



state of
environment
report



2014/15



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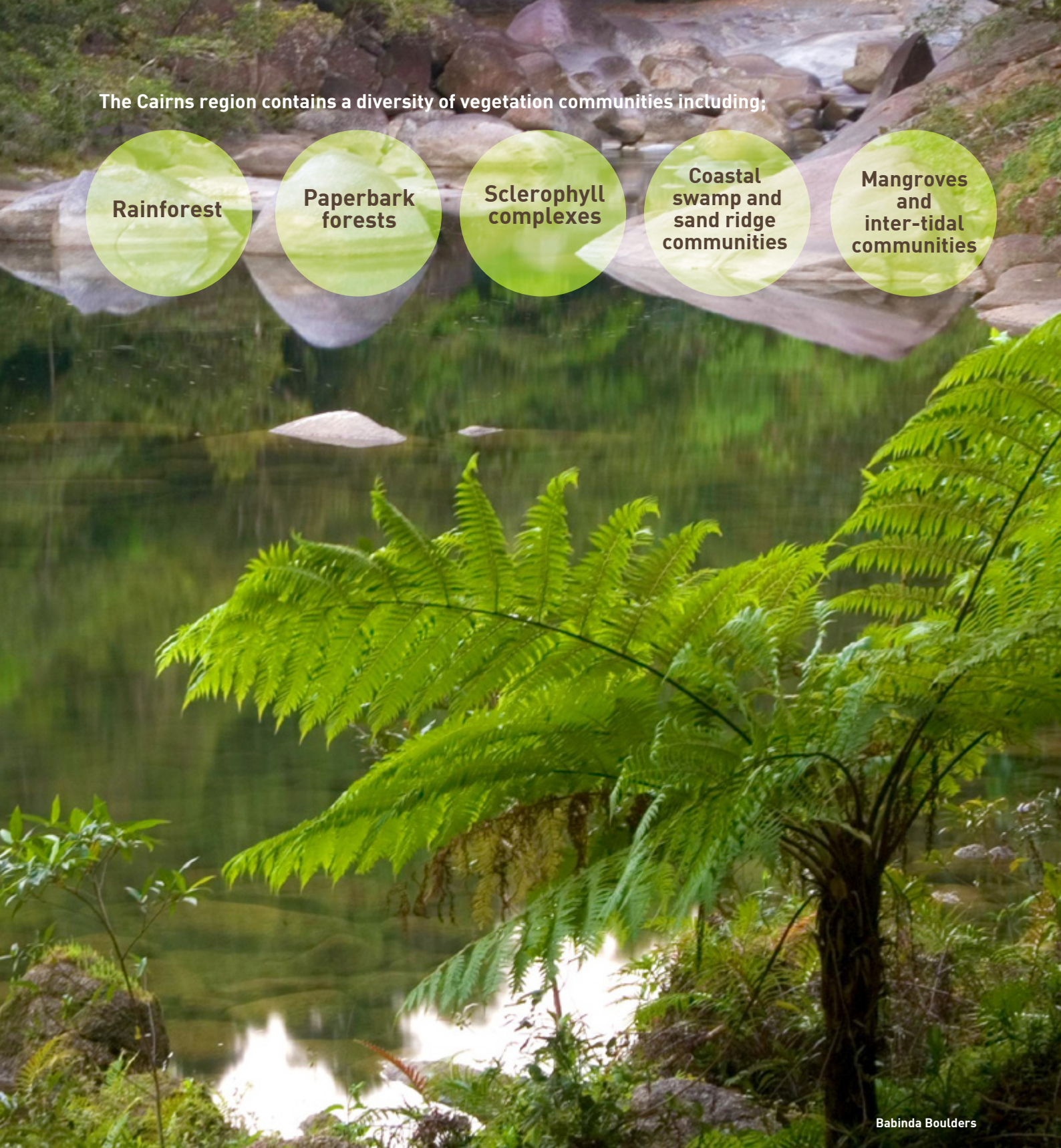
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Cairns Regional
COUNCIL



The Cairns region contains a diversity of vegetation communities including;

Rainforest

Paperbark forests

Sclerophyll complexes

Coastal swamp and sand ridge communities

Mangroves and inter-tidal communities

Babinda Boulders

ABBREVIATIONS

CRC: Cairns Regional Council SoE: State of Environment
"Cairns" "The City" "The Region" and "Cairns Region" refer to Cairns Regional Council Local Government Area.

preface

The State of Environment (SoE) report summarises Cairns Regional Council's environmental and urban sustainability initiatives in 2014/15. It presents data using a refined set of indicators, with comparisons from 2013/14 provided, following de-amalgamation with Douglas Shire in January, 2014. Whilst SoE reporting isn't a statutory requirement in Queensland, Cairns Regional Council is committed to transparently reporting its actions to the community, with this being the tenth annual release of the report.

SNAPSHOTS 2014/15



49%
RECYCLE RATE

64%

reduction in residual glass to landfill due to Council's new Crushed Glass technology



20 hybrid electric vehicles in Council's fleet



27%
reduction in fuel use saving \$850,243

did you know? You can now recycle electronic waste and house hold batteries at Portsmith & Smithfield Transfer stations for free

7%

increase in total water consumption per capita

11.6%

WASTE WATER REUSED

24%

reduction in electricity usage for Councils top 11 consuming facilities

45%

reduction in greenhouse gas emissions since 2007/2008

\$1,325,664

AVOIDED IN ELECTRICITY COSTS THIS YEAR



5,000 TONNES
OF CO2 EQUIVALENT DESTROYED FROM THE PORTSMITH LANDFILL



Cairns Regional
COUNCIL



Crystal Cascades

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

introduction

The Cairns Regional Council local government area covers 1,688 km² which in 2014 was home to 158,985 people. It has experienced an average annual growth rate of 1.7% over the last five years and is made up of culturally diverse residents residing in both rural and metropolitan communities. Situated in the most biodiverse region in Australia, it contains a rich array of ecosystems fringed by the world heritage listed Great Barrier Reef Marine Park and Wet Tropics Rainforest. As the major commercial, business and service centre of Tropical North Queensland, it contains over 13,000 local businesses. This local economy is largely underpinned by the region's natural assets, which draw over 2 million visitors to the region each year.



