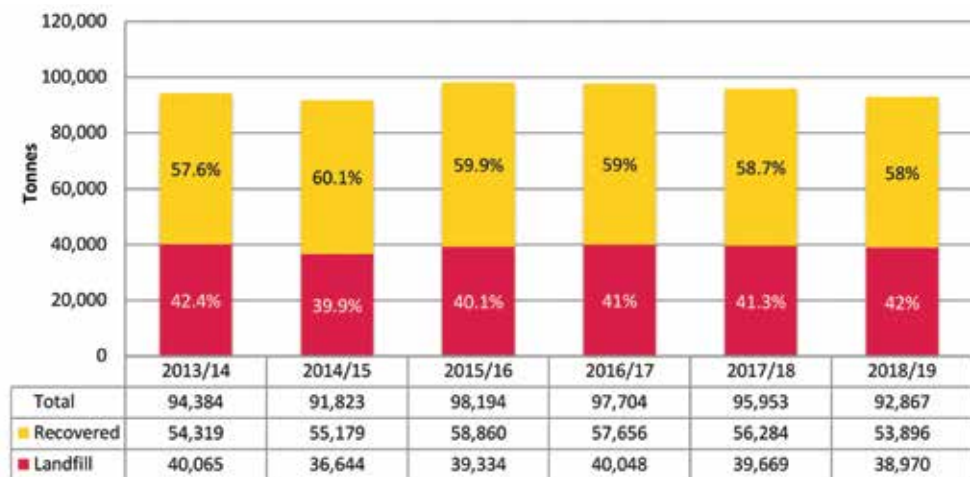
Environmental pressures associated with waste generation include:

- Greenhouse gas pollution:
  - Indirect greenhouse gas emissions associated with the consumption of goods and services
  - Direct greenhouse gas emissions associated with waste collection, processing, recycling and disposal
- Litter and illegal dumping – adversely affect environmental values by degrading natural areas, facilitating the spread of pests and weeds, and are harmful to wildlife that might eat or entangle themselves in items.

## Response

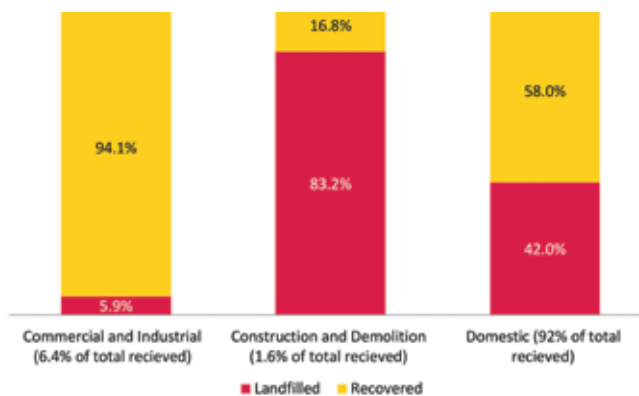
Council's [Waste Reduction and Recycling Strategy 2018-2027](#) takes a circular approach to the waste hierarchy with the aim of keeping waste materials at their highest value in the economy for as long as possible (rather than being seen as having no value and buried in landfill). It includes key objectives for education, reducing waste, maximising resource recovery, securing future waste management needs, advocacy and collaboration.

Cairns Regional Council Overall Recovery Rate 2013/14 - 2018/19



Includes kerbside waste, kerbside recycling, municipal solid waste (self-haul), green waste, scrap metal (including white goods), recyclables (self-haul), construction & demolition waste, asbestos, lead acid batteries, oil, household hazardous waste (paints, chemicals, solvents), tyres and e-waste.

Cairns Regional Council Recovery Rate by Sector 2018/19



## Education

Direct waste education increased by 45.2% in 2018/19 on the previous year, with additional staff resourcing. This included waste recovery facility tours, school visits, workshops and shopping centre pop-ups.

Direct Waste Education Reach			
2015/16	2016/17	2017/18	2018/19
2,000	2,800	3,254	4,726



## Reuse initiatives

### Buy Back Shop

The Buy Back Shop provides opportunities for residents to re-use items destined for landfill by recovering saleable items from the tip. In 2018/19, the Buy Back Shop saved 817 tonnes of waste from landfill, a 21% increase on the previous year.

### Cairns Biggest Garage Sale

In March 2019, Council delivered the inaugural Cairns Biggest Garage Sale with more than 100 participants. The event encouraged residents to re-use pre-loved items that might otherwise end up in landfill, while encouraging neighbourhood connections.



## Recycling and waste recovery initiatives

Transfer Stations receive a range of materials for traditional recycling markets and specific product stewardship schemes. Council also undertakes its own recovery initiatives onsite (such as glass crushing as a replacement for fill in construction projects, and processing green waste for mulch).

Materials	2016/17	2017/18	2018/19
E-waste (tonnes)	151.6	153.9	150
Crushed glass (tonnes)	965.0	558	835
Community Green Waste drop off (tonnes)	3,892.0	3,350	2,438
Household and car batteries (includes power tools, mobile phones) (tonnes)	119.67	112.9	106
Scrap metal & white goods (includes fridges, freezers, air conditioning units) (tonnes)	4,032.53	4,381.2	3,708
Paint received through the Paint Back Stewardship scheme (tonnes)	49.95	117	113.9
Chemical drums received through the Drum Muster Stewardship Scheme (units)	8,186	7,599	7,121
Buy Back Shop (tonnes)	583.72	675.1	817



WASTE



*Public place recycling*

During 2018/19, an additional 50 public place recycling bins were installed within the Cairns CBD precinct. The additional bins capture around 20m3 of recycled material per week. Council monitors their use to optimise bin locations and maximise recycling outcomes.

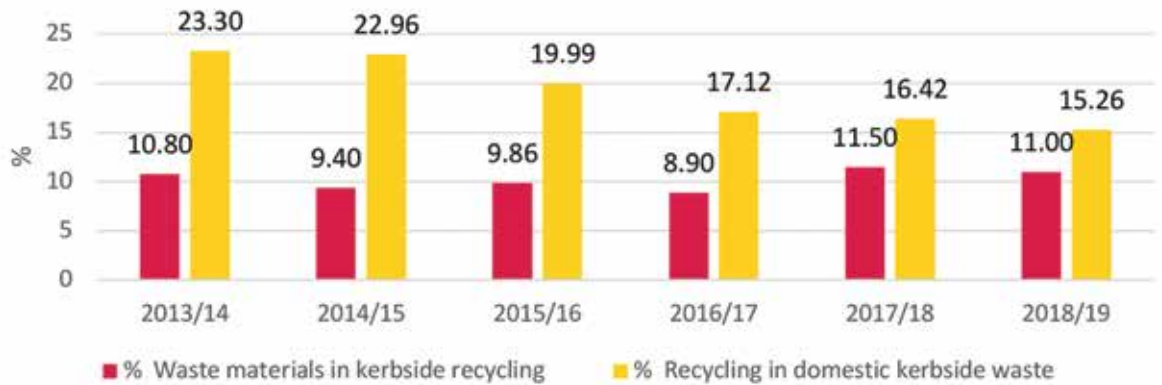


Public place recycling bins

*Community waste and recycling separation*

Regular audits are conducted to track the community's progress on waste and recycling separation in kerbside collections. Contamination continued to track down slightly in 2018/19.

**Contamination Rates in Kerbside Waste and Recycling Bins Cairns LGA 2013/14 - 2018/19**



*Landfill management*

*Fugitive emissions management*

No new landfills are permitted in Cairns and closed Council landfills are managed and monitored closely. Methane from the closed Portsmouth Landfill has been captured and flared since 2012, destroying approximately 6,108 tco2e in 2018/19.

# Terrestrial biodiversity

## Condition

The Cairns LGA sits within the Barron and Russell-Mulgrave catchments – areas of significant biodiversity connected with the World-heritage listed Wet Tropics Rainforest.

This section of the report includes the biodiversity of terrestrial ecosystems and the ‘[Waterways](#)’ section addresses freshwater, estuarine and marine ecosystems.



