Confronting our Climate Future
Redland City Council response to climate change
About Redland City

Redland City is located on the coast of Southeast Queensland at 27° 34’South, 153° 20’ East and shares boarders with the councils of Brisbane City to the north and west, Logan City to the west, and Gold Coast City to the south. Cleveland (est. 1851) and Capalaba are the main business and transport hubs.

The City is a mix of urban, rural and green spaces: from the rural areas and bush covered hills around Mt Cotton and Sheldon in the west, through leafy suburbs and villages to Moreton Bay at its doorstep. It encompasses the communities of the Southern Moreton Bay Islands (Lamb, Karragarra, Macleay and Russell Islands), and the coastal villages on North Stradbroke Island and Coochiemudlo Islands. The City takes in 537 square kilometres of land and includes more than 200 km of coastline and bay foreshore.

The people of the Quandamooka have lived in the Redlands for tens of thousands of years. Missionaries, fishermen and traders used North Stradbroke Island as a port of call and base station. The first Europeans came to the mainland for recreation and fishing during the 1830s and 1840s and farmers and graziers began working the land in the next decade.

The grazing and horticultural land uses of the past have given way to urban residential development concentrated in the northern and central areas, and some rural residential areas. New urban areas are at Victoria Point and Redland Bay. The economy is based on retailing, mining, horticulture, construction, poultry and specialist manufacturing. There is a thriving tourism industry including a progressive ecotourism market.

North Stradbroke Island is 38km long and 12km at its widest point. It is the world’s second largest sand island. A large national park has been declared to replace the sand mining leases that cover much of the Island. Parts of the Island are currently under Native Title claims. The people enjoy a relaxed coastal lifestyle, strong community values and outstanding cultural and natural attractions. The surf beaches, lakes, rocky headlands, rich red soil, rainforest pockets, mangroves, creeks and mountains make the Redlands a sought after place to live and a popular place to visit.
The climate is subtropical, with high rainfall, humidity and cloud cover during the summer. The annual average rainfall is around 1400 mm in the east but only 750mm in the hinterland.

The summer temperature ranges from 22.0°C overnight to 33.0°C during the day. Winter temperatures range from 13°C overnight to 18°C during the day. Over the last 42 years, Redlands experienced 18 days above 30°C, one day above 35°C and none above 40°C. Wind strength and direction have a significant impact on lifestyle and management of the Redlands environment. These are heavily influenced by the coastal location and follow a cycle of predominantly south-easterly breezes turning north-easterly in summer.

Over half of the City is remnant bushland, much of it in and around the Bay. It supports a diverse ecosystem of aquatic and riverine flora and fauna, freshwater wetlands and swamps.

Queensland’s Sustainable City 2010

Redland City was awarded the title of Queensland’s Sustainable City for 2010 by Keep Australia Beautiful Queensland and won a second award for Outstanding Volunteers for Sustainability for the Redlands IndigiScapes Centre.

Chief Executive Officer for Keep Australia Beautiful Queensland, Rick Burnett said the prestigious award recognised the efforts of residents and communities in protecting their local environment.

“The Redlands is embracing all the criteria for a sustainable community,” Mr Burnett said."It is mindful in its planning that recycling, and waste and water management are key issues and it is demonstrating new approaches to achieve best practice, in partnerships with the community, council and business.

“Apart from Council programs, Redland City is also host to the unique IndigiScapes environmental education centre. Redland City Council’s IndigiScapes Centre attracts thousands of visitors and hundreds of volunteers drawn by its interpretative walks, native landscaped gardens, bush café, native nursery and wide range of bush care, fauna and environment protection programs,” Mr Burnett said.

Accepting the award in the company of community volunteers, Councillors and Council staff, Redland City Mayor Melva Hobson said the award was a particularly proud moment for the city and the Redland community.

“We are thrilled to be recognised for the positive direction our city is setting and our desire to lead by example though the efforts of the community to protect and sustain natural environment and wildlife populations for the future, including the threatened local koala population,” Mayor Hobson said.

“As population grows in south-east Queensland, we face many challenges and we are planning ahead to help reduce our waste, minimise our carbon footprint and reduce the waste of recoverable resources and energy.”
In 2010 Council and the community worked together to develop a Redlands 2030 Community Plan with a strong basis in sustainability and a clear commitment to climate change action.

Redlands 2030 is our community’s long-term plan for creating a better future, forged from thousands of contributions of local residents, businesses and organisations. It expresses shared visions and values that will drive civic planning in the Redlands.

Redlands 2030, details eight vision outcome areas that are considered vital for the future of the Redlands. It identifies climate change as a key challenge. The community vision for ‘green living’ choices identifies the need for energy efficient use of resources and a community that is well informed and prepared for risks such as climate change.

Council’s Corporate Plan 2010 – 2015 provides the strategic directions that implement the community plan.

The corporate plan’s structure, its underlying values and overarching mission of sustainability (of our diverse places and strong communities) mirror exactly those of the community plan.

The Planning and Policy Department has developed a Sustainability Policy Framework under the Community and Corporate Plans.
Planning for Climate Change Action

Council’s new strategy, *Confronting Our Climate Future*, outlines a comprehensive approach to changing climate in Redland City. It has a 20 year planning horizon to 2030 and 5 year rolling action plans. The strategy brings together for the first time, planning and action for ‘mitigation’, ‘energy transition’ and ‘adaptation’.