**FIND OUT
MORE**

Check out Cairns
community profile
[online](#)

The Barrier Reef Hotel adjacent to the Cruise Liner Terminal, both heritage listed buildings.





Resurrection plant (*Borya septentrionalis*) on Walsh's Pyramid

Cairns Walking and
Cycling networks spans

494

KILOMETRES

built environment

Land use planning establishes the parameters for activities across the region and responds to the pressures a growing population places on the character of an area and its local ecosystems. Council recognises that a large amount of the region's vegetation resides on private property and as such, has [vegetation protection](#) planning provisions in place. These planning provisions protect regionally significant, rare or threatened plant species, as well as areas that act as wildlife corridors or form significant catchment areas. Council is also committed to [active travel](#) in the region and continues to expand the cycling and walking network, producing maps and monitoring bicycle commuter numbers annually, as supported by community programs.

CITY CENTRE ALIVE, LAKE ST

INFRASTRUCTURE SERVICES

The \$20 million City Centre Alive, Lake St connection project improves the flow of public transport and pedestrian movement in the Cairns CBD. It features,

- Pedestrian-friendly, mixed-use zone.
- Purpose-built public transport hub
- Over 4000 plants, including 200 native trees.
- Widened footpaths and bicycle racks
- Interpretive signage showcasing the region's wildlife and history.
- LED lighting.
- Constructed predominantly by Council staff and local contractors
- Pavers which were removed have since been reused in suburban enhancement projects



Lake St Transport Hub, able to cater for 1.4million passenger movements a year.

BUILT ENVIRONMENT

	2013/14	2014/15	Change
Building Approvals	2,355 (242 residential)	2,526 (225 residential)	+7% (-7%)
Cycling/Walking Network	490km	494km	+1%
Super Tuesday Bicycle Commuter Survey	1,170	1,772	+51%

REDLYNCH TO BRINSMEAD CYCLEWAY



PARKS AND LEISURE, ACTIVE TRAVEL

Council is committed to the region's [Cycling and Walking Strategy](#) and this year added another 4km to the network, largely through the popular Brinsmead to Redlynch Valley Cycleway. An estimated 5,000 people a week use the path which provides a scenic and safe alternative to active travel on roads.

DRAFT CAIRNS REGION PLANNING SCHEME

STRATEGIC PLANNING

Natural values that underpin state and federal legislation have informed this holistic planning approach to protect and maintain areas of environmental significance and balance The City's growing needs. In line with community consultation and development since 2011, the scheme preserves the city's unique character and includes provisions for,

- Modern and flexible planning controls for higher density living in centres with employment, services and transport hubs. This includes the expansion of height limits in Cairns city and parts of North Cairns.
- Promotion of the 'tropical urbanism' character through landscaping, architectural street canopies and new requirements of developments, such as a 15% minimum of vertical landscaping.
- The introduction of local plans providing locally focussed, detailed planning outcomes.



An artistic expression of vertical landscaping in the Cairns CBD.

Tropical Urbanism is the integration of landscaping and tropical design elements into the built environment. Such development includes,

- Minimisation of radiant heat and heat island effects
- Air circulation, breeze permeation and passive cooling
- Generous outdoor living spaces
- High quality landscaping



The potable water network serviced
68,321
 residential properties
 consuming a total of
 17,965 megalitres at
 a cost of \$1.11 per
 kilolitre

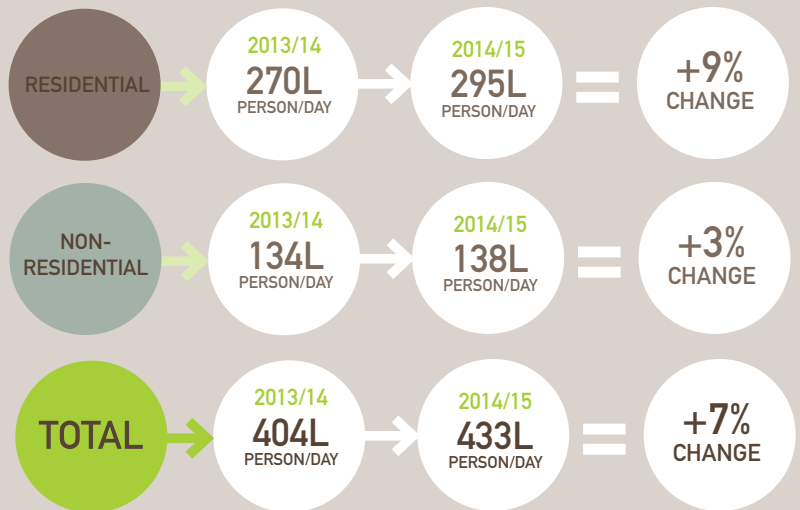
Behana Creek

water

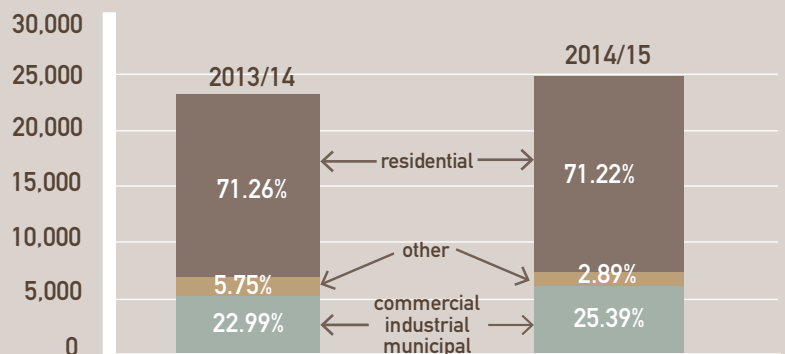
The Cairns community is [supplied with water](#) from Copperlode Falls Dam and Behana Creek, as well as small intakes (creeks) across the region. Council conducts water treatment, extensive testing and maintenance of reservoirs and over 2,000km of water mains in the region to ensure reliable service. Whilst Cairns receives one of the highest rainfall rates in Australia, this is seasonal and a growing population, changing climate and limited water storage capacity places pressure on the region's water supply. Council considers water security a priority and is engaged in a comprehensive demand management strategy, involving; education, system leak detection, promotion of recycled water use and innovation through technology.