Freshwater Creek, Redlynch

## Vegetation Cover

Surveys show that close to 68% of vegetation cover remained in the Cairns LGA (Queensland Government, 2019).

	Pre -Clear	1997/98 Baseline	2013	2015	2017
Remnant Vegetation Extent (ha)	167,324.62	113,410.31	113,293.76	113,282.84	113,272.63
Percentage Cover Remaining (%)	100.00	67.70	67.70	67.70	67.69

(Queensland Government, 2019)<sup>1</sup>

<sup>1</sup> Updated remnant vegetation statistics were unavailable at the time of this report and will be included in future reports

## Wildlife

Native plants (flora) and animals (fauna) are unique and valuable elements of rich biodiversity, whose conservation ensures healthy ecosystems and varied ecosystem services.

### Species Conservation Status under the Nature Conservation Act 1992

Queensland Conservation Status	Number of Species in Cairns Local Government Area, 2019
Least Concern	2,942
Special Least Concern	61
Near Threatened	45
Vulnerable	72
Endangered	42
Extinct in the Wild	2
Introduced	411
Other	295
<b>Total</b>	<b>3,870</b>

(Queensland Government, 2019)

Data in previous reports not suitable for comparative use as per advice from the Queensland Government.

## Pressure

- Indirect pressures from the demands of a growing population, with 70,000 additional residents projected in 20 years
- Land clearing and fragmentation of remnant vegetation
- Increased air and water pollution
- Increased likelihood of introduction and movement of disease and invasive species
- Domestic animals killing native wildlife
- Traffic and roads leading to road kills and loss of connectivity
- Changes in climate including severe weather events like cyclones, floods and heatwaves
- Altered hydrology and fire regimes

### 2018/19 heatwave impacts

In the Cairns region there are 44 known roost sites of the spectacled flying-fox (*Pteropus conspicillatus*) and to a lesser extent, the little red flying-fox, *Pteropus scapulatus*. Six sites are of national significance and spectacled flying-foxes, an important seed disperser and key-stone species of the Wet Tropics bioregion, were listed as 'endangered' under the [Environment Protection and Biodiversity Conservation Act 1999](#) in 2019. The unprecedented November 2018 heatwave saw a recorded loss of 23,000 spectacled flying-foxes, with an estimated figure of up to 30,000 and additional mortalities in the February heatwave. It is likely that these events impacted other heat-sensitive wildlife in parts of the LGA as observed in surrounding areas. For more information, see [Flying Fox Management](#).



## Response

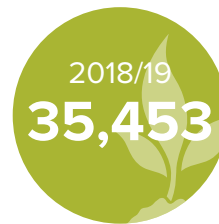
A key strategic goal of Council is to ensure that natural areas are 'maintained, enhanced and connected' and Council teams work across the local government area with other stakeholders responsible for land management to support this goal.

### Revegetation and green spaces

Council assists local community tree planting groups across the region by providing site access, preparation and maintenance, and with the provision of plant stock from the Council nursery. In 2018/19, a total of 35,453 native seedlings were raised for revegetation, a 138% increase from the previous year and funding of \$12,310 was provided to support these groups.

#### Seedlings Raised by Council for Revegetation

2013/14	2014/15	2015/16	2016/17	2017/18
17,013	18,063	18,652	18,752	14,924



### Freshwater Creek Corridor

As a part of the [Redlynch Sport and Recreation Parklands Master Plan](#), Council partnered with local community group Treeforce, which saw volunteers plant 20,000 native trees on more than seven hectares as a part of efforts to re-establish the important vegetation corridor.

The 2018 Tropical Tree Day saw an additional 1,500 trees planted by 150 members of the public in Freshwater Creek.



Tropical Tree Day 2018

## Wildlife

### Flying fox management

Council has a multi-faceted [Flying fox Management Strategy](#) for flying foxes in urban areas, particularly in the Cairns city centre.

Following the unprecedented November 2018 heatwave, Council developed a flying fox Emergency Action Plan for Heat Stress detailing the actions that Council will take, with recommendations for other agencies and community groups. The plan clarifies roles and responsibilities to better prevent, prepare, respond and help the species recover from heat stress events. It identifies Council resources and personnel to support roost sites, safer operations for wildlife carers and public communications.

## Aussie Backyard Bird Count 2018

Over seven days in October 2018, 338 community observers took part in a citizen science survey by Birdlife Australia, observing more than 27,089 birds from 217 species in backyards and open areas in the Cairns LGA.

The Council-funded report found the most common species, in order, were the rainbow lorikeet, terresian imperial-pigeon, metallic startling, sulphur-crested cockatoo, common myrna, olive-backed sunbird, peaceful dove, Australasian figbird, house sparrow and magpie-lark. Of these, the two introduced bird species (common myna and house sparrow) were recorded in higher proportions within the Cairns LGA than within other Queensland and national surveys.

Mapping of survey sites and further analysis was provided to Council, with future reports supporting comparative analysis.



Summary statistics for threatened bird species are also provided below:

Species	Count	Number of surveys detected in	Reporting rate (%)
Bar-tailed Godwit (En)	67	6	0.81
Beach Stone-curlew (VU)	5	3	0.41
Black-throated Finch (En)	39	6	0.81
Crimson Finch (En)	17	7	0.95
Curlew Sandpiper (En)	13	3	0.41
Eastern Curlew (En)	5	4	0.54
Great Knot (CE)	78	5	0.68
Greater Sand Plover (En)	2	2	0.27
Lesser Sand Plover (En)	2	2	0.27
Red Knot (En)	1	1	0.14
Squatter Pigeon (VU)	12	6	0.81
Star Finch (En)	2	1	0.14

VU = Vulnerable En = Endangered CE = Critically Endangered  
(Birdlife Australia 2018; Queensland Government, 2018)

## Biosecurity

Council is responsible for ensuring invasive pest species are managed in compliance with the *Biosecurity Act 2014*. Upholding biosecurity is vital for the integrity of local ecosystems, human safety and industries such as tourism and agriculture. The Wet Tropics provides favourable conditions for pest species to spread throughout the year, posing significant management challenges. Hot spots are monitored through Council's Invasive Plants and Animals Surveillance Program to best target efforts.

### *Biosecurity Plan 2019-2024*

In 2019, Council adopted the new [Cairns Region Biosecurity Plan 2019-2024](#), which provides the strategic direction for managing biosecurity matters on land tenures across the region. Developed with the Far North Queensland Regional Organisation of Councils (FNQROC), and with input from the Cairns Regional Pest and Biosecurity Working Groups, it identifies stakeholder roles and responsibilities for priority pest management activities, with improved monitoring.

### *Pest plant management*

Pest plants are monitored at high-risk sites in the LGA. In 2019, *Brillantaisia* (*Brillantaisia lamium*) was heavily reduced through control efforts in the north of Cairns. Giant rat's tail grass (*Sporobolus pyramidalis* and *S.natalensis*) is an emerging weeds in the region with some infestations increasing, and significant Siam weed (*Chromolaena odorata*) infestations were discovered where previously unknown in 2018/19.

### *Pest animal management*

Ongoing trapping and baiting programs for feral pigs and wild dogs continue, with ongoing actions for pest deer.

Cairns Regional Council In-Field Biosecurity (hours)	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Total staff hours	6,532	6,794	4,880	4,687	5,150	5,780
Pest plant control	4,652	4,914	3,189	2,960	3,270	2,859
Pest animal control	1,880	1,880	1,691	1,727	1,880	2,921

Data from 2017/18 and 2018/19 pest plant and animal control does not include drive time or surveillance as previous years did.

## Fire management

Council has responsibilities for managing bushfire risk and fire events in the region, and on its own land under the *Disaster Management Act 2003*. In 2018/19, Council invested 228.5 hours into controlled burns, maintaining and improving firebreaks and emergency access tracks - a significant increase on the year previous.

