NORTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS

STATE OF THE ENVIRONMENT REPORT 2010-2011

Supplement to the
NSROC State of the Environment Reports
2009-2010 and 2008-2009

NSROC
Northern Sydney
Regional Organisation
of Councils

NORTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS

Comprising the Councils of
Hornsby, Hunter's Hill, Ku-ring-gai, Lane Cove,
North Sydney, Ryde and Willoughby

NSROC
Northern Sydney Regional Organisation of Councils

PRESIDENT'S MESSAGE

NSROC has now produced Regional State of the Environment reports for seven years. This reflects both the recognition that many environmental issues impact beyond council borders and that our member councils are committed to cooperative approaches to achieve improved environmental outcomes.

The 2010-2011 NSROC Regional State of the Environment Report is a Supplementary Report. It provides updates on key data and highlights through case studies, the relevant regional and council initiatives relating to the environment in the 2010-2011 financial year. It should be read in conjunction to the more substantive 2008-2009 and supplementary 2009-2010 NSROC Regional State of the Environment Reports. Next year NSROC will produce a comprehensive report as part of the end of the four year council election cycle.

New inclusions are in this year's report. The "at a glance" comparator of environmental data across councils is designed as a quick reference guide.

In 2010-2011 each council also completed a Community Strategic Plan where councils set goals and indicators for their environmental activities. Extracts from each council's Plans are included in the Report's Appendices for the first time.

Nick Berman
Mayor of Hornsby Shire Council
President of Northern Sydney Regional Organisation of Councils
November 2011

HORNSBY
Mayor Berman

Councillor Delegate
Robert Browne

HUNTER'S HILL
Mayor Hoopmann

Councillor Delegate
Richard Quinn

KU-RING-GAI
Mayor Cross

Councillor Delegate
Jennifer Anderson

LANE COVE
Mayor Gaffney

Councillor Delegate
Pam Palmer

NORTH SYDNEY
Mayor McCaffery

Councillor Delegate
Stephen Barbour

RYDE
Mayor Etmekdjian

Councillor Delegate
Sarkis Yedelian

WILLOUGHBY
Mayor Reilly

Councillor Delegate
Barry Thompson

CONTENTS

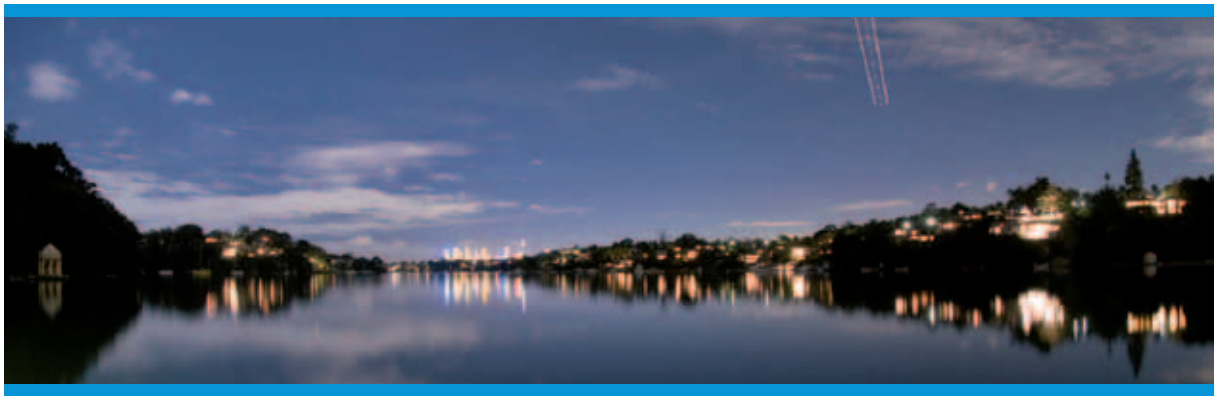
LIST OF CASE STUDIES

KEY FINDINGS OF SUPPLEMENTARY REPORT

- **Expenditure** on environmental activities and related initiatives has risen across NSROC member councils by $15 million in the last year to a total of $195 million.
- NSROC councils continue to raise **awareness of environmental issues** and have actively sought community input in the determination of environmental goals reflected in each councils' new Community Strategic Plan.
- As the population grows, environmental pressures increase however there appears to be **positive outcomes being achieved in areas such as waste, energy and water** across the region.
- **Waste** is an important environmental challenge for the NSROC region. NSROC councils have initiated an investigation into regional waste management options that promote best economic and environmental outcomes in light of changes in the market and the future impacts of carbon taxes on waste collection.
- **Energy consumption** in the region has generally trended downwards in residential activity but with some increases in non-residential. This year new information has also been provided about solar connections and streetlighting maintenance which will allow NSROC from this point forward to measure trends in these activities. While only three months data is available (September to December 2010) the NSROC region uptake of solar technology and exported power has virtually doubled.
- **Water consumption** in the region continues to decline. This year water consumption across all uses fell by around 700,000kL. This is a substantial effort given increased population in the region. At the council level, consumption by council assets has also been in gradual decline. In five years consumption by member councils has dropped from 860,832kL in 2006-7 down to 694,440 kL in 2010-2011.
- **Bushland** and biodiversity continues to be an important issue for NSROC councils who invest substantially in bushland preservation, data gathering and education initiatives. Volunteer numbers for bushland support have increased this year although it has been observed that the number of hours provided by volunteers remains static. This appears to reflect greater engagement with the community on initiatives but less time being allocated by individuals for ongoing volunteer activities.
- NSROC councils are recognising the increased pressures on all **open space** in the region as density increases. Concerns about balancing open space and urban development are paramount to member councils. NSROC is looking at more strategic management of open space provision including a recently developed regional strategy for sportsground management to address the variety of competing demands and pressures on active open space.
- **Water quality** and direct management activities are ongoing in the NSROC region. Water quality in streams is relatively poor but constant. Our beach quality as measured by the NSW Office of Environment and Heritage's Beachwatch program shows a relatively constant beach quality in the region with a mix of good fair and poor beaches whose quality varies given weather and run off events. Stormwater management is a key role that councils directly undertake to improve water quality. This year NSROC councils collected less waste from stormwater traps than previous years. While this may be due to a variety of factors such as less storm events, it can also be interpreted as a sign of reduced dumping in stormwater systems and surrounds.
- Councils continue to undertake **CO_2 emission saving actions** and many councils have developed specific climate change and adaptation plans. Due to the increasing variety and measurement systems councils now have the ability to undertake sophisticated analysis, however aggregation of this information becomes less meaningful when different measurement systems are employed.

AT A GLANCE SUMMARY

At a Glance Key data for Councils in 2010-2011								
Council	**Hornsby**	**Hunter's Hill**	**Ku-ring-gai**	**Lane Cove**	**North Sydney**	**Ryde**	**Willoughby**	**NSROC**
Population 2010-2011 estimate	164,034	14,591	114,142	33,355	64,795	106,289	70,008	567,214
% pop change from last year	1.22	0.96	2.57	2.67	1.48	1.37	1.17	1.6
Area of LGA	509	6	84	10	10	40	23	628
Expenditure on Environmental Activities								
2010-2011 $m	44.82	2.85	2.1	8.38	29.4	53.02	35.7	195
2009-2010 $m	44.77	2.7	20.3	8.36	27.51	45.35	31.6	180
$m change from last year	0.5	0.15	0.7	0.02	1.89	7.66	4.1	15
Planning								
Dwelling Targets set 2007	11,000	1,200	10,000	3,900	5,500	12,000	6,800	56,400
Employment Targets set 2007	9,000	300	4,500	6,500	15,000	21,000	16,000	72,300
Development								
New dwellings in 2010-2011	244	25	109	39	444	127	161	1,149
New dwellings in 2009-2010	213	19	640	40	3	127	53	1,095
Waste in LGA in tonnes								
Waste recycled in 2010-2011	38,196	5,360	39,922	5,986	9,817	21,379	19,101	139,761
Waste recycled in 2009-2010	37,449	3,257	33,438	5,337	10,634	20,789	18,030	108,145
Kilograms recyced per cap 2010-11	118	380	303	180	151	203.7	272	229 (av)
Waste to landfill in 2010-2011	34,505	923	28,208	6,348	7,991	23,836	12,663	114,501
Waste to landfill in 2009-2010	33,435	1,728	22,098	6,358	8,712	24,314	19,986	116,631
Kilograms to landfill per cap 2010-2011	210	65	197	190	123	227	180	170 (av)
Energy consumption in LGA in KWH								
Residential Consumption 2010-2011	460,046	48,206	412,419	99,569	189,178	273,874	192,229	1,675,521
Consumption per cap 2010-2011	2.80	3.30	3.61	2.99	2.92	2.58	2.75	2.99 (av)
Residential Consumption 2009-2010	464,945	48,004	409,652	99,413	188,170	275,353	191,157	1,676,694
Consumption per cap 2009-2010	2.83	3.29	3.59	2.98	2.90	2.59	2.73	2.99 (av)
Change from previous year	-4,899	202	2,767	156	1,008	-1,479	1,072	-1,173
Non residential Consumption 2010-2011	298,628	27,128	172,408	126,529	442,674	590,284	482,171	2,139,822
Non residential Consumption 2009-2010	304,071	27,079	172,661	127,076	455,103	583,456	479,501	2,148,947
Change from previous year	-5,443	49	-253	-547	-12,429	6,828	2,670	-9,125
Water consumption in LGA in KL								
Total Consumption 2010-2011	13,186,887	1,562,991	10,015,302	3,082,691	6,932,492	10,410,921	7,946,497	53,137,781
Consumption per cap 2010-2011	80	107	88	92	107	98	114	98 (av)
Total Consumption 2009-2010	13,663,547	1,587,180	10,420,715	3,026,395	6,973,644	10,414,817	7,746,263	53,832,561
Consumption per cap 2009-2010	83	109	91	91	108	98	111	99 (av)
Change from previous year	-476,660	-24,189	-405,413	56,296	-41,152	-3,896	200,234	-694,780



ACRONYMS

AGO	Australian Greenhouse Office
CBD	Central Business District
CCP	Cities for Climate Protection
CMP	Conservation Management Plan
CRR	Catchment Remediation Rate
CSIP	Community Sustainability Indicators Project
DCP	Development Control Plan
DECCW	Department of Environment, Climate Change and Water (formerly the Department of Environment and Climate Change DECC incorporating former agencies known as NSW EPA, see below) – now OEH
DLG	NSW Department of Local Government, now the Division of Local Government within the NSW Premier's Department
DOP	Department of Planning (formerly known as Department of Infrastructure, Planning and Natural Resources and Planning NSW)
EPC	Energy Performance Contract
ELR	Employment Lands Review
EMP	Estuary Management Plan
ESD	Ecologically Sustainable Development
ICLEI	International Council for Local Environmental Initiatives
KPI	Key Performance Indicator
LEP	Local Environment Plan
LTP	Local Transport Plan
LGA	Local Government Area
NHRMC	National Health and Medical Research Council
NPWS	NSW National Parks & Wildlife Service
NSESD	National Strategy for Ecologically Sustainable Development.
NSW EPA	New South Wales Environment Protection Authority (now OEH)
NSROC	Northern Sydney Regional Organisation of Councils (Hunter's Hill, Hornsby Shire, Ku-ring-gai, Lane Cove, North Sydney, City of Ryde, Willoughby City)
OEH	NSW Office of Environment and Heritage (formerly DECCW)
RFS	Rural Fire Service
SHOROC	Shore Regional Organisation of Councils
SMCMA	Sydney Metropolitan Catchment Management Authority
SoE	State of the Environment Report
SMP	Stormwater Management Plan
TCM	Total Catchment Management
WSUD	Water Sensitive Urban Design

Introduction

THE NSROC REGION

The Northern Sydney Regional Organisation of Councils (NSROC) covers a diverse area of more than 680 square kilometres and is home to more than 550,000 people. It includes the local government areas of North Sydney, Lane Cove, Willoughby City, Ku-ring-gai, Hornsby Shire, City of Ryde and Hunter's Hill.

The region is home to a variety of landscapes and communities. These range from scenic waterways, bushland parks and areas of historical significance, through to residential high-rise living, and thriving commercial and retail centres. Such a large and disparate region provides many challenges to effective environmental management.

Community, residential and tourist surveys regularly indicate that a major attraction of the NSROC area is its environmental attributes. These are commonly identified as an abundance of open space, mature and substantial urban treescapes, the proximity to national parks and bushland reserves, lack of pollution, and the prevalence of natural water bodies and waterways.

STATE OF ENVIRONMENT (SoE) REPORTING

An SoE report is one of the corporate reporting responsibilities of NSW local government under the *Local Government Act 1993*. The legislation requires that the SoE report:

- Addresses the eight environmental sectors of land, air, water, biodiversity, waste, noise, and Aboriginal and non-Aboriginal heritage;
- Provides, as a basis of comparison in subsequent reports, a statement outlining the condition of each environmental sector at the date of the report and makes the relevant comparison with the equivalent statement in the last SoE report;
- Reports on all major environmental effects and related activities, including management plans relating to the environment; special council projects relating to the environment; and the environmental effects of council's activities;
- Is prepared as a comprehensive report every four years, with a supplementary report in each intervening year.

WHY A REGIONAL SoE REPORT?

The value of a regional report is that it enables the community and NSROC to have a greater understanding of the status, pressures and responses to the environment within a regional context. Working together regionally has already yielded benefits including the sharing of ideas on sustainability reporting, the swapping of environmental practices and innovation in the region, and the forging of stronger regional links.

THIS REPORT

This report is the supplementary report for 2010-2011. It provides updates on key data and highlights through case studies, regional and council initiatives relating to the environment in the 2010-2011 financial year. This Report should be read in conjunction with the more substantive 2008-2009 NSROC Regional State of the Environment Report. In 2011-2012 NSROC will produce its next comprehensive report as part of the 4 year 'end of council term' cycle.

1

Towards Sustainability

Towards Sustainability

A healthy environment is necessary for a productive economy and a cohesive society. The concept of 'sustainability' reflects a broad agreement that people living today have an obligation to protect the health, diversity and productivity of the environment for the benefit of current and future generations. Unsustainable practices cannot continue indefinitely without degrading current conditions and reducing future opportunities.

SUSTAINABILITY GOALS AND MEASURES

The Bigger Picture – Sustainability across NSW

All levels of government attempt to measure outcomes in sustainability. In December 2009, the NSW Government released a NSW State of the Environment Report. This was a follow up to the 2006 NSW State of the Environment Report.

The NSW SoE Report, which is structured in a similar way as the NSROC SoE Report, highlighted the following significant environmental issues across NSW:

Figure 1: 2009 NSW State of the Environment Report – Key observations

People and the Environment

1. The ecological footprint of NSW has increased from 6.35 hectares per person in 1998-1999 to 7.02 hectares in 2003-2004. The ecological footprint of Sydney has increased from 6.67 hectares per person in 1998-1999 to 7.21 hectares in 2003-2004.
2. Total NSW household consumption has increased from $161 billion in 1999-2000 to $206 billion in 2008-2009. The greatest percentage increases in expenditure were on recreation and communications as well as rent, household services and energy.

Climate Change

3. The annual average temperature in NSW is increasing at an accelerating rate.
4. Global sea level rise has accelerated over the past century. NSW has adopted sea level rise benchmarks of 0.4 meters by 2050 and 0.9 meters by 2100.
5. NSW greenhouse gas emissions have remained relatively steady since 1990 with per capita emissions declining by 15% since then to 23.6 tons which is below the national average.
6. Extreme weather events such as heatwaves and droughts are projected to become more frequent. Storm events, combined with sea level rises, will exacerbate coastal inundation and erosion. Frequency of high or extreme fire risk is projected to increase by 10-15% by 2050.
7. Negative impacts on biodiversity are anticipated with changes to fire frequency, saline intrusion in coastal areas and diminishment of alpine regions.

Human Settlement

8. NSW drinking water quality is high with increased use of recycled water. Water consumption in Sydney has declined from 343 litres in 2004-2005 to 306 in 2007-2008.
9. Fossil fuels currently meet 97% of NSW energy demands. Transport continues to be the greatest user of fossil fuels. Car numbers are increasing faster than population.
10. Energy consumption per household is falling but rising overall as households increase and manufacturing and services industries grow.
11. Waste recycling in NSW increased from 46% in 2004-2005 to 52% in 2007-08. Waste disposal rates per person in Sydney have remained constant in 5 years from 2003-2008 and remains below 2000 levels.
12. Noise pollution is the third highest type of complaint call received by NSW Department of Environment.

Atmosphere

13. NSW complies with national air quality standards for 4 of 6 major criteria air pollutants (carbon monoxide, nitrogen dioxide, sulfur dioxide and lead). However the state still faces major challenges from ozone and particle pollution.
14. Ozone and particle pollution are most evident in Sydney. Ozone appearing as a white haze in summer months and particle pollution usually appearing with dust storms or bushfire events.

Land

15. Soil degradation rates in NSW are slowing with improved land management.
16. But acidification organic carbon and soil structure decline are evident. In coastal and urban areas soil erosion and land instability problems from urban development and encroachment of expanding urban fringe areas.
17. Generally remediation of contaminated land is increasing.

Water

18. Due to protracted drought conditions, many water storages in NSW are low.
19. Both inland and some coastal river and wetland systems have suffered limited flows affecting aquatic ecosystems.

