

2012

STATE OF THE CITY - APPENDIX

Randwick City Council

STATE OF THE ENVIRONMENT



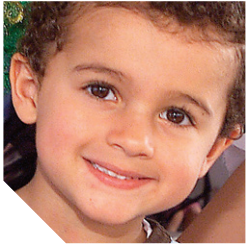
Randwick City
Council
a sense of community



Randwick City Council

STATE OF THE ENVIRONMENT

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Contents

Overview Grid	4
About Randwick's 2012 State of the Environment (SoE) report	5
1. Toward environmental sustainability	6
2. Environmental risks and impacts are strategically managed	9
3. Land Use Planning, Biodiversity and Natural Heritage	12
4. Resource recovery	15
5. Water cycle management	17
6. Energy and Greenhouse gas emissions	20
7. Conclusion	23

Randwick Overview and Trends

– SoE 2012

Issue	Toward Sustainability 10(a)	Environmental Risks and Impacts 10(b)	Land Use Planning, Biodiversity and Natural Heritage 10(c)	Resource Recovery 10(d) & (e)	Water Cycle Management 10(f)	Energy and Greenhouse 10(g)
Why is the issue important?						
<i>Overall trend</i>	●	●	●	●	●	●
What does the data show?						
<i>Reliability of data</i>	●	●	●	●	●	●
How is Randwick responding to the issue?						
<i>Adequacy of response</i>	●	●	●	●	●	●

- Trend is in positive direction / overall results are positive
- Trend is difficult to determine / some further work or time required
- Trend is in negative direction / stronger improvement required

About Randwick's 2012 State of the Environment (SoE) report

This State of the Environment report is prepared in accordance with Section 428A of the Local Government Act 1993 and prepared in conjunction with the Integrated Planning and Reporting Guidelines as described under Section 406 of the same Act.

The key element required of Randwick Council in the preparation of this SoE report is that reporting is completed against the environmental objectives identified in Council's 20-year City Plan and for each environmental objective we will:

- establish relevant environmental indicators;
- report on and update trends for each such environmental indicator; and
- identify all major environmental impacts on the agreed environmental objectives.

The objectives of Randwick's 2012 comprehensive SoE report align directly with the seven environmental objectives (10a to 10g) adopted by Council within Outcome 10, A Healthy Environment, of Council's 20-year City Plan.

The environmental indicators are represented in datasets reported under each of these objectives i.e.

10a	Population, Population change and Ecological Footprint of Randwick
10b	Environmental risk areas, related frameworks and Randwick's responses
10c	Land use areas within the Randwick Local Government Area and hours of bush regeneration, weed control, and revegetation undertaken
10d & 10e	Household waste generation and diversion from landfill
10f	Water use and savings for Council's top water consuming sites Householder water use and water quality rating of Randwick's beaches
10g	Energy use and savings for Council's top energy consuming sites Greenhouse gas emissions by source for Randwick Council Householder energy use

The approach for reporting on each objective is the same and is set around:

- Why is the objective or issue important
- What does the data for each objective show and
- How is Randwick responding in relation to each of the environmental objectives?

A summary is also provided for each of the environmental objectives in the form of traffic light symbols with three of these traffic lights available for each objective.

- The first traffic light indicates the overall trend for the environmental objective reported
- The second traffic light indicates the reliability of the data available for the indicators used for this SoE report
- The third traffic light indicates the adequacy or effectiveness of Randwick's response in relation to the environmental objective reported

There are no red lights represented in the SoE 2012 report. This positively reflects both the short and longer term approaches Council is taking on each of the environmental objectives reported.

1. Toward environmental sustainability

RATING ●

Relates to 10(a) of our 20 year City Plan, that is,
Council is a leader in fostering environmentally sustainable practices

1.1 Why is Environmental Sustainability important?

The more people living on Planet Earth, the greater the environmental impact these individuals will have through their use of natural resources. They will impact on the environment through the water they consume; the energy they use to power their homes, businesses and industry; the fossil fuels used for motor vehicles, trucks and planes; the area of land taken up for houses, farms, for roads and industry; and the amount of waste and rubbish created and disposed of in landfills or discharged into our atmosphere, rivers and oceans.

The concept of being environmentally sustainable means there will still be similar or matching resources as currently available for future generations, for those living in Australia and around the world. As a country, Australia would appear to be abundant in the amount of resources we have to clothe and feed and house our relatively small population of 21.5 million people. This abundance shows in the high standard of living and quality of life enjoyed generally by Australians. But when measured in terms of our level of resource consumption, there are signs that as a nation and on a per person basis, we are consuming well in excess of what is considered sustainable into the future.

One way of checking whether this level of consumption is sustainable over time is by calculating the 'ecological footprint' of our cities. Ecological footprint analysis is used across the world as a way of establishing whether the footprint represented by our consumption is too large or whether it stays in check with the way in which our natural processes, that is, our water, our forests, the fish in our oceans and our atmosphere replenish themselves over time. Ecological footprint analysis provides a strong indicator as to whether our 'take' on the environment is larger than the resources available, measured as the amount of land it takes to provide the level of resources consumed on a per person basis.

1.2 Current status in Randwick

RATING ●

The most recent calculation of our own ecological footprint shows that Randwick residents are comparable with most Australians, indicating that a significant level of over-consumption is occurring to support the current requirements of our modern day lifestyle.

While this trend is not just confined to Randwick's relatively small population this calculation reflects clearly that even with a relatively small population and a slight population increase as in Randwick (see Table A within this report), there will continue to be a high demand on the level of natural resources we consume on a per person basis.

Table A: Population and Ecological Footprint for Randwick, NSW and Australia (*World Wide Fund Living Planet index)

Location	2006 Population	2011 Population	% change in population	Ecological Footprint (hectares per person)
Randwick	119,884	128,989	1.5%	5.3
NSW	6,549,178	6,917,658	1.13%	5.92
Australia	19,855,288	21,507,719	1.66%	7.58*

Over the five years between 2006 and 2011, Randwick's population increase was around 1.5 percent per annum. This was slightly higher than the annual increase for NSW and just under the annual increase for Australia over the same period (see Table A within this report). This percentage change in Randwick represents an annual increase of approximately 2,000 residents each year (or a little over 800 new households at the average of around 2.4 people per household).