## Waterways

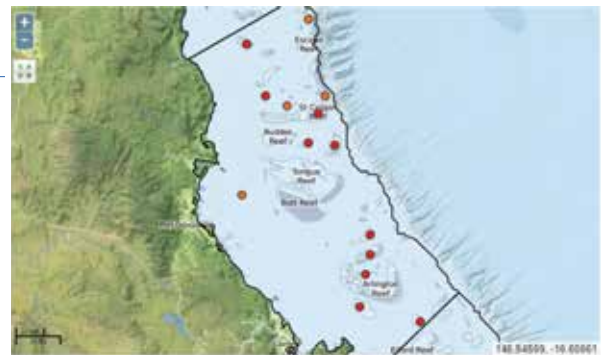
The Cairns LGA sits within two major river drainage basins, the Barron and Russell-Mulgrave, with more than 90km of wetlands - nine of which are of national importance. These support great biodiversity, filter sediment, provide recreational value to the community and protect against extreme climate events such as storm surges and floods. These basins flow into the Great Barrier Reef catchment, which is internationally recognised for its exceptional biodiversity. To find out more about these catchments and the changes to wetlands over the years, head to [Wetland Info](#).

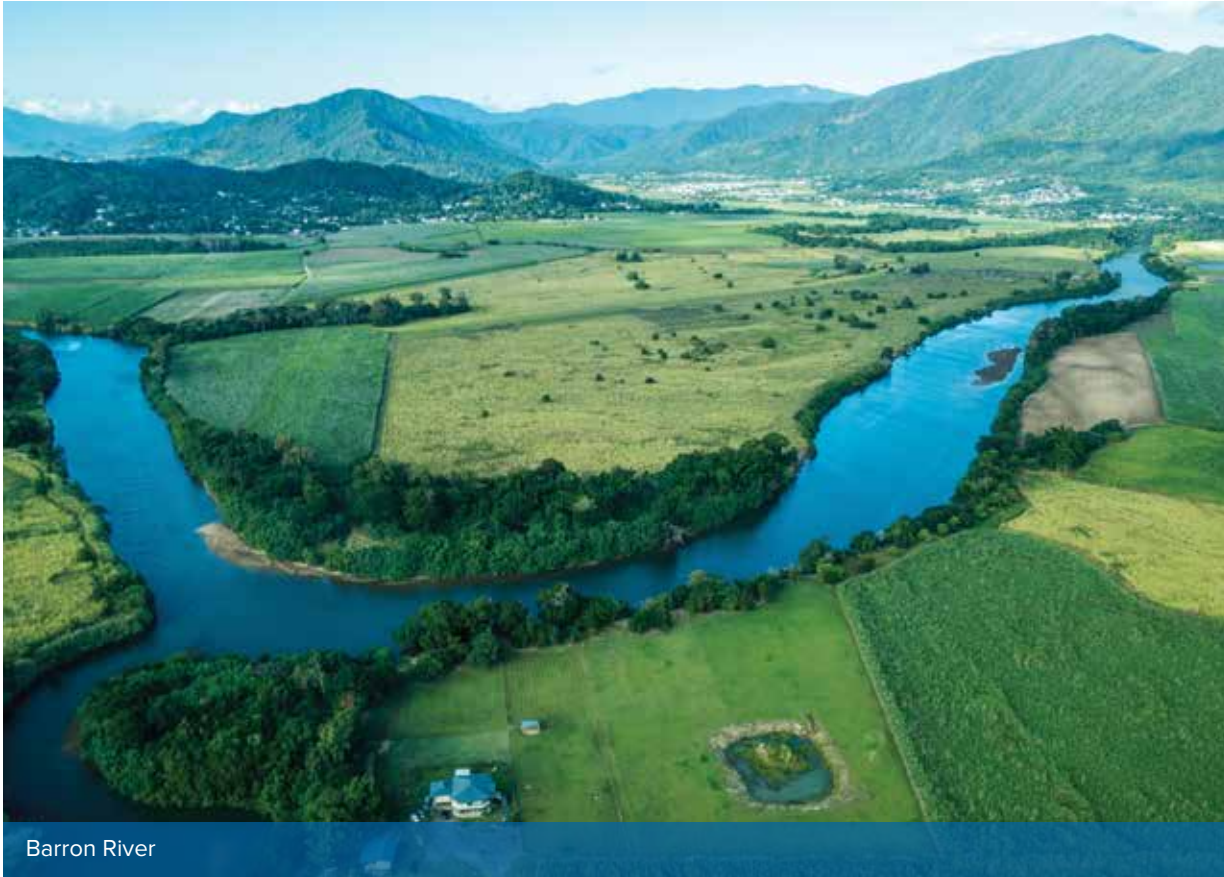
### Condition

Council is a part of the Wet Tropics Waterways Partnership, which brings together scientific data from industry, agencies and academia to produce an annual report card on regional catchment health. The [2019 Wet Tropics Report Card](#) reports on catchment conditions in 2018/19.

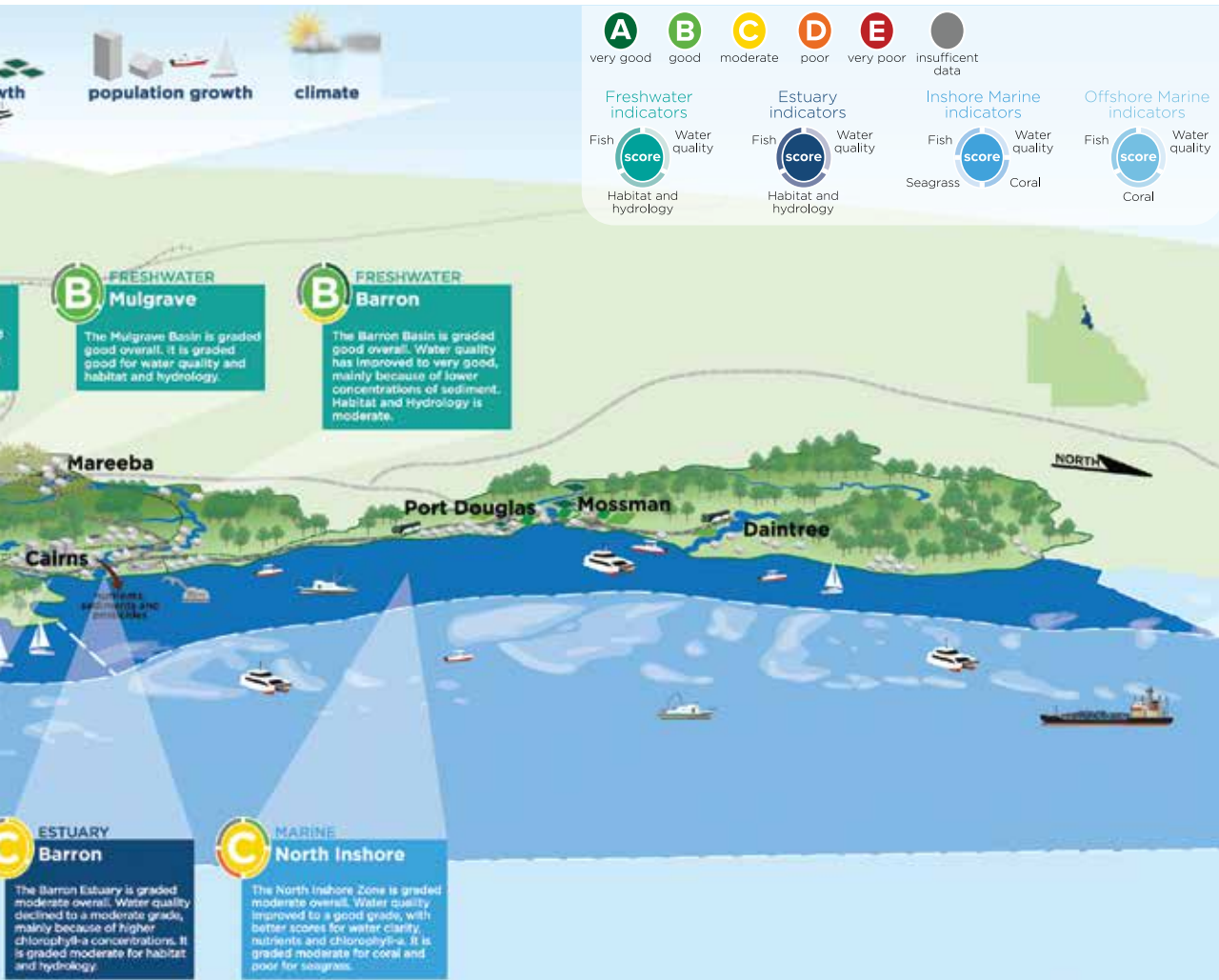
### Local Reefs

The [Preliminary Report on Surveys for the Cairns Sector of the Great Barrier Reef](#), covering 14 reefs found that hard coral cover remained low, between (0-10%) due to coral bleaching in 2016 and 2017. The surveys recorded no outbreaks of coral feeding crown-of-thorns starfish (*Acanthaster solaris*) and showed 0-1% of coral bleaching in 2019 (Australian Institute of Marine Science, 2019).