Biodiversity

20. Native flora and fauna in NSW remains under threat with specific declines observable in native bird distribution.

In September 2011 the NSW State Government released "*NSW 2021 – A plan to make NSW Number 1*". This plan articulates the following environmental objectives and actions for NSW :

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28

GOAL 22	PROTECT OUR NATURAL ENVIRONMENT
TARGETS	**Priority Actions**
Protect and restore priority land, vegetation and water habitats Manage weeds and pests • Reduce the impact of invasive species at priority sites on NPWS parks and reserves leading to a positive response of native biodiversity at 50% of these sites by October 2015 **Protect and conserve land, biodiversity and native vegetation** • Identify and seek to acquire land of high conservation and strategic conservation value, for permanent conservation measures • Establish voluntary arrangements with landowners over the next decade to bring – an average 20,000 hectares per year of private land under conservation management – an average 300,000 hectares per year of private land being improved for sustainable management **Protect rivers, wetlands and coastal environments** • Improve the environmental health of wetlands and catchments through actively managing water for the environment by 2021	We will use the knowledge and experience of local communities to target our resources to protect and restore natural ecosystems. Actions to manage pests and weeds include: • Address core pest control in National Parks through the delivery of NPWS Regional Pest Management Strategies and improve educational programs and visitor access. We will work with Catchment Management Authorities and local community groups to protect and improve habitats on private lands. Actions to conserve biodiversity and native vegetation include: • Regenerate degraded natural bushland, including riverbanks, and degraded waterways through a $10 million fund • Purchase and protect strategic areas of high conservation value and ensure more green spaces across Sydney and NSW through the $40 million Green Corridor Program • Establish more national parks including a new national park to protect the sensitive Dharawal State Conservation Area and continue the reserve establishment program • Increase Aboriginal participation in natural resource management by supporting Aboriginal Green Teams and other Aboriginal groups working to protect and conserve natural environments • Better protect threatened and iconic species such as koalas and review the Threatened Species Priorities Action Statement to make it easy for community groups and businesses to get involved in threatened species conservation. We will strategically recover and manage water for the environment to improve the health of the most stressed rivers and wetlands. Actions to protect waterways include: • Complete Water Sharing Plans for surface and ground water sources and report annually on environmental water use • Drive the Commonwealth to ensure they deliver a Basin Plan that protects the environment and regional, social and economic outcomes through investment in strategic water recovery, water efficiency and river health measures.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 22	**PROTECT OUR NATURAL ENVIRONMENT**
TARGETS	**Priority Actions**
Protect Local Environments from pollution **Target illegal dumping** • Reduce the incidence of large scale (greater than 200m^3 of waste) illegal dumping detected in Sydney, the Illawarra, Hunter and Central Coast by 30% by 2016 **Provide information to local communities on air quality**	Illegal dumping of waste is a criminal activity causing environmental pollution, risks to human health and reducing the local amenity of an area. Actions to meet this target include: • Target illegal dumping of waste by creating two Regional Illegal Dumping Squads to enforce breaches of waste regulations in the construction and demolition waste sector. Clean air is important for the health of the NSW community. Providing information on local air quality empowers local communities to engage in informed discussion on air quality. Actions to support this target include: • Increase air quality monitoring across Sydney with the rollout of new monitoring stations and address air quality issues in Rutherford. Expand the network of monitoring sites and improve our understanding of Sydney's air quality • Provide information from 24 air quality monitoring stations using web, SMS and media • Two additional air quality monitoring stations to be operating by 2012 – one in Sydney and one on the Central Coast • Deliver 14 air quality monitoring sites for the Hunter by December 2011 • Require and support NSW coal mines to reduce dust emissions and invest $100 million in the NSW Government's Clean Coal Fund for the research, development and demonstration of clean coal technologies.
Increase renewable energy • 20% renewable energy by 2020	We will contribute to the national renewable energy target by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources. Specific initiatives include: • Building the Moree solar power plant in partnership with the Commonwealth Government under the Solar Flagship Program • Establishing a Joint Industry Government Taskforce to develop a Renewable Energy Action Plan for NSW to identify opportunities for investment in renewable energy sources.
GOAL 23	**INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS**
Increase the devolution of decision making, funding and control to groups and individuals for local environmental and community activities, including: • Catchment Management • Landcare	Local communities are best placed to make decisions about the protection of their local environments. Actions to achieve this target include: • Develop a tailored action plan for the expenditure of $500,000 per year for four years on Landcare in consultation with Landcare, Catchment Management Authorities and Primary Industries • Increase the number of volunteer–based local groups undertaking bush regeneration projects for their local communities, including members belonging to Landcare groups in NSW by 15% by 2015 • Facilitate community and government collaboration and input to develop 13 upgraded Catchment Action Plans by March 2013 • Through expert training, build the capacity of Catchment Management Authorities and agencies to undertake the Catchment Action Plan upgrades based on best practice natural resource management strategic planning, and against the Statewide natural resource management target • Continue to provide investment funding for natural resource management under Catchment Action NSW

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 23	**INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS**
TARGETS	**Priority Actions**
By 2016, NSW will have the lowest litter count per capita in Australia	The cost to the community of littering goes beyond visual pollution. Greater respect for neighbourhoods by disposing of rubbish properly leads to improved safety, limits health impacts and protects the natural environment. Actions to achieve this target include: • Revise national methodology for measuring litter • Revitalise anti–littering efforts including undertaking anti–littering campaigns in conjunction with local councils.
Increase recycling to meet the 2014 NSW waste recycling targets	Increased recycling limits the amount of space required for landfill and turns waste into a valuable resource. Actions to achieve this target include: • Review the Waste Levy and continue to support local council recycling through guidance and assistance programs • Support Community Drop–Off Centres to make it easier for people to recycle and remove problem waste from bins.
Reduce graffiti	Greater vigilance and improved responses to graffiti will allow communities to better protect local built and natural environments. Actions to achieve this target include: • Establish a single graffiti telephone and online reporting system to allow local community members to report graffiti via telephone, online reporting, SMS and MMS. The hotline will facilitate the removal of graffiti through referral to local, state or Commonwealth government agencies • Work in partnership with service clubs and other community organisations to support the volunteer graffiti removal program that allows local community members to identify and come together to remove graffiti • Provide funding to local government to assist improvements in environmental design to reduce graffiti in identified hotspots • Improve the NSW Local Crime Prevention Planning process which assists communities to identify prevalent crime problems and develop local initiatives to address them. This includes streamlining the process for developing local crime prevention plans and receiving funding, moving services online, and providing guidance for the implementation of evidence based crime reduction programs.
Increase neighbourhood crime prevention	Establishing cooperative working relationships between the NSW Police Force and local communities is an effective way of reducing crime and improving community safety. Actions to support increased neighbourhood crime prevention include: • A new Neighbourhood Watch program across NSW to better engage and involve the community in crime prevention • Trial project “eyewatch” which gives local residents the opportunity to participate with their local Police in active crime prevention using the social network site Facebook.
Minimise impacts of climate change in local communities	We will assist local government, business and the community to build resilience to future extreme events and hazards by helping them to understand and minimise the impacts of climate change. Actions to deliver on this target include: • Complete fine scale climate change projections for NSW and make available to local councils and the public by 2014 • Work with government agencies and universities to deliver improved climate projections for NSW and the ACT.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 24	**INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS**
TARGETS	**Priority Actions**
INCREASE Volunteering • Increase the proportion of the NSW population involved in volunteering, to exceed the national average by 2016	By harnessing a strong desire to improve and protect local neighbourhoods through increased volunteering, we can help strengthen and connect our communities. Actions to meet this target include: • Develop and implement a NSW Volunteering Strategy • Make volunteering accessible to more people, by promoting new and different opportunities for volunteering • Improve access to information and support to assist organisations to attract and retain volunteers • Support volunteering, community involvement and participation by using digital media and technology • Encourage and promote greater recognition of volunteer effort.
INCREASE Community participation • Increase the proportion of the NSW population involved in local community organisations, to exceed the national average by 2016 **IMPROVE OUR Sense of community** • Increase the proportion of the population who have weekly social contact with family or friends, to exceed the national average by 2016 • Increase the proportion of the population who feel they have someone to turn to in times of crisis, to exceed the national average by 2016	Communities where participation and involvement are encouraged are better connected and more likely to have thriving support networks of neighbours and friends. Actions to achieve this target include: • Increase opportunities for children and young people to contribute and connect with other groups in their communities • Build supportive connections between community members using sport, recreation and cultural activities, events, facilities and venues • Increase opportunities for people to participate in local community events, activities and decision making • Develop and implement a whole–of–government approach to engaging communities and identifying and building on community strengths • Enable connected communities by including community facilities in urban design and planning processes, so they are planned from the beginning.
Develop and implement a whole of NSW government strategy on ageing by 1 July 2012	NSW faces challenges with an ageing population. We will plan services and prepare initiatives to meet these challenges, while supporting seniors to actively and independently participate in the life of their communities. To achieve this target we will: • Complete a demographic plan on ageing • Develop a whole–of–government Ageing Strategy via a round table discussion and broader consultation with stakeholders including the NSW Ministerial Advisory Committee on Ageing • Encourage flexible working arrangements for older workers and training for those who need to update skills or reskill as a result of retrenchment or decision to move to different employment or volunteering • Establish a Grandparents Day to be held annually • Waive the cost of photo ID for Seniors Cards and Pensioner Cards • Extend stamp duty concessions to ‘empty nesters’ over 55 years old who sell an existing home and purchase a newly constructed dwelling worth up to $600,000.
Implement standard retirement village contracts	To achieve this target we will: • Introduce new measures to allow consumers to better compare costs and conditions between retirement villages.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 25	**INCREASE OPPORTUNITIES FOR SENIORS IN NSW TO FULLY PARTICIPATE IN COMMUNITY LIFE**
TARGETS	**Priority Actions**
Develop and implement a whole of NSW government strategy on ageing by 1 July 2012	NSW faces challenges with an ageing population. We will plan services and prepare initiatives to meet these challenges, while supporting seniors to actively and independently participate in the life of their communities. To achieve this target we will: • Complete a demographic plan on ageing • Develop a whole–of–government Ageing Strategy via a round table discussion and broader consultation with stakeholders including the NSW Ministerial Advisory Committee on Ageing • Encourage flexible working arrangements for older workers and training for those who need to update skills or reskill as a result of retrenchment or decision to move to different employment or volunteering • Establish a Grandparents Day to be held annually • Waive the cost of photo ID for Seniors Cards and Pensioner Cards • Extend stamp duty concessions to 'empty nesters' over 55 years old who sell an existing home and purchase a newly constructed dwelling worth up to $600,000.
Implement standard retirement village contracts	To achieve this target we will: • Introduce new measures to allow consumers to better compare costs and conditions between retirement villages
GOAL 26	**INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS**
Close the life expectancy gap within a generation	Reducing the life expectancy gap between Aboriginal and non–Aboriginal people requires a long term, whole–of–government approach that recognises the need for greater social inclusion and responds to the economic and social disadvantage experienced in many Aboriginal communities. The Government is committed to meeting the national target of reducing the life expectancy gap for Aboriginal people by 2036. Actions to deliver on this target include: • Develop a reinvigorated Aboriginal affairs strategy in partnership with Aboriginal communities and stakeholders, with strengthened accountability for Government and communities • Support community identity and improve health and education outcomes for Aboriginal communities by implementing the Build and Grow Aboriginal Community Housing Strategy.
Increase the number of Aboriginal communities the State Government is partnering with to improve local outcomes	Empowering local community members to take an active role in decision-making will build community skills and capacity, provide a greater sense of community ownership and help to deliver services in a way that meets the needs of the local community. Actions to deliver on this target include: • Review the Partnership Community Program to increase governance capacity within communities and strengthen local decision making by linking with existing Aboriginal community governance and representative arrangements.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 26	**INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS**
TARGETS	**Priority Actions**
Close the life expectancy gap within a generation	Reducing the life expectancy gap between Aboriginal and non–Aboriginal people requires a long term, whole–of–government approach that recognises the need for greater social inclusion and responds to the economic and social disadvantage experienced in many Aboriginal communities. The Government is committed to meeting the national target of reducing the life expectancy gap for Aboriginal people by 2036. Actions to deliver on this target include: • Develop a reinvigorated Aboriginal affairs strategy in partnership with Aboriginal communities and stakeholders, with strengthened accountability for Government and communities • Support community identity and improve health and education outcomes for Aboriginal communities by implementing the Build and Grow Aboriginal Community Housing Strategy.
Increase the number of Aboriginal communities the State Government is partnering with to improve local outcomes	Empowering local community members to take an active role in decision-making will build community skills and capacity, provide a greater sense of community ownership and help to deliver services in a way that meets the needs of the local community. Actions to deliver on this target include: • Review the Partnership Community Program to increase governance capacity within communities and strengthen local decision making by linking with existing Aboriginal community governance and representative arrangements.
Support Aboriginal Culture, Country and Identity • Increase access for people to learn Aboriginal languages • Increase the number of hectares of public lands that Aboriginal people are actively involved in managing • Increase the number of Aboriginal culturally significant objects and places protected	A strong sense of Aboriginal culture, country and identity is critical to building strong, sustainable Aboriginal communities where members feel more connected and respected. More opportunities to participate in cultural activities and education and training programs will help to create a greater sense of Aboriginal identity and strengthen communities. Actions to deliver on this target include: • Increase access to Aboriginal languages by: – teaching Aboriginal languages in NSW Public Schools and TAFE Institutes – offering Aboriginal languages programs at course and certificate levels through TAFE Institutes • Deliver legislative proposals on Aboriginal culture and heritage reforms including those that recognise and protect places of special significance to Aboriginal culture and heritage • Provide Aboriginal people with opportunities to protect their culture and heritage and to access traditional lands by increasing the number of Aboriginal co–management arrangements over national parks and other conservation areas • Recognise the importance of Aboriginal heritage by identifying and protecting significant Aboriginal sites, places and objects through Aboriginal Place declarations (NP&W Act), and the State Heritage Register Thematic Listings Program (Heritage Act).

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 27	**ENHANCE CULTURAL, CREATIVE, SPORTING AND RECREATION OPPORTUNITIES**
TARGETS	**Priority Actions**
Increase participation in sport, recreational, arts and cultural activities in rural and regional NSW from 2010 to 2016 by 10% Increase participation in sport, recreational, arts and cultural activities in Sydney from 2010 to 2016 by 10%	Access to and participation in a range of sport, recreational, arts and cultural activities plays an important role in bringing local communities together and promotes healthy lifestyles. Actions to achieve these targets include: • Increase opportunities for children and young people to connect with other groups in their communities through sport • Develop a NSW Stadium Strategy guiding government investment in facilities with the aim to deliver improved community access, cater for multi–purpose usage, offer improved facilities for participants and spectators and improve the competitive position of NSW when bidding for events • Develop partnerships to enhance the participation of people with a disability or those from disadvantaged backgrounds, through access to sport and recreation facilities and development programs • Allocate $47 million over four years of Club Grants funding towards community infrastructure projects to increase participation in sport and recreational activities across the State and encourage the future viability of NSW clubs • Support country racing by investing $5 million in infrastructure for thoroughbred, harness and greyhound codes • Increase participation in cultural activities by supporting the State's major cultural festivals, including enhancing the Sydney Festival with the first dedicated program for Western Sydney in 2012 • Set the future direction for support for arts and cultural initiatives across the State by developing an Arts and Cultural Policy that recognises the sector's central economic role as part of the Visitor Economy Action Plan • Invest in regional arts and cultural development, especially in areas of specific need • Invest an additional $4 million in funding over four years in regional libraries, including the creation of wireless internet hotspots in rural and regional libraries • Increase access to the collection of the State Library of NSW, including remote and regional access, by completing the e–records project • Develop partnerships to enhance the participation of people with a disability in arts, cultural activity and professional development.
Increase the number of major international sports, artistic, creative and cultural events in NSW from 2010 to 2016 by 10%	Tourism and events are a $28 billion a year business and support more than 162,500 jobs across the State. International events are important to our economy and make our State a more vibrant place to live. Actions to increase the number of major international events in NSW include: • Complete the development of a world class arts and cultural precinct at Walsh Bay • Construct a world–class conference and exhibition facility at Darling Harbour to enable NSW to compete for international business events • Make NSW an event destination – Destination NSW will market NSW and promote the state through an annual program of events.
Increase the number of opportunities for cultural participation, including: • Aboriginal cultural activities/events • Multicultural activities/events • Community events which are planned and delivered locally	Through Aboriginal, multicultural and local activities we will strengthen communities. Actions to deliver on these targets include: • In consultation with stakeholders develop a cultural venues strategic plan to ensure development of cultural facilities is integrated with the Visitor Economy Action Plan, the Arts and Culture policy, and consideration of regional cultural infrastructure needs. Specific attention will be given to the Walsh Bay precinct, the Barangaroo project, the need for a 2,000 seat lyric theatre and a national Indigenous cultural centre.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 27	**ENHANCE CULTURAL, CREATIVE, SPORTING AND RECREATION OPPORTUNITIES**
TARGETS	**Priority Actions**
Enhance the cultural and natural heritage in NSW • Recognise and protect the State's most significant heritage places and values	Recognising and protecting the State's most significant heritage places and values will ensure future generations can enjoy them. Actions to deliver on this target include: • Streamline the process for recognising places of significant heritage value on the State Heritage Register.
GOAL 28	**ENSURE NSW IS READY TO DEAL WITH MAJOR EMERGENCIES AND NATURAL DISASTERS**
Ensure NSW has appropriate arrangements in place to respond to and recover from natural disasters	Natural disasters have severe impacts on our communities, occurring suddenly and often without warning. To give people confidence in times of crisis we will be ready to respond and minimise personal, local and economic impacts. Actions to reduce the impact of natural disasters include: • Finalise the State natural disaster risk assessment by 31 December 2011 • Test preparedness by reviewing and conducting exercises for the State Disaster Plan, State Recovery Plan and state–level hazard specific sub–plans every two years, ensuring they are current and appropriate • Guard against coastal erosion by ensuring all identified hot spots have coastal zone management plans in place by 2015.
Defend against suburban and bushland fires. Increase community resilience to the impact of fires through prevention and preparedness activities • Increase the number of households who are 'fire safe' through expansion of awareness programs • Enhance volunteer training programs with a particular focus on cadet training schemes • Increase the number of identified Neighbourhood Safer Places **Increase hazard reduction across NSW** • Increase the number of properties protected by hazard reduction works across all bushfire prone land tenures by 20,000 per year by 2016 • Increase the annual average level of area treated by hazard reduction activities by 45% by 2016	Fires are a threat to individuals and communities, and while our fire services are equipped to respond we will also make sure our communities are both prepared and informed of precautions to reduce the risk. In NSW we value and live close to bushland, and to further reduce risks caused by bushfires we will limit fuel and help communities prepare. Actions to achieve these targets include: • Increase community awareness about fire prevention and preparation and engage with the community through: – community safety programs – training an additional 4,000 secondary school children through the School Cadets Programs by 2016 • Create more Neighbourhood Safer Places in bushfire prone areas • Mobilise communities by encouraging more people to become involved in local organisations including the Rural Fire Service • Limit bushfire severity by: – establishing annual bushfire hazard reduction works targets for land management agencies responsible for bushfire prone lands consistent with the state target – increasing the number and area of hazard reduction activities undertaken on national parks and reserves.