Under dwelling targets set by the NSW government, approximately 8400 additional dwellings are expected to be constructed in Randwick by 2031. The housing density for Randwick is approximately 14.58 dwellings per hectare across the total area of Randwick's 37.42 square kilometres, or 40.57 households per hectare across the area of land in Randwick zoned as residential. This compares to a population density of approximately 34 persons per hectare across Randwick (compares to approximately 65 persons per hectare in Waverley and 63 persons per hectare in Sydney CBD).

Randwick's understanding of its ecological footprint has resulted in it taking a proactive approach on sustainability issues including the delivery of programs and campaigns aimed at increasing both Council and community actions and changes contributing to a more sustainable lifestyle over the

longer term. Education will continue to influence residents about adopting a reduced level of consumption in order to achieve the required shift in our ecological footprint from where it currently sits to where it needs to be in the long term.

To assist in understanding our community views and associated actions on local environmental issues, Council has carried out regular surveys of its residents over the past decade. The survey, "Who Cares About the Environment" and its results have contributed to the development of Council's environmental and sustainability initiatives and projects.

The most recent survey results confirm that the environment is still an important issue for residents with roads and traffic issues the greatest issue of concern. The most important environmental issues identified in the survey includes litter and illegal dumping of rubbish as well as beach and ocean pollution. In Randwick's southern suburbs, residents' concern remains high over industrial emissions.

The Who Cares survey also indicates that the predominant environmental actions being taken by Randwick residents include:

- 94 percent are reducing their energy consumption (not just for environmental reasons);
- 91 percent are re-using items for environmental reasons;
- 88 percent are reducing water consumption for environmental reasons;
- 83 percent are reducing the amount of food thrown out by their household;
- 78 percent are avoiding the use of plastic bags;
- 68 percent are avoiding products with lots of packaging;
- 31 percent are composting or using a worm farm; and
- 44 percent are growing their own food.

1.3 How is Randwick responding?

RATING ●

Council's role in supporting and applying ecological development principles and practice to the planning framework has facilitated the increased population growth close to shops, services and public transport in designated areas of the City. These places include areas adjacent to the Kensington town centre, the University campus, Maroubra Junction and the redeveloped Prince Henry site in the south of the City. The development of Randwick's comprehensive Local Environmental Plan (LEP) consolidated this long term direction to plan for population growth in and around these centres and public transport connections (see Land Use Planning section within this report).

Randwick Council continues to work proactively with local residents, businesses, schools and staff to assist each part of the community increase their understanding and involvement in taking steps to live a more sustainable lifestyle and to reduce their impact on the level of resources consumed and the subsequent impact on the natural environment.

Council's sustainability programs and activities are focussed on helping the wider community take their own actions, often as small, incremental steps over time that nevertheless contribute to measurable and positive outcomes for the environment. In addition these actions may save money and/or contribute to increased social well being. For instance, reducing car use results in less traffic on our roads and also delivers health and fitness benefits if individuals are cycling or walking.

For almost a decade Council's Sustaining our City initiative has been driving change across the whole community and contributing to significant progress in environmental protection and sustainability across the City. This has resulted in practical on-ground outcomes and measurable behavioural changes being achieved.

The Sustaining our City initiative, funded by a special environmental levy, was approved by the Randwick community, Council and the Minister for Local Government, originally in 2004 and again in 2009. This environmental levy provides approximately \$3 million a year for development on specific environmental and sustainability initiatives. Priority activities for environmental levy development include:

- Coastal Protection;
- Resource Conservation;
- Tackling Climate Change;
- Conserving Biodiversity; and
- Community Participation and Education.

Over the past five years, Council has also been able to utilise its environmental levy to obtain an additional \$1 million a year in externally funded grants from Commonwealth and State Government programs. These grants have provided

additional resources for sustainability projects carried out across the City.

Some of the environmental and sustainability projects include:

- upgrading and replacing various sections of the coastal walkway;
- construction of major stormwater recycling and re-use infrastructure, now saving in the order of 350 million litres of town water per annum from Council operations alone;
- installation of more than 80 kilowatts (kW) of solar photovoltaic (PV) panels and renewable energy sources at various Council and community sites;
- major sustainability education projects including a retrofit of the Randwick Community Centre to become Council's sustainability education 'hub', development of community and permaculture gardens, and transformation of Barrett House as a sustainability demonstration project for residents of the Eastern suburbs.

High profile community education programs and initiatives delivered regularly over the past four years include:

- Sustainable Living, composting, gardening and leadership courses, free for residents;
- Marine and Coastal Discovery Program now occurring three times a year;
- annual Eco Living Fair, one of the largest environmental festivals in the metropolitan region; and
- regular events held to support Clean Up Australia, Earth Hour, National Garage Sale Day, Sustainable House Day, World Environment Day, Bike Week and National Recycling Week.

Around half of the local schools in Randwick have benefited from incentives to install rainwater tanks with new incentives now available to support the development of school food gardens and native habitat areas within school grounds.

Council's range of water and energy saving incentives for residents (completed in 2010), contributed to the installation of more than \$2.4 million in energy and water saving measures in Randwick homes (see Energy and Greenhouse section within this report), while the recently commenced Green Money Recycling Rewards scheme has increased recycling rates of participating households by more than 10 percent (see Resource Recovery section within this report). Local businesses are also benefiting from a business water audit program conducted in conjunction with Sydney Water which is saving participating businesses just under \$500,000 annually from their water bills and is reducing water consumption by more than 300,000 litres of town water per day (see the Water section within this report).

One of the main externally funded projects has been the 3-Council Ecological Footprint collaboration with neighbouring Waverley and Woollahra Councils (for more information see www.reduceyourfootprint.com.au). The aim of the project was to contribute to reducing the ecological footprint of the Councils' operations and their residents. The success of the project has resulted in the three Councils agreeing to continue the project for a further four years. Five key projects of this collaboration include:

- The innovative 'Compost Revolution' program, a major initiative to remove food waste from household rubbish bins, has diverted around 400 tonnes of food waste and avoided 920 tonnes of greenhouse gas emissions;
- Business water audits for local businesses as referred to within this report, saving more than 300,000 litres of water a day for the participating businesses and almost \$500,000 a year off their water bills;
- The Go Solar energy saving program, completed in 2011, linked residents to approved installers and discounts on solar PV panels and solar hotwater systems;
- The Barrett House sustainability demonstration project, designed by sustainability specialist, Michael Mobbs, provides residents of the Eastern suburbs with practical sustainable solutions on display for saving water, energy and waste around the home at affordable prices; and
- The 3 Council website, www.reduceyourfootprint.com.au includes the opportunity for our community to obtain advice and answers on environmental questions.

