

state of environment report 2016

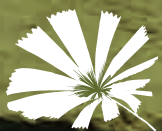
SOLE



Cairns Regional
COUNCIL

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Cairns Regional
COUNCIL

This report has been produced by Cairns Regional Council and noted at the ordinary meeting on the 24th May 2017.

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STATE OF ENVIRONMENT 2016

✓ ON TRACK TO MEET **50%** REDUCTION in greenhouse gas emissions by 2050

53% OF WASTE RECOVERED



17,013

2013/14

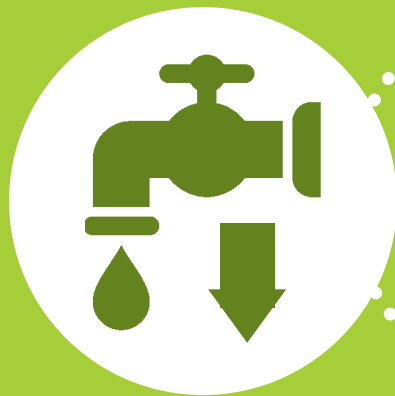
18,063

2014/15

18,652

2015/16

TREES RAISED FOR REVEGETATION PROJECTS



TOTAL WATER CONSUMPTION REDUCED BY

6.5%



2,925

PEOPLE DIRECTLY REACHED WITH COUNCIL'S WATER AND WASTE EDUCATION

176 ML saved in 1st phase of water System Leakage Detection Program, equal to

668

new residential dwellings



133M³

OF DEBRIS REMOVED FROM THE STORMWATER NETWORK



\$43,000

GRANT FUNDING FOR COMMUNITY SUSTAINABILITY AND NRM ACTIVITIES



Cairns Regional COUNCIL



preface

The 2016 State of Environment (SoE) report summarises Cairns Regional Council's environmental and urban sustainability initiatives and performance for 2015/16. Whilst SoE reporting isn't a statutory requirement in Queensland, Cairns Regional Council is committed to reporting its actions to the community, with this being its eleventh release.

- CRC** Cairns Regional Council
 - SoE** State of Environment report
 - BOM** Bureau of Meteorology
 - CSIRO** Commonwealth Scientific and Industrial Research Organisation
 - WTMA** Wet Tropics Management Authority
 - FNQ ROC** Far North Queensland Regional Organisation of Councils
 - QLD DAF** Department of Agriculture and Fisheries
 - QLD DPI&F** Department of Primary Industries and Fisheries
- 'Cairns', 'the city', 'the region' and 'Cairns region' refer to the Cairns Regional Council Local Government Area.



from the mayor

The Cairns region is one of the most biodiverse regions in Australia. It contains a rich array of ecosystems nestled between the world heritage listed Great Barrier Reef Marine Park and Wet Tropics Rainforest. Council continually works to reduce its impact on the unique natural environment of the Cairns region, while supporting local residents and businesses to do the same through various programs and initiatives. We have an opportunity as an internationally renowned tourism destination to be leaders in sustainable industry and development – a job we take very seriously. So as 'there's no place like our place', I encourage everyone to join Council in taking care of our environment to secure the future of our region.



More than
50%
of the Cairns region
is protected as
National Park, State
Forest or Forest
Reserve



INTRODUCTION

The Cairns region is one of the most biodiverse regions in Australia, incorporating the Barron, Russell and Mulgrave River catchment areas, as well as the Mossman River to the north and the Trinity Inlet. It contains a vast landscape of wetlands and flood plains, flat coastal lands, mountain ranges and metamorphic rocks covered in rainforest and wet sclerophyll. The region is famed for its two world heritage listed areas, the Wet Tropics Rainforest and Great Barrier Reef. Upholding the integrity of this bioregion is crucial for the health of these natural assets and local biodiversity, which support industry, culture and community liveability.

BUILT ENVIRONMENT

CONDITIONS

The Cairns region is home to culturally diverse residents living in both rural and metropolitan communities. As the major commercial and service centre of Far North Queensland, land is primarily managed for the following range of values:

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

PRESSURES

Typically, a growing population presents the following pressures:

- Increased energy use, waste and waste water generation and end-point greenhouse gas emissions
- Increased infrastructure use, including transport infrastructure
- Increased urban footprint



FIND OUT MORE: Sustainable Planning Act 2009, Far North Queensland Regional Plan , CairnsPlan 2016

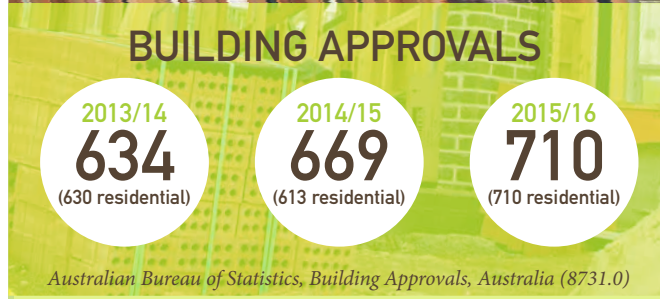
LAND USE PLANNING

The CairnsPlan 2016 planning scheme sets the parameters for land use and development across the region and addresses the pressures a growing population places on the character of an area and its local ecosystems. This scheme has been prepared in accordance with the Sustainable Planning Act 2009 and accompanying statutory instruments. The CairnsPlan 2016 sets the intention for future development of the region for the next 20 years. While there is attention to ecological sustainability throughout the CairnsPlan it specifically includes:

- **Environmental management zones** to identify, protect and buffer areas of environmental significance and constrained land from inappropriate development, with only low-impact activities permitted. This includes specific requirements for environmental, scenic amenity, consideration of site constraints and best practice environmental management standards.
- **Natural area overlay** for areas with high biodiversity, waterways and waterway corridors, wetlands and declared fish habitats. The purpose of this overlay is to avoid development in these areas, minimise adverse direct and indirect impacts, encourage restoration and expansion of ecological connectivity across various zones.
- **Acid sulfate soils overlay** to map areas containing or potentially containing acid sulfate soils (ASS) and to avoid or minimise their disturbance. This includes appropriate management plans to test for ASS, avoid contamination of non-acid sulfate soils and groundwater, responsible disposal and documentation to avoid environmental harm.
- **Landscapes values overlay and Hillslopes overlay** to uphold the scenic backdrop for the city and ensure protection of people, property and the natural environment.
- **Coastal processes overlay** to reduce the risk to people and property from coastal processes, to allow coastal processes to occur naturally and to ensure development takes into account predicted changes in sea levels
- **Flood and inundation hazards overlay** to ensure that development upholds community safety, minimises property and environmental damage, does not interfere with drainage catchments and coastal processes and minimises flooding and storm tide impacts.
- **Identification of areas subject to storm tide inundation.** The flood and inundation hazards overlay mapping includes areas subject to inundation at a 1% Annual Exceedance Probability event including projected sea levels at 2100 (this includes 0.8m of sea level rise).
- **Zoning allocations-** consider the impacts of climate change. Land which was subject to coastal processes or future inundation may not have been upzoned or may have been backzoned to account for this future risk.