- One of the key factors for increased consumption is rainfall, with Cairns experiencing a drier 2014/15 than the previous year. (Cairns received 1,512.6mm of rain in 2014/15, compared with 2,010 mm in 2013/14, a reduction of 24.8%. Bureau of Meteorology, Cairns Aero Station (accessed 7th Jan 2016).
- Council's water consumption can be found on Pg.21

PER CAPITA CONSUMPTION (LITRES)



ANNUAL CONSUMPTION BREAKDOWN





Lake Morris

CAIRNS WATER SECURITY STRATEGY

WATER AND WASTE

[This report](#) provides a preferred strategy aimed for water management and infrastructure to meet future needs in Cairns over the next 30 years. It includes a set of recommendations from the community-based Water Security Advisory Group which met over 12 months to consider the region's needs and was noted by Council in April 2015.

It includes:

- Investigation of further treatment plant requirements and additional water source options.
- Development of a Demand Management Strategy to identify potential programs such as, efficiency measures for new developments, water pressure reduction and leakage management, retrofit programs, sub-metering for multi-family dwellings, community education and a smart meter water network to provide real time consumption data.



FIND OUT MORE

[See the National Performance Report for Urban Water Utilities 2013/14](#)



Water Treatment Plant

The wastewater network serviced

66,209

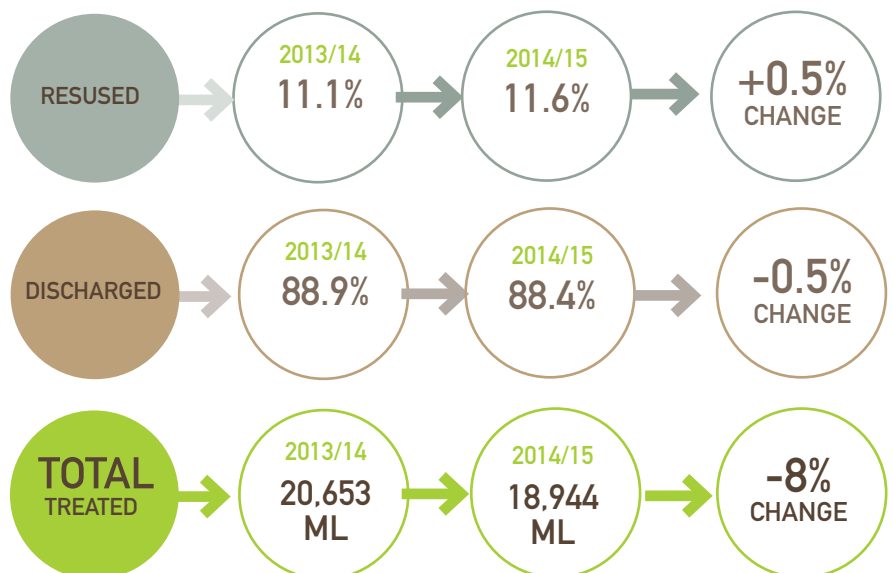
properties, collecting 286.1 kL per property.

wastewater

Council employs a range of [wastewater](#) treatment processes to remove pollutants from the water so it can be safely reused or returned to the environment. There are six sewerage treatment plants in the Cairns region. Four of these treatment plants were upgraded as part of the [Cleaner Seas Project](#). The upgrade of these plants has enabled the production of exceptionally clean Class A recycled water. The submerged membrane filter technology used significantly reduces the amount of nitrogen and phosphorus flowing into local waterways, the Trinity Inlet and inshore waters of the Great Barrier Reef.

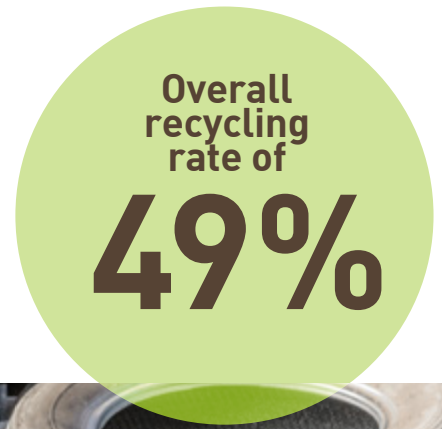
Total wastewater treated was 18,944 ML, of which 11.6% was reused in applications such as irrigation on Cairns major golf courses, Yorkey's Knob School and the Cairns Botanic Gardens

WASTEWATER



waste & recycling

Cairns Regional Council considers waste a resource and is committed to the reduction of waste generation in the region, increased recycling and improved recovery processes. Waste and recycling in Cairns are received at three major recovery points shown below. Because there are no new landfills permitted in Cairns residual waste that is not captured by these recovery processes is transported to landfill on the Atherton Tablelands.



Self-hauled waste destined for landfill.
Self-hauled recycling (including green waste, scrap metal, tyres, recycling, Buy Back Shop items etc.)



Kerbside collected recycling (yellow bin). Sorted recyclable materials are largely directed to Brisbane, with glass crushed on site



Kerbside collected waste (green bin). This is processed into soil conditioner through the Bedminster System with the residual, non-organic waste transported to landfill on the Atherton Tablelands.



The Re-Discovery Centre is Council's purpose-built interactive waste education facility.

- As a part of its [Waste Management Strategy \(2010-2015\)](#), Council has a robust, multi-media communications and education strategy for the community.
- Council provides interactive tours, teaching [resources](#) and waste services to schools.
- Council supports the increased uptake of recycling services by [businesses](#) and [multi-unit dwellings](#) across the region.



Recycle Right billboards highlight recycling information for the Cairns community.

CRUSHED GLASS RECYCLING

WASTE AND ENVIRONMENT

Council typically receives 5,000 tonnes (t) of glass for recycling per year, however, previously only 1,000t of this was able to be recycled due to restrictions with processing capabilities. In response to this, Council has installed facilities to crush residual glass which can be used in a wide variety of applications such as civil construction, as a fine aggregate sand replacement or decorative material. It is anticipated that a strong uptake in the region will reduce local demand for quarried material.