2. Environmental risks and impacts are strategically managed

RATING ●

Relates to 10(b) of our 20 year City Plan, that is,
Our environmental risks and impacts are strategically managed

2.1 Why is Environmental Risk Management important?

Council takes its environmental management responsibilities very seriously. A significant part of Council's strategic approach focuses on factoring risk management into all of the decisions made across the full range of Council activities. The Global Financial Crisis showed what can happen when there is a failure to have sound strategies in place to manage the risks and minimise the financial impacts of those decisions.

Making decisions without considering the environmental risks can also result in serious consequences over the long term. Examples of past activities that are still having an impact environmentally today include the discharge of industrial emissions into the atmosphere or water, or waste disposal practices. Poor practices and a lack of consideration around the risks associated with these discharges or dumping of waste material are still being dealt with decades later in the form of contaminated soil or land.

Managing environmental risk requires the adoption of the 'precautionary' principle. Prior to making a decision that may damage the environment into the future you need to undertake adequate research, analyse all relevant and available information and data and apply it to the decision making process.

2.2 Current status in Randwick

RATING ●

Many of the environmental risks that Councils are called upon to strategically manage and minimise the potential impacts of over the long term, have legislative or regulatory frameworks that Councils are required to comply with. Frequently there is often insufficient information or scientific data at the local government level to enable appropriate assessment of the environmental risks that Council and its community considers important.

The basis for long term strategic management and decision-making around the wide spectrum of environmental risks often requires Council to gather its own data or information, or obtain assistance from community members as well as engage with specialist experts with the knowledge of the relevant issues. Table B within this report shows key risk areas for Council, their respective governing frameworks and the key strategic approaches adopted by Council to manage the risk and potential impacts.

Table B: Environmental risk areas managed by Council

Issue	Legislative, regulatory or other governing frameworks	Relevant action / response of Randwick to date (also see 'How is Randwick responding' section)	Relevant section of State of Environment report and 20 year City Plan
Land use planning (see next section)	<i>Environmental Planning and Assessment Act (1979)</i>	Preparation of our updated Local Environmental Plan (awaiting Govt approval)	SoE section 3 City Plan 10 (c)
Contaminated sites	<i>NSW Contaminated Land Management Act 1997 - State Environmental Planning Policy No. 55 – Remediation of Land and related Guidelines</i>	Investigation and implementation plan for 14 former landfill sites in Randwick	SoE section 2 City Plan 10 (b)
Threatened species and biodiversity conservation (also see next section)	<i>NSW Threatened Species Conservation Act (1995)</i> <i>Commonwealth Environment Protection & Biodiversity Conservation Act (1999)</i>	Specific recovery plans for Eastern Suburbs Banksia Scrub, <i>Acacia terminalis ssp terminalis</i> (Sunshine Wattle), Grey Headed Flying Fox and Green and Golden Bell Frog	SoE section 2 and 3 City Plan 10 (c)
Floodplain management	NSW Government Floodplain Guidelines	Floodplain studies completed or underway A Flood policy was endorsed to implement these policies and inform future inclusion of flood controls in the LEP.	SoE section 2 City Plan 10(b)
Climate Change	Clean Energy Future Legislation; National Climate Change Adaptation Program; Helping NSW Local Govt Adapt – 'A Guide to Climate Change Risk Assessment for NSW Local Governments.'	Climate Change Risk Mitigation and Adaptation Road Map	SoE section 2 and 5 City Plan 10(b)
Environmental Sustainability (see previous Section)	Local Govt Act, 1993 Principles of Ecologically Sustainable Development; National Strategy for Ecologically Sustainable Development (1992)	Special Environmental Levy funding Council's Sustaining our City program and initiatives	SoE section 1 City Plan Outcome 10(a)

2.3 How is Randwick responding?

RATING ●

Management of potentially contaminated public land

Many of Randwick's parks and reserves were historically used by the authorities of the day as sites for the disposal of various types of building rubble and other waste material. Although a common practice at the time, these actions have left a potential problem which requires certain processes and procedures to be followed by local and state governments.

Council has undertaken proactive investigations into such sites with the initial aim to ensure that the types of material disposed posed no threat to park users or to the wider environment. Under the NSW Government's Contaminated Land Management Act (1997), lands that are deemed significantly contaminated are required to be remediated so that it will be safe for the site's current or approved use. Low risk areas may require a suitable 'cap' of top soil or other material to be placed over the top of the site, or in extreme cases, soil may need to be removed or treated to reduce the level of pollution or contamination. Additional frameworks are in place to guide Councils in potential clean-up requirements particularly through State Environmental Planning Policy No. 55 – Remediation of Land and the Managing Land Contamination Planning Guidelines (<http://www.environment.nsw.gov.au/clm/>).

In 2005, Council carried out investigations of former landfill sites within its area to assess the status of these sites and identify where remediation or a cleanup was required. An implementation plan and timetable for remediation has been prepared across the fourteen sites identified, with Yarra Bay, Frenchman's Bay and Pioneer Park completed to date, and remediation underway for both Malabar and Chifley Sports Reserve. The remaining sites will be remediated in accordance with the implementation plan.

Council is also working with the land owners to address other contaminated site issues and continues to chair an interagency group with the Commonwealth Government as it progressively remediates the 180 hectare Malabar Headland site.

Threatened species and biodiversity conservation

More than 500 native plant species and 300 animal species have been recorded within the open spaces and bushland areas of Randwick City, creating a significant responsibility for Randwick and its community (see Land Use Planning and Biodiversity section within this report).

Under the NSW Government's Threatened Species Conservation Act (1995) and the Commonwealth's Environmental Protection and Biodiversity Conservation Act (1999) Council's responsibilities include the management of certain species as listed by an independent NSW Scientific Committee. To date these species include the endangered ecological community made up of Eastern Suburbs Banksia

Scrub (ESBS), the Sunshine Wattle (*Acacia terminalis* ssp. *terminalis*), the Grey Headed Flying Fox and the Green and Golden Bell Frog. Randwick City has the largest remaining area of Eastern Suburbs Banksia Scrub (ESBS) and administers and implements the NSW Government's Recovery Plans for these important species of flora and fauna.

Council is also required to implement Threat Abatement Plans under this legislative framework to minimise the damage caused by pest plants and animals including the very aggressive noxious weed, Bitou bush.