**The first priority is mitigation**
Mitigation means reducing our greenhouse gas emissions, which are among the highest per-capita in the world.

**This goes with energy transition**
Our community is already moving to reduce consumption of oil-based products. Rising and volatile oil prices and declining availability of oil are likely to hit home before 2030. The strategy is to choose cleaner and greener energy sources, which work in tandem with greenhouse gas emission reduction.

**And then comes adapting to climate**
Our second priority for action is to plan for how we will adapt to actual and predicted climate change. Adaptation requires a coordinated and collaborative approach, integrating responsibility within all areas of Council decision making and governance.

The first 5 year action plan to 2015 continues the risk management approach already adopted by Council and extends this to incorporate energy transition. It focuses on
- research and understanding about where in the Redlands climate change impacts will first be felt;
- how significant they will be; and
- what can realistically be done to avoid, manage or adapt to them.

Redland City Council is responding to climate change challenges by working in partnership with the community to become more resilient to climate change and energy transition impacts. We will build on our understanding of how these changes affect our own operations; and will extend awareness, advice, and support to the Redlands community over the next two decades.

“We all have to do our bit to reduce greenhouse gas emissions, get used to and plan for a changing climate and start moving to alternative fuels and energy sources.”

Mayor Melva Hobson

**Plan development**
- CCP Program since 1999
- ICLEI membership
- Local Greenhouse Action Plan 2003-10
- Council endorsement of Redlands Climate Change Risk Assessment 2009
- Council endorsement of Redlands Climate Change Adaptation Plan 2009
Reducing greenhouse emissions

Council joined the Cities for Climate Protection Program (CCP) in 1999 and is committed to voluntary\(^1\) action to reduce greenhouse gas emissions from all of council’s corporate activities and in the wider Redland community.

Although committed and proactive under the Local Greenhouse Action Plan 2003 – 2010, Council achieved only 50% of corporate emissions reduction targets\(^2\).

The CCP Milestone 5 Report in July 2007 showed corporate emissions had reduced by 11%, and community emissions were increasing by 29% due to growth. However, the State Government reorganized the water and wastewater businesses of Councils in Southeast Queensland removing them from Councils’ operational control. Without the savings in these businesses Council actually had a 22% increase across corporate buildings, fleet, street lighting and waste areas. So it was back to the drawing board, and an immediate, coordinated and significantly resourced commitment was put in place.

Despite improvements, the targets were not met by June 2010 when the Council’s first Local Greenhouse Action Plan culminated, and the new Climate Change Strategy came into effect.


\(^{"75 by 50"}\)

In Confronting Our Climate Future, Council has reset its corporate target to:
- 25% lower than 1998 emissions by 2020
- 50% lower than 1998 emissions by 2030
- 75% lower than 1998 emissions by 2050

These targets translate to reducing emissions by an average of 5% per year, every year

The first 5 year Action Plan (2010 to 2015) continues our focus on early (and low cost) mitigation across Council and continues Council programs to assist the community to do the same.

Council did not include any updated GHG emissions target covering the Redland community, but will act and invest to facilitate City-wide emission reduction.

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\(^1\) Council is not bound by any legislation to control or report on emissions.

\(^2\) Council’s emission reduction goals from 2003 to 2010 were a 25% reduction in corporate emissions on 1998 levels and a 15% reduction in community emissions on 1996 levels.
Energy conservation and efficiency

Council Buildings

Emissions from Council’s four main corporate buildings have decreased by 16.9% since 2008. This is as a result of an aggressive and wide ranging approach to energy efficiency:
- Eco-efficiency program and appointment of an eco-efficiency coordinator
- Improved measurement, data management and installation of sub metering in buildings
- Major plant upgrades for air conditioning.
- Improvements to heating, ventilation and air conditioning (HVAC) controls, operating schedules and equipment
- Installation of motion sensitive lighting systems, voltage reduction systems on lighting circuits lighting assessment and subsequent de-lamping.
- Replacement of outdated and inefficient equipment such as fridges, hot water systems and smaller air conditioning systems.
- Installing efficient instant water boiling units throughout our buildings.
- Purchasing more efficient office equipment with energy saver settings, multi-function printers.
- Installing skylights instead of more lighting at the depot and workshop.
- Installing voltage reduction units
- Structural changes to buildings, window tinting, insulation improvements and roof cleaning

All sites

Half hourly electricity consumption data available from desktop for review and investigation of spikes
- Various LED, T5 and sensor lighting used throughout trails
- Window tinting
- Cleaning of white roofs
- Installing timers on hot water systems – run 2 hrs per day.
- Replaced old fridge fleet
- Relocatable sub meters purchased to monitor before and after trials/projects

Administration Building

New chiller installed August 2008 – air cooled – energy efficient.
- Temperature set points adjusted closer to ambient, run times reduced December 2008.
- Installation of voltage reduction units to lighting circuits – Jan 2010.
- Floating chilled water set points – linked to ambient – Apr 2010.
- Replace emergency lights with LEDs – Apr 2010.
- Disabled heater banks in all areas except extremities - May 2010.
- Delamped to AS lux levels – May 2010.
- Installation of rain water bladders to support condenser in December and January and the second floor toilets the balance of the year
Cleveland Library Building

Voltage reduction units installed on lighting circuits July 2008.
New chiller installed Nov 2008, 2 chillers one small and large to increase ability to run at low load.
Temperature set points adjusted closer to ambient, run times reduced December 2008.
Floating chilled water set points – linked to ambient – Apr 2010.
Replace emergency lights with cold cathodes – Apr 2010.
Disabled heater banks in all areas except extremities - May 2010.
Delamped to AS lux levels – Jan 2011.