Barron River



## Pressure

Pressures on wetlands and reef health include:

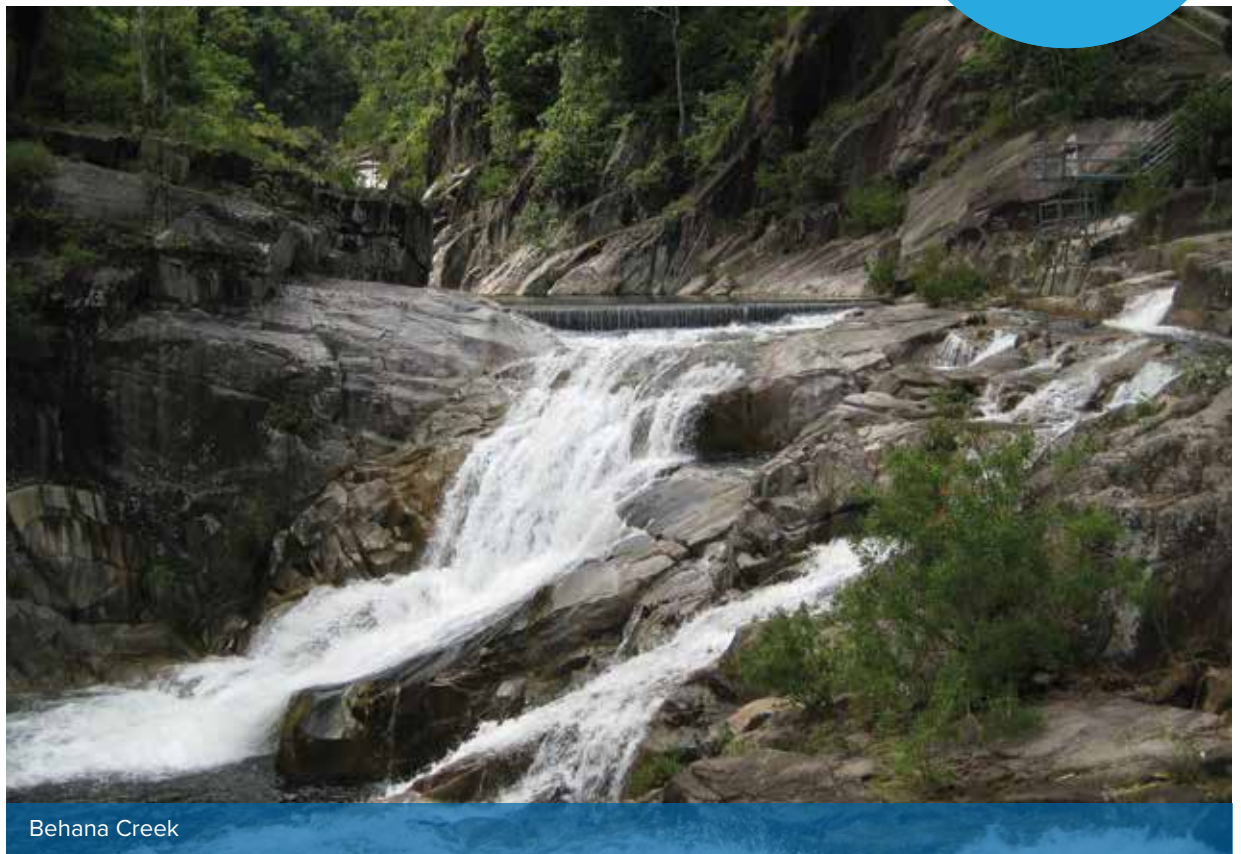
- Water extraction rates and demand
- Habitat disturbance or loss including riparian, mangrove and saltmarsh communities
- Invasive species and an increase in algae blooms
- Pollution such as sediment, litter, nutrients and contaminants
- Climate change impacts such as increased frequency of severe weather events, ocean acidification, rising sea temperature, and sea levels
- Unsustainable fishing and recreational impacts
- Changes in water quality in streams and stormwater
- Energy use and greenhouse gas emissions associated with the treatment and supply of water

## Water consumption

### *Water sources and supply*

Raw water is extracted from 10 locations, all from rainforests. Once extracted, raw water is processed into potable water at Council's treatment plants and stored in one of the 76 reservoirs available for use across the region.

The Cairns community is supplied with water from Copperlode Dam and Behana Creek. Copperlode Dam supplies water in the north of Cairns and parts of Cairns city. The Behana Creek source supplies the south of Cairns and other parts of the city. Residents south of Alooomba to Bartle Frere and in the Mulgrave Valley receive water from nine creek extractions south of Cairns.



Behana Creek

## Response

### Water conservation

Conserving water is important to uphold the environmental flow of local waterways and the ecosystems they support, to maintain adequate supply for a growing population and to manage electricity demands from water pumping and treatment. This is managed through Council's water extraction licenses, guided by strict environmental monitoring and Council's Water Demand Management Strategy.

### Water education

Water education was delivered to 1,686 people in 2018/19 at events and schools across the region, with the new program 'Smarter with Our Water' – encouraging a deeper understanding among residents about why water is too precious to waste. Utilising the WaterWhys Water Education and Training (WET) Van, the program offers interactive and engaging lessons for students from Prep to Year 10 under the three main topics:

- water conservation
- wastewater - protecting people and pipes
- stormwater- caring for our catchments.

	2015/16	2016/17	2017/18	2018/19
Direct Water Education Reach (persons)	925	1,261	1,937	1,686

### Smart Water Meters project

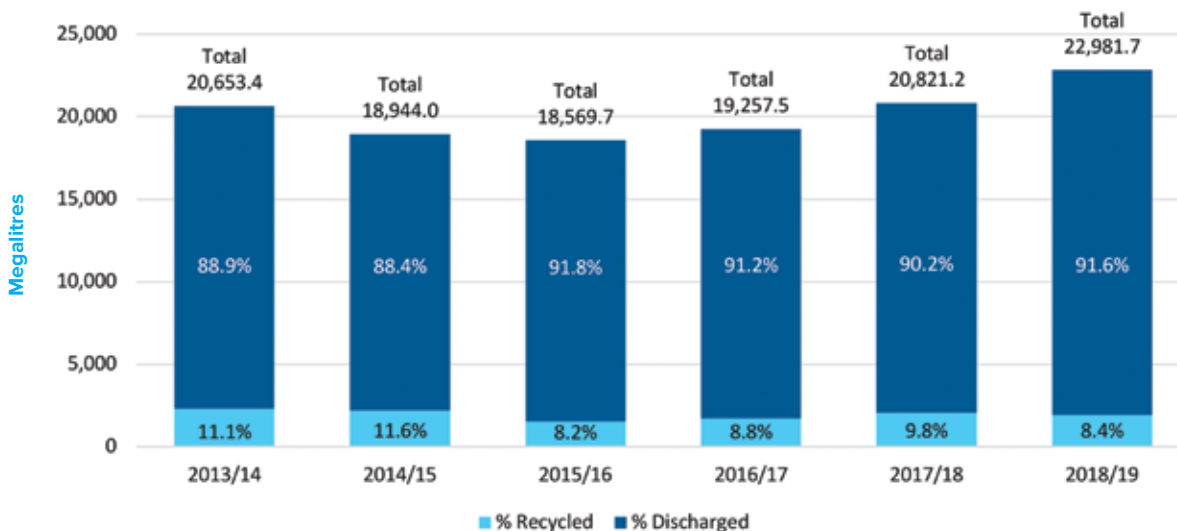
In 2018/19, phase one of the Smart Water Meters project was rolled out in Palm Cove. Smart water meters allow for the collection of real-time water usage data without having to read water meters physically. This provides the ability to identify any unusual activity such as water loss or reduction in water supply to help Council and customers to quickly identify leaks. Further meter rollouts are planned.