Floodplain management

Council is undertaking flood studies of flood prone areas within Randwick City. As part of a NSW wide approach to managing flood risk, Council is preparing flood studies for specific areas in accordance with the NSW Government's 2005 Floodplain Development Manual (<http://www.environment.nsw.gov.au/floodplains/manual.htm>).

Randwick is progressively studying all catchments within the area, with studies for West Kensington and Green Square (in conjunction with the City of Sydney) completed. Council is currently undertaking flood studies for Maroubra Bay, Coogee and Kensington and Centennial Park. These studies aim to establish the level of risk and determine the priority tasks required to reduce potential flood damage in the future. Council's recently completed flooding advice policy has been prepared to inform the community of appropriate studies either completed or underway and the relevant flood controls applicable in each of these areas.

Climate Change Adaptation and Mitigation

When Council undertook the preparation of a specific Climate Change risk management plan in 2008 there was very little local information to discern the specific risks. Most of the scientific data and studies related to more regional, national or global impacts. Council's assessment indicates that unlike many coastal areas, the impact of climate change in Randwick will more likely result in damage to infrastructure or property from increased storm events and less from coastal impacts such as sea level rise. Other outcomes predicted include a decrease in water availability and heat stress across the community.

A number of Council programs will contribute to our strategic responses to Climate Change, including our energy saving initiatives and investments in renewable energy installations and our water saving projects. Key responses to improve the ability of our infrastructure to withstand the impacts of increased storm events and expected increases in rainfall will be addressed through our flood studies and priority actions identified and implemented as a result.

3. Land Use Planning, Biodiversity and Natural Heritage

RATING ●

Relates to 10(c) of our 20 year City Plan, that is,
Land use planning and management enhances and protects biodiversity and natural heritage

3.1 Why are Land Use Planning, Biodiversity and Natural Heritage important?

The management of our land area is very relevant to the overall quality of life of our residents. People choose to live in and visit our City for a number of reasons with much of their choice influenced by physical features in Randwick and the social mix of our City e.g. coastal location, proximity to the Sydney CBD, the range of housing opportunities, access to hospitals, parks and open spaces, university, local shops and beaches.

The key to improving the management of our urban areas and protecting the natural environment is to provide sound directions via land use planning. Land use planning aims to balance the needs of different forms of housing, transport, recreational, commercial or industrial activities as well as the protection of the natural features of our City. It also considers how these coastal parks and open spaces, remnant bushland and other natural features contribute to the natural ecosystem services, such as clean air and clean water on which we all rely.

Achieving this balance remains one of the challenges facing most urban communities, particularly as more and more agricultural land across the Sydney Basin comes under threat from the need to create more homes or expand industry or business.

Randwick City is recognised for its abundance of open space and its rich biodiversity. Besides the Eastern Suburbs Banksia Scrub, which is the most significant plant community recognised across the Eastern suburbs, there are currently around 500 species of indigenous plants and 300 native fauna species, including frogs, reptiles, birds and mammals that have been recorded in Randwick. This represents 25 percent of all species indigenous to the Sydney Basin, which remains one of the main centres of plant diversity in Australia.

3.2 Current status in Randwick

RATING ●

Randwick City represents a fairly unique urban and coastal environment with a relatively high population within the 37.42 square kilometres of the local government area. Our coastal boundaries include around 29 kilometres of beaches and foreshore along the Pacific Ocean and historic Botany Bay. Within these boundaries there are nine popular swimming beaches and 247 hectares of remnant bushland equivalent to around 6.5 percent of the local government area.

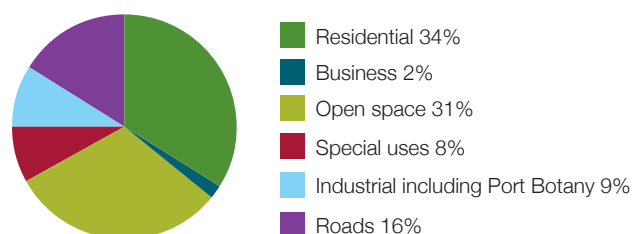
There has been little change in the land uses across Randwick over the past few decades. In general, 34 percent (1,313 hectares) of the City is residential land, 31 percent (1,152 hectares) is 'open space' and parkland, 16 percent (611 hectares) is roads, with 9 percent (322 hectares) industrial including the portion of the Randwick LGA incorporating areas of Port Botany. Only 2 percent (60 hectares) is represented as business. However 8 percent of our land area is described as 'special use' which incorporates the University of New South Wales, the hospitals complex, Long Bay Correctional Centre, Defence land, and the cemetery (see Table C and Figure D within this report).

Table C: Land use in hectares within Randwick Local Government Area (LGA)

Land Use	Area (ha)
Residential	1312.79
Open space & Parks incl. Bushland	1151.5
Roads	610.95
Industrial including Port Botany	322.26
Special uses (e.g. university, hospitals, jail, cemetery, defence land, etc)	284.19
Business	60.31
Total	3742

Note: These are the estimated land use figures based on the planning data (i.e. land use zoning).

Figure D: Proportion of different land use types across Randwick Local Government Area*



(* Special use areas include land taken up by the University, Hospitals complex, Long Bay Correctional Centre, Defence land)

3.3 How is Randwick responding?

RATING ●

Council's original Local Environmental Plan (LEP) was prepared in 1998 and then consolidated with planning changes made in 2010. This LEP guides:

- what land uses are permitted in different locations,
- the requirements to guide the form and scale of development
- the requirements to maintain and protect the various open space areas, used for recreational purposes, that contain native vegetation or provide important habitat for native fauna.

More recently, Council has submitted a new comprehensive Local Environmental Plan (LEP) to the Department of Planning and Infrastructure for final drafting. This updated LEP will come into effect once the Minister approves and gazettes this document.

Importantly, this most recent LEP strengthens the previous land zonings across the City, ensuring they more closely match existing and desired land use activities. An additional 31.8 hectares of land has been added to areas under the proposed 5 separate zonings relevant to environmental protection. These zonings include: National Parks and Nature Reserves; Public and Private Recreational Open Space; Environmental Conservation; and Primary Production, the latter includes the small market garden areas in the south of the City.

The largest new areas making up these 31.8 hectares under the updated Environmental Conservation zoning includes bushland remnants along the southern corridor adjacent to Bunnerong Road and an areas around Little Bay (former University site) where small fragments of the threatened Eastern Suburbs Banksia Scrub (ESBS) remain.