South Street Depot

Voltage reduction units installed on lighting circuits March 2010.
Disabled heater banks May 2010 in all areas except extremities.
Install BMS for air conditioning controls May 2010.
Delamped to AS lux levels – Feb 2011.
Planned April 2011 – roof painting – change colour to white
Planned April 2011 – installation of roof air extractor solar powered
Planned June 2011 – replace 6 package air conditioning units.

Capalaba Place

Temperature set points adjusted closer to ambient, run times reduced December 2008.
New chiller installed April 2009 – energy efficient.
Voltage reduction units installed on lighting circuits March 2010.
Disabled heater banks in all areas except extremities - May 2010.
Replace emergency lights with cold cathodes – May 2010.
Floating chilled water set points – linked to ambient – Apr 2010.
Delamped to AS lux levels – March 2011.
Council’s fleet

Emissions have decreased by 15.2% since 2008, despite increases in overall size of the fleet and number of staff using vehicles:

- reduced fuel consumption driven primarily by improvements in technology
- short asset replacement cycle;
- electronic vehicle booking system;
- greater use of the latest generation of fuel efficient diesel vehicles such as the Hyundai i30 to replace petrol models;
  (Diesel, whilst more emissions intensive than petrol or E10, offers significantly higher fuel efficiency and lower whole of life costs.)
- proactive use of hybrid passenger vehicles and the latest generation ethanol co-fuel devices in diesel vehicles

Trialling diesel, LPG and an ‘Australian first’ ethanol-diesel direct injection fuel systems for the vehicle fleet.

Next steps are:

- the introduction of ‘eco-driver’ training for Council staff
- trial of compressed natural gas (CNG) fuel for Council's ‘back-to-base’ heavy fleet.
Marginal Abatement Cost Curve

A Marginal Abatement Cost Curve – or MACC – is a way of looking at the options available to an organisation to reduce greenhouse gas emissions to determine which of these are the most cost effective solutions. This is achieved through calculating how much it would cost to avoid each tonne of carbon dioxide if a particular project was implemented. A negative marginal abatement cost means the project pays itself back and then produces financial savings over its lifetime whilst positive numbers mean the project will result in a net cost over its lifetime.

MACCs have been prepared before for large scales such as the Australian economy and the Queensland economy, and whilst useful for stimulating discussion, these MACCs are of little use for helping Council make decisions as to how to most cost effectively reduce greenhouse gas emissions. This project relied heavily on data specific to Council.

Across the organisation, 18 emissions abatement projects were identified. These projects represent a total of 2,315.69 tonnes of potential CO2-e emissions reductions per year at an overall net present value of -$4,118,114. Of these, 8 projects fall below the X axis, meaning they can be implemented at a negative net cost over their lifetime, thus repaying their initial investment and then creating financial savings. These ‘no regrets’ projects represent 238.92 tonnes of potential CO2-e savings per year at an overall net present value of +$78,439.

A number of key projects were identified with a negative marginal abatement cost that are suggested to be worthy of serious further consideration by Council. A selection of these is as follows:
- Delamping at small Council facilities
- The use of B20 biodiesel for heavy fleet operations
- The installation of a 1.5kW solar PV system on 15 community halls
- The use of LED computer monitors across the organisation

Streetlighting

The responsibility for greenhouse gas emissions from the electricity consumed by streetlights in Redland City largely rests with Energex, which has operational control of over three different types of street lighting exist, categorised by a ‘Rate’ system.

In the three years from the 2006-07 financial years, Council installed 75 Pierlite Greenstreet luminaire lights and nine solar light-emitting diode (LED) lights in eight locations in the city. Recently, a number of other solar path lighting installations have been added.
Community greenhouse gas emissions

One of the fastest growing areas in south-east Queensland, the City’s population in 2006 was estimated to be 133,000 people. This is predicted to grow by 1.6% every year, reaching 185,650 by 2026.


Developing and displaying energy efficient helpful hints for the home at libraries, customer service centres, and online.

Under the Ecobiz program since 2004, Council and the State government have successfully encouraged business and industry to improve eco-efficiency (energy, water, waste, resources and greenhouse gas emissions) through changed practices. The program includes large local businesses such as Alchemy Cordial Company, Darwalla Milling, Redland Nursery, Sheldon College, Sirromet Wines, Stradbroke Ferries, The Good Guys, and Council’s own building management group. Audits were undertaken at businesses facilities to identify current operating and an energy consultant was engaged to highlight where and how changes could be made. Since the success of the pilot project, Council has continued to support this business initiative. Thirteen additional businesses have since joined.

Home Sustainability Pilot project run by Council reaches 65 homes in 2006.