### Water quality

#### Wastewater treatment

Council manages six wastewater treatment plants that significantly reduce nitrogen and phosphorous in wastewater flowing into the Great Barrier Reef lagoon. Four of these are able to produce Class A recycled water, which is used in limited applications around the city such as the Botanic Gardens, golf courses and a school.

Annual Waste Water Treatment (ML)



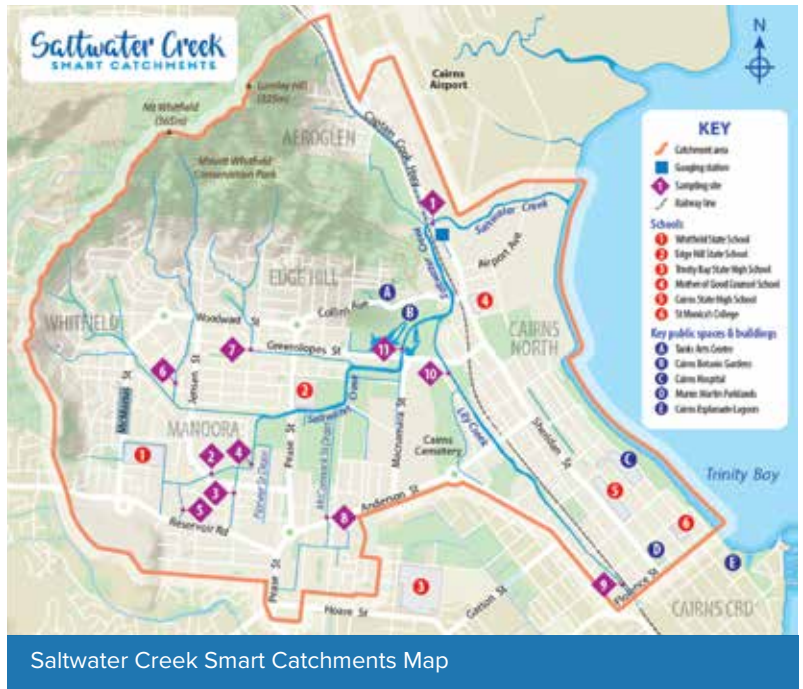
### Wet Tropics Waterways partnership

Council continues to be active in the Wet Tropics Waterways Partnership. The Partnership aims to improve the condition of freshwater and estuary waterways that flows into the Great Barrier Reef. An initiative of the Reef 2050 Long-Term Sustainability Plan, it enables stakeholders to collaboratively measure the effectiveness of local land management practices in the region's catchments and enables prioritisation of further actions.

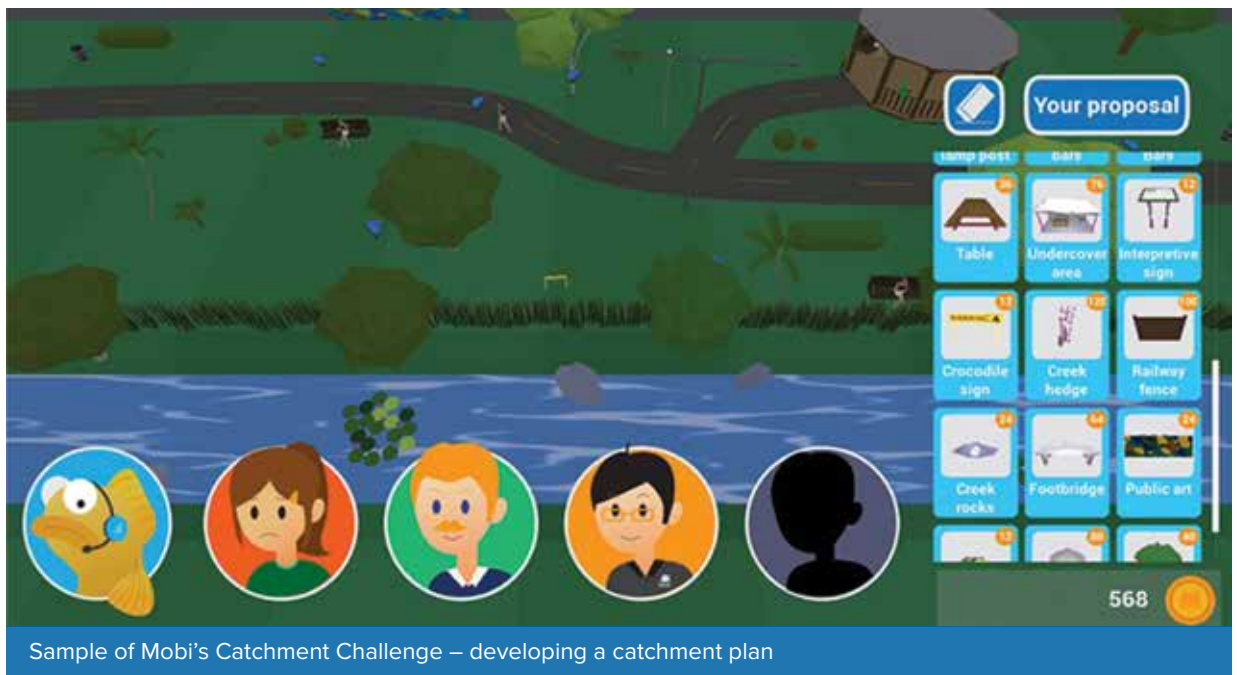
### Smart Catchments: Saltwater Creek

A pilot project was completed in Saltwater Creek where environmental sensors were installed to monitor, in near real-time, the quality of water flowing through the catchment into receiving waters of the Great Barrier Reef lagoon. The project was delivered in collaboration with key community stakeholders. Near-real time data is now available to the community online.

'Mobi's Catchment Challenge', an educational online game, was also developed for schools in the region. The game explores the data captured by the smart sensors, how human activities can impact the creek and provides interactive options for students to design a catchment management plan.



The project was delivered in partnership with James Cook University, with funding from the Australian Government. The game won the Program Innovation Award for the Queensland Water Awards. Council is now commencing the development of a waterway management plan for Saltwater Creek in collaboration with key community stakeholders.



Sample of Mobi's Catchment Challenge – developing a catchment plan





### *Cairns Water Laboratory*

In 2019, the Cairns Regional Council Laboratory Services building opened, replacing the former building, which was no longer fit for purpose. The new laboratory is accredited by the *National Association of Testing Authorities (NATA)* and provides a range of chemistry and microbiology testing services for public and private customers across Far North Queensland. Council currently carries out around 22,000 water tests each month to help monitor the environmental health of waterways, the quality and safety of rain, bore and tap water.

### *Fish health*

Between 2017-2019, Council funded freshwater fish surveys of the Russell-Mulgrave river catchment to assist in the development of a fish health model for the 2019 Wet Tropics Healthy Waterways Report Card. Fish diversity at the majority of sites was rated as being 'good' or 'very good', with 42 native species and four pest species recorded.