Figure 2: NSW 2021 State Plan – Goals 22, 23, 24, 25, 26, 27 and 28 (continued)	
GOAL 28	**ENSURE NSW IS READY TO DEAL WITH MAJOR EMERGENCIES AND NATURAL DISASTERS**
TARGETS	**Priority Actions**
Increase the number of Floodplain Risk Management Plans available to support emergency management planning	By improving the way we predict flooding we can help prepare flood prone areas by improving warning systems, ensuring emergency services are in place and designing urban areas to better funnel water away from critical infrastructure and homes. Actions to achieve this target include: • Prepare for floods through a joint project between the State Emergency Service and Office of Environment and Heritage to build a NSW Flood Studies Database to capture all NSW local government and state agency flood studies • Ensure councils are able to develop and implement floodplain risk management plans by providing technical assistance to local government and managing the flood grants program through the Office of Environment and Heritage
Maintain preparedness to deal with biosecurity threats	Pests and disease outbreaks threaten the productivity and competitiveness of our industries and impact on communities. Strong biosecurity measures will ensure they have minimal impact on the NSW economy, environment and community, and protect against and help limit the risk. Actions to achieve this target include: • Develop a nationally consistent plant and animal biosecurity legislation and implement by 2015 • Expand the National Livestock Identification Scheme and other traceability systems to cover 95% of NSW livestock industries • Increase awareness of the benefits, and adoption of, on-farm biosecurity plans by NSW producers • Build capacity within local government, community groups and landholders to effectively manage invasive species • Invest $56.7 million towards the upgrade of Elizabeth Macarthur Agricultural Institute to increase the State's ability to protect multi–billion dollar agricultural industries from the effects of pests and diseases.

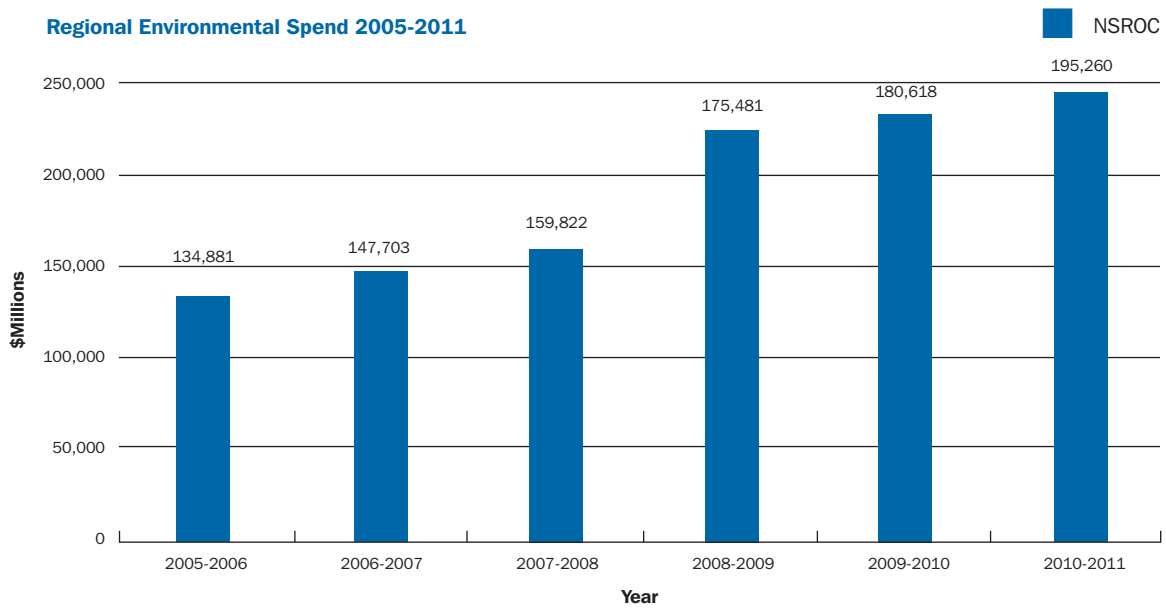
NSROC Regional Action and Results

In the context of these state-wide environmental trends and objectives, in 2010-2011 NSROC councils continued to invest in environmental action. One indicator of this commitment is the continued increased expenditure associated with environmental activities as noted in Figure 3 and Figure 4.

Figure 3: Total Expenditure on Environment by council 2010-2011

NSROC council	Expenditure 2010-2011 ($)	Expenditure 2009-2010 ($)	Population of LGA (estimate for 2010-11)	Area of LGA (square kilometres)
Hornsby	$44,820,418	$44,772,534	164,034	509
Hunter's Hill	$2,850,000	$2,700,000	14,591	6
Ku-ring-gai	$21,000,000	$20,303,854	114,142	84
Lane Cove	$8,385,430	$8,316,143	33,355	10
North Sydney	$29,407,514	$27,512,594	64,795	10
Ryde	$53,018,255	$45,359 729	106,289	40
Willoughby	$35,778,951	$31,653,474	70,008	23
NSROC Total	**$195,260,568**	**$180,618,328**	**567,214**	**628**

Figure 4: Total NSROC regional environmental spend 2005-2011



It should be noted that expenditure on the "Environment" in the figures above embraces a broad set of activities including core amenity support such as facility and park maintenance, sustainable planning processes and specific environmental programs and initiatives. There are also variations in the definitions between NSROC Councils on what is classified "environmental" expenditure. For example the expenditure data for City of Ryde includes park facilities and building expenses, all development assessment and planning costs, heritage buildings, stormwater asset replacement and other services, waste collection and administration, public toilets and bus shelters.

Another indicator of the NSROC region's commitment to improving environmental outcomes is the "on trend" improvements in the region consistent with the goals set in the NSROC Regional Sustainability Plan.

The NSROC Regional Sustainability Plan, endorsed by NSROC in early 2009, sets out broad environmental directions. A desktop analysis, looking at the last 6 years of NSROC Regional SoE reporting, shows that many of these goals are being achieved, particularly those most directly influenced by direct council action. Other goals that are influenced by broader factors and other levels of government remain a key focus for our councils and the community into the future.

Figure 5: NSROC Regional Sustainability Plan 2009-2014 targets

Issues	Goals	Trend	SoE Reference
1. Climate Change and Energy Consumption	**Reduce energy consumption** 1. Reduce non-renewable energy use **Reduce GHG emissions** 2. Reduce emissions by councils 3. Reduce emissions by the community **Adapt to climate change** 4. Plan to adapt to climate change	**Improving** **Improving** **Improving**	**Chapters 2 and 5**
2. Development and Built Environment	**Manage development sustainably** 1. Avoid overdevelopment 2. Minimise impacts of medium / high density housing on infrastructure and the community 3. Maintain and increase open space **Increase sustainable building** 4. Adopt and champion sustainable building practices for both new buildings and retrofits **Provide adequate infrastructure** 5. Ensure adequate infrastructure overall	**Unknown** **Improving** **Deteriorating**	**Chapter 2**
3. Water and Sewerage	**Save water** 1. Increase recycling by Councils and businesses 2. Increase on-site and household water capture and storage 3. Increase use of grey water 4. Increase sewer mining 5. Support water sensitive urban design (WSUD) **Improve water quality and health** 6. Improve water quality 7. Improve public health and reduce damage to waterways	**Improving** **Stabilising**	**Chapter 2 and 4**
4. Sustainable Businesses	**Help businesses be more sustainable** 1. Educate businesses 2. Save water in businesses 3. Businesses to prepare and implement sustainability plans **Recognise and encourage business sustainability** 4. Implement Region-wide sustainability business ratings scheme	**Improving** **Unknown**	**Chapter 1**
5. Biodiversity Conservation and Protection	**Improve terrestrial and aquatic biodiversity** 1. Improve the ecological integrity of native bushland and aquatic habitats 2. Protect undeveloped rural and urban land and habitats 3. Consolidate and/or expand canopy cover and native floral diversity 4. Improve the health of our rivers and creeks **Demonstrate improvement** 5. Generate ways to assess and monitor biodiversity	**Stabilising** **Improving**	**Chapter 3**
6. Resource Recovery and Waste Avoidance	**Reduce waste** 1. Reduce solid waste – move towards exporting near-zero waste from the Region 2. Reduce green/organics waste	**Improving**	**Chapter 2**
7. Transport and Traffic	**Improve sustainable transport options** 1. Greater use of public transport to reduce use of private cars 2. Increase healthy methods of travel (e.g. walking and cycling for local commuting) to reduce car use and improve community health 3. Maximise job retention and working from home to reduce car use and improve community	**Stabilising**	**Chapter 2**

COMMUNITY CONSULATION AND CORPORATE ACTION

Councils are continually speaking with and listening to their communities about their concerns for the environment. Internally councils are also endeavouring to improve their environmental performance. Councils are strategically looking at all parts of their business and activities to make sure they are sustainable.

In 2010-2011 each NSROC council developed a Community Strategic Plan. Each Council sought information from their communities across all areas of council activity and identified goals and strategies for the environment. These environment discussions and outcomes are attached from each council in the Appendices.

A snapshop of how these discussions were managed and other environmental related community consultation and events is outlined in the case studies below.

CASE STUDY

KU-RING-GAI COUNCIL – Community consultation for sustainability

CEEchange partnership program

Recognising the important role that community education and engagement (CEE) plays in creating sustainable communities, the NSW Environmental Trust (through its Urban Sustainability Program) has funded the three year CEEchange program (2009-2012); a partnership between Ku-ring-gai, Mosman, City of Sydney, Bathurst-Orange-Dubbo, Wyong and Coffs Harbour Councils and the Office of Environment and Heritage (OEH). Through council-specific and collective partner activities, the CEEchange program aims to strengthen CEE as a tool to help local government deliver better internal and community sustainability outcomes. These activities, when carried out concurrently, are designed to support the integration of CEE into core council business and create cultural change which advances sustainability.

The program consists of two main pathways of activity:

Council-specific activities

Delivery of a pilot CEE project: that addresses a council management plan priority and trials new models of staff / community education and engagement.

Communities of Practice (or collaborative network) training and coaching: for the establishment and development of a collaborative network, involving staff from across Council who voluntary interact as peers to learn, solve problems and take action, with a focus on coordinating education and engagement activities to improve the sustainability performance of Council and / or the community.

Program Reference Group: providing strategic advice and diverse inputs on the direction and positioning of the CEE pilot project, to enhance the integration of CEE activities across Council, with broad representation including Directors, senior management and operational / project staff.

Development of a medium term CEE Strategy / Action Plan (for sustainability): to guide the integrated delivery of CEE within Council and / or the community.

Participation in Steering Committee meetings and research activities: designed to yield case studies and evaluative information.

Partnership activities

Visioning forum: that engages the NSW local government sector to focus on the future priorities for CEE for sustainability in local government and actions to progress these priorities.

Quarterly Steering Committee meetings: to build the capacity across councils to develop skills, extend knowledge and share experiences.

Partners' reflection workshop: to bring the CEEchange program partners together mid program to (i) reflect on / review the CEEchange program and (ii) consider how the partners can work together to maximise the impact of the program in the partner councils and position the program most effectively in the local government sector.

Online partners' collaborative network: to facilitate collaboration across partner councils and to create opportunities for the cross fertilisation of ideas and the discussion of similar challenges.

Action research: to identify barriers and drivers to effective and integrated CEE in local government, monitor changes, generate new knowledge and capture learnings and experience.

Dissemination activities: to the local government sector more broadly, including the research findings, a guide to using the collaborative network approach and case studies of partner council learning and experience.

CASE STUDY

HORNSBY SHIRE COUNCIL – Community reporting on the state of the Shire

A number of documents covering aspects of Hornsby Shire have been published by Council over the years; however there was not one comprehensive view of the Shire that looked at the overall wellbeing of the area.

Staff realised the importance of a comprehensive baseline snapshot of the current 'life experience' and wellbeing of the Shire in 2010, hence Our Bushland Shire – a snapshot of the Hornsby Shire in 2010 was researched and written. The snapshot report looks at environmental, social and cultural issues regardless of whether Council has direct, limited or nil control or influence over the issue. In that way it bridges the gap between council-held data and data held by other authorities. While the snapshot report is visually appealing and interesting, it is also meticulously researched thereby providing a baseline against which progress can be measured in the future.

Since the report was published online with minimal hard copy versions, the challenge in publishing Our Bushland Shire – a snapshot of the Hornsby Shire in 2010 was to create an accessible report which rapidly engages with both the casual looker/online surfer who 'stumbles' on the site and the web visitor purposefully seeking to engage with the document.

The online version of the snapshot report is displayed as an online book, enabling readers to turn pages, skip pages, zoom in and navigate the online report without scrolling. It includes a 'turned page' 3D image on the lower right hand corner. Readers recognise the intent of the image and are enticed to read further.

Other features that engage the reader include:

- Incorporating local photographs from residents
- Basing the content on community concerns and issues regardless of origin and responsibility
- Taking an honest approach to present less than favourable data and information
- Presenting the information in clear understandable language

Since publication four months ago the online report has been viewed by over 500 visitors to Council's web site. The statistics demonstrate that readers are engaging with the report in that many are choosing to click through multiple pages and are spending more time perusing the report than is usual for online documents. The snapshot report provides a unified and concise picture of life in Hornsby Shire in 2010, and as such is now used as the premier source of information for other council publications. Our Bushland Shire – a snapshot of the Hornsby Shire in 2010 is available at http://www.hornsby.nsw.gov.au/about-council/strategies,-reports-and-publications/our-bushland-shire-a-snapshot

CASE STUDY

CITY OF RYDE COUNCIL – Youth and School Environment Projects

Presentation of The Last Drop program

School Gardens Workshop

Extensive youth engagement on environmental projects has been implemented this year through the Ryde Environmental Education Network (REEN), Catchment Connections program and Youth Environmental Prize (YEP) Competition. Initiatives included the locally tailored Last Drop water education workshops that reached 5,475 primary school students, the 'hands-on' School Food Gardens workshops, the Clean Up your Act presentation, a teacher professional development day and REEN networking meetings. Ryde East was selected for an extensive program engaging the whole school community and providing a School Environmental Management Systems audit. The YEP Art Competition, now in its second year, encouraged creative consideration of the environment by older children and youth.

CASE STUDY

HUNTER'S HILL COUNCIL – 40th Anniversary of "Battlers of Kelly's Bush"

Kelly's Bush is the site of the world's first Green Ban (1971).

Originally a buffer zone for a smelting company owned by TH Kelly, AV Jennings,supported by State Planning Authority and Hunter's Hill Council, planned to build townhouses when the smelting works relocated in 1967. In 1970, 13 local women formed a committee – known as "Battlers for Kelly's Bush", publicised their cause state wide and sought support from the Labour Council of NSW. On June 17 1971, NSW Builders Labourers Federation lead by Jack Mundey imposed a green ban on any clearance/development on the site. Subsequently AV Jennings threatened to proceed without union labour however the Builders Labourers Federation threatened an immediate stop work on an AV Jennings office block at North Sydney. The developers then backed down.

In 1976, Hunter's Hill Council again voted for residential zoning but the State Government announced that no development would occur at Kelly's Bush. In 1983, the State Government purchased Kelly's Bush for open space. In 1993, Kelly's Bush was handed over to the care of Hunter's Hill Council. It is now listed on the Environmental Heritage Schedule of Hunter's Hill Council and on the NSW State Heritage Register. Friends of Kelly's Bush commenced bush regeneration in the reserve in 1995. Working bees are held every Monday and four weekend working bees are held per year.

2011 marks the 40th anniversary year of the Battle for Kelly's Bush. A series of events have been organised to celebrate this historic event including a tree planting ceremony to mark the 40th anniversary of the "Battlers of Kelly's Bush". Jack Mundey and surviving Battlers will attend this historic event.

Jack Mundey and the Battlers

2 Human Settlement

Human Settlement

The history of non-indigenous settlement in the region starts immediately after Sydney was first colonised in the late 18th century. However substantial settlement did not occur until almost 100 years later. In this period, development followed the railway lines and the main arterial roads linking Sydney city with the small settlements on its outskirts.

More recently, the NSROC area, like the rest of Sydney, has been under substantial and continual pressure to accommodate a rapidly growing population. Regional residents have been active in ensuring that the natural heritage values of the region are protected and managed sustainably in the ongoing push for further urban consolidation.

The high property values in the NSROC region are partly a reflection of the region's success in retaining outstanding environmental attributes and ensuring a comprehensive integration of heritage, open space and bushland into the built environment. *(NSROC Regional Social Report, Gail Le Bransky, Sydney 2005)*

URBAN DEVELOPMENT AND GROWTH

The NSROC area, like the rest of Sydney, has been under substantial and continual pressure to accommodate a rapidly growing population. The most pressing growth pressures are expressed in the state's 2007 Metropolitan Strategy (see Figure 6). The dwelling and employment targets in this plan challenge the NSROC region's historical growth patterns.

Figure 6: Dwelling targets and employment capacity targets for the Inner North and North Sub-Regional Strategies, NSW Department of Planning, 2007

Local Government Area	Dwelling Target	Employment Capacity Target
Hornsby	11,000	9,000
Hunter's Hill	1,200	300
Ku-ring-gai	10,000	4,500
Lane Cove	3,900	6,500
North Sydney	5500	15,000
Ryde	12,000	21,000
Willoughby	6,800	16,000
Total	56,400	72,300

The NSW Department of Planning are due to release revised population and employment targets for each council through the anticipated Metropolitan Plan Review in late 2011. Preliminary documents indicate that these targets will be readjusted upwards.

Land Use and Construction Rates

Land use in the NSROC region is relatively static given the extensive development in the region already. Unlike other regions, NSROC has few greenfield sites to develop and therefore little opportunity to allocate new land uses. However land use figures do not reflect uplift of development on existing or drainfield sites hence construction rates must also be examined to gain a true picture of growth.

Land use information in the region will be changing slightly in the coming years due to the development of new Local Environmental Plans (LEPs) by each NSROC member council. As new LEPs are finalised the new land descriptions and zoning classifications will result in slight variations to how land is described and the percentages of "land use" in each LGA.