Point of Sale Extension (POSE) Program piloted with the Good Guys to add to the ecoBiz program. POSE helped businesses to provide sustainability information about products to customers.

Smart meter loan scheme through Council libraries

The State government’s ClimateSmart Home Service was offered in 2009 – strongly supported by Council. An electrician visits homes and calculates how much power a household is using and installs a wireless power monitor, plus up to 15 power saving light globes and, where suitable, a water and energy efficient showerhead to reduce energy use. The total number of services completed is 6,918 households thus far (19 October 2010) or about 15% of Redland households. This service ceased from November 1st 2010. The final numbers will be available Jan 2011.

Energy Conservation Communities

Energy Conservation Communities is an Energex program to help manage peak demand, by spreading the demand to reduce size of the peak. As households turn on appliances, especially air conditioning and pool filters in the afternoon, the demand for electricity increases to its highest point (peak demand). ENERGEX installed energy-conservation devices onto appliances (air conditioners and pool pumps) in participating homes. These devices enable the appliances to be remotely cycled by ENERGEX for short periods during peak demand times. Enrolments and installations have satisfied ENERGEX of the long term value of the program, which is now available city-wide. As part of the program, Energex will donate $50 per participant household to their ECC Community Benefit Fund, which will be available to schools and sporting and community groups etc.
Greenstreet cafe and workshops.

Howard Nielsen of NAC Consulting is piloting Green Street Workshops and Cafe entitled “Stepping Naturally into Sustainability” in a cafe setting, at Indigiscapes. This workshop draws on ‘The Natural Step’ principles accepted worldwide as the practical building blocks of sustainability. The workshops are to lead into the Greenstreet Cafe, a second event with a focus on a whole-of-community approach involving schools, businesses and neighbourhoods.

CSIRO Energymark

The Energymark Program brings people together in small groups to learn about energy (including peak oil and energy transition) and climate change issues, and discuss what they can do to make a difference. Initially, Council will support 3 such groups, each with about 10 members, including one volunteer convenor.

Green Cross Green Lane Diaries

The Green Lane Diary is an education program designed to help children become aware of today's environmental issues and encourages them to engage in environmentally friendly activities in their everyday lives. The program provides students with Green Lane Diaries to track their activities and how those activities impact on the environment. Overall, the 2010 pilot aimed to reach 10,000 students during term 3, but reached 14,000 students in 200 schools across six states and territories.

Participating Redland schools include: Dunwich and Wellington Point State Schools and Redland Bay Primary School

Solar power and solar hot water

Uptake of solar hot water and solar power in Redland Community is strong and gaining momentum under the Federal and State government rebate schemes. Recent figures show up to 30% increase in solar power installations over the last 6 months. The largest numbers of installations have been on the islands.

Many companies have prospected for Council support in delivering solar systems to the local community, but the success rate is low in what are too often one sided business relationships with no real benefit to the community or Council.
Renewable Energy

Council has a renewable energy policy and will support, promote or provide incentives for community initiatives that encourage renewable energy development and infrastructure within the City.

Our own corporate approach is based on a hierarchy to:

- Conserve energy
- Be more efficient
- Generate renewable energy and
- Then offset.

Energy conservation and efficiency must be achieved ahead of renewable energy and the use of offsets in Councils own operations. Purchase of five percent Green Power (power derived from renewable sources) resulting in a reduction of over 1,150t environmental carbon dioxide (eCO2) between 1998 and 2006. Early purchases of Greenpower have given way more recently to investment in efficiencies and conservation measures that lead to year on year reductions.

Market calls

Council went to the market calling for expressions of interest in renewable energy supply in 2006. Detailed modelling by Consultants AECOM showed there were deficiencies in the business case of all technologies and organisations who responded (20 year Net Present Value analysis) and no tender followed.

The Southeast Queensland (SEQ) Council of Mayors endorsed renewable energy as a priority in 2009. A business case was developed for tender (2011) that aggregated electricity demand for SEQ region Councils to offer potential for a provider. The target was market ready ‘packages’, such as the AGL owned Cooper Creek Wind Farm, looking for demand to bring forward investment plans. Brisbane City emerged to lead this initiative as it already purchases 100% Renewable Energy (electricity) at a market premium. Redland City Council was a strong proponent and partner in the development, but ultimately found it gained little and took significant risks under the fixed price terms of the emerging proposal.

Energy recovery from landfill gas

The LMS Power Generation run Birkdale Landfill Renewable Energy Facility was officially opened on Thursday 3rd February by Mayor Melva Hobson.

It was constructed at Birkdale Landfill after almost 10 years of negotiation and discussions to find the best way to use the methane gas generated by the Birkdale Tip and turn it into green energy sold back to the grid.

It is estimated the life of this project is 20-30 years. The Council will receive royalties from this facility, as this power plant has been developed at minimal cost to council.

The official opening conducted by Mayor Hobson was attended by representatives of all levels of Government - Andrew Laming MP, Michael Choi MP, Councillors, CEO and Council Staff in Waste Management and, and Senior Management and Staff of LMS Power Generation who are delighted to have this facility to showcase their environmental abilities.

A landfill gas flare has been in operation of Birkdale landfill since 2008.
Materials Recovery

Since kerbside recycling began in 1996 in the Redlands, there have been big changes due to advancements in technology and waste treatment and disposal.