SUSTAINABLE HOUSING

Council has developed resources for sustainable home and commercial building design appropriate for the tropics. Council also supports Sustainable House Day in September each year, a national initiative aimed at showcasing innovative homes to their local communities. 2015 saw three award-winning homes in the Cairns region open their doors to over 300 attendees to learn about sustainable design.



DISASTER RESILIENCE

Council takes a proactive approach to community resilience in the face of natural hazards. This includes robust risk assessments for the region, multi-lingual preparedness tools, community education and accessible mapping. This is led by the Disaster Management Unit which provides administrative, financial and operational support to the Local Disaster Management Group, Coordination Centre and Queensland State Emergency Service (SES). In 2015/16 the unit also completed:

- scorecard assessment of the Cairns region's disaster resilience capacity and capability as per the United Nations Office for Disaster Risk Reduction
- a resilience scorecard to map areas of vulnerability and strength based on community and geographical indicators



ENVIRONMENTAL REGULATION AND COMPLIANCE

Council plays an active role in environmental regulation in the region. This includes enforcing of the Environmental Protection Act 1994 for building activities and other environmentally relevant business activities. Council also undertakes considerable consultation, scoping of potential environmental impacts and approvals for its own operational and capital works program, which in 2015/16, amounted to \$142.8 million. This involves:

- environmental management plans, erosion and sediment control plans and environmental monitoring and auditing. Where required, spotter and catchers and Aboriginal Traditional Owners/representative monitors are engaged.
- compliance with local, state and federal legislation which can involve engagement of ecologists, botanists, archaeologists and Traditional Owners.



URBAN ENVIRONMENTAL MANAGEMENT

LITTER MANAGEMENT

Littering and dumping are illegal in Queensland and can be reported to Council who enforce offences and can apply fines. Council maintains over 1,000 public place bins and sweeps over 2,950km of streets to minimise litter and other debris entering the stormwater drainage system, which can pollute waterways and marine environments.

Council also facilitates the Great Northern Clean Up in September each year. In 2015 this saw 16 community groups across the region clean up beaches, bushland and waterways prior to the wet season, with additional clean ups throughout the year also supported by Council with guidance and litter collection.

DOMESTIC ANIMALS

Council launched its animal management campaign in late 2015 to encourage responsible pet ownership which, among other things, can limit the impacts of feral and un-restrained domestic cats and dogs on local wildlife. The campaign includes education, the re-introduction of cat registration and promotion of pet de-sexing. Council also sets dog and cat traps to combat wandering and feral populations, with 114 cat traps set in hotspots since November 2015. The traps are also available for hire.



FLYING-FOX MANAGEMENT STRATEGY

In 2015, Council adopted a multi-faceted strategy to manage flying-foxes in urban areas, particularly the Cairns city centre. It aims to balance public amenity and protection of the Spectacled Flying-fox, listed as Vulnerable under the Environment Protection and Biodiversity Act 1999. The strategy involves:

- An advisory committee of experts and wildlife carers to provide recommendations on Council education and awareness strategies.
- An education and awareness program including ongoing engagement with local wildlife advocates and rescue groups, educational materials and interpretive signage and support for Bat Chats (public tours of roosts) and the local Australasian Bat Night event.
- Periodic reporting on flying fox populations in CBD host trees by an ecologist.
- CBD Tree Management and minor tree trimming works under relevant approvals. In 2015/16 this included minor trimming including the 'nursery tree' (T5) to support structural integrity and tree health, informative signage and a fence to give carers access and reduce disturbance.
- Increased CBD cleaning and maintenance works on areas highly trafficked by flying foxes.
- A flying-fox assessment matrix to determine what action can and will be taken by Council at various sized camps throughout the region.
- Deterrent activities at selected areas along the Cairns Esplanade and CBD under relevant approvals and ecologist guidance. This includes lights and a specialised sound machine to prevent roosting in trees where maintenance is required or there is a significant impact on public amenity.
- Collaboration with state and federal governments on the management of Spectacled Flying-foxes, including compliance, conservation and recovery planning.

SUSTAINABILITY ENGAGEMENT

Actively engaged communities are essential in effectively addressing local environmental and sustainability issues. Council recognises that sustainable development in the Cairns region requires education, support and an ethos of collective responsibility to foster sustainable lifestyles and balance the needs of current generations with those of the future.

EVENTS

Council supports a range of ongoing environmental and sustainability events throughout the year including:

CAIRNS ECOFIESTA

Council's flagship sustainability festival in May attracts an estimated 10,000 attendees to celebrate sustainability and the local environment. The event showcased over 100 local not for profit groups and businesses providing volunteering opportunities and sustainable living solutions. The ECOfiesta was delivered with attention to sustainable materials and suppliers and upholds the waste wise event philosophy. In particular, it promotes reef stewardship, local food and low-carbon transport with incentives for those arriving by public transport, bike or sharing their vehicle.

ECOWEEK

Council, in partnership with Far North Queensland Regional Organisation of Councils, Douglas Shire Council, Townsville City Council and Cook Shire Council delivered North Queensland ECOweek to showcase independent events in the region that advance sustainable living, eco-tourism and protect our natural environment. Events in 2015/16 included tree planting, workshops and forums, eco-tourism offerings, business promotions, tours of Council waste and recycling facilities and local clean energy industry tours.

TROPICAL TREE DAY

The annual community tree planting in December at Cattanna Wetlands in partnership with the Skyrail Rainforest Foundation saw 200 wetland species planted by 200 community volunteers.

AUSTRALASIAN BAT NIGHT

Council provided funding support for the Cairns Australasian Bat Night event in June 2016 to celebrate and provide information on our local flying-fox and microbat populations.