Lane Coves LEP has resulted in minor changes to overall percentages between zoning types. Hornsby Council has 3 amending LEPS which will see changes to zoning in late 2011.

Annual trends in development applications and new dwellings are difficult to interpret due to the variation in scale of the developments and approval timeframes. For example in one year a substantial high density residential development may distort trend figures.

Given the continuing urban development in the region, NSROC councils are looking at ways to promote economically sustainable and environmentally sound design. For example the Lane Cove Library was built as a demonstration building in terms of ecologically sustainable design and located within a commercial shopping centre.

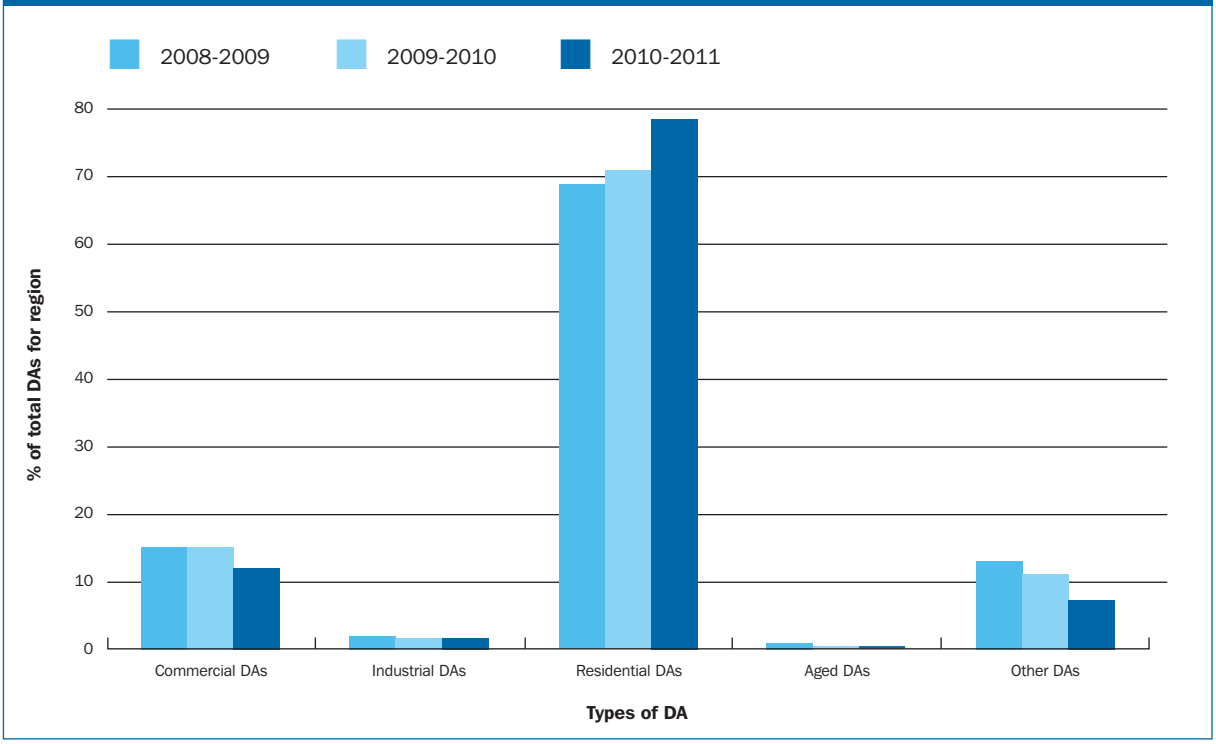
Figure 7: Type of development applications (DAs) in NSROC area in 2010-2011

Council	Number of Commercial DAs	Number of Industrial DAs	Number of Residential DAs	Number of aged persons housing DAs	Other
Hornsby Shire	119	32	1,097	8	103
Hunter's Hill	7	0	142	0	0
Ku-ring-gai	99	0	1,041	2	73
Lane Cove	37	8	315	3	6
North Sydney	20	0	312	0	117
Ryde	174	3	668	2	16
Willoughby	197	47	672	6	46
NSROC region 2010-2011	**653**	**90**	**4,247**	**21**	**361**
NSROC region 2009-2010	813	95	3,828	18	608
NSROC region 2008-2009	961	132	4,448	37	847

As Figure 7 above illustrates the total number of residential development applications (DAs) for NSROC councils in 2010-2011 is higher than 2009-2010 but less than recorded in 2008-09. The significant trend is in growth of residential DAs over the last three years with a decline in commercial and other DAs.

However looking at the longer term trends over the last 3 years, it can be seen that the share of development types across categories remains relatively static. Residential DAs represent between 65 and 75% of all DAs processed by NSROC councils with Commercial DAs making up the next largest group at between 15 and 18% of all DAs processed in the region.

Figure 8: Percentage of DA types processed by NSROC Councils 2008-2011



While the number of DAs lodged represents the flow of applications processed by councils, number of new residential dwellings (measured via water connection data) shows the variability of dwelling growth between individual years. The completion of large multi-unit dwellings can see high peaks in dwelling numbers in any one year. The number of residential dwellings is also substantially lower than the number of residential DAs reflecting that many DAs relate to renovations of existing homes rather than new homes.

Figure 9: Number of new dwellings in the NSROC region in 2010-2011 and previous years

Council	New dwellings 2010-2011	New dwellings 2009-2010	New dwellings 2008-2009	New dwellings 2007-2008	New dwellings 2006-2007
Hornsby Shire	244	213	383	390	640
Hunter's Hill	25	19	27	13	16
Ku-ring-gai	109	640	126	621	126
Lane Cove	39	40	48	35	10
North Sydney	444	3	6	29	20
Ryde	127	127	445	479	7
Willoughby	161	53	148	65	25
NSROC region	**1,149**	**1,095**	**1,183**	**1,632**	**844**

POPULATION DISTRIBUTION

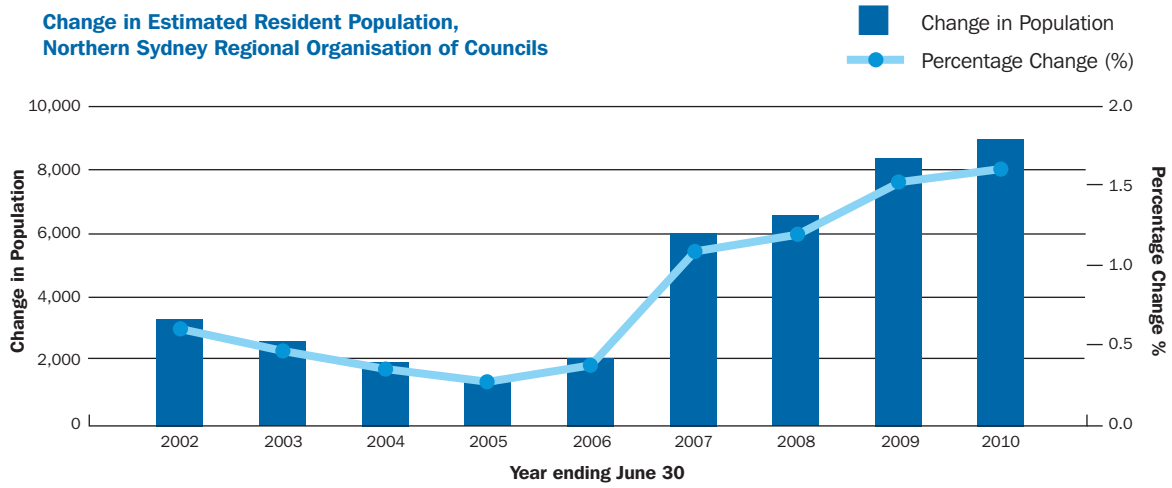
The size, rate of increase and settlement patterns of the NSROC population influence the environmental impacts within and outside the NSROC region. Changes in land uses for human purposes can damage natural ecosystems, and alter air and water cycles. Population growth is also associated with a range of other issues, such as energy consumption, transport and waste management.

The impacts of population growth vary according to the patterns of human settlement and the sensitivity of the different receiving environments exposed to them. Settlement may:

- Threaten the survival of highly valued plant or animal species
- Degrade the quality of the water or air vital for the safe and sustained survival of all life in the region
- Result in an increase in intrusive noise
- Impact on the aesthetic appeal of the area.

Below are estimates of the population of the NSROC region based on figures provided by the Australian Bureau of Statistics (ABS). Although the region has experienced significant growth in the past decade, the data illustrates that the rate of population growth is slowing. The 2001 to 2006 ABS data indicated a pronounced dip in population growth. However, from 2007 estimates suggested steady rise in population. Further population growth information is anticipated with the release of results from the 2011 census which is to be released in mid 2012.

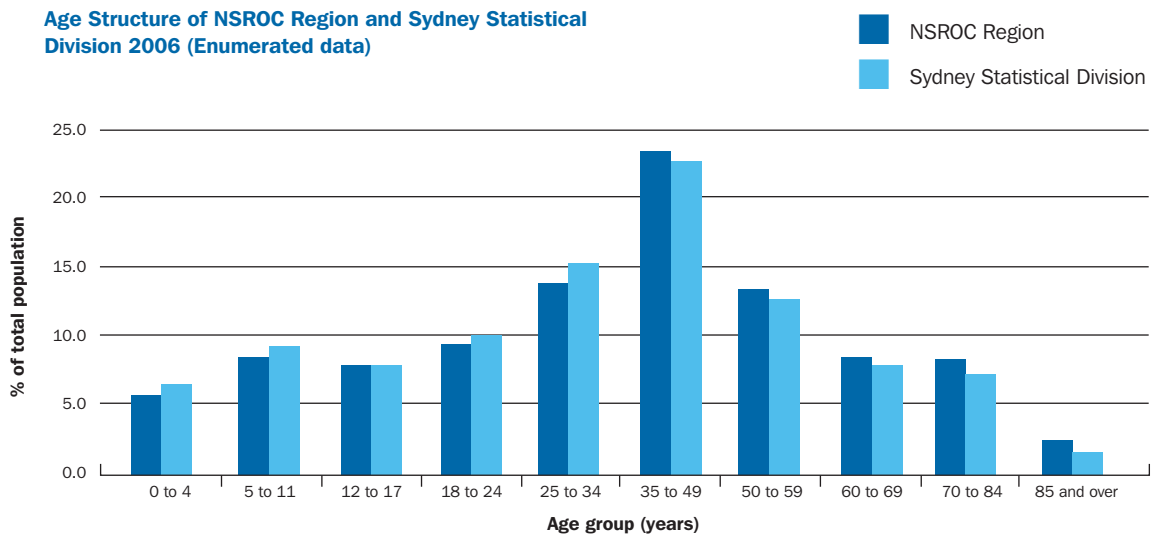
Figure 10: Change in NSROC Resident Population 2002-2010



Source: Australian Bureau of Statistics. Cat. No. 3218.0 – Regional Population Growth, Australia. 2009

Although age demographics of the region will need to be revised having regard to the 2011 census results, it is expected that the NSROC region will continue to have a high ageing population compared to the rest of Sydney. Future planning in the NSROC region is premised around a large group of residents aged 35 and above as its predominant population.

Figure 11: NSROC Region Age Structure Relative to Sydney Average



Source: Australian Bureau of Statistics. 2006 Census of Population and Housing (Emunerated)

The impacts of an ageing population on the environment are not significantly different to any other population group in terms of specific environmental pressures. However catering for an ageing population does influence land planning and active amenity designs.

HERITAGE

Aboriginal Heritage – Aboriginal Site Management and Monitoring

Aboriginal Heritage Office

The Aboriginal Heritage Office (AHO) is a joint initiative of Ku-ring-gai, Lane Cove, Manly, North Sydney, Pittwater, City of Ryde, Warringah, and Willoughby Councils and is supported by the NSW Office of Environment and Heritage and the Commonwealth Sustainability, Environment, Water, Population and Communities.

The Aboriginal Heritage Office works to ensure the protection of Aboriginal sites and cultural heritage. In 2010-2011, the Aboriginal Heritage Office continued to coordinate training for Council staff, primarily those involved in the development of assessment processes but also outdoor staff; provided updates on changes to legislation in regards to Aboriginal heritage; and conducted a large number of guided walks, schools and Aboriginal Sites awareness events at various locations within the region.

Aboriginal Site Management and Monitoring

As part of regular monitoring and reviews and in response to reports from Council staff and the public 10 new sites were identified in the area. There have been site protection works at a number of locations and the continued revision of the site management plans (see below).

Figure 12: Identified Aboriginal Sites

Council	Total sites	New sites	Protection works done-in progress
Ku-ring-gai	97	1	2
Lane Cove	90	1	1
Manly	68	0	2
North Sydney	76	1	3
Pittwater	129	1	1
Ryde	56	5	0
Warringah	198	0	2
Willoughby	160	1	2

Note: 'New site' includes some previously registered sites held by the OEH but that had been incorrectly mapped outside the Council boundary by the original recorder or the OEH.

City of Ryde Council joined the partnership in March 2010 at the 10 year anniversary of the AHO and its sites are recorded in the above table.

An important part of the role of the Aboriginal Heritage Office is to enhance appreciation of Aboriginal heritage in the wider community. The Aboriginal Heritage Office Education Centre and Keeping Place in Northbridge has continued to expand in its exhibits and scope. Numerous resources are available for free download from the AHO website www.aboriginalheritage.org.

The AHO applied for funding for three projects and was successful for one, a program to carry out Aboriginal heritage surveys for bushland areas within the Councils. The approval was for $28,700. During 2010-2011, an on-going OEH grant funded a series of projects including events for schools in the area, site management reports and updates, and an upgrade of the AHO website to help promote the richness of the Aboriginal heritage of the area.

NON-ABORIGINAL HERITAGE

Councils have ongoing commitment to preserving local heritage sites. Some 2010-2011 heritage preservation initiatives of Hornsby Shire Council noted below illustrate this point.

CASE STUDY

HORNSBY SHIRE COUNCIL – Jetty for Bar Island

Bar Island, which covers an area of about 3.8 hectares, is located approximately five kilometres west of Mooney Mooney Bridge on the Hawkesbury River. It is located near the junction of Berowra and Marramarra Creeks with the Hawkesbury-Nepean River. Council took over management of part of the island from the Anglican Church in May 2000. A Plan of Management for the site was prepared in 2003 in consultation with the community.

Bar Island is home to many historical sites including an Aboriginal shell midden, a cemetery and the ruins of St John's Church. Over the last seven years, Council has completed several major restoration and improvement projects on Bar Island through grant funding. In 2007, broken headstones in the 1870s cemetery were repaired through funding from the Department of Planning and Infrastructure. A new footpath with education signage linking the jetty with the heritage sites was also constructed.

Council received a 2008 Keep Australia Beautiful Award for heritage management for its work to conserve the natural, built and Aboriginal heritage of the Island. Now through funding by the NSW Waterways Marine Infrastructure Program and other grant funding sources, Council has completed a $130,000 project to reconstruct a jetty on Bar Island.

The new jetty has been designed to protect in-situ the existing historic jetty piers. The new jetty will make it easier for people to visit the remote historic area and allow boats to safely dock without damaging the fragile foreshore. The new structure replaces a 1972 wooden jetty which was partly dismantled in the early 2000s as it was unsafe. Historic plans show that a jetty has been located on the same site since the 1870s. The new structure comprises of a wooden walkway with a floating pontoon. Efforts have been made to ensure the heritage authenticity of the jetty, including the preservation of the stone piers from the original jetty.

CASE STUDY

HORSNBY SHIRE COUNCIL – Wahroonga (North) Heritage Conservation Area

Council recently forwarded the Wahroonga (North) Heritage Conservation Area Planning Proposal to the Minister for Planning and Infrastructure for gazettal to establish a new Heritage Conservation Area (HCA) within Wahroonga (North) bounded by Edgeworth David Avenue, Sydney-Newcastle Freeway, Alexandria Parade and Myra Street.

A Heritage Conservation Area (HCA) is a geographical area containing many different elements, which collectively have historical importance and are valued by the community. They usually have a distinct visual unity and character which contributes to create a "sense of place".

The Wahroonga (North) area has been the subject of studies by Godden Mackay Logan, Sue Haertsch Planning and John Oultram Heritage and Design which identify the area as having heritage significance as it:

- demonstrates the post 1892 residential development of the area, exhibiting built and landscape qualities that are becoming rare within Hornsby Shire and which are endangered by continuing unsympathetic development;
- is aesthetically distinctive, with a strong collection of Federation residential buildings;
- is closely associated with the opening of the North Shore Railway Line in the 1890s;
- includes land in the early estates of the locality;
- includes pre War and Inter War subdivisions; and
- is strongly associated with significant local persons including the Hordern Family.

The establishment of the HCA will assist maintain and/or improve the heritage values and environmental qualities of the area, resulting in attractive streetscapes and providing an appealing place to live. The establishment of a HCA will also give owners and the community greater certainty that the heritage qualities and character of the area are protected.

TRANSPORT

Transport continues to be a key economic social and environmental concern in the NSROC area. Extensive details on current transport arrangements in the region and advocacy activities are outlined in the 2008-2009 and 2009-2010 NSROC SoE Report.

Sustainable urban planning and transport must strike the right balance between effective and economic people movement and transport modes offering low energy emissions. Sydney continues to struggle with the right mix of modes. In Northern Sydney there is a distinct and increasing reliance on private vehicle transport. It can be argued this trend stems from the expansion of toll and motorways, and the substantial residential growth within and outside the region. At the same time, there is evidence of an increasing strain on, and decreasing public confidence in, Sydney's existing passenger rail system.