Up to 2006, Redlands’ recyclable goods went to the Materials Recovery Facility (MRF) in Thornlands. However, as the Redlands’ population has grown, so too has the amount of recycling. The MRF in Thornlands closed in 2006 and now all Redlands’ recycling is taken to a Visy MRF in Brisbane. There, a state-of-the-art MRF can process a staggering 320 - 350 tonnes per day. With over one kilometre of conveyer belts, powerful magnets, infrared technology, Auto Plastic Sort and the capacity to process 25 tonnes per hour, this facility is world class.

Many other items are recycled at transfer stations and at commercial outlays in the community.

100% of Redland City’s green waste is sent to Rocky Point Power Station to generate electricity

Redlands residents love to recycle but are we doing it right?

The Sustainable Resources from Waste Plan aims to achieve the maximum practical level of recovery of available energy resources from local waste and minimize fugitive Greenhouse gas (GHG) emissions from existing waste disposal sites and waste transportation operations.

Redland City Council must increase its recovery of resources in the community from 32% to 65%

Our target for 2011 is to get our recycling right. The potential is to increase resource recovery of recyclables by over 12 per cent.

Council has a full time Waste Education Officer dedicated to education on the subject in schools, businesses and community groups.

All Queensland schools must reduce waste output by 50% over the next three years. Council will trial a number of co-operative initiatives, including an ‘eco-day’ program next month at a local primary school where students will gain a broader understanding of the environment.
Water Efficiency

In September 2007, after a long drought and water shortages throughout Queensland, the Queensland Government commenced a series of reforms into the distribution and ownership of water resources in south east Queensland. From July 2010, Allconnex Water took over the responsibility from Council for the supply of water and wastewater services in the Redlands.

Permanent water conservation measures now apply to all SEQ areas.

A water audit program below was completed in 2007 for Council. It involved checking all of the toilets and taps in a home and producing a water efficiency plan. Council installed water efficiency devices such as twin flush toilets, restricted flow shower heads and repaired leaking taps. This service was discontinued following the development of the State government’s water conservation measures targeted at the home.

Administration Building
Installation of water efficient tap and sanitary fittings
Annual Savings - 4.5ML
Removal of water cooling towers for air conditioning
Annual Savings - 1.5ML
Installation of rain water bladders to support condenser in December and January and the second floor toilets the balance of the year

Cleveland Library Building
Installation of water efficient tap and sanitary fittings
Annual Savings - 2ML (Savings of 40 years water for an individual @ target 140L)

South Street Depot
Installation of rain water tank to supply water to the vehicle washing facility.
Installation of water efficient tap and sanitary fittings

Capalaba Place
Installation of water efficient tap and sanitary fittings

All sites
Half hourly water consumption data available from desktop for review and investigation of spikes (still to be finalised at South Street Depot
Installing timers on hot water systems – run 2 hrs per day.
Adapting to a different climate

**Redlands is a coastal community already experienced and adapted to living with the sea and managing coastal risks.**

The most immediate risks along the coast from climate change appear to be:

- **Higher king tides**
- **More intense rainfall and increased wind speeds**
- **Coastal erosion.**
- **More algal blooms**
- **Increased storm and cyclone intensity**
- **Higher storm tides**
- **Dealing with greater emergencies**

Council does not manage the Moreton Bay, but it does manage foreshores down to mean low water mark – including for conservation, open space, recreation, and mosquito control.

**King tides**

Every year king tides appear to be higher and we are already witnessing inundation of past development, of parks and facilities.

The City’s coastline is dominated by Moreton Bay which is formed by a series of barrier sand islands, some populated, together with many shoals, banks and reefs which occur mainly in the southern portion of the Bay. Moreton Bay is a shallow body of water, with an average depth of only 6.8m.

Inundation areas are well known and historically problematic to manage. The Council’s Redland Planning Scheme controls all development and has features such as a flooding overlay, and a 2.7m AHD restriction on the floor height of all development.

Next steps: Council will undertake detailed audit of infrastructure and land at risk from inundation.

**Island buy-back scheme**

In the late 1970s a major real estate scandal broke on the southern Moreton Bay Islands, which at the time was not under any direct local government authority. Interest in the islands surged when the Queensland government promised that a bridge would be built to Russell Island and across to North Stradbroke. Land developers bought, subdivided and sold thousands of residential blocks, but later hundreds of the blocks were found to be substantially underwater at high tide.

The Southern Moreton Bay islands came into Redlands Shire in 1973. Redland City Council has since resumed hundreds of the affected blocks. Council operates a land buyback scheme to acquire development rights on inappropriately subdivided drainage problem land. It has also proactively zoned poorly drained mainland sites as undevelopable.
More intense storms, wind and rain

The more extreme rainfall events are generally associated with tropical cyclones. In the past 95 years of detailed records, only 15 of these storms’ centres have passed within 100 km of Brisbane.

Commercial and recreational boating is impacted by an unpredictable, rough, shallow bay with strong winds. Ferries are cancelled in rough weather stranding islanders and tourists who must overnight on the islands or the mainland.

The islands get twice the rainfall of the mainland and storms cut power frequently.