Under the National park zone, as already confirmed in a separate one-off spot LEP, an additional 14.8 hectares of former residential zoned land has been zoned to National Park in the western section of Malabar Headland.

Over recent years, development of the Randwick Environment Park, in the central area of Randwick, provides 13 hectares of new parkland and wetland for public access. Council has initiated an update to the draft Plan of Management prepared by the Commonwealth Government prior to handing over the land to Council. This update will review public use and enjoyment of the park, and review future facility requirements and management measures to ensure the biodiversity and integrity of the ESBS within the Environment Park.

Council's draft Biodiversity Strategy will be completed over the next year and will focus on improving community understanding and advice on biodiversity, as well as the monitoring of species and on-ground works to maintain and protect important plant and animal species in the future.

In implementing these plans and strategies, Council faces many challenges. Dumping of litter including environmental weeds, the removal of vegetation, and the predation of native fauna by cats, dogs or foxes makes it more difficult for native plants and animals to survive in these relatively small fragments of 'green' space.

Council's Bushland staff work closely with volunteers to protect and maintain these important areas of native vegetation. Where possible links between these areas and native garden areas in backyards and schools are fostered. This strengthens 'green' corridors and vegetation fragments contributing to habitat for native plants and animals. Even in providing this type of protection, single events like fires, flooding, illegal vegetation clearing or tree poisoning places further pressure on the species we are working to preserve for future generations. Much of the work of restoring these natural areas in Randwick involves the time-consuming and labour intensive task of removing weeds and pest animals to allow the natural regeneration of indigenous plant species (see Table E within this report). Revegetation with indigenous species occurs in areas that are highly disturbed and where there is no potential for natural regeneration. In many cases these efforts represent both mandatory and responsible practices of Council (see Environmental Risk and Impacts within this report).

Table E: Hours of bush regeneration, weed control and revegetation work in Randwick

Year	2008 – 09	2009 – 10	2010 – 11	2011 – 12
Council land	15,550	15,263	14,603	13,452
Non Council land	17,280	16,321	14,603	18,426

To enhance the areas of available habitat, Bushland staff have adopted the Native Havens program that originated in North Sydney. The Native Havens program provides local residents and schools with advice and assistance on how native and indigenous plants can support or strengthen local biodiversity conservation efforts.

These efforts are further supported by Randwick Council's highly specialised indigenous Community Nursery. The Nursery's major focus is the propagation and distribution of native and indigenous plants. Providing some 70,000 smaller tubestock and larger plants each year, the Nursery is one of the most important plant propagation operations for locally collected seed and cuttings in the Sydney Metropolitan Area. The nursery enables landscaping contractors, householders, schools and many others to support the planting of native and indigenous species across the Eastern suburbs.

Council also has an extensive park and street planting program, planting out around 1200 established street trees each year.

With 29 kilometres of coastline and marine waters, it is important to understand that Council's conservation efforts extend into the protection of marine biodiversity. Council supports the efforts of state government agencies to protect plant and animal species along the rock platforms and beaches, some of which are protected in aquatic reserves. One aquatic reserve extends from Bronte beach to Dolphins Point at the northern end of Coogee beach (see <http://www.environment.nsw.gov.au/nationalparks/parktypes.aspx?type=aquaticreserve>)

In order to increase the community's understanding around marine and coastal protection, Council conducts an annual Summer Activities Program. This program reaches more than 1000 residents and beachgoers each year through hands-on activities to discover their coast and beaches with various marine experts guiding participants in, on and under the water and along our coastal foreshores. This program of activities has become so popular that it has been extended to an Autumn and Spring program enabling a wider range of children, their families and other beachgoers to discover firsthand, the wonders of our coastal reserves and marine waters.

4. Resource recovery

RATING ●

10(d) and (e) of our 20 year City Plan, that is,
Sustainable alternative waste technologies are identified and our community is encouraged to implement waste minimisation strategies

4.1 Why is Resource Recovery important?

There is an increasing appreciation that while our standard of living is high for a well developed nation, we are drawing heavily on our natural resources almost certainly at a rate faster than the resources can be adequately replenished over the long term. This includes the level of waste generated by our community and the amount of waste collected by Council and sent to landfill each year.

As referred to previously (see Toward Environmental Sustainability section), the method of calculating and analysing the 'ecological footprint' of our community indicates that as a society we are currently consuming natural resources at a rate that if applied to the world's population would be equivalent to three to four planet Earths each year. Similarly, Australians have been found to produce the second highest level of waste on a per person basis than any country in the world outside of the USA. This type of over-consumption of resources and generation of waste material suggests a very strong need to increase and improve the level of resource recovery and the conservation of our resources on both an individual and community-wide basis.

Audits carried out of Randwick's household waste indicate that on average approximately 42 percent of the contents of rubbish bins is organic food waste and 16 percent is potentially recyclable. In addition, audits have found over 8 percent of material placed in recycling bins is contaminated, much of it by plastic bags used to deposit recyclable material into the yellow-lidded bin. On this basis there remains good reason and opportunities for further diversion of waste from landfill, particularly via programs aimed at reducing the contamination in recycling bins and removing food waste organics from household rubbish bins.

4.2 Current status in Randwick

RATING ●

Within the context of our City, the data available is reliable and accurate for the amount of waste material being picked up and disposed of from Randwick households (see Table F within this report).

Table F: Annual tonnages of household and organic waste material and recycling across Randwick

	Household waste material (tonnes)	2007 – 08	2008 – 09	2009 – 10	2010 – 11	2011 – 12
A	Household waste	27,700	26,800	26,650	25,350	27,300
B	Dry recyclables	13,200	13,160	13,500	13,400	12,800
C	Organic 'green' waste	5,800	5,650	5,600	6,150	6,800
D	Bulky 'hard' waste	2,800	4,550	3,300	6,130	3,550
	Total	49,500	50,160	49,050	51,050	50,450
	% of waste 'diverted' from landfill	38%	38%	39%	38%	39%

4.3 How is Randwick responding?

RATING ●

In 2011-12, Randwick Council spent about \$6 million disposing of waste to landfill. Taking the initiative to assist householders to improve their level of recycling and composting leads to increased levels of resource recovery and potentially reduce Randwick's landfill disposal costs. The average waste produced per household in Randwick is approximately 8.2 kilograms per week with average recycling at approximately 4.9 kilograms each week. As mentioned, Council currently diverts around 39 percent of its waste from landfill against a NSW Government target of 66 percent waste diversion by 2014.