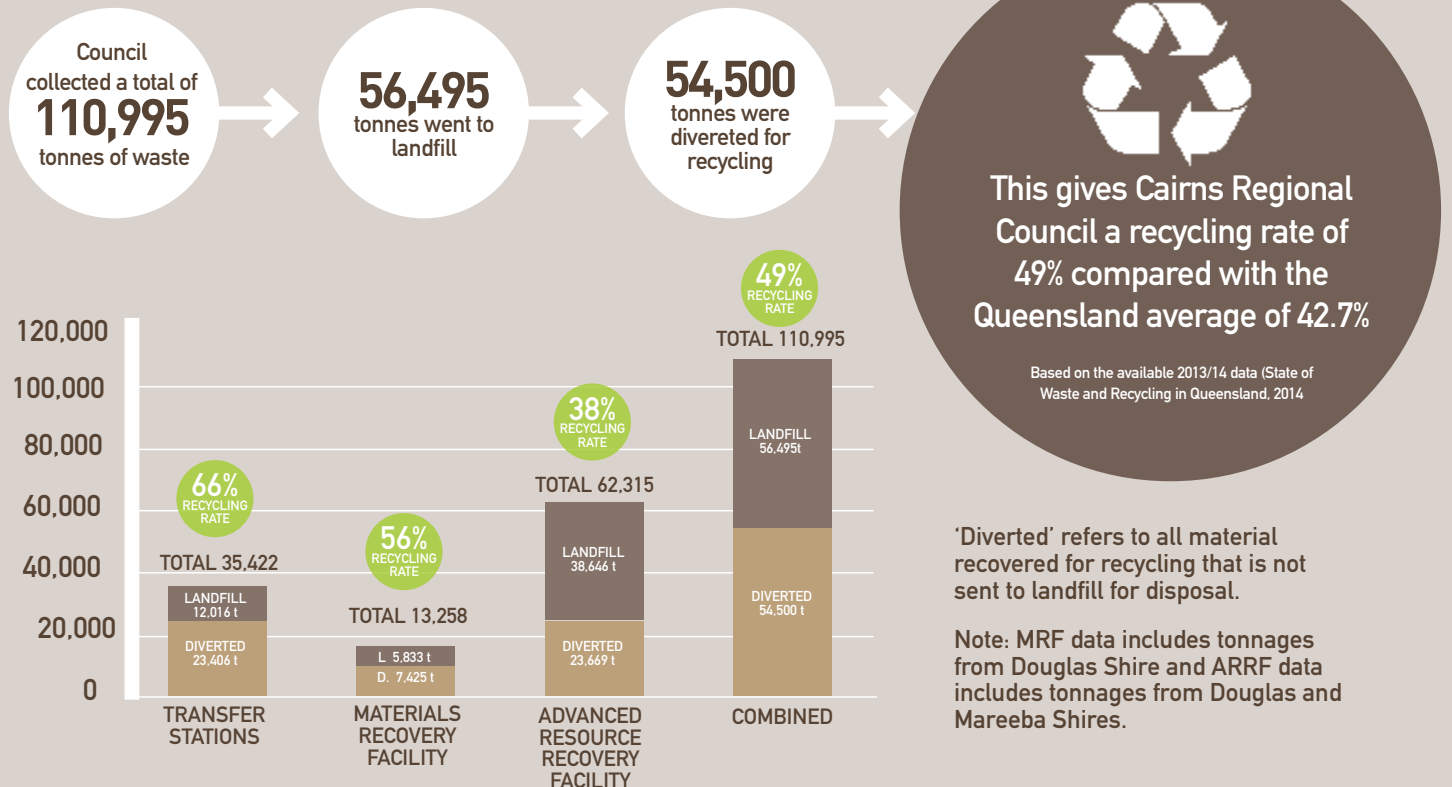
DID YOU KNOW?

More than 40% of items in kerbside collected recycling is made up of glass.



Crushed glass can be used for a variety of applications in civil construction, as a fine aggregate sand replacement or decorative material.

RECYCLING BREAKDOWN



WHICH BIN do I put it in?

UNSURE?
CHECK OUT COUNCIL'S RECYCLE RIGHT WEBSITE.

RECYCLING RATES	2013/14	2014/15
Overall recovery rate	50%	49%
CONTAMINATION:		
Waste in domestic kerbside recycling bin	10.8%	9.4%
Recycling in domestic kerbside waste bin	23.3%	22.96%

The Wet Tropics contains the oldest continuously surviving tropical rainforests on earth containing:

- 40% of Australia's bird species
- 35% of Australia's mammal species
- 60% of Australia's butterfly species
- 30% of Australia's orchid species
- 21% of Australia's cycad species
- 65% of Australia's fern species
- 20% of Australia's reptile species
- 29% of Australia's frog species

(Wet Tropics Management Authority, 2015)



Golden Penda (Xanthostemon chrisanthus)

biodiversity

The Cairns region is renowned for rich biodiversity within its borders and is fringed by both the World Heritage listed Wet Tropics Rainforest and Great Barrier Reef Marine Park. Protecting the health of ecosystems in this bioregion is intrinsically linked to these iconic natural assets and is essential to retain biodiversity endemic to the Cairns area.

[The Natural Areas Management](#) (NAM) unit of Council actively manages 108 ha of land, as well as supporting eight community land care groups across the region. Council operates a native plant nursery in Stratford to propagate rare and threatened species for revegetation projects and is heavily engaged in weed and [pest management](#).



Council's Stratford Nursery

Council operates a native plant nursery in Stratford to propagate rare and threatened species for revegetation projects and is heavily engaged in weed and pest management



Treeforce planting along Freshwater Creek, Redlynch

SNAPSHOTS 2014/15

Council's active tree planting program supported:

1. Treeforce
2. Mulgrave River Landcare
3. Russell River Landcare
4. Cairns Urban Landcare
5. Jarragun Natural Resource Management
6. Dawul Wuru Aboriginal Corporation
7. Holloways Beach Coast Care
8. Barron River Care



Stockwellia (Stockwellia quadrifida), found on the Bellenden Ker Range.

COUNCIL
MANAGED AREA



WEED
CONTROL



PEST ANIMAL
MANAGEMENT



PEST MANAGEMENT PLAN 2015-2018

NATURAL AREAS MANAGEMENT

[This plan](#) outlines the processes for,

- Best practice management and monitoring for critically declared pest animals and plants.
- Stakeholder commitment to pest management.
- Increased community awareness of the impacts and management of pests.
- Preventing the introduction of new pests and responding to incursions.



DID YOU KNOW?