CARNIVAL ON COLLINS

The annual Carnival on Collins in September was delivered as a waste-wise event in 2015.



COMMUNITY GRANTS AND FUNDING

Council provided grants for community-led projects that reduce energy, water and waste, promote active travel, local food production, biodiversity improvements or build sustainability capacity. \$20,000 of funding was awarded to eight organisations in 2015/16 to deliver the following projects:

- Animal Welfare Cairns- Solar Power Installation
- REAP Food Rescue- Food Rescue Infrastructure and Educational Materials
- Trop Futures Network- Professional Development Day for Teachers Implementing Sustainability in the Classroom
- Marlin Coast Community Garden- Community Garden Upgrade
- Russell Landcare and Catchment Group- Community Tree Planting Events
- Trinity Beach Community Kindergarten- Waste Management Skills
- Cairns TAFE Community Childcare- Backyard Chickens
- Bayview Heights Community Kindergarten- Installation of LED lighting

Council also provides Community Development grants, amounting to over \$44,000 which included funding for Far North Queensland Wildlife Rescue to train volunteer carers.

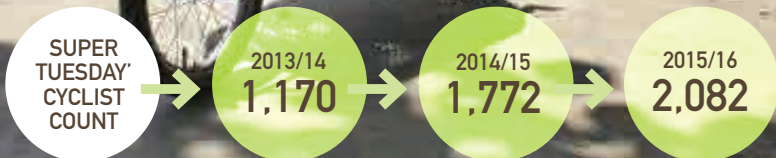
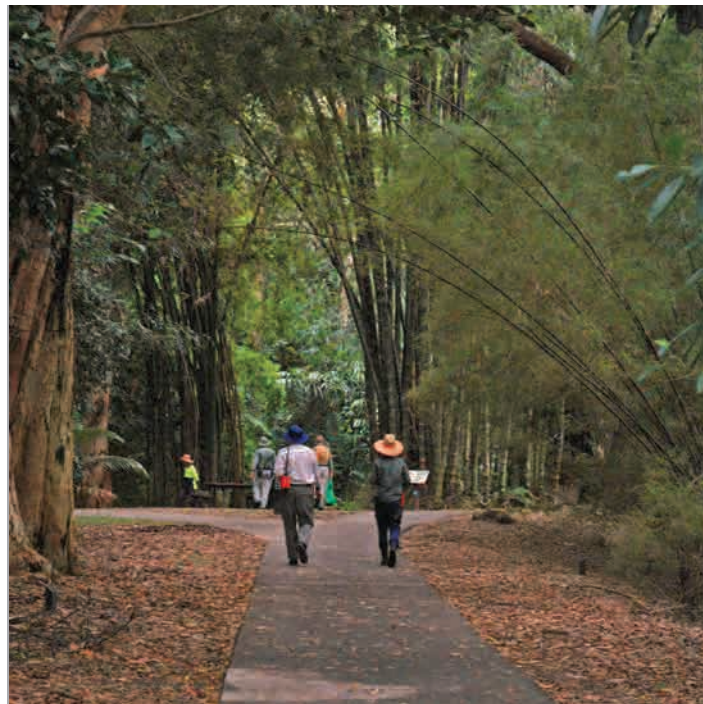
A further \$23,000 in 2015/16 was provided to Treeforce, Mulgrave Landcare, Cairns Urban Landcare and Cairns Reduce Indian Myna Group for NRM activities.

HOLLOWAYS BEACH ENVIRONMENTAL EDUCATION CENTRE

Council provides funding to the Holloways Beach Environmental Education Centre's Student Enrichment Program which pairs talented Year 5 science students in the region with industry mentors to develop local sustainability projects. Projects in 2015 included films to reduce carbon emissions, litter audits and education, childrens' books, environmental surveys and a car-pooling initiative.

GREEN SPACE OUR PLACE

Council launched this volunteer program in 2016 to grow community involvement and ownership of local gardens, parks, reserves, waterways and walking tracks. The program provides tools and guidance for volunteers and builds on the success of Council's other successful volunteer initiatives at the Botanic Gardens and Cattana Wetlands.



LOW CARBON TRAVEL

Currently 22.7% of Cairns residents ride a bike in a typical week, with over one third having done so in the past year (Local Government Research Group, 2016).

CYCLING AND WALKING INFRASTRUCTURE

Council continues to expand the City's cycling and walking network, adding three major connections over the past five years including the Southern Cycleway, extension of the Aeroglen to Freshwater Cycleway and the award winning Redlynch Connection Path. In 2015/16 an additional 10.8km was added. Council also completed the 3km Green Arrow walking track on the Mt Whitfield Conservation Park, linking to the red and blue arrow tracks.

ACTIVE TRAVEL COMMUNITY ENGAGEMENT

Council produces the Cycling and Walking map, monitors bicycle commuter numbers and promotes active travel through education and events.

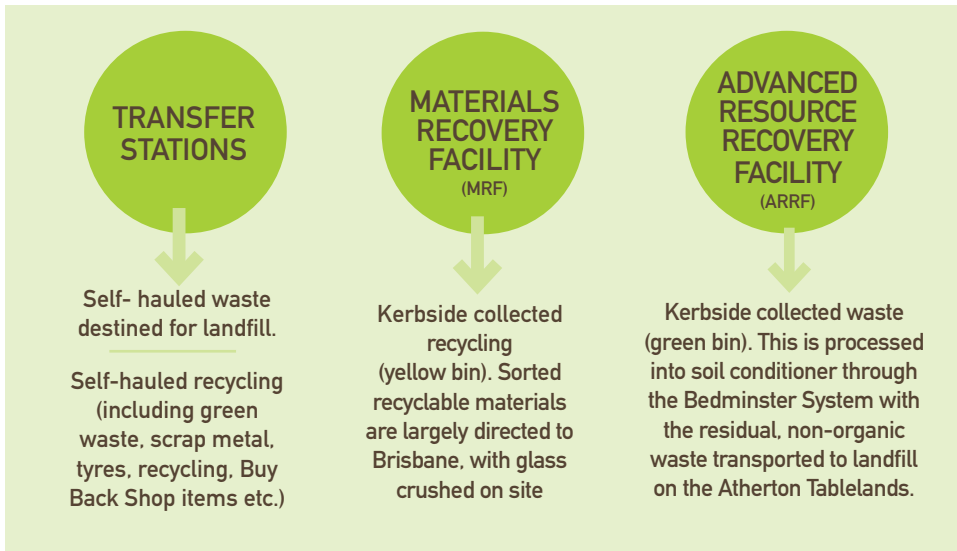
In 2015/16 Council again hosted the annual Ride2Work Day Esplanade breakfast and hosted the Wet Tropics Management Authority's (WTMA) Hike 'n' Bike series of events promoting nature trails in the region.