In addition to Council programs to improve recycling rates and reduce the amount of waste going to landfill, Council has been supporting and working with the Green Money Recycling Rewards Scheme, the first program of its kind in Australia. This Green Money scheme enables participating householders to convert the amount of recycled material collected each fortnight from their homes into 'green' points or money which can then be redeemed from local businesses in the form of discounts and incentives, contributing to both increased recycling and supporting Council's 'Shop Local' program.

Early results of the Green Money Recycling Rewards scheme have shown an increased level of recycling from participating households. Another positive benefit of the Green Money scheme is that it saves each participating household approximately \$242 (annualised over 12 months) and contributes more than \$1 million per annum in savings to local businesses. This program is now about to commence in other local government areas starting in Victoria.

Another program focusing on householder's organic food waste, known as 'Compost Revolution', has been running since 2010 as part of a collaborative project with neighbouring Waverley and Woollahra Councils. The program enables residents across the 3 Council areas to obtain compost bins or worm farms as well as technical support and advice to encourage them to avoid placing organic food waste into their red-lidded rubbish bins. To date the Compost Revolution program has resulted in a total reduction of food waste going into rubbish bins of approximately 364 tonnes with savings of approximately 920 tonnes of greenhouse gas emissions. The Randwick component of this total is 192 tonnes (2011-12) with an equivalent reduction in greenhouse gas emissions of 484 tonnes (up from 57 tonnes of food waste and 145 tonnes of greenhouse gas emissions respectively in 2010-11). The success of the Compost Revolution program across Randwick and its neighbouring Councils has resulted in it being adopted by 20 other local councils in NSW and Victoria.

As part of its draft Resource Recovery Strategy, Council is also investigating options to further improve the level of resource recovery to achieve both the immediate NSW Government target of 66 percent waste diversion for local Councils by 2014 and Randwick's long term target of no untreated waste to landfill by 2020. Although we are still below this 66 percent target, Council remains on track to achieve the 2014 target.

5. Water cycle management

RATING ●

Relates to 10(f) of our 20 year City Plan, that is,

A total water cycle management approach is adopted including water conservation, re-use and water quality improvements

5.1 Why is Water important?

Water is a precious resource relied upon by all living things, and perhaps taken for granted until communities experience times of drought, bushfires or extended periods of hot summer weather. Australia is the one of the driest continents in the world, yet Australians have a demand for water that makes us one of the highest consumers per person of this valuable resource.

Randwick's popular swimming beaches attracts substantial numbers each summer, comprising of both residents and visitors to the City, making beach water quality an important environmental issue for Council and various Government agencies.

5.2 Current status in Randwick

RATING ●

Water consumption by Council includes water used for amenities, cleaning and washing of hard surfaces, and most significantly to irrigate public parks and playing fields used all year round by sporting and recreational user groups. Water consumption across our ten highest consuming sites was audited in 2011 to comply with Council's Water Savings Action Plan submitted previously to the NSW Office of Environment and Heritage. The audit of these sites creates reliable and accurate data for this issue and shows that water consumption has decreased by approximately 54 kilolitres per day between 2005 and 2011, a reduction in the order of 31 percent against Council's 20 percent water reduction target.

At the same time approximately 226 kL per day of irrigated water was provided by stormwater or borewater across Council's major parks and reserves with a total saving of town water in the order of 280 kL per day and a cost saving per annum of almost \$215,000. A snapshot of the relevant water savings and cost savings from Council sites is shown in the Table G within this report:

Table G: Water use and savings achieved for Council's top consuming water sites (2011)

	Use kL/day 2005	Use kL/day 2011	\$ Saving	
Price of Water	\$1.20	\$2.10	Daily	Yearly
DesRenfordAquaticCentre,Maroubra	63.5	63	\$1.05	\$383.25
Randwick Council Administration Building, Randwick	17.2	11	\$13.04	\$4,759.60
Burrows Park, Clovelly	5	7	-\$4.21	-\$1,536.65
Beach Amenities, Maroubra	25	17	\$10.52	\$3,839.80
Beach Amenities, Clovelly	18	4	\$29.44	\$10,745.60
Paine Reserve, Kingsford	0.7	0.2	\$1.05	\$383.25
Pioneers Park, Malabar	10 (35kL/d leak)	17	\$37.85	\$13,815.25
Anzac Parade Gardens, Maroubra	0	0.03	-\$0.06	-\$21.90
Coral Sea Park, South Maroubra	9	0.04	\$18.84	\$6,876.60
Phillip Bay/Yarra Bay Reserve	2	2		
Consumption of Top 10 Water users	175.4	121.3	\$113.82.	\$41,546
Irrigation water replaced with stormwater and bore water		226	\$474.60	\$173,229
			Total Saving per Year	\$214,775

Community water use

In terms of household water consumption, based on information from Sydney Water, the average household water consumption in the Randwick LGA is approximately 230,000 litres of water per year in 2010 compared to the average of 241,000 litres of water per year in 2006, representing a saving of approximately 11,000 litres of water per household each year.

Beach water quality

The water quality of our beaches has also been monitored by the NSW Government's Beachwatch and Harbourwatch program for well over a decade. The latest 'State of the Beaches' report by the Office of Environment and Heritage shows that of the seven beaches and bays monitored within the Randwick LGA, five have a beach suitability of 'Good' or 'Very Good' with grades of 'Poor' for Malabar Beach and Frenchmans Bay. The result is shown within this report (Figure H):

Figure H: Water quality rating of Randwick beaches (based on EPA Beachwatch results)

Site	Site type	Sanitary Inspection Category	Microbial Assessment Category	Beach Suitability Grade
Clovelly Beach	Ocean beach	Moderate	Category A	Good
Coogee Beach	Ocean beach	Moderate	Category B	Good
Maroubra Beach	Ocean beach	Low	Category A	Very Good
Malabar Beach	Ocean beach	Moderate	Category D	Poor
Little Bay Beach	Ocean beach	Moderate	Category B	Good
Yarra Bay	Estuarine	Moderate	Category B	Good
Frenchmans Bay	Estuarine	Moderate	Category C	Poor

5.3 How is Randwick responding?

RATING ●

Water audit and efficiency

An external audit of Council's ten top water consuming sites was carried out to assist in improving our understanding of the effectiveness of water conservation and efficiency measures implemented over the previous five year timeframe.