Dumping your garden waste over the back fence or onto nearby bushland or creek banks not only attracts fines, it's also one of the most common ways that invasive species are spread, such as the damaging [yellow crazy ant](#) infestation. Check out Council's [Weed Watch](#) booklet including common invasive garden plants to avoid.



Daintree Pine (*Gymnostoma australianum*)

community engagement

Actively engaged communities are essential in successfully addressing local environmental issues. Community participation can deepen an awareness of the surrounding natural environment and personalise commitments to its wellbeing, which is vital for driving long-term projects and fostering sustainable lifestyles. Council recognises that sustainable development of the Cairns Region requires [education](#), support and an ethos of collective responsibility to balance the needs of current generations with those of the future.

ANNUAL EVENTS

Council supports a range of ongoing sustainability initiatives throughout the year including,

- [Ride To Work Day](#) (Active Travel)
- [Community Bike Rides](#) (Active Travel)
- [Sustainable House Day](#) (Sustainability Unit)
- Tropical Tree Day (Natural Area Management)
- National Recycling Week (Water and Waste).



Educational solar energy demonstration



The hugely popular markets at the Cairns ECOfiesta



Cirque Eco captures the crowd using their solar powered rig

ECO FIESTA & ECO WEEK SUSTAINABILITY UNIT

Based on the triple bottom line of Economy, Community and One planet (ECO), the [ECOfiesta](#) is a multi-arts, family friendly festival celebrating the natural environment and sustainable lifestyles within it. Showcasing the strong eco-business and not for profit sector in the region, the event attracted 99 vendors and more than 9,000 attendees in its inaugural year.

[ECOweek](#) is a weeklong program around World Environment Day that brings together events, workshops and sustainable product promotions from across North Queensland. Supported by Regional Development Australia and neighbouring councils, the diverse program included over 50 events in its first year

LOVE TO RIDE ACTIVE TRAVEL

In support of active travel to work, Council delivered the motivational [Love to Ride](#) challenge, with 52 organisations in the Cairns region participating. This included 609 people, of which 183 were new riders, who collectively logged 5,921 rides.





Woree Skate Park drain

YOUTH STORM Sustainability Unit

Council conducted a street art workshop at the Woree Skate Park to raise awareness about the environmental impacts of litter in the area surrounding Gordon Creek, which flows to the Trinity Inlet. A mural was installed on the stormwater culvert at the skate park to encourage responsible waste disposal and was complimented by a skate workshop.

DRAIN STENCILLING PROJECT

Sustainability Unit

Council prompts the community to consider the impacts that common pollutants in our storm water system have on sensitive freshwater and marine ecosystems. Council supports the [Cairns and Far North Environment Centre](#) (CAFNEC) project which reminds the community to ensure that pollutants such as litter, oil, garden waste, car washing liquid and fertilizer don't make it to the drains.



Stormwater Drain Stencilling

GO CLUBS: GREENER BUILDING INITIATIVE

Sports and Recreation

Council provided [grants](#) to Go Club accredited Sports and Leisure Clubs to reduce energy consumption, operating costs and the overall environmental impact of their facilities. Council provided free audits and financial assistance to implement priority recommendations following the advice. The following clubs received grant support in 2014/15;

- Mulgrave Combined Cricket Association
- Cairns Cricket Association
- Cairns City Lions Junior AFL Club
- Ellis Beach Surf Lifesaving Club
- Kangaroos Junior Rugby League, Rugby League, Boxing and Fitness Club





Spotted tailed Quoll (*Dasyurus maculatus gracilis*)

COMMUNITY SUSTAINABILITY GRANTS (2014/15)

Sustainability Unit

Since 2010, Council has provided [annual funding rounds](#) of \$20,000 for community projects that save energy, water, reduce waste, promote active travel, local food production and biodiversity improvements in the region. A total of eight organisations received grant support in 2015:

- REAP Food Rescue: *Key infrastructure to transport rescued food to local charities*
- Turtle Rehabilitation Centre: *Specialist turtle transport boxes*
- Australian Quoll Conservancy: *Purchase of cameras for biodiversity surveys*
- Cairns TAFE Community Child Care Centre: *Creation of community garden*
- Mother of Good Council P&E Assoc.: *Yarning Circle and bush tucker garden*
- Cairns Area Fish Stocking Group: *Purchase of fish to stock catchments*
- Cairns PCYC School Aged Care: *Creation of community garden*
- Bayview Heights Community Garden: *Community herb garden*



Turtle Rehabilitation Centre



Recycled costume design

In 2014/15 Tropical Arts Network received funding for recycled props, costume and set design for the 'Much Ado About Dragons' production. Workshops working with the materials preceded the show which included actors with disabilities and featured Auslan interpreted shows.



Backyard chickens on display at the Cairns Permaculture Expo

In 2014/15 Permaculture Cairns held the annual Permaculture Expo and an affordable workshop series on local food production, supported by Council's Community Sustainability grant.

- Over 90 participants learnt skills for growing tropical food species organically, using minimal water and nutritious compost. Teachings on permaculture design to encourage backyard biodiversity and divert food waste were also provided.
- 250 people attended the Permaculture Expo which included presentations on sustainable energy options, permaculture ethics and the value of supporting local farmers.

Council has reduced
its green house
gas emissions

45%

since 2007/08



Cairns Lagoon



council operations

Cairns Regional Council is committed to continually embed sustainability into its operations. As one of the largest organisations in the region there are significant opportunities to lead the way in projects and processes with triple bottom line benefits- for the environment, economy and community. In 2014/15 Cairns Regional Council was responsible for:

1,688km²
of land, including
2,073 Ha of
parkland

\$3.5 billion
of assets and
more than \$110m
of capital works

More than
1,200 staff
with 400-500
in the field
each day

EMISSIONS UPDATE SUSTAINABILITY UNIT

Council remains on track to meet its 50% emissions reduction target by 2020, having reduced emissions by 45% since 2007/08. This baseline has been revised to reflect more accurate landfill gas data and de-amalgamation with Douglas Shire.

³ Emissions from streetlight electricity increased substantially in 2014/15 as a result of an Ergon streetlight audit that attributed a large number of additional streetlights to Council.