The Council has a growing understanding of the priority risks to:
- transport, buildings, stormwater and wastewater infrastructure;
- systems of organisation;
- biodiversity;
- parks and open space; and corporate services.

These risks have been broadly quantified and included in Council’s climate change strategy.

More algal blooms

The marine algae, Lyngbya majuscula produces toxic compounds that pose a significant health risk to the public. Lyngbya blooms also have the potential to affect economic, social and environmental values.

Council has jurisdiction down to the level of mean low tide on foreshores of Moreton Bay, and the State Government has jurisdiction for Moreton Bay below the mean low tide level.

Council monitors and inspects recreational beaches, notifies and cleans up and disposes of Lyngbya that has washed onto recreational beaches. Council also erects warning signs and distribute general public information concerning Lyngbya.

Greater control over the impact of development on nutrient and iron export rates has been introduced under recent State Planning Policy Healthy Waters. Council will be reviewing available mapping of hazard areas. Our procedures are also under review to extend clean up capacity to the Southern Moreton Bay Islands.
Coastal erosion

Some past planning has ensured protection from active erosion areas. However, the Queensland Coastal Plan to be released soon is expected to call for strategy of retreat from the worst areas.

An example of a coastal erosion issue managed by Council is at Amity Point on North Stradbroke Island. The storm tide mapping indicated limited inundation of Amity. However there is a risk of further erosion of Amity Point during storm tide events due to increase flows in the Rainbow Channel. Major erosion during the recent Brisbane floods and further erosion of the foreshore at Amity Point is likely to result in loss or damage to public and private infrastructure and property.

Higher Storm Tides

In addition to sea level rise, climate change studies have identified an expected increase to the level of inundation during storm tide events.

The Redlands Planning Scheme identifies the 1% AEP [Annual Exceedance Probability] storm tide level as 2.4m AHD [Australian Height Datum]. The 1% AEP storm tide event is identified by State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide as the appropriate level for development regulation to minimise community vulnerability to risks posed by storm tide events. James Cook University have identified the 1% AEP storm tide level for Moreton Bay at approximately 2.1m AHD. In addition, the Redlands Planning Scheme provides an allowance of 30cm for increases to storm tide resulting from climate change. This approach is consistent with the Queensland State Coastal Management Plan.

Recent Southeast Thornlands structure plan identifies the lowest level of development at approximately 3.5m AHD which is above the calculated 1% AEP storm tide level with predicted climate change increases effectively minimising the
risk of inundation of the structure planned community a storm tide event.

In January 2009, a new Storm Tide Hazard Study was completed for Council by consultants. The report presents regional storm climatology, numerical modelling, statistical modelling and storm tide results. It presents storm tide levels for the current climatic conditions and for the enhanced greenhouse climatic conditions (i.e. enhance cyclone frequency and intensity).

The majority of the Redland City Council is considered to be at low risk from storm tide inundation. However a limited number of predominately residential areas are partly inundated during the 100 year ARI storm tide event (now) and will be inundated further under enhanced climate change conditions. These are

- adjacent Queens Esplanade, Thorneside and Birkdale;
- adjacent Beveridge Road in Thornlands;
- adjacent Wilson Esplanade, Victoria Point;
- adjacent Weinam Creek, Redland Bay.
- between Thomas and Murray Streets, Birkdale;
- at Cleveland Point; and
- at Redland Bay Golf Club at Redland Bay.

The findings of this study do not greatly change our understanding of storm surge levels.

Sea level rise

Council relies on the predictions of the scientific community regarding sea level rise. These are communicated through the State and Federal government, though they do not tally at present.

The State government is expected to legislate this level to be 0.8m by 2100. In concert with expected planning requirements to respond to rising sea level will need to be reflected into the Redlands Planning Scheme and as a consequence by all development within the City.

Sufficient adaptive capacity was built into the South East Thornlands structure plan recently by using significant buffers to the Moreton Bay foreshore that are to come into public ownership. Providing for the protection, enhancement and public ownership of intertidal wetlands and foreshore terrestrial vegetation communities is recognised as an effective adaptive strategy against sea level rise and increased levels of flooding. The structure plan identifies the lowest level of development at approximately 3.5m AHD which is well above the modelled storm surge level that includes predicted increases to mean sea level, effectively mitigating the unacceptable risk of inundation of the structure planned community.

Dealing with disaster

The region and its community are not immune to disasters and face a number of risks, particularly those posed by bushfires and severe weather. Redland has witnessed significant and serious fire events over the past ten years, and seen firsthand the damage severe weather can cause.

Redland City updated its Disaster Management Plan in 2010. A single set of disaster management arrangements capable of encompassing all hazards are in place in Queensland. The Redland plan identifies hazards from storms, flooding, bushfire, and storm surge, but does not (yet) deal with the impact of climate change on increased likelihood or severity of such events. The risk assessment behind the plan is currently under review, and is likely to be reviewed regularly in the future.

When an event occurs, local government has primary responsibility for managing the impacts within its boundaries. It is important therefore to have effective and coordinated disaster management arrangements in
place. Redland City Council is committed to managing these emergencies.

Climate change will herald a ‘heightened’ awareness of change as well as an incremental increase in effects across a time scale – greater incident of events, and greater impact. Council will be working on the four key areas of community awareness, planning, training exercises, and coordination.