This audit confirmed the success of the range of water saving projects implemented with approximately 54,000 litres of townwater being saved per day from Council operations and a further 226,000 litres of alternative water being supplied to meet irrigation requirements for Council's parks, playing fields and reserves. Water charges have almost doubled over the reporting period so the cost savings achieved of \$215,000 per annum are significant. However, the actual annual water savings delivered are approximately 350 million litres of water per year (equivalent to the water found in 140 Olympic sized swimming pools).

Audit results have also assisted in the identification of new water saving measures, especially at the top ten water consuming sites, which will be progressively implemented over the next two years.

Local businesses

Saving water is also on the agenda with local businesses. Randwick, as part of the 3 Council Ecological Footprint project with Waverley and Woollahra Councils, and in collaboration with Sydney Water, has been working with local businesses to assist them to reduce their water consumption. In the first two years of this project, the participating local businesses have achieved water reductions of more than 200,000 kilolitres per day of town water, equivalent to savings in their annual water bills of more than \$200,000.

Beach water quality

In an effort to improve the water quality at Malabar, Randwick's poorest performing beach, Randwick Council, Sydney Water and the Office of Environment and Heritage have cooperated to construct a new pipeline to divert wastewater and stormwater from Malabar beach to the ocean. This \$2 million project will be completed in 2013.

6. Energy and Greenhouse gas emissions

RATING ●

Relates to 10(g) of our 20 year City Plan, that is,
Greenhouse gas emissions are reduced

6.1 Why are Energy and Greenhouse gas emissions important?

The Australian people and their cities have a high reliance on energy derived from coal fired power stations with only a small proportion of power being generated from renewable sources such as solar photovoltaic (PV) panels, wind or wave power. This has resulted in relatively high emissions of greenhouse gas emissions responsible for human induced Climate Change.

Such a reliance on coal fired power stations has resulted in Australians having the highest per person level of greenhouse gas emissions of any country in the world while the ageing nature of our power infrastructure has also resulted in increasing costs to consumers from the replacement, refurbishment and construction of new and existing power stations, transmission lines and sub-stations.

An unwanted by-product from our reliance on fossil fuel for both our electricity and transport is air pollution resulting from the burning of these fuels. Air pollution has a significant impact on human health, ranging from coughing, wheezing and shortness of breath to serious conditions such as asthma attacks and even premature death.

6.2 Current status in Randwick

Regional Air Quality

RATING ●

The overall air quality is used as a measurement to determine the level of air pollution and potential impact on human health. Air quality monitoring is carried out on a regular basis by the New South Wales Office of Environment and Heritage. Based on the current data, air quality has vastly improved over the past 10 years – many of the most dangerous air pollutants are down by 30 percent and national air quality standards for four of six major air pollutants (lead, carbon monoxide, sulphur dioxide and nitrogen dioxide) are consistently met. These reductions represent a significant success as Sydney's population has grown by 21 percent over the past 20 years and the number of passenger vehicles over the same period, the main contributor of several significant air pollutants, has increased by 58 percent.

Council's Energy consumption

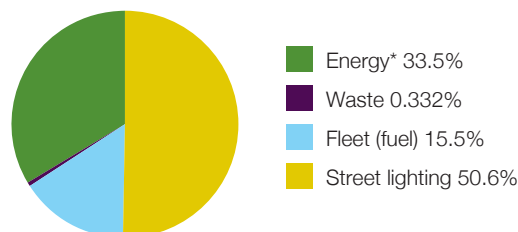
On a local scale, energy consumption across Council's ten highest consuming sites was audited in 2011 to comply with our Energy Savings Action Plan submitted previously to the NSW Office of Environment and Heritage. The audit of these sites has created reliable and accurate data for this issue and shows that Council consumption of electricity and the resultant emissions of greenhouse gases has changed slightly over the past few years (see Table I within this report). More recent efforts and investments in renewable energy sources installed at Council locations have produced some good reductions in energy use and associated levels of local greenhouse gas emissions.

Table I: Overall results of energy audits conducted of Council's top 10 energy consuming sites:

For Randwick's top 10 energy consuming sites	2005 - 06	2009 - 10	% change
Energy consumed	18,712 GJ	17,665 GJ	5.9% decrease
Energy costs	\$384,637	\$545,275	29.5% increase
Energy related greenhouse gas emissions	3,871 tonnes	3,683 tonnes	5.1% decrease

The energy consumption results for Council's operations are below the 20 percent reduction target adopted for Council's energy consumption and greenhouse gas emissions. Over half of Council's energy consumption is generated by street lighting with a further third used in Council operations at its various sites and building locations. The remainder is mostly from our vehicle fleet. These consumption figures reflect corresponding levels of greenhouse gas emissions (see Figure J within this report). Council's total greenhouse gas emissions from all sources are between 12,000 and 13,000 tonnes per annum.

Figure J: Greenhouse gas emissions by source for Randwick City Council



Household Energy Consumption

Based on the data from Ausgrid, the current stationary energy consumption from residents in 2011-12 is 306,242 MWh which is equivalent to 5.2 MWh per customer per day. This is a reduction of approximately 9.35 percent in comparison to 2008-09 which is 338,363 MWh or 5.9 MWh customers per day. It is worth noting that the solar energy generated and exported to the grid from Randwick residents has increased by more than 9,000 percent over the four year period from 2008-09 to 2011-12 (see Table K within this report). This is likely to have occurred as a result of financial incentives from the NSW and Commonwealth Government's as well as Council's specific financial incentives to help residents reduce energy consumption. A summary of the information is provided in Table L within this report.

The equivalent greenhouse gas emissions for residents in 2011-12 are approximately 324,616 tonnes of CO₂-e or 5.6 tonnes of CO₂-e per customer.

6.3 How is Randwick responding?

RATING ●

Energy Efficiency

Over the past few years Council has been progressively implementing a range of energy saving and efficiency measures across Council locations and supporting initiatives across the community aimed at reducing energy consumption and emissions of greenhouse gases.

A comprehensive energy audit was conducted of Council's top ten energy consuming sites to assist Council identify and tackle priority actions and to follow up the preparation of our previous Energy Savings Action Plan. The results of these audits has led to the development of a more comprehensive Energy and Greenhouse Management Plan which will set out future actions, their costs and savings for energy saving investments by Council.