In 2018, Council launched the [Cairns Recreational Fishing Strategy 2018-2022](#) with the goal of supporting the ongoing enjoyment of recreational fishing activities for generations to come. It outlines actions for improving water quality, reducing fish passage barriers, managing litter and invasive species and providing community education on related ecosystem services. Council also has a three-year funding agreement of \$10,000 per year with the Cairns Area Fish Stocking Group (2017-2019) to stock local rivers with barramundi, supplementing natural fish stocks for recreational fishing.

Council engaged fish biologists in 2018/19 to better inform the design and construction of structures within waterways in line with legislated requirements. This saw the construction of a permanent fishway ladder, rock weir and baffles on Swallow Street to support passage in varying seasonal flows, and to provide resting pools before migration up or downstream.



Fishway Ladder installation on Swallow Street



### Aquatic weed management

Wetland weed infestations can disturb habitat, natural flows, drainage and the visual appeal of the region's waterways. Council controls priority aquatic weeds, with significant focus and reductions in 2018/19 of *Salvinia* (*Salvinia molesta*). Other targets include *Limnocharis* (*Limnocharis flava*), Olive hymenachne (*Hymenachne amplexicaulis*), *Hygrophila* (*Hygrophila costata*), Water lettuce (*Pistia stratiotes*), Water hyacinth (*Eichhornia crassipes*), Amazon frogbit (*Limnobium laevigatum*) and Water mimosa (*Neptunia oleracea* & *N. plena*).

### Litter, illegal dumping and sediment management

Contamination events are investigated across the network of over 260 drains and urban waterways. Gross pollutant traps in the network are maintained to help capture sediment and other debris, with 317m<sup>3</sup> removed in 2018/19.

In line with Council's [Litter and Illegal Dumping Action Plan](#), over 200 sites across the region were cleared of illegal dumping in 2018/19. This supports the growing number of community-led clean ups throughout the year, with 26 Council-coordinated events held in the September 2018 Great Northern Clean Up.

In 2018/19, Council also deployed two new litter boom units into Moody and Smith Creeks. Replacing older equipment, they are designed to capture all floating litter and debris without impeding natural flows or endangering wildlife. Approximately three cubic metres are collected each servicing cycle (occurring weekly in the wet season and less frequently in drier months).



Great Northern Clean Up 2018

# Council Operations

## Condition

Council manages a range of services, programs and infrastructure on behalf of the community. This includes community infrastructure (like parks, sporting fields, footpaths etc.), arts and cultural services (libraries, events, performing and visual arts facilities), sewerage and wastewater treatment, water supply, waste collection, disposal and recycling, cemeteries, animal management, town planning, building approvals local roads, kerbing and drainage.

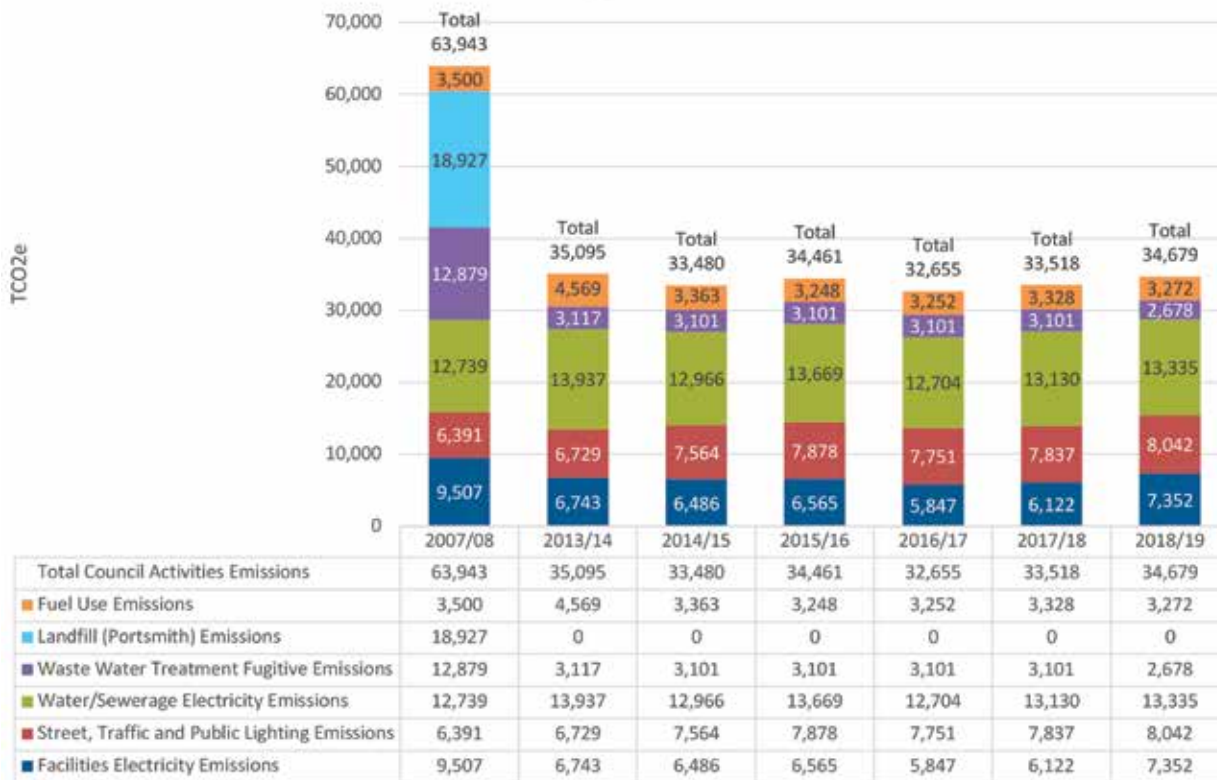
In 2018/19 Council had \$4 billion of assets under management, 1,187 employees, \$307 million in operational expenses and \$152.5 million capital works expenditure. More information can be found in Council's [2019 Annual Report](#).

## Pressure

### Greenhouse gas emissions

Council's greenhouse gas emissions increased by 3.5% in 2018/19 since 2017/18. This was largely due to increased facilities electricity use and additional street, traffic and public lighting.

Cairns Regional Council Greenhouse Gas Emissions



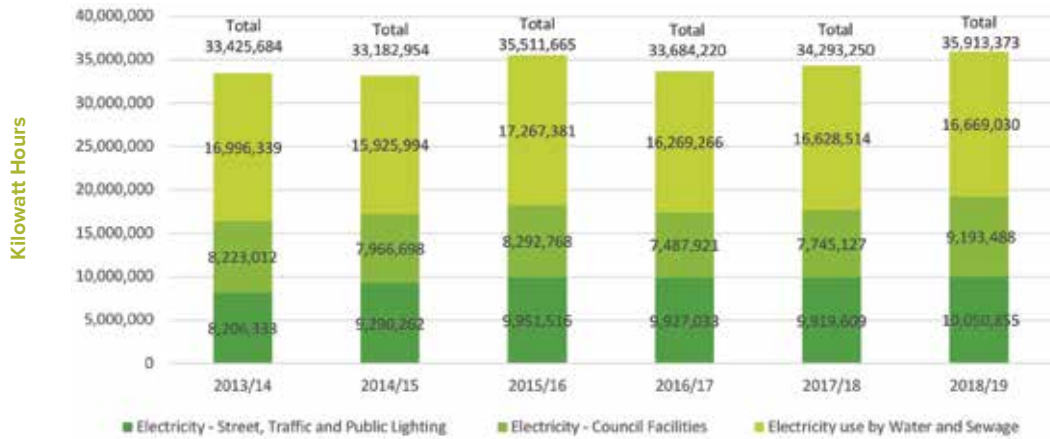
With new energy and emissions monitoring capabilities, electricity figures for 2017/18 have been corrected since the previous SoE report.

Air diffusers were installed in bioreactors at the Northern, Southern and Marlin Coast wastewater treatment plants in 2018, the likely reduction of fugitive emissions.