NSROC councils concerns about transport have been reinforced by the release of the RTA Key Roads Performance Report September 2011. This Report identified the northern Sydney area as having some of the slowest road travel times including:

- the Pacific Highway (Wahroonga to Pymble): Average speed am peak: 35km/h; Average speed pm peak: 26km/h
- Pacific Highway (Pymble to Roseville): Average speed am peak: 27km/h; Average speed pm peak: 25km/h
- Pacific Highway (Roseville to Lane Cove): Average speed am peak: 19km/h; Average speed pm peak: 20km/h
- Pacific Highway (Lane Cove to North Sydney): Average speed am peak: 18km/h; Average speed pm peak: 23km/h
- Centennial Avenue: Average speed am peak: 31km/h; Average speed pm peak: 35km/h
- Eastern Valley Way (Falcon St, Cammeray to Boundary St, Roseville Chase): Average speed am peak: 28km/h; Average speed pm peak: 28km/h

Over the last two years NSROC has advocated for the following priorities within the region and in adjacent areas:

- North-West Rail or Metro link
- Parramatta to Chatswood Rail link
- Second Harbour Bridge rail crossing and fast North Shore Bus or light rail link from Chatswood to the Northern Beaches
- Transport strategies for Military – Spit Corridor, Victoria Road, Pennant Hills Road and the Pacific Highway
- Completion of M2–F3 link into the Sydney Orbital
- Improved regional rail services to the Central Coast and Newcastle

With a new State Government since March 2011, NSROC's number one priority of the North West Rail link has been activated. NSROC and member councils will continue to advocate for the other identified transport priorities.

DELIVERING SUSTAINABLE TRANSPORT

NSROC member councils manage public roads and related transport infrastructure valued at over $2 billion. Our councils also spend over $30 million each year on maintenance and provide over $1 million of community transport services to the region.

At a local level councils continue to support sustainable transport solutions. For example, the City of Ryde, 'Top Ryder', community bus continues to grow patronage and support from the community.

CASE STUDY

CITY OF RYDE COUNCIL – Top Ryder Community Transport

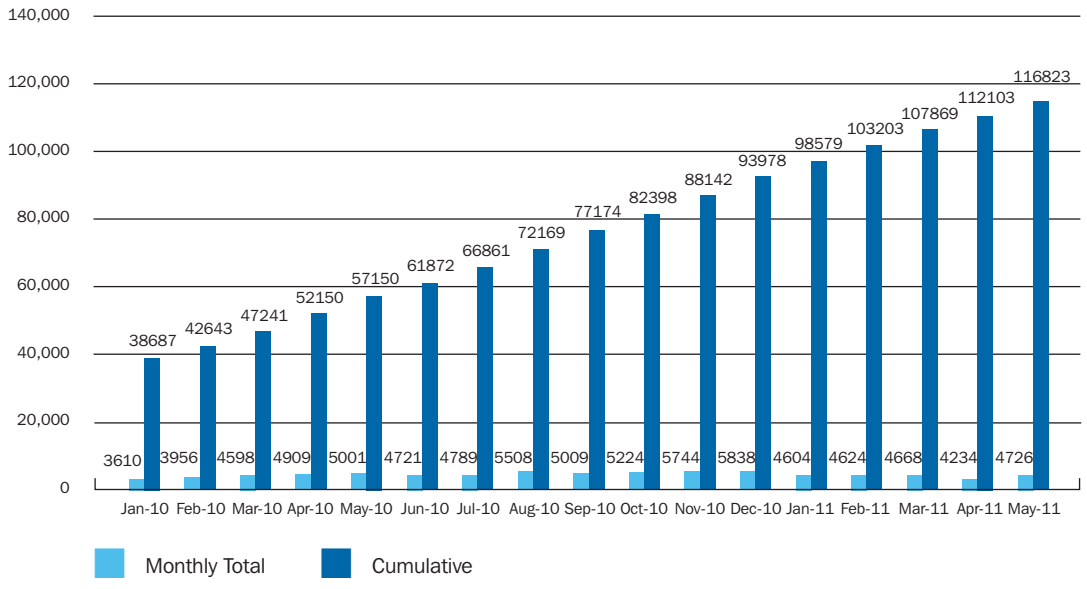
The Top Ryder Community Bus Service continues to grow in patronage and support from the community. The service provides a free bus service to all to ten of the most popular destinations in the City of Ryde, six days per week.

Strengths of the service include:

- Drivers competent, helpful and cooperative
- Good reliable on time service operating 6 day per week
- Free service to users
- A professionally run service
- Users can 'hail and ride' from any STA bus stop on route
- Service is easily accessible to the aged and frail
- Buses are specially adapted for wheelchair users
- Buses are comfortable and very attractive
- Bus stops at main retirement villages and destination points
- Loyal users willing to promote the service to the wider community
- Bus stops are well signposted

Plans are afoot to increase the number of stops to other destinations, develop a smart phone application and increase the marketing distribution for the service.

Top Ryder Passenger Numbers 2010-2011



WASTE

Council waste management is an increasing complex area. Councils have dual waste objectives: to reduce the volumes of waste generated and to maximise the potential of waste to be recycled, re-used or used to generate energy.

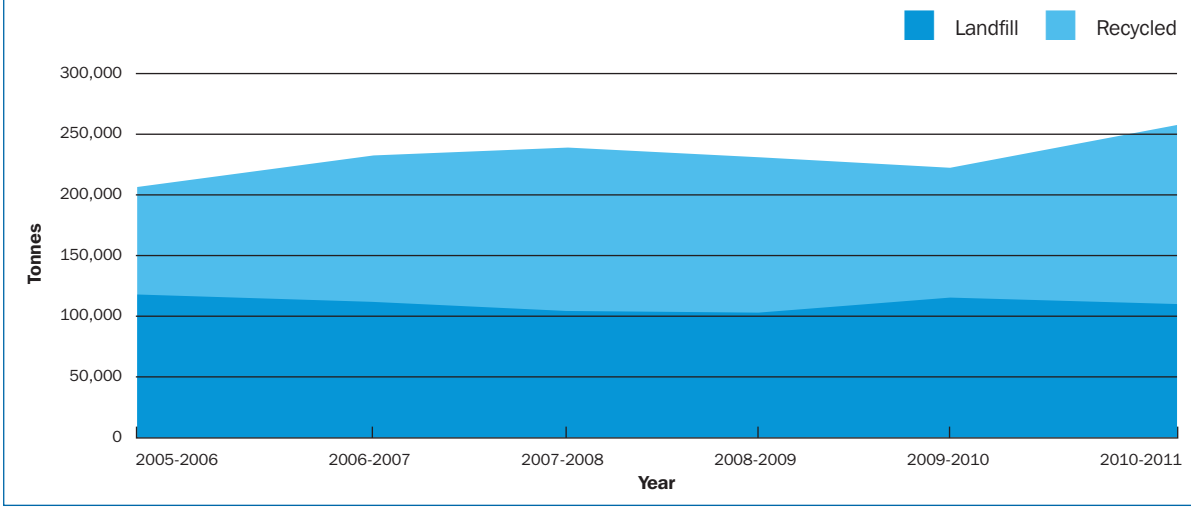
In 2010-2011, residents of the NSROC region generated 114,501 tonnes of material which went to landfill. Another 139,761 tonnes of material was recovered through recycling systems. On average per capita NSROC residents increased their total resources recycled from 193 kg per person in 2009-2010 to 229 kgs per person in 2010-2011. In total, more waste was collected in 2010-2011 than in previous years, reflecting the region's growing population.

In 2010-2011 NSROC member councils have achieved a growth of around 30,000 tonnes in diversion to recycled activities with a current diversion rate of 54% across the region and a dip in waste to landfill by 2,000 tonnes.

Figure 13: Landfill and recycled waste tonnages by councils in 2010-2011

Council	Total resources to landfill (tonnes)	Total resources recycled including green waste (tonnes)	Total resources to landfill per capita (kgs)	Total resources recycled per capita (kgs)	Green waste diverted from landfill per person a year (kgs)
Hornsby Shire	34,505	38,196	210	118	114
Hunter's Hill	923	5,360	65	380	41
Ku-ring-gai	28,208	39,922	197	303	167
Lane Cove	6,348	5,986	190	180	59
North Sydney	7,991	9,817	123	151	26
Ryde	23,863	21,379	227	204	90
Willoughby	12,663	19,101	180	272	88
NSROC 2010-2011	**114,501**	**139,761**	**1,192 (Average 170)**	**1,607 (Average 229)**	**585 (Average 83)**
NSROC 2009-2010	116,631	108,145.5	1,381 (Average 197)	1,357 (Average 193)	552.5 (Average 78)

Figure 14: NSROC landfill and recycled volumes 2005-2011



Councils look for innovative ways to help the community see the value in waste reduction and the opportunities for waste recycling. NSROC has commenced a major investigation of waste opportunities in light of recent privatisation of the State Government's waste management business.

CASE STUDY

NSROC – Future Collaborative Waste Management Analysis

In December 2010, the NSW Government sold the State owned waste services operator known as Waste Services NSW (WSN). Consequently most of the Sydney region is now serviced by two private sector waste operators. Currently six of the seven councils in the NSROC region have waste disposal contracts with SITA Environmental Solutions – the purchaser of WSN. In 2013 most of the NSROC Councils' waste contracts will expire. Should councils wish to take a new direction then preparation must begin now to inform the contract renewal process.

There are three broad options to consider:

- Councils continue with current individual contractual arrangements;
- Councils examine collective or regional contract arrangements for waste disposal; and /or,
- Councils explore joint/shared waste disposal solutions through the development of common services and associated infrastructure systems.

Given these circumstances, in 2011 NSROC councils commenced a regional analysis of collaborative waste management. Stage One was a Waste Forum held for the NSROC Annual Conference on 14 July 2011. The purpose of the day was to inform councillors about the current arrangements, policies, and technologies in waste management and to hear about how other councils in NSW have undertaken regional collaborative arrangements - what worked, what didn't work and what is yet to be evaluated.

The NSROC Board has endorsed a program for future examination of potential options recognising the substantial analysis and resourcing required.

NOISE

Throughout the NSROC region, six types of noise complaints dominate – barking dogs, air conditioners, swimming pool pumps, early-morning garbage trucks, and (less frequently) improperly set building alarms and the use of power tools. This is based on the most common complaints reported to each of the councils, but is not inconsistent with the patterns reported to the OEH for all of Sydney.

Complaints reporting is one sub-set of the noise concerns. Road traffic and rail can also be major issues, especially when heavy vehicles apply their engine brakes or motorcycles with lower-quality mufflers accelerate. Concerns such as these are more likely to be detected in environmental surveys rather than in complaints registers, because they are more diffused and harder to tag to specific offenders. But more recent additions to the traffic-borne offenders, including offensive motor vehicle alarms and sound systems, have provoked regulatory action.

As can be seen from the table below, total noise complaints over the last three years have been relatively stable.

Figure 15: Noise complaints received by Council within the NSROC region in 2010-2011*

Council	Barking dogs	A/C	Building sites/ construction	Licensed premises	Garbage trucks	House & car alarms	Domestic noise source	Other	Total
Hornsby Shire	381	10	65	5	4	1	108	21	595
Hunter's Hill	10	4	9	3	5	NA	NA	3	34
Ku-ring-gai	205	0	185	0	23	0	0	116	362
Lane Cove	158	6	3	0	7	0	3	9	187
North Sydney	0	59	86	127	18	11	0	0	303
Ryde	100	8	14	1	15	5	10	29	182
Willoughby	180	23	197	3	11	18	29	37	500
NSROC 2010-2011	**1,034**	**110**	**559**	**139**	**83**	**35**	**150**	**215**	**2,163**
NSROC 2009-2010	1,047	104	228	7	17	10	461	425	2,299
NSROC 2008-2009	1,024	88	206	41	43	30	142	481	2,055

**The 3 year totals for this table have been adjusted with the exclusion of aircraft complaints which are now collated by Air Services Australia.*

Councils also receive complaints about aircraft noise however a better reflection of complaint patterns for this concern is shown in data provided by Air Services Australia as seen in Figure 16.

With increasing demands on Sydney Airport and expected expansion of air traffic, aircraft noise concerns are expected to increase for NSROC residents. NSROC member councils have been active in engaging with consultation and advocacy mechanisms on aircraft complaints through such groups as the Sydney Airport Aviation Community Advocate. Of most concern is the failure of airport industry to communicate simply and consult effectively in noise complaint issues and impacts.

In September 2010 the Federal Government created an Airport Noise Ombudsman whose role will include review of :

- the handling of complaints or enquiries made to Air Services Australia about aircraft noise
- community consultation processes related to aircraft noise
- the presentation and distribution of aircraft noise-related information.

NSROC councils will seek direct engagement with this new body to establish more transparent processes for aircraft noise management.

Figure 16: Aircraft Complaints Key NSROC Suburbs 2007-2011

Suburb	2007-2008 Complaints (complainants)	2008-2009 Complaints (complainants)	2009-2010 Complaints (complainants)	2010-2011 Complaints (complainants)
Artarmon/ Naremburn	4 (3)	1 (1)	6 (5)	5 (5)
Chatswood /Willoughby	48 (11)	12 (3)	39 (8)	36 (5)
Cremorne/Neutral Bay	5 (5)	2 (1)	4 (3)	6 (5)
Epping	3 (2)	4 (4)	16 (8)	10 (5)
Gordon	21 (3)	1 (1)	1 (1)	3 (3)
Hornsby	7 (7)	5 (4)	26 (8)	11 (6)
Hunter's Hill	490 (36)	1,736 (41)	61 (34)	91 (30)
Killara	14 (8)	5 (5)	13 (11)	9 (4)
Lane Cove	80 (26)	67 (24)	98 (24)	45 (16)
North Sydney	3 (3)	0	1(1)	3 (3)
Pymble (& West Pymble)	30 (14)	26 (9)	18 (8)	22 (13)
Riverview	29 (3)	13 (2)	21 (5)	33 (9)
Ryde*	63 (32)	90 (58)	46 (34)	118 (47)
St Ives	9 (5)	7 (3)	0	5 (4)
Wahroonga/ Waitara	16 (11)	9 (8)	14 (5)	10 (2)

**Ryde includes Denistone East, Eastwood, Gladesville, Macquarie Park, Marsfield, Putney, Ryde and East Ryde, North Ryde and West Ryde*

ENERGY

NSROC Councils can contribute to reducing energy consumption through direct action to minimise their own consumption and use on council assets. Actions include the installation of timers and energy efficient lighting in council buildings, change of plant and equipment to lower energy models, and the introduction of photovoltaics and other renewable energy systems on council properties as noted in the 2008-2009 and 2009-2010 SoE Reports.

In terms of general consumption trends in 2010-2011, most NSROC councils residential and non residential consumption has decreased. However there is not a uniform trend in totals. New information provided in this SoE report is from the newly formed Ausgrid which replaces Energy Australia data reported in previous years.

Figure 17: Percentage Change in consumption per council 2009-2010 to 2010-2011

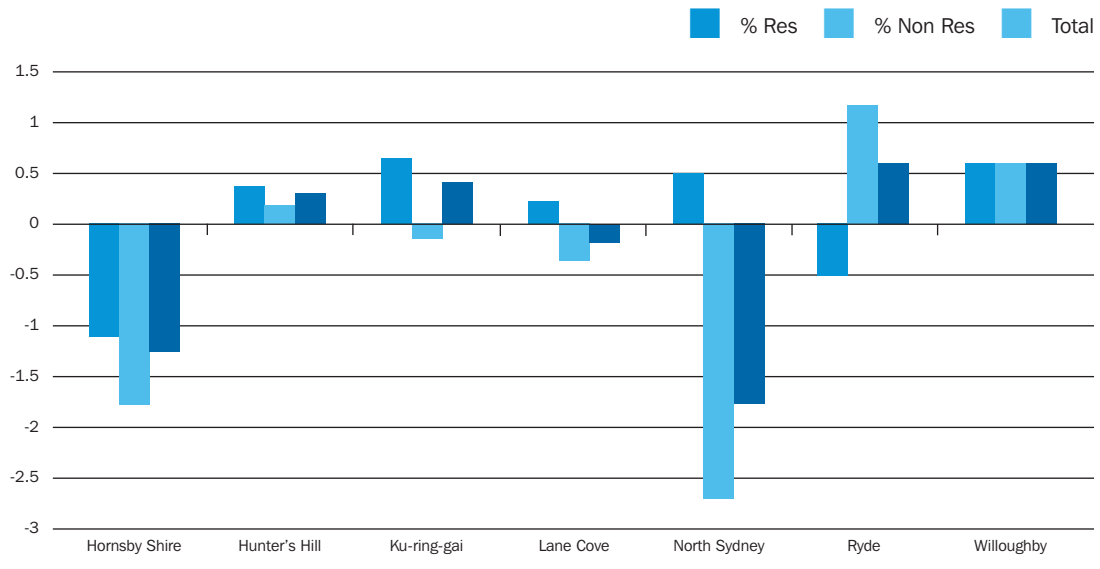


Figure 18: Energy Consumption Residential Users

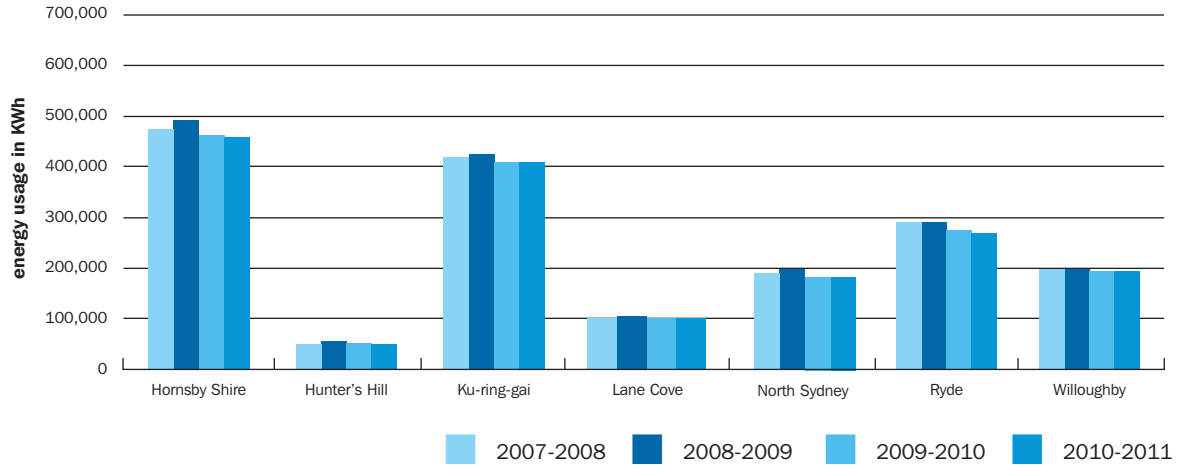
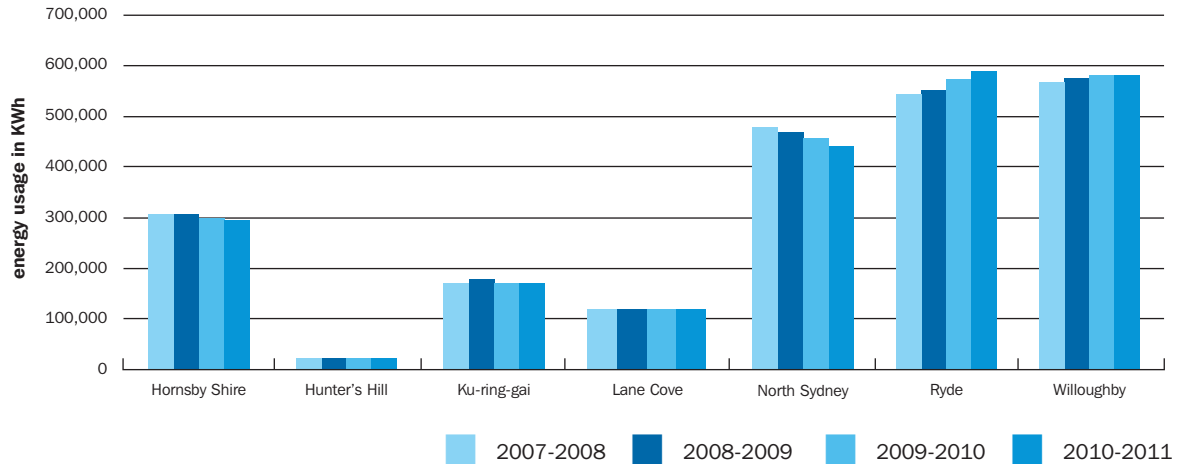


Figure 19: Energy Consumption Non Residential



Energy prices are scheduled to increase substantially in NSW in the coming years. This will affect councils and the community. An area of particular concern for councils is the ongoing cost of street lighting.