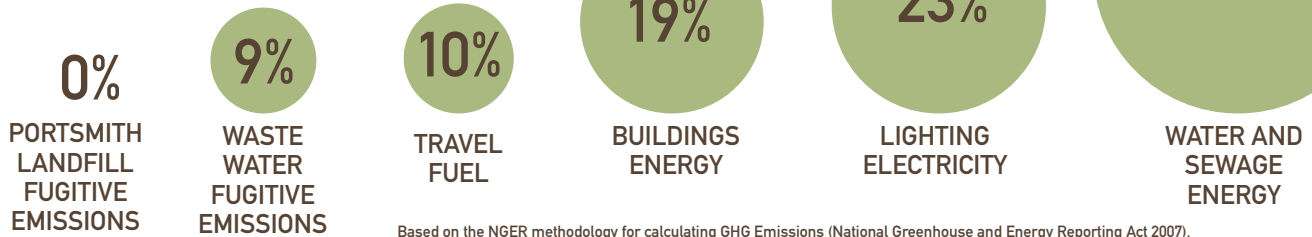
⁴ 2007/2008 baseline data is prior to the expansion of waste water treatment plants through the Cleaner Seas Program. Since its commissioning in 2009 the operators have continually optimised treatment processes to reduce electricity consumption by over 30%.

⁵ Previously estimated as 9,807 tCO₂e, however recent mapping has confirmed that zero emissions have escaped from the capped Portsmouth landfill as a result of the active capture and flaring of landfill methane.

Emissions Source	2007/08 Baseline ⁶ (tCO ₂ e)	2013/14 (tCO ₂ e)	2014/15 (tCO ₂ e)	Change	Difference to 2007/8
Building Electricity	9,507	7,424	6,851	-7.7%	-27.9%
Streetlights Electricity ³	6,391	7,057	7,990	+13.2%	+25%
Water/Sewerage Electricity	12,739 ⁴	14,669	13,696	-6.7%	+7.5%
Waste Water Fugitive Emissions	12,879	3,117	3,101	0.5%	-75.9%
Portsmouth Landfill	18,927	0 ⁵	0	No change	-100%
Vehicle Fuel Use	3,500	4,569	3,363	-26.3%	-3.9%
TOTAL	63,943	36,836	35,002	-4.9%	-45%

⁶ This baseline has been revised to reflect more accurate landfill gas data and de-amalgamation with Douglas Shire

2014/15 GREENHOUSE EMISSIONS BY ACTIVITY (%)



Based on the NGER methodology for calculating GHG Emissions (National Greenhouse and Energy Reporting Act 2007).

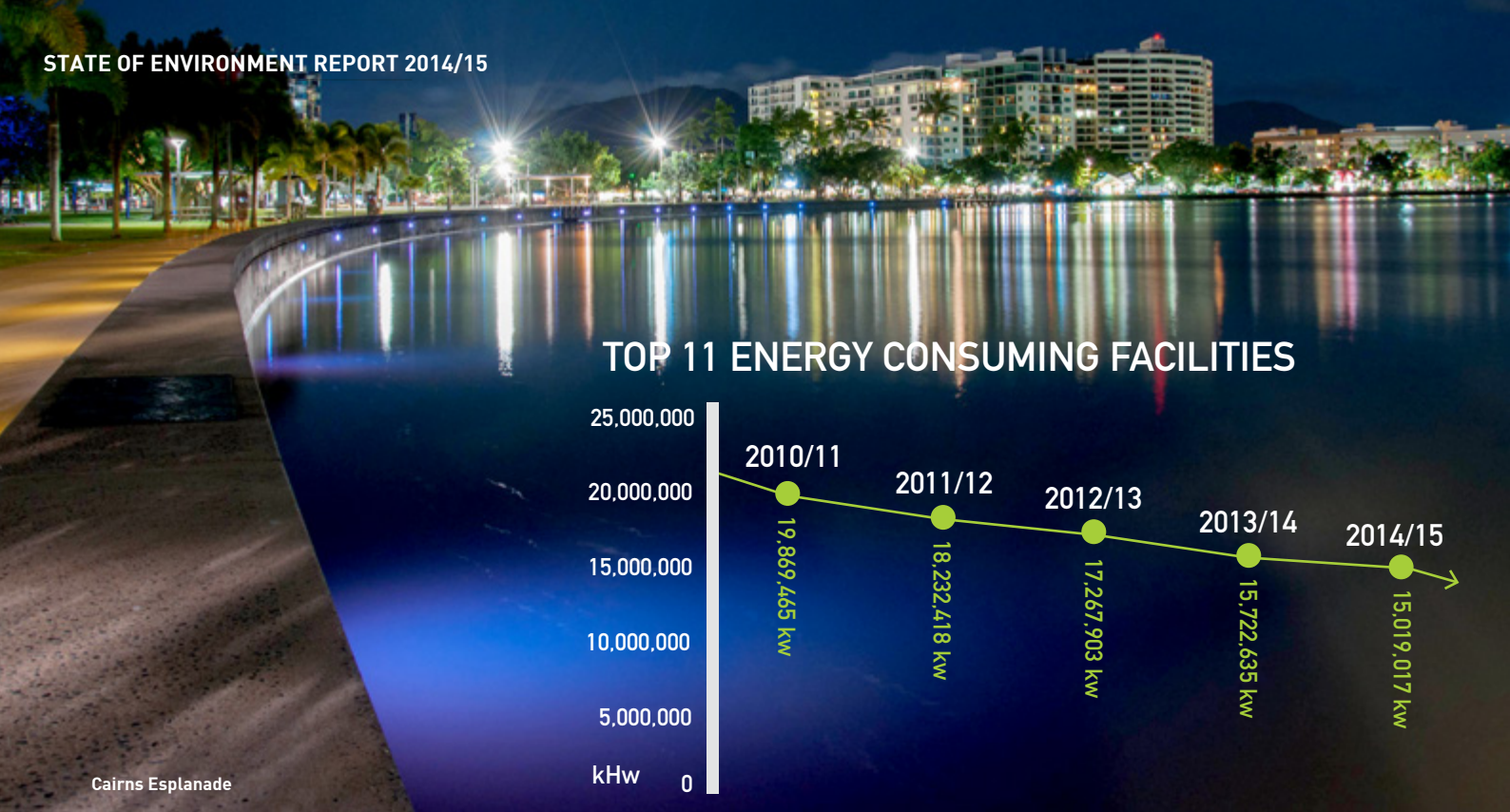


Council's methane destruction has reduced emissions by 5,000 tCO₂e per year, equivalent to taking 1,000 cars off the road

CARBON CREDITS FOR METHANE DESTRUCTION

WATER AND WASTE

Cairns Regional Council has captured and flared methane from the now closed Portsmouth Landfill since 2012, resulting in the destruction of approximately 5,000 tonnes of CO₂ equivalent per year. The project has been registered under the Federal Government Emissions Reduction Fund, enabling Council to acquire Australian Carbon Credit Units (ACCU). These Credit Units have been used to offset the costs of operating the flare, resulting in improved environmental outcomes.