Cairns Regional Council has a recycling rate of **53%** ahead of the Queensland average of 43.5% **Queensland Recovery Rate** (State of Waste and Recycling Queensland, 2015)



WASTE & RECYCLING

Waste and recycling in Cairns is received at three major recovery points shown below. Because there are no new landfills permitted in Cairns, waste that is not captured by these recovery processes is transported to landfill in Mareeba and the Atherton Tablelands.



RESPONSE

WASTE MANAGEMENT AND RECOVERY

Council considers waste a resource and is committed to the reduction of waste generation in the region, increased recycling and leading recovery processes. View the Waste Management Strategy, 2010-2015 to find out more. In 2015/16 Council collected a total of 117,745 tonnes of waste of which 55,219 tonnes went to landfill and 62,526 tonnes were diverted. This is a total recovery rate of 53%.

ADVANCED RESOURCE RECOVERY FACILITY

Organic waste from the general waste stream is processed into soil conditioner, with residual waste transported to landfill on the Atherton Tablelands, reducing the amount of methane generated from the landfill of Cairns' residual waste.

METHANE DESTRUCTION

Council has captured and flared methane from the closed Portsmith Landfill since 2012, resulting in the destruction of approximately 5,000 tonnes of CO2 equivalent per year. The project earns Australian Carbon Credit Units (ACCU) which have been used to offset operational costs.

E-WASTE

E-waste is one of the fastest growing sources of waste in Australia. In October 2015, Council commenced E-waste recycling under the National Television and Computer Recycling Scheme. Approximately 95 tonnes has been received since establishment, of which 92% has been diverted from landfill. This includes the recovery of approximately 21 tonnes (t) of CRT TV tubes, 24t of metal, 17t of plastics and 13t of other commodities.

GARDEN WASTE

Free domestic green waste disposal is available twice a year for residents prior to cyclone season and near the end of the

wet season. From this Council provides free garden mulch to residents, enabling additional water retention for home gardens before the dry season. A total of 3,412 tonnes of green waste was received from 16,819 vehicles in 2015.

CRUSHED GLASS

Council installed facilities in 2015 to process and crush residual glass which would have otherwise been lost from the residential recycling stream. A total of 989 tonnes of ReGlass (recycled crushed glass) was produced in 2015/16 and was used for internal and external projects such as:

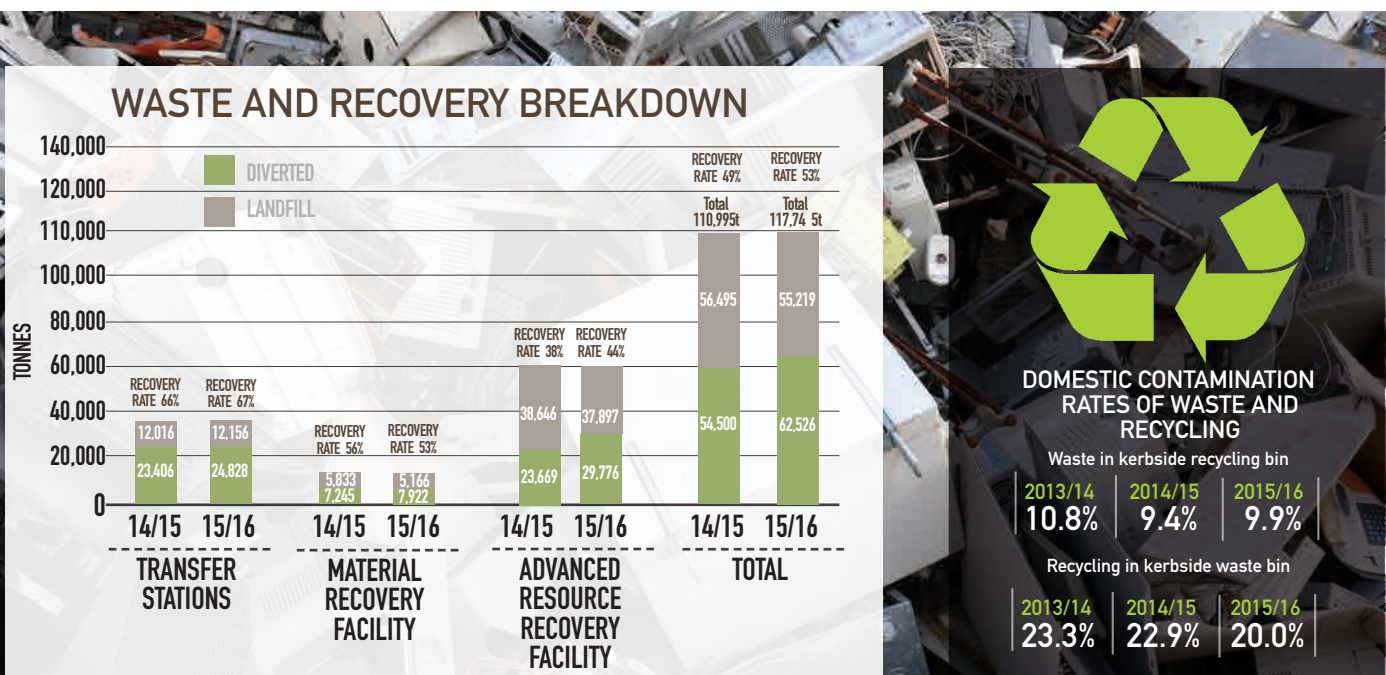
- Walker Road Sporting Precinct
- Munro Martin Park
- Esplanade Pentaque

WASTE AND RECOVERY EDUCATION

In 2015/16 more than 2,000 residents received waste and recovery education in over 53 sessions held at the purpose built Rediscovery Centre (Materials Recovery Facility), educational centres and at regional events. Council also provides teaching resources and free waste and recycling services for schools, instilling behaviour from a young age. This is backed up by a robust multi-media communication strategy which includes public place signage such as billboards and a dedicated 'Recycle Right' website to assist residents.