Street lighting infrastructure in the NSROC region is owned by Ausgrid. Councils are charged a fee for maintenance of the street lighting poles and a fee for energy consumed by the street lighting (which may be provided by Ausgrid or another energy retailer).

In 2009 Energy Australia imposed a price increase of approximately 78% in street lighting network maintenance charges over the coming regulatory period. This is a difficult situation for councils. Street lighting is an essential service and councils have little scope to reduce these increased costs. Naturally councils cannot reduce the actual street lighting as this would impact on public safety. However NSROC, along with other Councils in Sydney, through request to the Australian Energy Regulator and the NSW Government, sought a commitment from Ausgrid that its infrastructure upgrades should include energy efficiency products and systems to improve reliability as a condition to payment of these very substantial maintenance fee increases.

In 2010 Ausgrid commenced publishing streetlight information including repair requests and response rates. There appears to be a broad variation in proactive replacement programs across the region which NSROC will continue to monitor.

Figure 20: Streetlights Information for NSROC Councils

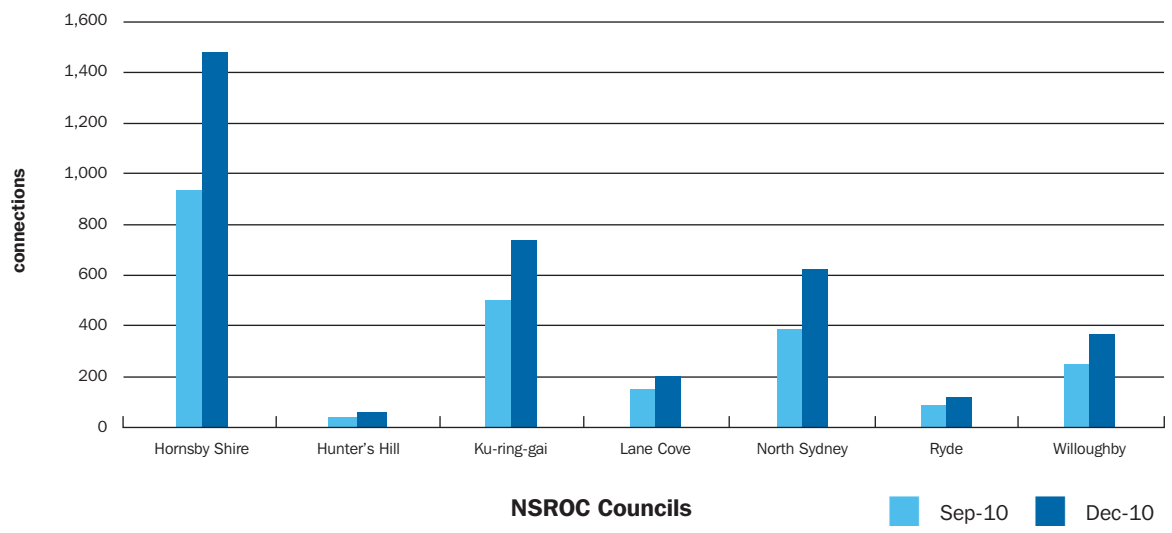
Streetlighting Information – September 2010 to March 2011			
Streetlights repairs	**Sep-10**	**Dec-10**	**Mar-11**
Hornsby	174	127	171
Hunter's Hill	21	22	22
Ku-ring-gai	210	163	173
Lane Cove	62	28	23
North Sydney	94	47	39
Ryde	87	127	149
Willoughby	64	31	54
Average days to repair	**Sep-10**	**Dec-10**	**Mar-11**
Hornsby	1.1	1.1	0.9
Hunter's Hill	1.1	1.1	0.8
Ku-ring-gai	1.3	1	1
Lane Cove	0.7	0.9	1.1
North Sydney	1.3	1.1	1.3
Ryde	0.9	1	0.9
Willoughby	0.8	1.1	1.2
Proactive replacement	**Sep-10**	**Dec-10**	**Mar-11**
Hornsby	1,817	47	0
Hunter's Hill	0	0	0
Ku-ring-gai*	1,972	4,650	1,667
Lane Cove	0	0	0
North Sydney	0	0	0
Ryde	0	953	0
Willoughby	17	0	91

**Ku-ring-gai total in the above figure represents a cycled replacement program scheduled for the period.*

Councils also contribute to consumption minimisation in the community through community education and assistance initiatives.

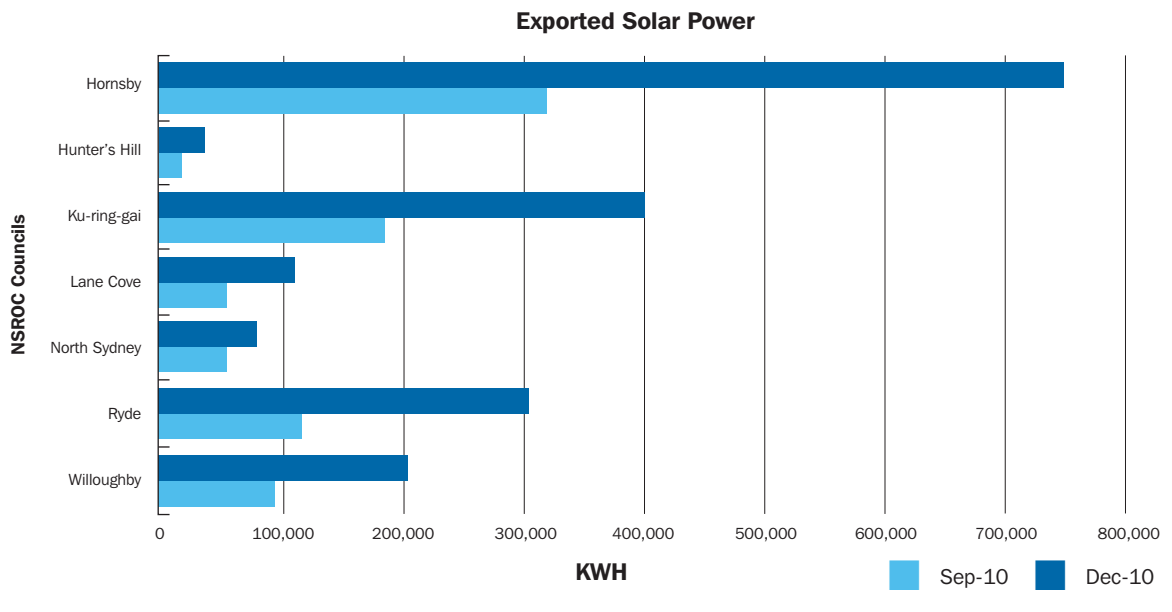
New information on solar energy is now being provided by Ausgrid. Within the last six months of 2010 solar connections increased in all council areas. Across the region the total number of connections in December 2010 was 3,562 up 55% from 2,285 in September 2010.

Figure 21: Solar Connections in the NSROC region



Moreover this increase in connections under-reflects the increase in exported power generated by solar connections which rose 130% in the same period. This suggests some large facilities including council facilities which came online in this timeframe.

Figure 22: Exported Solar Power by NSROC councils area (September to December 2010)



NSROC councils will continue to chart this new information to assess the regions capacity in terms of renewable solar energy.

This last year also saw increased NSROC council activity and leadership in the areas of energy efficiency as highlighted in the council projects below:

CASE STUDY

LANE COVE COUNCIL – Installation of photovoltaic panels on Council sites

In June 2011, Lane Cove Council installed photovoltaic (PV) panels on the Lane Cove Library (29.8 kW), Lane Cove Civic Centre (16.2 kW) and Lane Cove Community Centre (9.6 kW), significantly increasing the Council's renewable energy generation capacity.

Together, the PV systems are expected to generate around 80 MWh of electricity a year, or enough energy to power around 10 family homes. This represents a greenhouse gas emission reduction of 70 tonnes of carbon dioxide equivalent per year through avoided use of the electricity grid.

The PV systems will pay for themselves within the 25 year warranty period making them a good investment both environmentally and financially, particularly in the context of rising electricity prices.

This project was funded by Council's Sustainability Levy and the NSW Government's Waste and Sustainability Improvement Payments.

CASE STUDY

KU-RING-GAI COUNCIL – 2011 Earth Hour Activities

Ku-ring-gai ran four activities to celebrate Earth Hour 2011. A total of 120 participants took part in a Scarecrow and Composting workshop, an Across the Universe activity, an evening spotlight walk and a Picnic in the Park event. This year's theme was 'Going Beyond the Hour', with participants encouraged to make a pledge to take environmental action in their day to day lives. The Picnic in the Park event was held in Golden Grove at Bicentennial Park, lit only by solar garden lights and a few BBQ flares around the stage. As part of the activities a group of percussionists (the Rhythm Hunters) led a drumming workshop and performed a concert. The participants were encouraged to join in the world's first solar light conga line to set a Guinness World Record to the sound of Latin music. The participants enjoyed a night of environmental education, music and sustainability themed lucky door prizes.

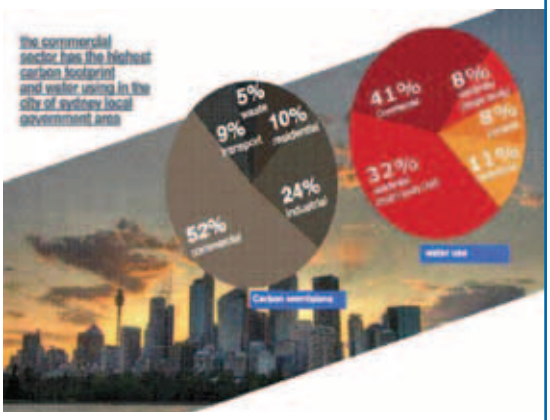
CASE STUDY

CITY OF RYDE COUNCIL – CITYSWITCH Local Businesses Cut Energy Bills

The City of Ryde has joined Australia's leading energy efficiency program for offices to help local businesses cut their energy bills. The CitySwitch program began in 2006, as a partnership between the City of Sydney, North Sydney and Parramatta Councils, and has now expanded nationally.

It offers businesses the double benefit of lower energy bills and reductions in greenhouse gas emissions, which will lower their exposure to the proposed carbon price. The program uses NABERS Energy, an industry-recognised tool, to help participants benchmark their greenhouse performance. Ratings go from one to five stars, with five stars representing an exceptionally high level of energy efficiency.

Organisations that become CitySwitch signatories commit to achieving an accredited four stars or higher NABERS Energy rating. With the average tenancy performing at 2.5 stars, a four star commitment means the tenant is at least 20 per cent more efficient than the general tenant market. The City of Ryde will be working closely with businesses within the Macquarie Park Business Precinct to realise this ambition.



The catalyst for Council to join the program

If all of Australia's commercial office tenants were to achieve a NABERS Energy tenancy rating of four stars or higher, 960,000 tonnes of CO_2 could be saved each year. That's the equivalent of taking 200,000 cars off the road!

Macquarie Park Business Precinct

CASE STUDY

WILLOUGHBY CITY COUNCIL – Retrofitting a Heritage Building for Efficiency

Willoughby Park Centre is a community facility offering a variety of art and recreational activities for adults and children. The heritage building, designed by Walter Burleigh-Griffins partner Eric Nicholls, includes a sports hall, stage, storage, two offices, foyer, shower and toilet facilities and a kitchen. Linked to the main building is a craft room with two kilns and a childcare centre. All works had to be completed in consideration of the buildings heritage status.

Works were conducted on the Centre to enhance the natural comfort and reduce the requirement for air conditioning.

Some of the features installed as part of Willoughby Council's Environmental Sustainability Action Plan include;

Blinds, these were installed in the offices to provide glare control and block some of the heat from the sun while trapping heat inside during cooler months.

Insulation, this helps provide passive cooling through control of heat loads and was improved in several areas at the centre. Polyester (R3) batts and (R1.5) sisalation sarking were added to existing roof sarking. The craft room windows were insulated with air-cell and MDF to stop sun glare and heat. Thermilate insulative additive was incorporated into paint used on the walls.

Natural ventilation systems were installed to remove internal heat loads and provide air movement and oxygen. The enormous sliding door in the sports hall can be opened and plans for a vent within the door will soon be completed. This will mean that the door can remain shut while allowing air to flow to be directed through a functional grill. Some of the windows in the sports hall can be opened, however, converting the rest of the windows to be operable was not considered cost effective.

Fans: Nine fans were installed in the hall to provide air movement when windows are closed on hot days creating a more comfortable environment. The non-functioning fans were replaced in the craft room and air conditioning will only be used as a last resort.

High efficiency lights. Inefficient T8 fluorescent lamps and halogens were replaced with T5 fluorescent lamps and reflectors which equates to a saving of 4500(kWh) or 4.9 tonnes CO_2e. Sensor lights were fitted in the sports hall toilet/showers which will save approx 1 tonne CO_2e.

WATER

Sydney's water resources are under pressure from increasing demand for, and consumption of, town water supplies. Population growth, lifestyle changes and the uncertainty of future climate change make the extent of these pressures difficult to measure. All communities must strive to reduce water consumption and where possible harvest and manage water locally.

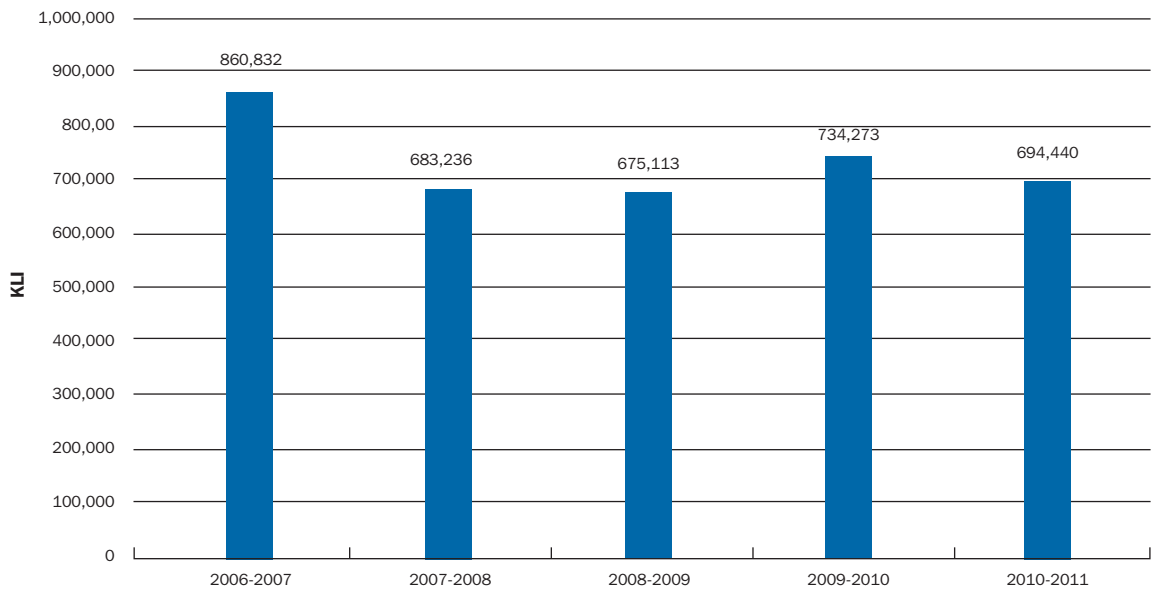
In 2010-2011 water consumption across the NSROC region has declined from the previous year by around 700,000 kL. In 2009-2010 the water use across the LGA was 53,832,561 kL and in 2010-2011 water use has declined to 53,137,780kL. A breakdown of each council's areas consumption by building type is provided below.