**Bushfire**

In terms of land mass and usage the City is 70% rural and natural environment. Consequently the potential for bushfire is high. Of particular concern are the suburbs of Mt Cotton, Redland Bay and Sheldon, areas which are dominated by tall open forest and woodlands, and are capable of producing fuel loads in excess of 40 tonnes/ha. Residential estates adjoining these forest areas are relatively new even with reasonable firebreaks are potentially vulnerable to ember attacks. Compounding the problem is the relatively few entry and access points to some estates.

Presently the Redland Planning Scheme includes a Bushfire Hazard overlay developed using existing state planning regulatory provisions. Hazard is determined under these provisions by scoring the aspect, slope and vegetation community. Recently a new Australian Standard for building in bushfire hazard areas was developed following the devastating Canberra and Victoria bushfires. The Australian Standard uses a different scoring system for different vegetation types. Council has recently reviewed bushfire hazard using the Australian standard and determined different buffer distances for existing dwellings in particular from ember attack. The state provisions use a 50 metre buffer adjacent medium hazard and 100m buffer adjacent high hazard. Whereas the Australian standard triggers individual houses to a greater extent see map below.
Carbon Sequestration and Biodiversity

Our region is very bio-diverse sitting on the overlap between the tropical north and the temperate south.

Historically, Redlands has expressed a strong desire for conservation. The Shire is now recognised as the "koala capital of Australia" due to the number of koalas within the urbanised environment and the council keeps a close eye on the numbers. There is nowhere else in the world where so many people consistently interact with a natural population of koalas.

Council’s Biodiversity Strategy was first adopted in 2008, along with a Koala Policy and Implementation Strategy. The Strategy’s vision is “to protect what we have, to rehabilitate what has been degraded and better our understanding of the unknown”. This is translated into three objectives:

- protect and effectively manage remnant and non-remnant vegetation (bushland habitat), significant urban vegetation, core species and ecological communities
- regenerate and restore native vegetation, wildlife corridors and terrestrial and aquatic ecosystems that have been degraded or lost ecological function back to a condition of good health.
- to encourage, coordinate and integrate the collection, management and dissemination of information about biodiversity, including to educate, promote and market biodiversity issues to facilitate community and stakeholder responsibility and support for biodiversity conservation and management.

The Redlands Planning Scheme is central to the conservation of existing habitat in the City, through zoning and habitat protection overlays that constrain development. These controls were based on conservation policy mapping developed since 2001, which identifies high conservation management priorities.

Council’s vegetation protection local law restricts damage to vegetation and imposes heavy fines and requirements to re-establish habitat in the event of illegal clearing.

Council raises funds for land acquisition and management though an environmental separate charge (rate) levied on the community. This realises approximately $3 million pa. Since 1993, Council has purchased 839 hectares of land for conservation purposes at a cost of $27.5 million.
Clearing and sub-division patterns of the past have left a fragmented landscape. Rehabilitation to reconnect patches of habitat is a high priority for Council. The Green Infrastructure Map has provided a better understanding of the level of connectivity of habitat.

Developers must revegetate ‘enhancement links’ as part of the development approval conditions where these are mapped, to improve habitat and connectivity. Council’s environmental acquisition fund is also used to purchase development rights to enhance these outcomes.

Offsetting has provided a new and developing opportunity for revegetating cleared land or degraded, 'non-remnant' vegetation. Offsets are now required of developers by the Planning Scheme, State legislation including the Vegetation Management Act and State policy - including the Koala State Planning and Regulatory Provisions.

Council has worked hard to establish itself as the city of choice for offset brokers and now has land under offset agreements. Council is now exploring future opportunities in advance offsets (essentially bio-banking) and carbon farming under a recent federal initiative.

Lineal infrastructure, especially roads, has increasing impact on fauna. Council’s ‘Bushland Habitat and Corridor Plan 2004 led to the development of the 'Koala Hits' studies and reports that examined the impact of vehicle strike on koalas and made recommendations for mitigation management.

A study into opportunities for retrofitting existing underpass and bridge structures was vital in persuading the State government to concentrate its koala retrofit program in the Redlands. Lobbying for the inclusion of fauna crossings (over roads) in future road upgrades by the State continues.

Council has embarked on an extensive urban revegetation program to include street tree plantings using koala food tree species and 'mini patch plantings' in the corner of urban parks and 'unused' Council land.

Council invests in research including significant post-doctoral studies that attract federal funding (these include research into the impacts of development on biodiversity and the effectiveness of mitigation measures and research into the anticipated response of biodiversity to climate change) through to discrete ‘student’ projects where work experience students undertake research for us.

**Carbon Biosequestration**

In response to the challenges of climate change, the Council of Mayors in South East Queensland (SEQ) established the SEQ regional carbon sink to offset Councils’ greenhouse gas emissions.

The carbon sink will be trialled on four initial sites on Council owned land located in Ipswich and Redland Cities and the Moreton Bay and Scenic Rim Region. The trial will help develop a framework under which all eleven SEQ Councils can voluntarily offset their corporate greenhouse gas emissions.

The regional carbon sink will also aim to deliver multiple biodiversity benefits including restoration of degraded areas, increasing local habitats and increasing the extent of wildlife corridors.