WASTEQ CONFERENCE

Council hosted the Queensland Waste Management Association of Australia Conference in September 2015. This included a Waste Re-Discovered Exhibition showcasing sculptures made from reclaimed materials and a program of artist-led community workshops.





BIODIVERSITY

The Cairns region is renowned for rich biodiversity within its borders, including the world heritage listed Wet Tropics Rainforest.

PRESSURES

- Invasive non-native flora, and fauna species and pathogens
- Land clearing and fragmentation
- Changes in climate affecting ecosystem structure and function, species distribution and lifecycles.
- Altered hydrological patterns
- Fire Regimes



TREES RAISED FOR REVEGETATION PROJECTS IN THE CAIRNS REGION



2013/14



2014/15



2015/16



RESPONSE

REVEGETATION AND HABITAT RESTORATION

Council's native plant nursery in Stratford raises trees for revegetation projects led by Council and its conservation partners. Over 18,000 trees were raised in 2015/16 with the following sites and suburbs receiving revegetation from Council:

- Cattana Wetlands
- Redlynch
- Machans Beach
- Red Hill
- Mulgrave River
- Babinda Creek
- Corroborree Creek
- Freshwater Creek/Radjir Radjir
- Cairns Central Swamp
- Stratford
- Clifton Beach
- The Pyramid Gordonvale
- Goldsborough
- Giddins Creek
- Fitzroy Island

Council provided
\$23,000
 in 2015/16 to
 Treeforce, Mulgrave
 Landcare, Cairns
 Urban Landcare and
 Cairns Reduce Indian
 Myna Group.

COMMUNITY CONSERVATION PARTNERS

Land and habitat rehabilitation in the region is undertaken by a range of stakeholders, especially local landcare and conservation groups. Council provides both financial and in-kind support to many of these groups, such as site coordination and preparation, facilitating approvals from landholders and providing plant stock. In 2015/16, these groups included:



WET TROPICS BIODIVERSITY FOUNDATION

Control of Blue Thunbergia and revegetation in Frenchman's Creek and Corroboree Creek at the edge of the Russell River National Park.

LOCAL SCHOOLS

Holy Cross Primary, Redlynch State College, St Francis Xavier & Machans Beach State School tree plantings.

TREEFORCE

Revegetation of Rice's Gully and along the Redlynch bike path on Freshwater Creek.

HOLLOWAYS BEACH COAST CARE

Revegetation of two sites within Billy Jagar Reserve and the Holloways Esplanade.

RUSSELL RIVER LANDCARE

Giddins Creek and Babinda Creek with support from Council.

TRINITY INLET CATCHMENT MANAGEMENT ASSOCIATION

Riparian revegetation at McKinnon Creek and Wrights Creek (between Trinity Inlet and Mount Peter) in collaboration with Green Army.

CONSERVATION VOLUNTEERS AUSTRALIA

Weed removal and revegetation with Council support at Kamerunga Conservation Park, Cairns Central Swamp, Stratford, McPauls Creek and Cattana Wetlands.

MULGRAVE RIVER LANDCARE

Rehabilitation of wildlife corridor connecting Lamb Range to Hemmings Creek, revegetation of Hobson Creek and Hymenanche control in partnership with Council.

In 2015/16 Terrain NRM, the Wet Tropics Natural Resource Management body funded the following revegetation projects in the region in partnership with Council and with Council plant stock:



GIMUY WALUBARA YIDINJI PEOPLE AND ABRICULTURE

Stoney Creek, 1,200 trees planted.

MULGRAVE LANDCARE

Hemmings Creek, 1,483 trees planted.

TREEFORCE

Freshwater Creek, 1,457 trees planted.

RUSSELL LANDCARE

Babinda and Giddins Creek, 540 trees planted.

BUNNA BINDA ABORIGINAL CORPORATION

1.4ha of weeding and site preparation with 635m2 of candlebush and weed control along Babinda Creek.

DAWUL WURU ABORIGINAL CORPORATION

Cattana Wetlands and Freshwater Creek, 418 trees planted.

ENVIRONMENTAL BIOSECURITY

Upholding biosecurity is essential for the integrity of ecosystems in the region, agricultural and tourism sectors. The Wet Tropics bioregion provides favourable conditions for pests to spread throughout the year, posing a significant challenge to land managers.

Council has a legislated role to ensure declared pests are controlled within its boundary and can declare weeds in its local laws. This is guided by the Pest Management Plan 2015-2018 and local Pest Management Working Group comprised of local and state government agency stakeholders.

	2013/14	2014/15	2015/16
Total Staff Hours	6,532	6,794	4,880
Weed Control	4,652	4,914	3,189
Pest Animal Management	1,880	1,880	1,691
Feral Pigs Destroyed	135	137	138

WEED IDENTIFICATION AND CONTROL

Council has prioritised 20 weeds in the region. In 2015/16 the greatest management effort went to the control of Thunbergia, Salvinia, Glush Weed, Hymenachne, Glow Vine, Amazon Frogbit, Alligator Flag Weed, Giant Sensitive Plant, Kudzu, Siam Weed, Sicklepod and Brilliantasia.



PEST ANIMAL MANAGEMENT

- Feral Pigs- installation and loan of traps to land owners and humane disposal of animals.
- Wild Dogs- 3 cameras and dog traps were applied in 2015/16 by Council with no wild dogs found. Traps and dog capture in urban and peri-urban areas is also administered by Animal Management.
- Indian Myna Birds- Council provides funding support to the Cairns Remove Indian Mynas campaign to produce traps for the community to control the aggressive invasive species.



TRAMP ANTS

Yellow Crazy Ants (YCA) are one of the world's top 100 invasive species and pose severe threats to biodiversity and the horticulture industry. Complete eradication of the aggressive species is no longer considered possible in Queensland (Department of Environment Heritage Protection, 2016), with the focus now on controlling infestations. Locally this includes Edmonton, Bentley Park and Mount Peter, with infestations in Woree and Portsmith eradicated.

WTMA coordinates the control of YCA in the region, with many on ground organisations and community members strongly backing the program. Council staff are trained in methods for reducing the spread of the aggressive pest and reporting sightings, with management plans developed for works in and around identified sites.

Council provides in-kind support for YCA on-ground teams in terms of facilities and training for WTMA and Green Army participants.