Figure 23: Water Consumption across the NSROC region by building type in kilolitres, 2010-2011

Council	Hornsby	Hunter's Hill	Ku-ring-gai	Lane Cove	North Sydney	Ryde	Willoughby
Commercial	1,232,166	64,608	473,867	290,894	1,448,440	1,557,947	1,134,254
Houses	8,581,406	862,747	7,751,077	1,494,605	1,172,385	4,669,494	3,201,712
Industrial	329,663	786	6,158	191,895	17,369	459,050	569,797
Other	769,128	335,013	601,001	153,553	263,440	726,207	402,106
Units/Flats	2,274,524	299,838	1,183,198	951,744	4,030,857	2,998,223	2,638,628
Total 2010-2011	**13,186,887**	**1,562,991**	**10,015,302**	**3,082,691**	**6,932,492**	**10,410,921**	**7,946,497**
Total 2009-2010	**13,663,547**	1,587,180	10,420,715	3,026,395	6,973,644	10,414,817	7,746,263

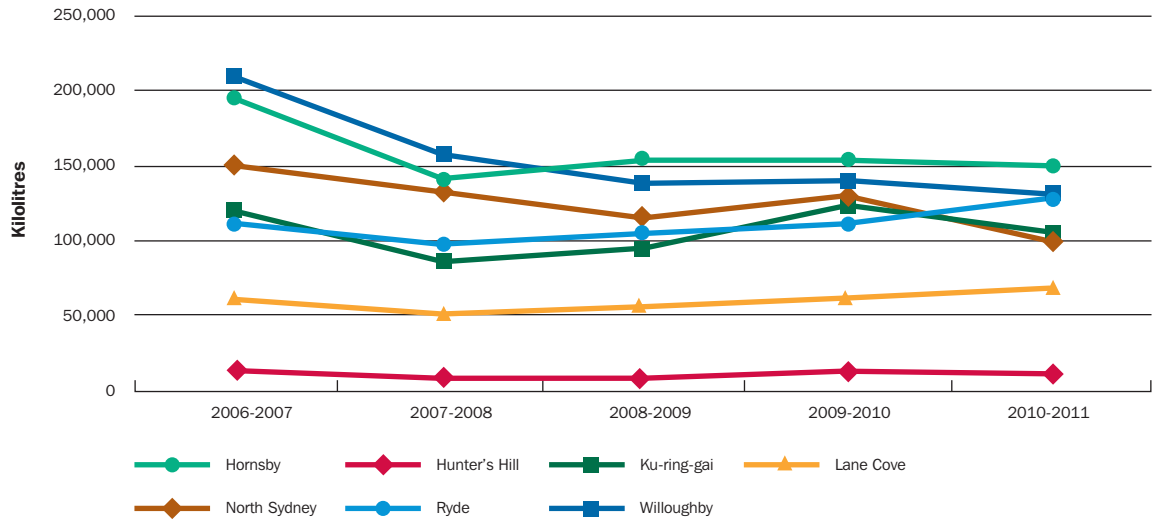
Councils also set objectives to reduce their own consumption across their sites and assets. In 2010-2011 councils as a region lowered their total water usage after a rise in the previous year.

Figure 24: NSROC Councils regional water consumption 2006-2011



In 2010-2011 most NSROC councils were able to reduce their own water consumption as illustrated in figure 25. Over a 5 year period the decline in water consumption by councils has been substantial.

Figure 25: Water consumption by individual Council 2006-2011



Councils continue to engage the community in water saving initiatives. Two examples are from City of Ryde Council and Willoughby City Council:

CASE STUDY

WILLOUGHBY CITY COUNCIL – Concourse flood mitigation and reuse

The "Chatswood Integrated Flood Mitigation and Stormwater Reuse Scheme" developed at Willoughby City Councils (WCC) new $160m performing arts centre "The Concourse" in Chatswood, has set a new benchmark in potable water savings, flood mitigation and stormwater reuse in Australia. Up to 84,000kL/pa of potable water savings will be realised when this scheme is in full operation.

What makes this project unique is the reuse of this stormwater to feed The Concourse cooling towers, thus achieving substantial potable water savings.

WCC is also negotiating the sale of this recycled water product to local businesses, allowing the multiplication of potable water savings throughout the Chatswood CBD.

Typically stormwater harvesting schemes have been the preserve of irrigation schemes for golf courses and parks. WCC's potentially CBD wide application of treated stormwater product to reduce potable demand in Chatswood buildings takes this technology to a whole new level.

Additionally, the scheme acts as a flood mitigation scheme, and will reduce the severity of downstream flooding during heavy rain events. A five mega-litre underground storage tank in Ferguson Lane behind the Concourse building has been designed to accommodate urban runoff up to extremely heavy (1:100 year) rain events.

CASE STUDY

CITY OF RYDE COUNCIL – Sustainable Businesses in Ryde

The Sustainable Businesses in Ryde Program has been developed in collaboration with Sydney Water and The Office of Environment and Heritage (OEH) to assist businesses reduce water and energy consumption and increase recycling, while remaining profitable. The program encourages businesses to reduce energy and water use and subsequently the associated costs as a sensible financial and business investment.

The program targets small to medium businesses using between 10–80 kilolitres of water a day. There are hundreds of businesses that fit into this criteria, representing a diverse cross section of business types across the City.

The 3 year program began in early 2010 and aims to:

- reduce water use by 15% at each business,
- energy by 10% and
- increase the recycled content of waste materials to 57%.

To date the program has:

- identified water savings of over 218,000 litres per day for the participating businesses, and an average of 40% reduction in water use.
- achieved an impressive 164,000 litres of implemented water savings per day for participating businesses.

Many businesses are also engaging with the many OEH energy saving programs available, including Sustainability Advantage and Energy Efficiency for Small Businesses Program receiving subsidised energy audits and undertaking NABERS rating for their buildings.

Student volunteers assisting with program

The program is being expanded across the City, with more businesses being approached to participate and realise similar savings.

For more information and updates on progress go to: http://www.ryde.nsw.gov.au/sustainablebusiness

COMMUNITY HEALTH

Community health outcomes can be linked to the environment and supported by environmental initiatives. NSROC initiatives on community health take two forms:

- NSROC advocates for key health outcomes including the provision of direct health services and complementary environmental and health management; and,
- member councils provide hands on, local community health programs and facilities.

The age structure and population health statistics for the region are noted in the 2008-2009 NSROC SoE report. The NSROC area has a statically healthier population than the Sydney area. However it has a high percentage of ageing population. The latest analysis by the Northern Sydney Central Coast Area Health Service estimates that the fastest growing age group to 2016 will be people aged 85 years and older at 39.7%. There is also expected to be strong growth in persons 65 to 69 years (37.7%) and 70 to 74 years (32.6%). (Although these figures include Central Coast populations, the proportions are roughly representative of the NSROC region). Ageing populations bring challenges to councils in providing accessible infrastructure and opportunities to an ageing population.

In 2011 the Productivity Commission released an Inquiry into Caring for Older Australians. NSROC Councils raised some significant concerns regarding the under-recognition of local government services to preventative ageing and wellbeing. It is submission NSROC focused on two key areas:

- local government support for aged services, social participation and aged friendly environments; and
- land planning arrangements to cope with future demand for ageing in the region including provision of land for local facilities.

From an environmental perspective, NSROC councils are looking at implementing aged friendly infrastructure that is sustainable and suitable for the needs of this growing sector of the population. Many pavement and access point enhancements undertaken by councils are focused on these issues. Longer term plans are in place recognising future facility needs.

In 2010-2011 Councils have continued to provide opportunities for their communities to engage with each other and the environment for mutual benefits. Among a variety of initiatives has been improving and facilitating passive exercise and walking. Shared paths improvements at City of Ryde are illustrative of this along with the Lane Cove Council's initiative with the provision of free wheelie shopping bags.

CASE STUDY

CITY OF RYDE COUNCIL – Shared Paths

Shared User Paths (SUPs) contribute to community safety by keeping pedestrians and cyclists away from cars on busy roads. They also help reduce congestion on our roads by providing a viable alternative for residents who prefer to leave the car at home for local trips.

The City of Ryde recently completed two new SUPs in North Ryde:

- on Wicks Road, heading north from Epping Road and then turning west into Waterloo Road, terminating at Lane Cove Road;
- on Epping Road, heading west from Wicks Road then south at Lane Cove Road, terminating at Paul Street.

The Wicks/Waterloo Road SUP is linked to the NSW Bike Plan and is part of the current program of works to construct key 'missing links' within the Metropolitan Sydney Bike Network. The project is being undertaken in partnership with the RTA, which has provided the full funding of $1,000,000.

Two new shared user paths, for pedestrians and cyclists, are being constructed in North Ryde

Plans for the future include extension of this path towards Macquarie University. The Epping/Lane Cove Road SUP, which is being constructed in stages, facilitates the connection to the Epping Road pedestrian/cycleway overbridge, leading towards Shrimptons Creek and the Macquarie Park Business District. The Epping Road/Lane Cove Road SUP is co-funded by the City of Ryde and the RTA at a total cost of $500,000.

CASE STUDY

LANE COVE COUNCIL – Walk, Shop and Wheel program

Lane Cove Council launched the Walk Shop and Wheel program in April 2011. As part of this program, Lane Cove residents were encouraged to spend $50 or more in local businesses, and then present their receipts at the Lane Cove Civic Centre to receive a free wheelie shopping bag.

The free wheelie shopping bag was an incentive for residents to change their shopping routine. Specifically, residents were encouraged to:

- Walk to the shops and protect the environment by reducing greenhouse gas emissions generated by car travel;
- Shop locally and help to sustain the local community; and
- Stay healthy and have an active lifestyle.

The program was an outstanding success, with residents taking up the offer in a matter of weeks. 284 residents received a shopping trolley and made a commitment to walk to the shops.

On average each person committed to walk to the shops three times per week.

Lane Cove Council staff with wheelie bags from the 'Walk, Shop and Wheel' program

3 Bushland

Bushland

The NSROC region covers more than 680 square kilometres and includes more than 7000 hectares of bushland. Some of the largest tracts of bushland in the Sydney metropolitan area are located in the region.

NSROC councils play a key role in bushland management. However there are considerable differences between councils in terms of the land they directly control. Most of NSROC bushland areas are in the north, a large portion of which is national park and under State Government control. Other areas of bushland such as in North Sydney are generally the direct responsibility of councils (see figure 26). Consequently some councils have more engagement and joint activity with the State government in bushland management.

Bushland is highly valued by the community for its cultural, recreational and aesthetic values. It contributes to air and water quality, and provides unique habitats essential for the preservation of native flora and fauna.

Native plants and animals, and remnant bushland are visible signs of the ecosystem functioning in urban areas. To protect this local biodiversity it is critical to conserve native vegetation and wildlife. Some of the pressures on the bushland vegetation and wildlife in the NSROC area include:

- clearing of bushland for housing, roads and industrial developments
- adverse human impacts – weeds, rubbish dumping, encroachments, impacts of pets
- structural changes to the bushland – decreased species diversity from tree death, removal of habitat, changes to fire regime, increased soil nutrient levels
- changes in drainage – stormwater runoff
- destabilisation of water courses – erosion, scouring flows, increased sediment loads and nutrient pollution

Figure 26: Bushland across the NSROC area in 2010-2011

Council	Total area of bushland in ha LGA (hectares)	Total area of bushland in LGA under council control (hectares)	% bushland under council's control in LGA under (ha)
Hornsby Shire	25,247	5,016	11
Hunter's Hill	40	30	75
Ku-ring-gai	3,148	1,161	36
Lane Cove	123	93	75
North Sydney	50	49	98
Ryde	559	209	50
Willoughby	338	290	85
NSROC	**42,347**	**7,582**	**18**

In addition to dedicated staff, including rangers and bushland regenerators, a critical mechanism for caring for bushland is through the network of volunteers that are marshaled by councils and other organisations.

In 2008-2009 it was estimated that nearly 50,000 hours of work was provided by bushland volunteers at a value of over $1million. In 2009-2010 hours dipped below 50,000 to 47,500 and volunteer numbers were around 2700 and a slight drop in value.

In 2010-2011 volunteer numbers have increased although total hours are slightly lower as noted in Figure 27. This appears to reflect more engagement with the community on initiatives but less individual time allocated by individuals in bushcare activities.

Figure 27: The contribution of bushcare volunteers in the NSROC region in 2010-2011

Council	Volunteer numbers	Volunteer hours	Value of hours (in dollars @ $25 per hour)
Hornsby Shire	790	15,700	392,000
Hunter's Hill	60	966	29,003
Ku-ring-gai	1,000	12,500	312,500
Lane Cove	250	1,761	44,036
North Sydney	214	4,933	123,325
Ryde	455	5,270	131,750
Willoughby	250	5,550	138,730
NSROC	**3,019**	**46,680**	**1,171,344**

CASE STUDY

HUNTER'S HILL COUNCIL – Riverglade Reserve

Hunter's Hill Council received a three year NSW Environmental Trust Grant to restore threatened coastal saltmarsh and riparian habitat along Tarban Creek in Riverglade Reserve. The project is currently in its third year.

This project aims to: create a continuous riparian vegetation corridor; expand habitat for wildlife, specifically small passerine birds and migratory shorebirds; undertake bush regeneration in the threatened saltmarsh community; remove weeds from the mangrove and riparian communities to improve the reserves biodiversity; remove carp and mosquito fish from constructed wetlands enabling frogs to breed; expand frog habitat and; increase community participation in the rehabilitation of the Sydney Harbour reserve.

So far, community volunteers and bush regeneration contractors have planted 2,027 local native plants expanding and linking bush remnants and the constructed wetlands; bushcare volunteers and bush regeneration contractors are continuing bush regeneration in threatened coastal saltmarsh, mangroves, riparian and aquatic vegetation; a contractor has undertaken electrofishing to remove carp and mosquito fish in the constructed wetlands; and an estuary vegetation rehabilitation plan has been prepared for Riverglade Reserve.

FLORA AND FAUNA

Changes in flora and fauna numbers across the NSROC region have not changed significantly to those reported in the 2008-2009 and 2010-2011 NSROC Regional SoE Reports. Councils continue to employ a variety of techniques to manage introduced flora and fauna focusing on feral animals, pest species and noxious weeds.

Despite continued efforts by councils and volunteers, there has been no significant changes in threatened or vulnerable species in the region.

CASE STUDY

NORTH SYDNEY COUNCIL – Natural Area Survey

In 2010 North Sydney Council conducted a natural area survey. The survey revealed the following:

Two biodiversity *hotspots* (threatened) were identified:

- The Wollstonecraft reserves at Berry Island, Bandangi, Gore Cove and Smoothey Park have the most native vegetation communities, with 10 out of the 12 communities found there
- Tunks Park was identified as the most important reserve for small native birds.

Other findings were:

- 347 plant species were recorded, two of which are nationally threatened – the Sunshine Wattle (*Acacia terminalis subspecies terminalis*) and the Magenta Lilly Pilly (*Syzgium paniculatum*)
- 39 plant species are listed as significant at the Sydney Metropolitan Catchment Management Authority (SMCMA) regional level
- 190 native terrestrial vertebrate species were recorded in North Sydney, including 4 frog species, 20 reptile species, 148 bird species and 18 mammal species

- 114 of these species still occur consistently in the area
- 3 threatened animal species occur regularly in North Sydney – Powerful Owl (*Nixon strenua*), Grey headed Flying-fox (*Pteropus poliocephalus*) and the Eastern Bent-wing Bat (*Miniopterus schreibersii*)
- 15 species are listed as migratory species under Commonwealth legislation and international migratory species agreements
- 15 species are significant at a regional level
- 61 species are significant at a local level.

North Sydney Council's Bushland Management Team will spend the next twelve months reviewing the Bushland and Fauna Rehabilitation Plans to address management priorities identified in the Natural Area Survey and updating these strategic documents so they reflect current best practice in bushland rehabilitation and climate change adaptation.

A key concern for bushland management is fire. Councils work closely with fire services to ensure fire incidents are minimised. Controlled hazard reduction burns are part of this process. In 2008-2009, there were 20 burns across the region covering around 100 hectares. In 2009-2010, there was a major burn program in the Hornsby Shire of over 800 hectares bringing the total burn to over 900 hectares across the region.

Figure 28: NSROC Fire Hazard Management 2010-2011		
Council	**Number of sites of hazard reduction burns**	**Area burnt (ha)**
Hornsby Shire	13	59
Hunter's Hill	0	0
Ku-ring-gai	13	72.4
Lane Cove	0	0
North Sydney	0	0
Ryde	3	3.08
Willoughby	2	1.72
NSROC 2010-2011	**31**	**136.2**
NSROC 2009-2010	63	904*

**The 2009-2010 figure included a major burn of over 800 hectares in the Hornsby LGA including a major burn of the Berowra Valley Regional Park, plus burns on crown land, national parks and on private properties.*

OPEN SPACE

In addition to bushland, the NSROC region has a variety of active and passive open spaces which contribute to the environmental amenity of the region.

Open space in the NSROC region is of considerable importance. The NSROC councils have expressed increasing concern over the shrinkage of open space available in the region in relation to continued population growth. There is a continuing tension to have open space resumed into urban development. These concerns were put to State Government as part of the NSROC formal response to the States Government's 2010 Metropolitan Strategy Review. These concerns are also being raised with the new State government as part of its review of the Planning System which will be undertaken in early 2012.

Councils are being innovative and proactive in maintenance of open space and will be considering how best to maximise the public utility from existing places and facilities. This is demonstrated through activities such as upgrading walking trails and installing exercise stops, dog and playground equipment in smaller parks.

Figure 29: Open Space areas in NSROC Region – 2010-2011		
Council	**Area under council management (ha)**	**Area of open space per capita (m^2)**
Hornsby	1,285	170
Hunter's Hill	67	50
Ku-ring-gai	1,161	114
Lane Cove	157	49
North Sydney	145	25
Ryde	355	34
Willoughby	432	63
NSROC	**3,602**	**72 (average)**

While the area of open space remains virtually static across the region, NSROC councils are looking at ways to maximise the activation and utility of spaces it has.

For example NSROC has adopted a Regional Sportsground Management Strategy in 2011. This strategy recognises that councils must maximise the utility of existing open space to provide for growing demand. Consideration is being given to upgrading and diversifying the functionality of sporting grounds as well as reducing water and energy consumption on these sites. Already councils are bringing on line sportsground upgrades which increase the capacity of existing fields such as Willoughby Council's Northbridge Oval.

CASE STUDY

NSROC – Regional Sportsground Management Strategy

In 2010 the NSROC Board commissioned the development of a Regional Sportsground Management Strategy. The strategy was prompted by a current shortage of sportsgrounds in the NSROC region. The shortage of grounds will be exacerbated as the region's population grows and the numbers of people wanting to play sport increase.

Through this Strategy, the coordination of community sportsground management across the northern Sydney region will be improved to maximize community sport participation opportunities. In turn, this will deliver greater community health, social and economic benefits to the region.