### Electricity Consumption

In 2018/19, total electricity use increased by 4.7% compared to the previous year. This is largely due to a 18.7% increase in electricity use by facilities. This was mainly attributed to the connection of the new Cairns Performing Arts Centre, following the Civic Centre demolition in 2017/18, and increased comparative consumption.

Cairns Regional Council Electricity Consumption



### Fuel Consumption

Total fuel use by Council vehicles reduced by 2.8% in 2018/19 compared to the previous year, which included a 19.5% reduction in unleaded fuel.

Cairns Regional Council Fleet Fuel Consumption



### Water Consumption

As one of the major water users in the region, Council is responsible for a large network of public grounds and facilities. In 2018/19, Council used 4.3% of the total water supplied in the LGA and consumed 1,077.5 ML - a 1% increase on the previous year.

Cairns Regional Council Water Consumption



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## Response

Council is committed to working towards a sustainable future, underpinned by its Corporate Sustainability Policy. The intent of this policy is to embed sustainability into the operational function of the organisation by:

- Maintaining and restoring the natural environment
- Using resources more efficiently
- Reducing environmental impact
- Responding to the challenge of climate change
- Displaying strong leadership to the community
- Reducing financial losses associated with inefficient energy and resource consumption

## Energy & Emissions Management

### *Greenhouse Gas Emissions Reduction*

Council has a greenhouse gas emissions reduction target of 50% by 2020/21, based on 2007/08 levels. In 2018/19, a reduction of 46% was achieved.

### *Energy Management and Efficiency*

Council invested in a new Enterprise Energy Data Management and Analytics Platform in 2019, significantly upgrading its internal energy and emissions monitoring platform. Energy efficiency is supported by a cross-Council Energy Management Group and with the installation of an additional 30 smart meters in 2019 to identify and prioritise energy management opportunities. Additionally, Council installs efficient LED lighting for all new streetlights in the region, and for those requiring replacement.

### *Fleet Management*

Council undertakes analysis of its vehicle needs and efficiency with real time GPS monitoring and a staff booking and ride share system. Greenhouse gas emissions are a consideration of all new purchases, with over a dozen hybrid vehicles and electric buggies in use.

### *Renewable Energy Investment*

Council continued its roll out of solar PV, reaching a total capacity of 1,083 kilowatts - the equivalent to the electricity consumption of 350 average residential households. Electricity produced by solar increased by 168% for 2018/19, compared to the previous year and provided 3.8% of Council's total electricity needs in 2018/19. A further 1.78MW of ground mount solar, to be installed on wastewater treatment plants, was also planned in 2018/19 and funding committed.



Solar installation

## Water Management

### *Smart Urban Irrigation Project*

The [Smart Urban Irrigation Project](#) uses ground surveillance technology to collect data to assist water conservation. The 16 ground surveillance locations provide data on soil moisture, salinity and infiltration rates. This determines irrigation duration; stages 1-4 are complete, with stages 5-7 due for completion in June 2020. The project is in partnership with Central Queensland University and Rainbird Australia, with funding support from the Australian Government.

## Waste and litter management

### *Waste management*

Council has an important role in promoting resource recovery and resource efficiency in the way it manages its waste and procures recycled materials. For example, in 2019, Council used recycled (crushed) glass in 100 metres of footpath at White Rock State School. The use of recycled glass, processed through the Material Recovery Facility, in concrete is a new concept currently being investigated by Council.

After the introduction of the waste levy in July 2019, Council delivered educational sessions to staff, and is working on gathering data to inform new waste diversion targets for Council operations.

### *Single-use plastics reduction*

Council continued its reduction of single-use plastics in 2018/19, with Council-run venues, events, functions and markets not permitting the distribution of target items, and reusable food and beverage service encouraged where possible. Successful trials such as compostable dog waste bags have also been undertaken, removing over 1.2 million plastic bags from circulation in 2018/19, along with optimising office waste bins in its facilities, reducing an estimated 25,000 plastic bin liners per annum.



Council supported the Last Straw on the Great Barrier Reef's installation of a children's seat made from recycled single-use plastic straws.

## Cairns Regional Council data

Indicator	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Percentage Change from 2017/18
<b>Built environment</b>							
<b>Planning and approvals</b>							
Total building approvals	634	669	790	733	1,164	581	-50.1%
Houses	630	613	710	627	639	495	-22.5%
Residential-other	4	56	80	106	525	86	-83.6%
<b>Low carbon travel</b>							
Length of shared pathways and cycle ways (km)	490	494	504.8	509.2	511.1	555.8	8.8%
Percentage of people riding in the last week	-	23%	23%	20%	-	20%	-
Percentage of people riding in the last year	-	40%	38%	36%	-	36%	-
<b>Community engagement</b>							
Waste and recovery education reach (persons)	-	-	2,000	2,800	3,254	4,726	45.2%
Water education reach (persons)	-	-	925	1,261	1,937	1,686	-13%
Disaster resilience education reach (persons)	-	-	1,700	2,955	4,678	2,596	-44.5%
Green Space Our Place volunteers	-	-	-	200	289	311	7.6%
<b>Waste and recovery total</b>							
Total tonnes received	94,384	91,823	98,194	97,704	95,953	92,867	-3.2%
Tonnes landfilled	40,065	36,644	39,334	40,048	39,669	38,970	-1.8%
Tonnes diverted from landfill	54,319	55,179	58,860	57,656	56,284	53,896	-4.2%
Total recovery rate	57.6%	60.1%	59.9%	59%	58.7%	58%	-0.7%
<b>Total waste received by sector (%)</b>							
Construction and demolition	-	-	-	2%	2.4%	1.6%	-0.8%
Commercial and industrial	-	-	-	8%	7.3%	6.3%	-1%
Domestic waste	-	-	-	90%	90.3%	92%	1.7%
<b>Total waste recovered by sector (%)</b>							
Construction and demolition	-	-	0%	0%	0%	16.8%	16.8%
Commercial and industrial waste	-	-	93%	94%	94.4%	94.1%	-0.3%
Domestic waste	-	-	50.6%	57.6%	58.7%	58%	-0.7%
<b>Residential waste and recycling contamination rate (%)</b>							
Waste materials in kerbside recycling	10.8%	9.4%	9.9%	8.9%	11.5%	11%	-0.5%
Recyclable materials in kerbside waste	23.3%	23%	20%	17.1%	16.4%	15.3%	-1.1%

See *Community Engagement*' data on *Community Waste & Recovery Education*

Indicator	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Percentage Change from 2017/18
<b>Terrestrial biodiversity</b>							
<b>Revegetation</b>							
Trees raised for Council revegetation and conservation projects in the region	17,013	18,063	18,652	18,752	14,924	35,453	137.6%
<b>Biosecurity</b>							
Hours spent on pest plant control	4,652	4,914	3,189	2,960	3,270	2,859	-14.4%
Hours spent on pest animal control	1,880	1,880	1,691	1,727	1,880	2,921	35.6%
<b>Waterways</b>							
<b>Potable water consumption (ML)</b>							
Total	23,218.5	25,050.4	23,416.8	26,524.2	24,178.3	24,936.7	3.1%
Residential	16,545	17,965	16,954.1	16,977	17,250.6	17,473.3	1.3%
Commercial, industrial and municipal	5,338.9	6,360.5	6,173	6,134.6	6,383.3	6,413.2	0.5%
Other	1,334.7	724.9	289.8	412.6	544.4	1,050.3	92.9%
<b>Waste water treatment (ML)</b>							
Total treated	20,653.4	18,944	18,569.7	19,257.5	20,821.2	22,981.7	10.4%
Recycled	11.1%	11.6%	8.2%	8.8%	9.8%	8.4%	-1.4%
Discharged	88.9%	88.4%	91.8%	91.2%	90.2%	91.6%	1.4%