Cairns Esplanade

TOP 11 ENERGY CONSUMING FACILITIES



ENERGY MANAGEMENT UPDATE ACROSS COUNCIL

Council has a comprehensive internal Energy and Emissions Management System that has been integral in directing energy efficiency initiatives across the organisation's high consuming facilities. This downward trend can be seen above.

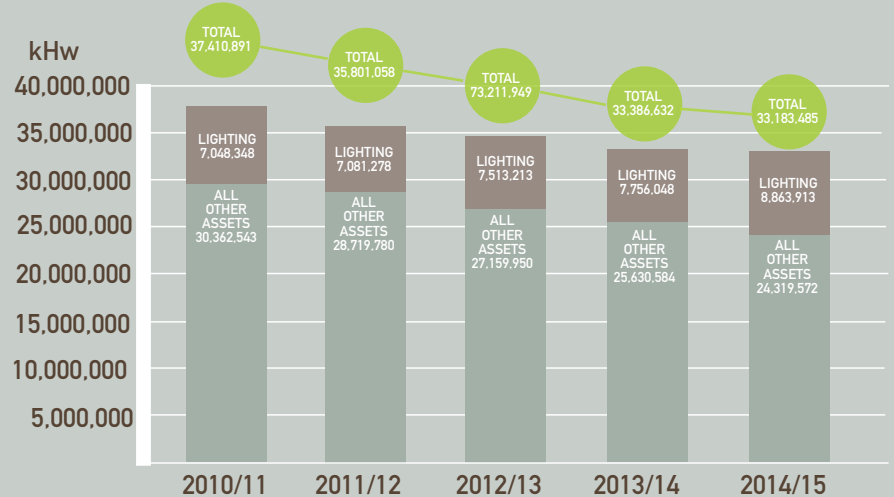
- In 2015 Minimum Energy Performance Standards were embedded into the project management process for all new capital works..
- Council's total energy spend in 2014/15 was \$9,760,134. This includes fuel, gas and electricity. Electricity accounts for 86% of the total cost. Annual tariff reviews are conducted by Council on its 500 plus accounts to ensure additional costs are avoided.



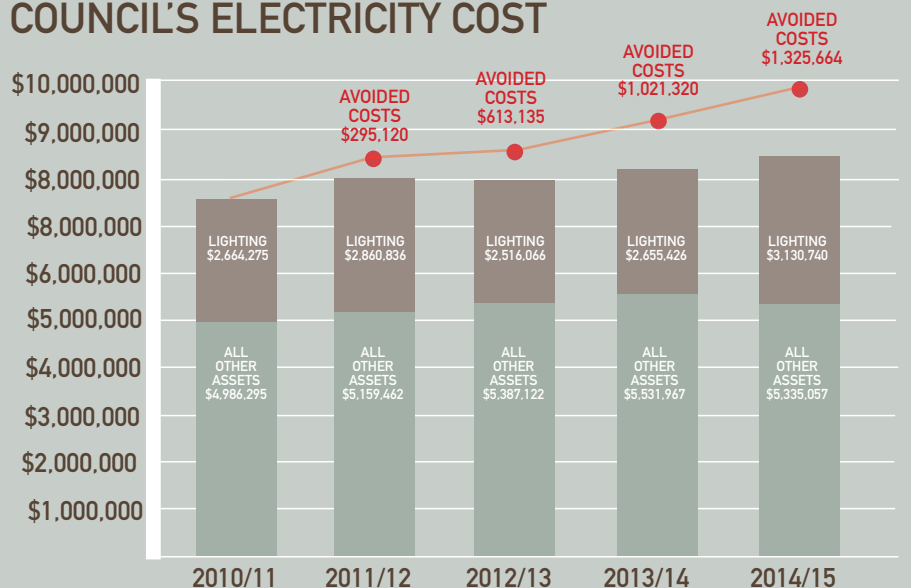
Council has avoided **\$1,325,664** in electricity costs this year.

[Find out how](#) your household can save and reduce greenhouse gas emissions.

COUNCIL'S ELECTRICITY CONSUMPTION



COUNCIL'S ELECTRICITY COST



Streetlight electricity increased substantially in 2014/15 as a result of an Ergon streetlight audit that attributed a large number of additional streetlights to Council.

WATER & WASTE

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.

There are many factors influencing Council's trending consumption such as new irrigation and water point requirements, capital development, and changing maintenance cycles. A major factor for increased consumption (both residential and Council use) in 2014/15 was a dryer climate.

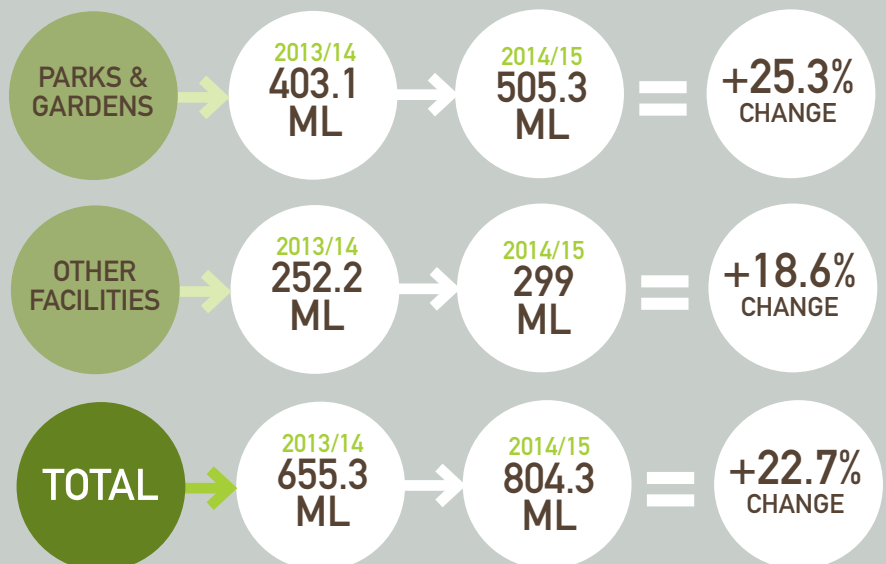
Council uses a central control system for irrigation to manage water needs according to weather and is a major user of recycled water, at wastewater treatment plants and The Cairns Botanic Gardens. Council's Demand Management Strategy that is currently being developed will ensure further savings are made in years to come.