Electric Ants, also in the world's top 100 invasive species, pose a very serious threat to the ecological balance of the wet tropics and can inflict a painful sting on people and animals. Similarly, Electric Ants threaten agricultural and horticultural sectors with risks to workers and the restriction of crops and soil movement.

Council's Natural Area Management staff work closely with Biosecurity QLD officers on the ground and assist with landholder access, clearing access tracks and riparian areas prior to surveys. NAM actively manages sites in Caravonica, Smithfield and Yorkeys Knob to assist the program.



WATER

The Cairns local government boundary contains the Barron, Mitchell, Mossman and Mulgrave Rivers. It includes over 90km of wetlands, of which the majority are estuarine habitats (with mangrove and related tree communities), palustrine habitats (such as swamps or billabongs) and riverine habitats.

Of the wetlands in the area, nine are of national importance. These wetlands not only support great biodiversity but also the Cairns water supply which spans 2,000km and is sourced from ten locations including Lake Morris, Behana Creek and small intakes. Much of this flows into the Great Barrier Reef catchment, with Council's boundary even including both Green and Fitzroy Island. Council has the responsibility of protecting waterways within its boundaries under the Environmental Protection Act 1994.

Waterway grades



economic growth



population growth



climate



FRESHWATER

Russell

Key activities



The Russell basin overall, water quality and habitat and hydrology are graded moderate.

More information on the methods used to generate the grades can be found at:

wettropicswaterways.org.au



FRESHWATER

Mulgrave

Key activities



The Mulgrave basin overall, water quality and habitat and hydrology are graded moderate.



FRESHWATER

Barron

Key activities



The Barron basin overall and water quality are graded moderate.



ESTUARY

Russell-Mulgrave

Key activities



The Russell-Mulgrave estuary is graded moderate, consisting only of the water quality grade.



ESTUARY

Trinity Inlet

Key activities



Trinity Inlet is graded moderate with water quality graded good and habitat and hydrology graded poor.



ESTUARY

Barron

Key activities



The Barron estuary is graded moderate, consisting only of the water quality grade.



MARINE

North Inshore

Key activities



The North inshore zone is graded moderate, with water quality and coral graded moderate and seagrass graded poor.

Water Quality Monitoring and the Wet Tropics Healthy Waterways Partnership

As a water utility, Council has undertaken water quality monitoring since 1998 which includes screening for sediment, isotope ratios, radon, toxicity and algae. Council also carefully monitors environmental flows in its management of intakes across the region in accordance with water licenses. In 2015/16 Council became a founding financial member of the Wet Tropics Healthy Waterways Partnership, taking on additional monitoring of estuarine sites and funding a technical officer for the program. Healthy Waterways is a model for improved water quality monitoring, communication and holistic management of Great Barrier Reef catchments. It draws on information from a range of local researchers, government and industry stakeholders.



Further detail on the condition of these waterways and the wider Wet Tropics region can be found in the Wet Tropics Healthy Waterways Report Card.



PRESSURES

- **Sediment, nutrients and contaminants**
Cairns is situated in one of the highest priority catchment areas for reducing nutrient run off into the Great Barrier Reef and is of high priority for pesticide run off (GBR Marine Science, 2015). Sediment from construction and litter can also threaten marine life.
- **Changing climate and climatic events**
including increased frequency of severe weather events, ocean acidification, rising sea temperature and rising sea levels.
- **Habitat modification such as dams**
- **Disturbance or loss of riparian, mangrove and saltmarsh communities**
- **Invasive weeds**
- **Potable water demand**

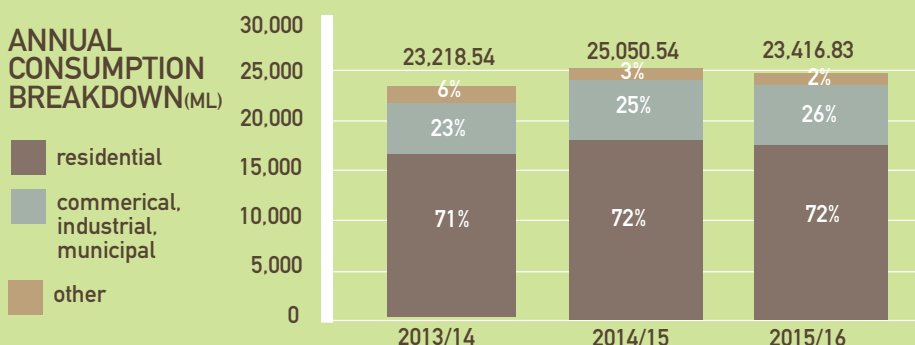
PER CAPITA CONSUMPTION (LITRES)

TREND FOR 2015/16



Despite a high annual rainfall, Cairns has a relatively small catchment area, long dry periods and a growing population, placing pressure on fresh water supply in a changing climate.

ANNUAL CONSUMPTION BREAKDOWN (ML)



A total of
23,416.8
megalitres (ML)
was consumed in 2015/16,
a reduction of 6.5%
from the previous
year.



FIND OUT MORE:

- Cairns Regional Council Reef Guardian Action Plan 2015/16
- Reef 2050 Plan
- Terrain Wet Tropics Water Quality Improvement Plan

RESPONSE

WATER QUALITY

Reef Guardian Council

Council joined this Great Barrier Reef Marine Park Reef Guardian stewardship program in 2008. Each year Council sets out an annual plan for reef health in accordance with the Queensland and Federal Government's Reef 2050 Implementation Plan, covering education, catchment management and urban water cycle activities.

Reef 2050 Plan Water Quality Initiatives

The Reef 2050 Plan outlines management responses to The Great Barrier Reef as a world heritage listed asset. An update on progress for 2015/16 can be found online. The Great Barrier Reef Water Quality report card outlines progress towards targets of reducing pollutant loads outlined in the plan.

WETLAND WEED MANAGEMENT

Council actively manages Olive Hymenachne, Glush Weed, Water Lettuce, Water Hyacinth and Salvinia which are a direct threat to water ways, as well as Pond Apple which colonises swamplands and other wet areas. In 2015/16 Council partnered with Jaragun to reduce glush weed (*Hygrophila costata*), an aggressive threat to native water plants. Council also assisted Biosecurity QLD and local researchers investigating glush weed physiology in the Russell River.



Stormwater Management

Council investigates contamination events and maintains a gross pollutant trap network to capture sediment and other debris such as litter in the stormwater system.

In 2015/16 this amounted to 133.5m³. The amount that was not captured by the network is unknown.