Renewable Energy

Over recent years Council has installed just over 73 kilowatts of renewable energy, mostly in the form of solar photovoltaic (PV) panels including a 2.4 kilowatt small scale wind turbine, one of the first by a local Council in the Sydney Metropolitan Area. Support has also been provided for solar PV installations on community buildings and a further 60 kilowatts of solar panels is expected to be completed over the next 12 months, almost doubling Council's existing renewable energy capacity. As part of Council's Energy and Greenhouse Management Plan, further investigations of potential renewable energy opportunities will be conducted to assist in the establishment of an appropriate renewable energy target for Randwick and identify sites for additional renewable energy projects.

Table K: Community electricity consumption

Community Electricity Report					
Council Area: RANDWICK					
Electricity Use	2008/09 MWh	2009/10 MWh	2010/11 MWh	2011/12 MWh	% Change 10/11 to 11/12
Residential General Supply	305,018	295,530	294,535	279,507	-5.1%
Residential Off Peak Hot Water	33,345	28,962	27,591	26,735	-3.1%
Residential Total	338,363	324,492	322,126	306,242	-4.9%
Solar Generation exported to grid					
Electricity (MWh)	26	100	1,174	2,410	105%

Street lighting Energy Efficiency

Street lighting in the Randwick Local Government Area, accounts for approximately 50 percent of Council's total energy costs and around 50 percent of our greenhouse gas emissions. This is fairly typical for local councils around Australia.

Under the umbrella of the Southern Sydney Regional Organisation of Councils (SSROC), Randwick Council is participating in SSROC's Street lighting Improvement Program. SSROC has received around \$4 million worth of funding from the NSW Government's Climate Change Fund with the objective of improving street lighting efficiencies in the Southern Sydney Regional Area (including Randwick Local Government Area) and adopting the long term greenhouse emissions reduction target of 35%. Since 2008, SSROC has been working with the energy retailer, Ausgrid, and energy consultants to come up with a strategy for implementing the street lighting efficiency plans. The first phase involves the replacement of mercury vapour street lamps on main roads with energy efficient high pressure sodium (HPS) lamps. These changes will generate energy savings of more than 52 percent. Installations are expected to commence before the end of 2012.

Local Government Emissions Trading Scheme (LGETS)

In 2007, Council established the first Local Government carbon trading scheme with eleven other NSW Councils, three regional and eight metropolitan Councils. The scheme was set up as a small scale trial of carbon trading amongst the group of proactive Councils in the absence of leadership at the time by State and Commonwealth Governments. Over the first three years of the scheme, a trend was emerging of more and more participating Councils seeking a dwindling amount of available carbon credits from within the group. This was related to low levels of investment and the corresponding high cost of carbon abatement measures identified by the participating Councils. Without increasing their abatement activity the market being developed for carbon 'credits' amongst the group was sitting with a smaller number of Councils and testing their capacity to keep the capped carbon price at the levels set under the scheme. A number of Councils also took the opportunity to purchase additional carbon offsets at this time, including Randwick. The Commonwealth Government's approach to a wider program of carbon management and future emissions trading resulted in the deferment of the Local Government carbon trading scheme prior to the end of the trial period.

Sustainable transport

During 2010, Council received funding from the NSW Government to assist in a 12 month sustainable transportation project within Randwick. This enabled Council to undertake specific work to increase community access to local cycling and walking facilities, increase community car-share across Randwick, and improve participation and planning in sustainable transport options for the community and staff.

Council's strong advocacy for new rail connections to the City has gained strong support from a range of organisations including UNSW and the Australian Jockeys Club representing Randwick Racecourse. This has contributed to the recent announcement of the NSW Government to support the planning and extension of light rail from the Sydney Central Business District to Randwick.

Emissions from motor vehicles are a significant cause of air pollution as well as contributing to increased levels of greenhouse gas emissions. Over the past ten years, the overall air quality has improved substantially. Many of the most serious air pollutants are down by 30 percent resulting in few instances of exceeding national air quality standards, particularly for four of the six major air pollutants (lead, carbon monoxide, sulfur dioxide and nitrogen dioxide).

Community incentives

Over a three year period, a range of incentives were provided to encourage the take up of energy saving measures by Randwick households. In its final 12 months the program became part of the 3-Council collaboration with neighbouring Waverley and Woollahra Councils.

Funded originally from an external grant, the project continued with support from Council's environmental levy. Overall these incentives provided to residents contributed to the installation of more than \$2.4 million of new energy saving measures across Randwick households.

More than 500 households installed a range of energy saving measures, including solar PV panels, hotwater systems, insulation and energy efficient downlights.

7. Conclusion

Randwick Council continues to invest in environmental programs, incentives and activities aimed at responding to and addressing long term environmental issues. Council's environmental levy and Sustaining our City initiative is a key driver however actions and initiatives occur across all parts of the Council and the community. This indicates a high commitment and breadth of involvement in developing and implementing solutions that are becoming increasingly apparent for the range of environmental problems facing society.

This State of the Environment report aligns reporting issues with those identified specifically in the looking after our environment section of Council's 20 year City Plan. This demonstrates the more consolidated 'accounting for outcomes' approach represented in our first State of the City report. This streamlines the various reporting requirements carried out by Council and provide greater transparency and accountability for the programs initiated by Council to achieve progress in managing our environment for current and future generations.

Future initiatives include:

- Greater investment of available resources to increase energy efficiency and conservation efforts by Council to meet agreed energy saving targets;
- Continuation and consolidation of water conservation and saving efforts, particularly for replacement of potable water where practicable and the achievement of our agreed water saving targets;
- Establishment of practical and achievable resource recovery outcomes to ensure progress toward and delivery of agreed waste diversion targets;
- Completion and implementation of the draft Biodiversity Strategy to maximise efforts aimed at increasing protection and conservation of Randwick's native and indigenous flora and fauna;
- Further progress in completing sections of the coastal walkway to the south of Malabar Headland;
- Maintain pressure with other key organisations for the extension of rail to Randwick as a means of achieving broader sustainable transport goals for the local community;
- Increased progress in developing and implementing strategic sustainability approaches across the different operational areas of Council for the achievement of longer term sustainability outcomes, for example, purchasing in relation to goods, fleet and events;
- Development of stronger partnerships and programs to support and extend Council's leadership in sustainability to initiatives that enable measurable changes to be made across different parts of the community e.g. householders, local businesses and schools; and
- Increasing Council capacity to report more directly on a regular basis, the on-ground results and achievements of its environmental and sustainability initiatives and programs.

Randwick City Council

STATE OF THE ENVIRONMENT