Recycled Water in use at Cairns Botanic Gardens



ANNUAL WATER CONSUMPTION



Cairns received 1,512.6mm of rain in 2014/15, compared with 2,010 mm in 2013/14, a reduction of 24.8%. Bureau of Meteorology, [Cairns Aero Station](#)



Council has exchanged
20
petrol vehicles for
hybrid electric
cars

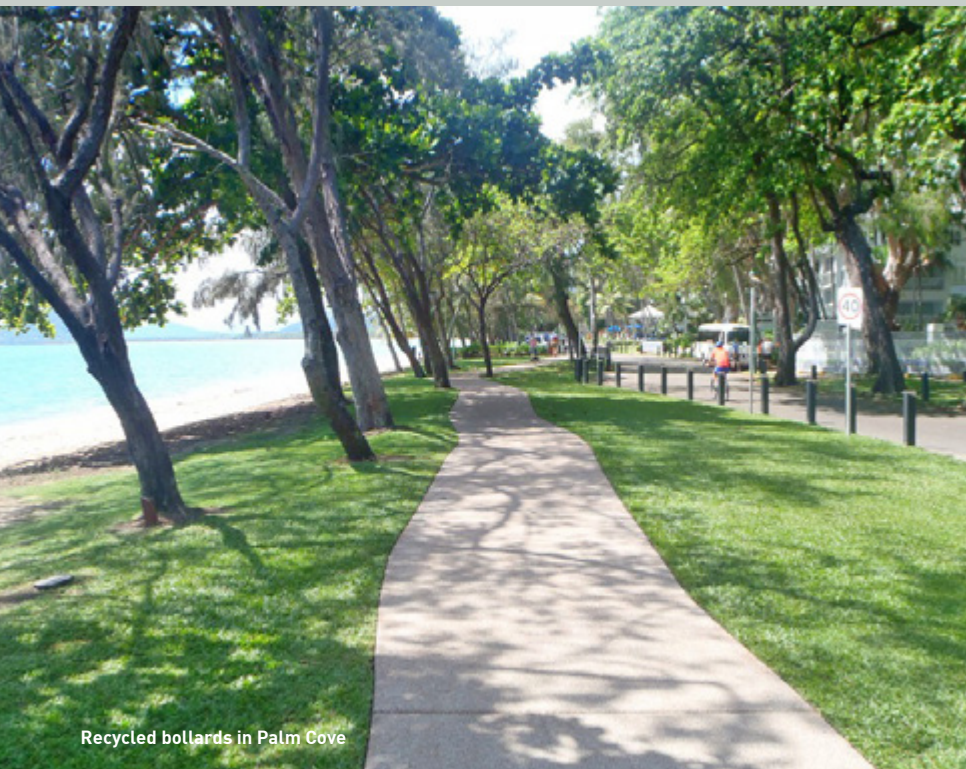
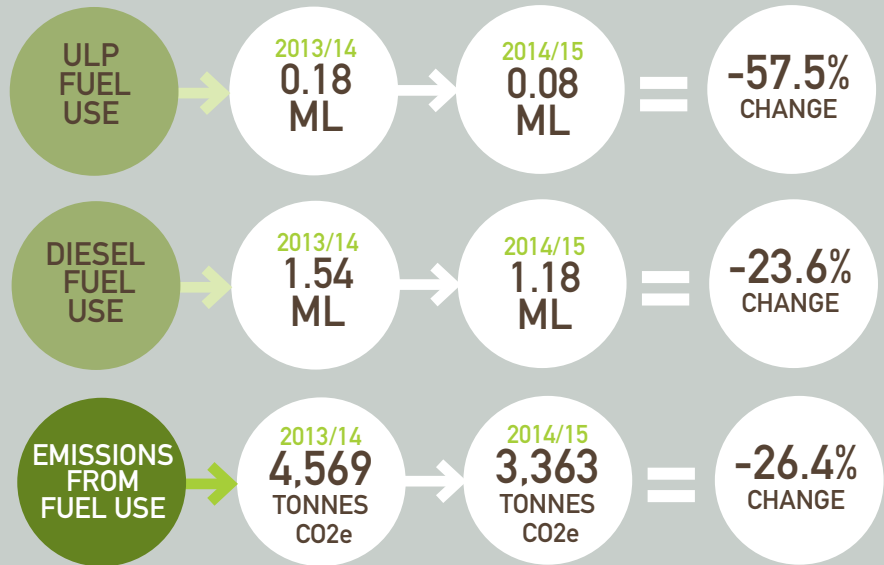
FLEET IMPROVEMENT PROJECTS

CAIRNS FLEET

Council engaged in various projects to increase the efficiency of its fleet, resulting in a drastic reduction in fuel usage, emissions and the amount of vehicles required by the organisation. One of the main projects was the expansion of GPS monitoring, providing real time data for the improved management of the fleet. This contributed to the improved logistical efficiency of tasks, as well as staff accountability.



ANNUAL CONSUMPTION



Recycled bollards in Palm Cove

PROCUREMENT POLICY

FINANCE

This policy outlines stronger sustainability provisions in the procurement policy with a particular focus on high priority products such as wood, paper, cleaning chemicals and disposables. Some of Council's existing sustainable product purchases include: 100% recycled office paper, recycled plastic bollards and park furniture.

LOVE TO RIDE CHALLENGE

ACROSS COUNCIL

Cairns Regional Council took out the winning position in its category for the Love to Ride bicycle commuter challenge, with 124 staff members from departments across the organisation riding over 218,000 km over the three weeks



Behana Gorge

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