Overall, Council invests around \$7 million annually to maintain the region's network of over 260 drains and waterways.

WASTE WATER

There are six sewerage treatment plants in the Cairns region, of which four were upgraded in the Cleaner Seas Project in 2009. This enabled the production of exceptionally clean Class A recycled water and significantly reduced amounts of nitrogen and phosphorus flowing into local waterways, the Trinity Inlet and inshore waters of the Great Barrier Reef.

Recycled Water

The uptake of recycled water can reduce demand and potential stresses on Cairns riverine water supply. Total wastewater treated by Council in 2015/16 was 18,569.7 ML, of which 8.2% was reused in applications such as irrigation on Cairns' major golf courses, Yorkeys Knob State Primary School and the Cairns Botanic Gardens.

	2013/14	2014/15	2015/16
Discharged	88.9	88.4	91.8
Recycled	11.1	11.6	8.2
Total treated (ML)	20,653	18,944	18,540

WATER CONSERVATION

Education

Council provides presentations, tours and education on the water cycle, Council's provision of water and waste services and how residents can use water more efficiently. This is available to educational institutions, visiting delegates and community groups, with 925 people directly engaged in 2015/16. Additional resources on water and waste education can be found online.

Demand Management

As a part of the Cairns Water Security Strategy, Council endorsed the Water Demand Strategy (2015-2025) which includes:

- regulatory and Council initiatives
- intelligent water networks to better manage consumption
- enhanced water education programs
- water efficiency upgrades and retrofits.

Permanent water restrictions are in place for private gardens and commercial watering in the region. Council can also implement further restrictions and penalties under the Water Supply (Safety & Reliability) Act 2008 when needed.

In 2015, Council also hosted the Australian Water Association Regional Conference on driving efficiency in water service delivery.

Leakage Detection

Council commenced the first stage of a System Leakage Detection Program in December 2015. In 2015/16 this equated to savings of approximately 176ML, enough for 668 new average sized residential dwellings. This exceeded Council's target of 97ML for 2015/16.



Council's water consumption decreased by almost

16%

in 2015/16.



COUNCIL OPERATIONS

Cairns Regional Council is committed to continually embedding sustainability into its operations, with a Corporate Sustainability Policy in place since 2013. As one of the largest organisations in the region, there are significant opportunities to lead the way in policy, projects and processes with triple bottom line benefits- for the environment, economy and community. In 2015/16, Council was responsible for managing:

Almost
\$3.5b
of assets

More than
\$140m
of capital works

\$299m
spent locally

More than
1200
staff

Around
500
in the field
each day



Fleet Management

Council is committed to continuously improving the efficiency of its fleet with various projects resulting in substantial reductions to fuel consumption, vehicle emissions and the amount of vehicles required by the organisation. This includes real time fleet monitoring, optimised booking and the use of hybrid vehicles.

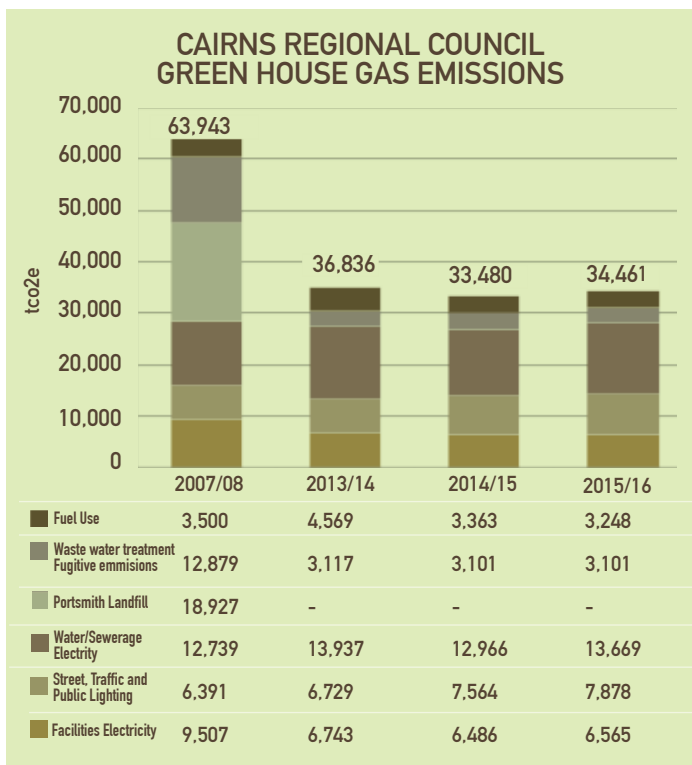
FUEL CONSUMPTION

	2013/14	2014/15	2015/16
Diesel (ML)	1.54	1.18	1.14
Unleaded (ML)	0.18	0.08	0.07
Total (ML)	1.72	1.26	1.21

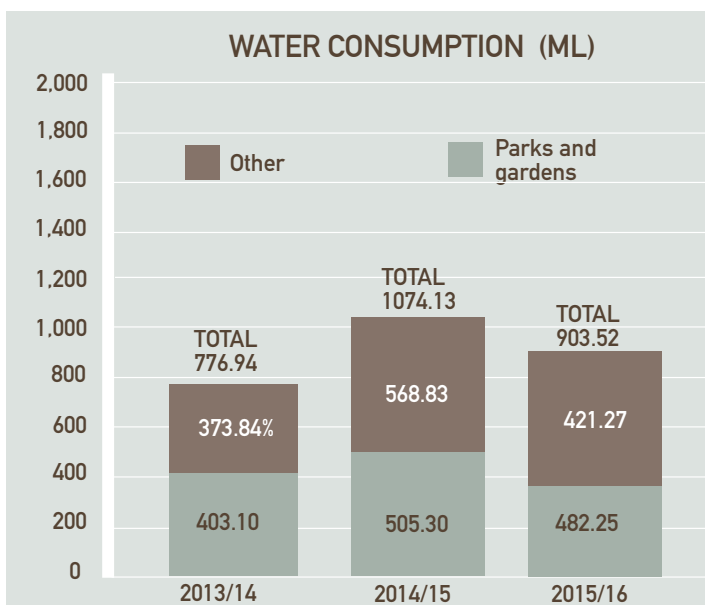
ENERGY AND EMISSIONS

Council is on track to meet its 50% greenhouse gas emissions reduction target by 2020 from 2007/08 levels. Current initiatives contributing to this overall reduction include:

- methane flaring at the closed Portsmith Landfill
- energy efficiency projects across the organisation, such as optimised waste water treatment and building retrofits
- fuel efficient fleet of vehicles
- ongoing monitoring of 450+ electricity accounts through an Energy and Emissions System.