See Community Engagement data on Community Water Education



Indicator	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	Percentage Change from 2017/18
<b>Council operations</b>							
<b>Emissions (tCO<sup>2</sup>e)</b>							
Percentage emissions reduction on 2007/08 baseline (63,924)	45%	48%	46%	49%	48%	46%	-2%
Total (including minor emissions from refrigerant gases and propane)	35,095	33,480	34,461	32,655	33,518	34,679	3.5%
Facilities electricity	6,743	6,486	6,565	5,847	6,122	7,352	20.1%
Streetlight, traffic, and public lighting	6,729	7,564	7,878	7,751	7,837	8,042	2.6%
Water and sewerage electricity	13,937	12,966	13,669	12,704	13,130	13,335	1.6%
Waste water treatment fugitive emissions	3,117	3,101	3,101	3,101	3,101	2,678	-13.6%
Portsmith landfill	0	0	0	0	0	0	0
Vehicle fuel use	4,569	3,363	3,248	3,252	3,328	3,272	-1.7%
<b>Electricity (kWh)</b>							
Total	33,425,684	33,182,954	35,511,665	33,684,220	34,293,250	35,913,373	4.7%
Streetlight, traffic and public lighting	8,206,332.7	9,290,262	9,951,516	9,927,033	9,919,609	10,050,855	1.3%
Water and sewerage	16,996,339.3	15,925,994	17,267,381	16,269,266	16,628,514	16,669,030	0.2%
Council facilities	8,223,011.9	7,966,698	8,292,768	7,487,921	7,745,127	9,193,488	18.7%
<b>Solar PV</b>							
Total capacity of all systems (kW)	79.4	79.4	79.4	244.2	1,043.0	1,082.9	3.8%
Total electricity production by all sites (kWh)	85,000	85,000	85,000	227,300	552,416	1,480,421	168%
Percentage of total electricity produced by solar (%)	0.3%	0.3%	0.2%	1%	2%	4%	2%
<b>Council Fuel Consumption (L)</b>							
Total	1,654,478	1,259,937	1,216,619	1,218,193	1,244,568	1,209,301	-2.8%
Diesel	1,547,204	1,181,616	1,142,834	1,143,258	1,181,134	1,158,226	-1.9%
Unleaded	107,274	78,320	73,785	74,935	63,434	51,075	-19.5%
<b>Council Water Consumption (ML)</b>							
Total	776.9	1,074.1	903.5	867.9	1,067.3	1077.5	1%
Parks and gardens	403.1	505.3	482.3	453.7	538.1	543.1	0.9%
Other facilities	373.8	568.8	421.3	423.2	529.2	534.4	1%
Percentage of total water consumed by Council	3.3%	4.3%	3.9%	3.7%	4.6%	4.3%	-0.3%





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## References

- Australia. Australian Trade and Investment Commission. (2019). Tourism Research Australia. Retrieved from <https://www.tra.gov.au/data-and-research>
- Australian Institute of Marine Science. (2019). Long-term Reef Monitoring Program- Annual Summary Report on coral reef condition for 2018/19. Retrieved from <https://www.aims.gov.au/reef-monitoring/gbr-condition-summary-2018-2019#thecentralregion>
- Australian Institute of Marine Science. (2019) Preliminary report on surveys of the Cairns sector of the Great Barrier Reef. Retrieved from <https://www.aims.gov.au/reef-monitoring/cairns-sector-2019>
- Birdlife Australia. (2018). Aussie Backyard Bird Count 2018 Results: Cairns Regional Council.
- Bureau of Meteorology. (2019). State of the Climate 2018. Retrieved from <http://www.bom.gov.au/state-of-the-climate/>
- Bureau of Meteorology. (2019). Climate of the 2018–19 financial year. Retrieved from <http://www.bom.gov.au/climate/updates/articles/a034.shtml>
- Bureau of Meteorology. (2019). ENSO Wrap-Up Archive. Retrieved from <http://www.bom.gov.au/climate/enso/wrap-up/archive.shtml>
- Bureau of Meteorology. (2019). Summary statistics Cairns Post Office. [http://www.bom.gov.au/climate/averages/tables/cw\\_031010.shtml](http://www.bom.gov.au/climate/averages/tables/cw_031010.shtml)
- Bureau of Meteorology. (2019). Summary statistics Cairns Aero Station. [http://www.bom.gov.au/climate/averages/tables/cw\\_031011.shtml](http://www.bom.gov.au/climate/averages/tables/cw_031011.shtml)
- Bureau of Meteorology. (2020). Monthly Rainfall: Babinda Post Office. Retrieved from [http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p\\_nccObsCode=139&p\\_display\\_type=dataFile&p\\_startYear=&p\\_c=&p\\_stn\\_num=031004](http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=031004)
- Bureau of Meteorology. (2020). Monthly Rainfall: Cairns AERO. Retrieved from [http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p\\_nccObsCode=139&p\\_display\\_type=dataFile&p\\_startYear=&p\\_c=&p\\_stn\\_num=031011](http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=031011)
- Bureau of Meteorology. (2018). Special Climate Statement 67—an extreme heatwave on the tropical Queensland coast. Retrieved from <http://www.bom.gov.au/climate/current/statements/scs67.pdf>
- Climate Council of Australia. (2019). Waiting for the Green Light: Transport Solutions to Climate Change. Retrieved from [https://www.climatecouncil.org.au/wp-content/uploads/2018/09/CC\\_MVSA0154-Report-Transport\\_V5-FA\\_Low-Res\\_Single-Pages.pdf](https://www.climatecouncil.org.au/wp-content/uploads/2018/09/CC_MVSA0154-Report-Transport_V5-FA_Low-Res_Single-Pages.pdf)
- Department of Environment and Heritage Protection. (2017). Climate Change in the Far North Queensland region. Retrieved from [https://www.qld.gov.au/\\_data/assets/pdf\\_file/0025/68371/far-north-qld-climate-change-impact-summary.pdf](https://www.qld.gov.au/_data/assets/pdf_file/0025/68371/far-north-qld-climate-change-impact-summary.pdf)
- Department of Transport and Main Roads. (2019). Transport and Road Statistics: Registration statistics. Retrieved from <https://www.tmr.qld.gov.au/Safety/Transport-and-road-statistics>
- Economy Id (2019). Cairns Population – sourced from Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Retrieved from <https://economy.id.com.au/cairns/population>

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Economy Id (2019). Residential Building Approvals. Retrieved from <https://profile.id.com.au/cairns/building-approvals>

Intergovernmental Panel on Climate Change (2019). Headline Statements from the Summary for Policymakers. Retrieved from [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15\\_Hheadline-statements.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Hheadline-statements.pdf)

Ironbark Sustainability and Beyond Zero Emissions. (2019). Snapshot Community Climate Tool: Cairns, QLD 2017 Municipal Emissions Snapshot. Retrieved from <https://snapshotclimate.com.au/locality/australia/queensland/cairns/>

Tourism Research Australia. (2019). Local Government Area Profiles 2018. Retrieved from <https://www.tra.gov.au/Regional/local-government-area-profiles>

Queensland Government (2017). Remnant vegetation cover by LGA. Retrieved from <https://www.publications.qld.gov.au/dataset/lga-remnant-veg/resource/a85eccdf-04d6-4e87-854d-17aa3113bdd3>

Queensland Government. (2017). Queensland State of Cycling Report 2017. Retrieved from <https://cabinet.qld.gov.au/documents/2017/Jul/Cycling/Attachments/Report.pdf>

Queensland Government. (2019). Mitchell River drainage sub-basin. Retrieved from <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/sub-basin-mitchell-river/>

Queensland Government. (2019). Queensland Fire and Emergency Services. 2019. Queensland State Heatwave Assessment. Retrieved from <https://www.disaster.qld.gov.au/dmp/Documents/QFES-Heatwave-Risk-Assessment.pdf>

Queensland Government. (2019). State of the Environment Report. Climate. Retrieved from <https://www.stateoftheenvironment.des.qld.gov.au/climate>

Wet Tropics Waterways. (2019). Our Catchments. Retrieved from <https://wettropicswaterways.org.au/wet-tropics-region/our-catchments/>





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