Importantly, the four initial sites are compliant with the Kyoto Protocol carbon trading criteria. This means the sites could be used as voluntary carbon offsets through ‘opt-in’ forestry arrangements.

Redland City Council launched the first pilot site in July 2009. A carbon sink makes use of the natural processes and cycles of trees, plants and soil which soak up carbon dioxide and temporarily store the carbon in wood, roots, leaves and the soil.

The planting of trees in the Scenic Rim’s carbon sink has been funded by contributions from six Councils including Redland City.

Trees and shrubs were planted in Fellmonger Park in May 2005 to offset greenhouse gas emissions from the Council fleet. Over 100 tonnes of eCO2 has been offset over the next 30 years.
Bushcare

In the early and mid 90s a number of initiatives established: a Bushcare program to encourage community members to look after local bushland; a Wildlife Officer and Wildlife ambulance and carer’s network; and the Indigiscapes Centre to promote an appreciation of locally native flora.

The Redlands IndigiScapes Centre’s Community Bushcare Program allows the community to positively contribute to its local bushland areas and learn more about the local plants and animals. Volunteers are provided with training, resources and equipment, field trips and social events, such as National Tree Day, Koala Community Plantings, Community Plantings and Trees for Weeds to create ownership and pride within the community.

Council’s extension programs operated by the Environmental Education Unit based at the IndigiScapes Centre also provide advice and assistance to property owners who own land with high conservation values. This will often include work on pest management especially weeds as directed by the Council’s Pest Management Plan and fire management also directed by Fire Management Strategy. Council now offers a suite of extension programs tailored to meet the needs of property owners and land uses from rural farms to urban backyards:

- Land for Wildlife.
- Voluntary Conservation Agreement program
- Rural Support
- Waterway Extension
- Koala Conservation Agreement program

Redlands IndigiScapes Centre is an important focal point. It provides support for community wide environment and waste education programs, has over 700 affiliated volunteers working with various environment and wildlife programs, and runs a range of popular school age education programs.

Next Steps

An Environmental Education Strategy currently in preparation will focus and coordinate initiatives and test the effectiveness of new and existing programs aimed at schools, young people, property owners, business owners and developers, visitors and new residents.

Work is now underway to apply the species suitability and least cost movement modelling to a study area in the urbanised part of the City to better understand the efficacy of the RPS and make recommendations for the redrafting of the planning scheme in 2012-2013.

A Natural Environment Decision System (NEDS) will be developed to inform the drafting of a new Redland Planning Scheme.
Community Gardens

Successful community gardens are located at Alexandra Hills and Cleveland.

The Redlands 2030 engagement process has shown the growing interest in community gardens. Submissions from community members indicated their support and their visions of being able to access local produce and to have functional gardens within their communities.

Several community gardens are planned in Redland driven by community interest.

Kennedy Farm is 4.7 hectare property purchased by Council for the purpose of developing sports and recreation facilities for the Southern Moreton Bay Islands (SMBI) includes a community garden as part of the concept plan. A group of island residents is planning the garden.

Another encouraging site is Runnymede the former chicken farm acquired by Council next to the Indigiscapes Environmental Education Centre in Capalaba. A recent creative visioning workshop held to consider the future use of property called for a ‘creative, sustainable, cultural, community hub for environmental/sustainability education and business with a connection to Indigiscapes and the indigenous and agricultural heritage of the Redlands. The workshop called for the inclusion of a community garden.

A number of local schools have also established community gardens and others have expressed interest in making communities garden part of their curriculum.

Growers Market

A Streetmarket every Sunday in Cleveland includes produce from around the City and region. There is also a large growers market at Sleeman Sporting complex at Chandler, on Redland City boundary every weekend.
Corporate Performance

Performance Management

Council has a Performance Management Framework (POL 3018) and Guideline (GL 3018). These documents are currently under review to ensure they respond adequately to the organisation's key strategic planning documents – The Community Plan, The Corporate Plan, The Operational Plan and the Organisational Development Plan. The need for meaningful performance management in local government in QLD is also underpinned by our peak legislative document, the Local Government Act 2009 which requires local governments to review the Community Plan every 5 years, to provide an annual report for council on the progress of the Corporate Plan and to provide a quarterly report to council on the progress of the Operational Plan.

The current review of council’s performance management framework is tied directly to the Corporate Plan. Council has 78 strategies in its Corporate Plan across 9 key themes and the performance management framework seeks to provide an annual progress report on each of those strategies. Where possible, quantitative data will be used to assess key targets like halting the decline in our koala population (regular count of the koala population), reducing waste and increasing recycling (amount of waste sent to landfill, percentage of all waste recycled), improving the health of local waterways (waterway health rating) etc. Other targets will be reviewed by regular community survey such as community feeling on safety and crime, community awareness of local aboriginal history and culture etc.

By actively reviewing our progress towards achieving our key strategic plans, Council expects to achieve the following outcomes;

- Understanding of problem areas and capacity to divert resource allocation (budget) accordingly
- Enhanced awareness leading to a better sense of ownership of strategic plans by staff and community
- Understanding of where we need to advocate for support from State and Federal governments
- Enhanced capacity to access grant funding by demonstrating performance
- Community trust through demonstrating that we are open, honest and transparent.