Council has captured and destroyed an average of 5,000 tonnes of carbon per year from the closed Portsmith Landfill since 2012. In 2015/16 this earned Council 5,383 Australian Carbon Credit Units.



STAFF ENGAGEMENT

Workplace Giving

A Reef Guardian workplace giving program was established in February 2016 to raise funds for the Cairns Turtle Rehabilitation Centre, an organisation dedicated to the care of sick and injured turtles. Tax deductible donations made by staff are matched by Council dollar for dollar, which raised more than \$5,000 by July 2016.

Sustainability Inductions

Council delivers sustainability inductions to all new employees, introducing the concept and case for sustainability, an overview of Council's commitment and notable achievements. Over 200 staff received the induction in 2015/16.

Workplace Excellence Awards

Council hosts an annual in-house awards ceremony to recognise excellence in the workplace. It includes a sustainability category which celebrates the practices, achievements and innovations of managing impacts on the natural environment, improving resource efficiency and supporting the community.

Sustainable Procurement

Council promotes environmental protection and the development of competitive local businesses and industry through its procurement policy and procedures. The combination of all direct and ripple effects from Council spending generated a \$314 million contribution to gross regional product.

WATER CONSUMPTION

Council is one of the major water users in the region, responsible for large areas of public grounds and facilities. Every year, additional parks and gardens are managed by Council as new developments and subdivisions are added. Council uses a central control system for irrigation to manage water needs according to weather and is a major user of recycled water at wastewater treatment plants and the Cairns Botanic Gardens. In 2015/16 Council's water consumption decreased by almost 16%.

CAIRNS REGIONAL COUNCIL

	2013/14	2014/15	2015/16	PERCENTAGE CHANGE IN 2015/2016
BUILT ENVIRONMENT				
Estimated Residential Population	157,080	158,985	160,285	+0.8%
Planning and Development				
Building Approvals	634	669	790	+18%
Residential building approvals	630	613	710	
Non-residential building approvals	4	56	80	
Low Carbon Travel				
Length of shared pathways and cycleways (km)	490	494	504.8	+2.1%
Cyclist count on 'Super Tuesday'	1,170	1,772	2,082	+17.4%
Urban Environmental Management				
Cat traps applied	-	-	114	
Volume debris removed from Gross Pollutant Trap network (m3)	-	-	133.5	
Waste and Recovery (tonnes)				
Total collected	-	110,995	117,745	+6.1%
Quantity landfilled	-	56,495	55,219	-2.3%
Quantity diverted from landfill	-	54,500	62,526	+14.7%
Total recovery rate	-	49%	53%	+4%
Residential Contamination Rate (%)				
Waste materials in kerbside recycling	10.8	9.4	9.9	+0.5%
Recycling materials in kerbside waste	23.3	23	20	-3%
Waste and Recovery Education Reach (persons)	-	-	2,000	

TERRESTRIAL BIODIVERSITY

Revegetation

Trees raised for Council revegetation and conservation projects in the region	17,013	18,063	18,652	+3.2%
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Biosecurity

Hours spent on pest plant control	4,652	4,914	3,189	-35%
Hours spent on pest animal control	1,880	1,880	1,691	-10%
Feral pigs destroyed	135	137	138	

WATER AND WATERWAY HEALTH

Potable Water Consumption (ML)

Total	23,218.5	25,050.4	23,416.8	-6.7%
Residential	16,544.9	17,965	16,954.1	-5.6%
Number of residential connections	68,130	68,321	69,490	+1.7%
Commercial, industrial, municipal	5,338.8	6,360.5	6,172.9	-2.9%
Other	13,34.7	724.9	289.8	-60%

Waste Water (ML)

Total	20,653	18,944	18,570	-2%
Recycled	11.1%	11.6%	8.2%	-29.7%
Discharged	88.9%	88.4%	91.8%	+3.8%
Number of waste water network serviced properties	-	66,209	70,804	+6.9%

Water and Waste Water Education Reach (persons)-

	-	925		
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COUNCIL OPERATIONS	2013/14	2014/15	2015/16	PERCENTAGE CHANGE IN 2015/2016
Emissions (tco2e)				
Total	36,836	33,480	34,461	+2.9%
Facilities Electricity	6,743	6,486	6,565	+1.2%
Streetlight, Traffic and Public Lighting	6,729	7,564	7,878	+4.1%
Water and Sewerage Electricity	13,937	12,966	13,669	+5.4%
Waste Water Treatment Fugitive Emissions	3,117	3,101	3,101	
Portsmouth Landfill	0	0	0	
Vehicle Fuel Use	4,569	3,363	3,248	-3.4%
Fuel Consumption (ML)				
Total	1.72	1.26	1.21	-3.9%
Diesel	1.54	1.18	1.14	-3.4%
Unleaded	0.18	0.08	0.07	-14%
Total Energy Cost (\$)				
Energy Cost (electricity, fuel, other)	10,470,172	9,760,134	9,451,989	-3.2%
Water Consumption (ML)				
Total	776.94	1,074.12	903.52	-15.9%
Parks and Gardens	403.1	505.3	482.2	-4.6%
Other Facilities	373.84	568.83	421.27	-25.9%

REFERENCES

Australian Bureau of Statistics. 2016. Building Approvals, Nov 2016-8731.0. <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8731.0>

Hunt, R. 2016. Wet Tropics Pilot Report Card Results 2015: Waterway Environments. Wet Tropics Health Waterways Partnership and Terrain NRM, Innisfail
<http://wettropicswaterways.org.au/wp-content/uploads/2016/12/Results-Final-V3.pdf>

Local Government Research Group, CDM Research. 2016. National Cycling Participation Survey 2016.

Queensland Government. Department of Environment and Heritage Protection. 2016. Wetland Info.
<http://wetlandinfo.ehp.qld.gov.au/wetlands/assessment>

Queensland Government. Department of Environment and Heritage Protection. 2016. Waste Data and Reporting, State of Waste and Recycling in Queensland 2015.
<https://www.ehp.qld.gov.au/waste/pdf/state-of-waste-report-2015.pdf>