A number of key regional projects emerge from this strategy that should be guided by NSROC or collaboratively pursued by member Councils. These regional initiatives are as follows:

1. **A regional sports knowledge base**. This would include a facility inventory and GIS mapping, standardising information about capital works, ground conditions and usage measures to be used by Councils for planning
2. **A regional golf, bowls and tennis strategy**. This will provide a better basis for planning infrastructure for these sports. This progresses and expands on regional sports code plans already undertaken by NSROC member Councils
3. **A regional schools initiative**. This will seek to develop a better integration between school sport, Council and club activities and provide better facility planning and management of resource
4. **Smart transport and low sport miles**. This initiative seeks to minimise the use of private cars for sport and develop a transport access plan for sports complexes
5. **Joint Council approach to capital works forward planning**. This initiative is about creating an integrated regional approach across Councils to capital works planning and the development and funding of synthetic and other facilities to maximise sportsground capacity in the region
6. **Co-operative development of proposed regional facilities**. This will progress consideration of several key multi-code regional sports facilities suggested to enhance service, avoid duplication, and maximise viability
7. **Standardising conditions of use**. This will seek to provide simplified and consistent conditions and principles in sportsground hire agreements to address priorities of use and carrying capacities
8. **Region wide sportsground information portal**. This would include public information about ground availability and closures across the region, collect booking and allocation data, notify users about common issues or grants, and eventually provide (where feasible) a regional booking, allocation and invoicing service
9. **A consistent approach to costs of ownership for synthetic and grass sportsgrounds**. This will provide a consistent philosophy and guide to planning capital works, replacements and user fees for synthetic and grass playing fields for the region
10. **Bundled projects and funding packages**. This initiative will bundle capital works projects across the region to address turf reconstruction, drainage upgrades, provision of lights, non-potable water projects, synthetic surfaces, and regional facility developments, so as to be negotiate funding with state government and peak sporting bodies

All of these projects are tied to maximising open space usage in a sustainable way while preserving and enhancing natural environmental amenity.

CASE STUDY

WILLOUGHBY CITY COUNCIL – Northbridge Oval Synthetic upgrade Strategy

This 10,000 metre square field is one of the first publicly available synthetic turf sports grounds of its size in Sydney. A fourth generation 100% recyclable FieldTurf artificial turf playing surface was laid on a specially designed and engineered base. The turf is filled with washed silica sand, and recycled crumb rubber from more than 25,000 car tyres.

The FieldTurf grass and infill system ensures a safe environment whilst also providing a superior surface for developing players' skills and overall enjoyment in the game.

A specially designed vertically draining base consisting of approximately 5,000 tonnes of recycled concrete aggregates ensures any rainfall rapidly and efficiently flows through the base and into dams for storage and re-use on adjacent golf course. This feature saves the Council more than 5 million litres of water annually and collects over 7 million litres whilst also maximising the utilisation of the oval as a wet and muddy field will now be a thing of the past.

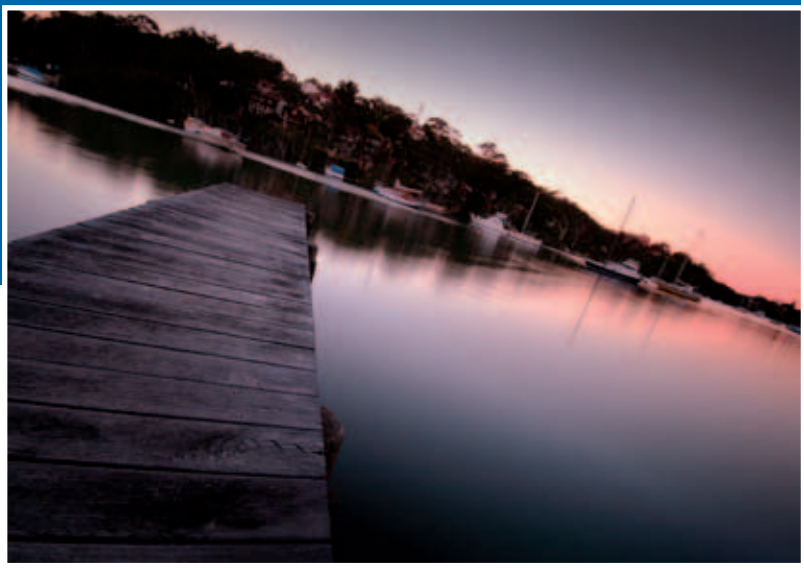
A key feature is the cricket pitch. It can be raised and lowered hydraulically to sit flush with the outfield in order to eliminate the perennial trip hazard problem associated with temporary pitch covers.

The Northbridge Oval upgrade, under Council's Recreation Plan, received funding from Sydney Water's Irrigation and Landscape Efficiency Project (ILEP) and involved collaboration between the State and Federal Governments, Ku-ring-gai District Soccer Association and Northbridge Football Club. The Northbridge Oval surface also includes an innovative cricket pitch which is sunk and covered with a FIFA 1 Star surface during the football season and then raised hydraulically for the cricket season.

The pitch and design innovations allow for increase playing time all year round and maximise the utility of scarce open space in the northern Sydney area.

4

Water



An outstanding feature of the northern Sydney region is its extensive interface with water bodies particularly Sydney Harbour, Parramatta River, Lane Cove River, Middle Harbour and estuarine reaches of the Hawkesbury River. These are not only iconic for Sydney residents, but have contemporary and historical meaning for all Australians. The seven NSROC councils share responsibility for the management of river, estuarine or coastal stretches of one or more of these prominent water bodies with up to 20 other agencies or groups.

Clean water supports a healthy ecosystem and thereby our own health. However, the reverse is also true; a healthy ecosystem generates and maintains a clean water supply, hence benefiting our health. Measuring and protecting water quality remains a significant challenge for northern Sydney councils. This is because the resource demands in procuring good water quality data sets and the many variables which can affect water quality are beyond the control of individual councils.

Water quality in our creeks

In 2008-2009 NSROC reported on water quality based on "SIGNAL" measures which relate to levels of macro invertebrates in waterways (Stream Invertebrate Grade Number Average Level). The greater the number and diversity of macro invertebrates is one way of measuring the environmental "health" of a creek. It was generally recognized that, given the close urban development in some of the region, creek quality in the NSROC region is not as high as pristine areas.

In 2009-2010 SIGNAL score system is similarly used as a proxy for measuring creek health.

Figure 30: Water quality results at sites within the NSROC Region 2010-2011

Catchment	Locality	SIGNAL
Ryde[1]	Buffalo Ck	3.01
Signal 2	Terry's Ck	2.64
	Archers Ck	3.23
	Porters Ck	3.37
	Shrimptons Ck	2.63
Willoughby	Swains Ck	4
	Flat rock Ck	2.9
	Sailors Bay	3.3
	Scotts Ck	3
	Blue Gum Ck	3
Ku-ring-gai	Cowan Creek	4.92
(SIGNAL 2)	Little Blue Gum Creek	3.82
	Rocky Creek	3.91
	Gordon Creek	4.18
	Quarry Creek	3.75
Lane Cove	Gore Creek	2.17 (av)
(SIGNAL 2)	Stringy Bark Creek	2.86(av)
North Sydney	Berry Ck	2.82
Hornsby Shire[2]	Smugglers Ck	3.9

Notes

1. *These figures refer to SIGNAL 2 scores for our Autumn 2011 sampling period. City of Ryde has a 7 year water quality monitoring program with data available for SIGNAL and other variables including chemical indicators.*
2. *Hornsby Council – No data collected 2010-2011 at Hornsby Ck, Terrys Ck or Colah Ck. Hornsby Council's monitoring for macroinvertebrates and diatoms was temporarily discontinued in 2008 and a review of past data was undertaken. A revised program will recommence in Autumn 2012. However, Council has continued water monitoring for physical, chemical, algal and bacterial parameters at 35 sites in creeks and estuary, and at up to 30 sites associated with catchment remediation works, stormwater harvesting, old landfill sites, stormwater event sampling, summer recreational swimming and Hornsby Quarry water discharge. That data is detailed in annual reports to the community; the last report was competed in November 2010, the next due December 2011.*

CASE STUDY

REGIONAL – CITY OF RYDE, HUNTER'S HILL, HORNSBY SHIRE COUNCILS – Catchment Connections

Catchment Connections encompassed a broad range of objectives and stakeholders to provide a multi-pronged approach to improving catchment health. It engendered knowledge, values and practices that encourage sustainable interactions by communities within the Terrys, Mars, Shrimptons and Buffalo Creek catchments, as well as facilitating extensive bush regeneration works and some water sensitive urban design (WSUD) initiatives. The Environment Trust funded City of Ryde lead partnership between Hornsby, Ryde and Hunter's Hill Councils utilising both the operational and educational functions of the Councils involved to achieve project outcomes.

The final year of the project saw the implementation of an ambitious range of educational initiatives which have engaged thousands of stakeholders (10,150 people from 650 organisations) through workshops, nature walks, public lectures, a home advisory service and events such as tours, a festival and a staff seminar. Stakeholders ranged from school children to major global corporations. Feedback from surveys and interviews has indicated a high level of participant satisfaction and positive learning experiences, across a range of projects. This project has strengthened links between and within Councils, as well as between Councils and the community. Extensive databases, other outputs and learning experiences provided a solid foundation for informing strategic future initiatives.

Water quality in our harbour beaches

In the 2008-2009 SOE report, NSROC noted the compliance by percentage of pollution at the main NSROC Harbour beaches and swimming baths as reported by the DECCW Beachwatch Reporting Program.

The 2008 National Health and Medical Research Council guidelines for managing risks in recreational water recommend that recreational water quality is no longer reported as percent compliance based on microbial data, but as an annual Beach Suitability Grades.

The Beach Suitability Grades can be either Very Good, Good, Fair, Poor or Very Poor. Definitions for these classifications are shown at www.environment.nsw.gov.au/beach/beachclassification

Below are the main Beach Suitability Grades for NSROC swimming sites which will be reported in the 2009-2010 and 2010-2011 State of the Beaches Report.

Figure 31: Beach Suitability Grades in Region 2009-2011

Swimming site	Beach Suitability Grade 2009-2010	Beach Suitability Grade 2010-2011
Tambourine Bay	Poor	Poor
Woodford Bay	Fair	Good
Woolwich Baths	Fair	Fair
Greenwich Baths	Good	Good
Northbridge Baths	Fair	Fair
Hayes Street Beach	Good	Poor

The Beach Suitability Grades are determined from a Sanitary Inspection of the swimming site and an assessment of the Microbial Water Quality. The Sanitary Inspection is a qualitative assessment undertaken to identify all sources of faecal contamination that could affect the swimming location and assess the risk to public health posed by these sources. The microbial water quality assessment is determined by calculating the 95th percentile of enterococci water quality data. For more detailed information on this visit www.environment.nsw.gov.au/beach/thewaterqualityguidelines

- Greenwich Baths and Woodford Bay were classified as Good. This means they generally have good water quality, and are considered safe for swimming most of the time. These sites have some potential pollution sources which are generally triggered after rainfall.
- Woolwich Baths and Northbridge Baths are classified as Fair. This means these sites generally have good microbial water quality particularly during dry weather, but may be susceptible to faecal pollution from several sources following rainfall or if there are signs of pollution.
- Tambourine Bay and Hayes Street Beach were classified as Poor. This site is susceptible to faecal contamination from a number of significant pollution sources, particularly after rainfall and occasionally during dry weather conditions. Swimming should be avoided at these sites during and after rain.

CASE STUDY

LANE COVE COUNCIL – Tambourine Bay – Enhancement of fish habitat by the rehabilitation of Saltmarsh & Mangrove Communities

In January 2011, Lane Cove Council was successful in obtaining a grant for the restoration of wetland habitats in Warraroon Reserve, Tambourine Bay. A grant of $28,000 was issued to Council from the NSW Government's Recreational Fishing Trust Action Grant program. Along with Council's in-kind contribution, the rehabilitation project has a total $90,000 of funds dedicated to its implementation.

The work actions in this project came from recommendations from two studies carried out in 2010; The Saltmarsh Report by Applied Ecology, which was part of a joint project between four LGAs along the Lane Cove River. The second report was by University of Technology Sydney. Both studies recommended that bush regeneration, revegetation and stormwater control were required to protect and enhance the wetland habitats in Warraroon Reserve.

Work commenced in February through a local bush regeneration contractor who is aiming to:

- preserve and strengthen the Mangrove community
- bring the Saltmarsh community to weed free condition allowing a greater resilience and an increase in species diversity
- reduce invasive weeds in riparian communities and adjacent areas which adversely impact on fish breeding habitat
- control invasive weeds from neighbouring properties which threaten these important communities
- encourage a greater appreciation of the values of Saltmarsh and Mangrove communities in the reserve, by neighbours and the local community

Condition of Creek line before works commenced at Warraroon Reserve, Tambourine Bay

Targeting of vine species such as, *Ipomoea indica* (Morning Glory), *Ipomoea cairica* (Coastal Morning Glory), *Cardiospermum grandiflorum* (Balloon Vine) and *Lonicera japonica* (Honeysuckle) has improved the health of the native canopy which has lead to improvements to the ecosystem of the entire Tambourine Bay area.

Along with the restoration works of these saltmarsh, mangrove and riparian vegetation communities in Tambourine Bay, comes the preservation of significant habitat for native fauna. Several native birds, reptiles and frogs species are found in the reserve such as; Powerful Owl, White Bellied Sea Eagles, King Parrots, Eastern Rosellas, White Faced Scrub Wrens, Variegated Wrens, & Eastern Water Dragons.

CASE STUDY

HUNTER'S HILL COUNCIL – Catchment Chronicles – Schools Education in Hunters Hill

Hunters Hill Local Government area has three Primary Schools and four High Schools within its boundaries. All schools in the LGA were offered free environmental education workshops in 2010-2011. These programs were linked to the school syllabi.

Keep Australia Beautiful visited Hunters Hill Primary School to deliver their 'Catchment Chronicles' workshop. Over one hundred Year 3 and Year 4 students learnt about actions they could take to help protect the Lane Cove and Parramatta Rivers. Students learnt about the impacts of littering. This included learning about the consequence of dumping weeds into the environment and waterways. Students also learnt about problems of using too many chemicals and fertilizers around the home and how this might effect catchments. Students felt the program equipped them with the knowledge to teach their parents what they could do to reduce stormwater impacts, such as encouraging their parents to wash their cars on the grass without using chemicals, and why it is important to stop waste ending up in our rivers and waterways.

Transpacific Cleanaway visited Riverside Girls High School to deliver its kNOw WasteTM School Education Program. One hundred and eighty Year 9 students participated in the program over three days. Students learnt about life cycle management of waste. The modules taught included Earths Systems and Smart Shopping. Earth Systems introduced students to worm farming, composting and learning about industrial solutions to dealing with organic waste such as producing energy from methane. Smart Shopping focused on ways to reduce consumerism and excess packaging. This module talked about the impacts of landfill and required students to analyse which common supermarket products were environmentally and socially responsible.

Students also learnt about effective and efficient shorting of recyclables and how placing non-recyclable items in the recycling bins causes contamination. Students found that sorting recyclables properly prevented waste from being sent to landfill and thereby saves water and precious resources , lowering energy use and reducing the cost of extracting new materials to make new products.

Water quality in stormwater systems

NSROC Councils continue to invest in improvements to stormwater systems to improve environmental outcomes. This year NSROC councils made a substantial investment in new Gross Pollutant Traps (GPTs) in the region (almost double the investment of the previous year).

Interestingly, across the region the waste tonnage removed from GPTs is less than the previous year. While this may be due to a variety of factors, such as less storm events, it can be also be interpreted as a sign of reduced dumping in stormwater systems and surrounds.

Figure 32: Performance and expenditure relating to gross pollutant traps in the NSROC region in 2010-2011

Council	Gross Pollutant Traps (GPTs) per area	Tonnage waste removed from GPTs	Cost of GPT construction ($)	Cost of GPT maintenance ($)
Hornsby Shire	422	751	948,741	392,505
Hunter's Hill	25	10	10,000	20,000
Ku-ring-gai	177	40	0	58,978
Lane Cove	5	28	0	19,030
North Sydney	26	258	0	49,000
Ryde	34	181	300,000	63,383
Willoughby	6	72	35,000	16,450
NSROC region 2010-2011	**695**	**1340**	**1,293,741**	**570,763**
NSROC region 2009-2010	706	1480.2	1,642,000	369,818
NSROC region 2008-2009	679	1824.5	870,000	615,662
NSROC Region 2007-2008	595	2267	1,207,000	603,766
NSROC Region 2006-2007	584	1,926	775,000	496,664

CASE STUDY

NORTH SYDNEY COUNCIL – Water re-use Project Cammeray – extensions and finalisation of scheme

North Sydney Council has completed the North Sydney Stormwater Reuse Project, which is an all-encompassing stormwater reuse scheme saving Council 75,000 kilolitres of water per annum. The project was initiated in 2006 with the installation of a gross pollutant trap (GPT) in Cammeray Park where stormwater runoff is captured from a large drainage culvert under the Cammeray Golf Club. In 2007, storage tanks were constructed in St Leonards Park to irrigated North Sydney Oval, Bon Andrews and St Leonards Park. Stormwater is pumped directly to St Leonards Park from the GPT after passing through a series of filtration systems and chemical dosing. In 2008, and in partnership with the Cammeray Golf Club, a 3Megalitre dam was constructed at the golf course. Stormwater is now pumped to the storage dam to allow finer sediment to settle out of the water before it is used as irrigation to the golf course and Cammeray Oval.

The water collected in the storage dam at Cammeray Golf course far exceeds the demand for usage on the golf course and the adjacent Cammeray Oval soccer field, so in order to fully utilise this extra capacity Council pumps water to three other parks in the North Sydney Council area – Primrose Park, Tunks Park and Forsyth Park. These parks were formerly irrigated using potable water from Sydney Water's supply. The project eliminates the need to have a separate water storage facility and extraction system in each of the parks. The system is now completed and will be saving an estimated 75,000 kilolitres of potable water annually. This equates to a value of around $150,000 per annum.

CASE STUDY

KU-RING-GAI COUNCIL – Roseville Chase Oval

As part of Ku-ring-gai's commitment to improving community facilities, a $700,000 environmentally sustainable upgrade of Roseville Chase Oval was completed during the 2010-2011 year. The upgrade included the building of a state-of-the-art stormwater harvesting system, the installation of solar panels, a re-graded oval, new drainage system, rebuilt cricket pitch and new fencing.

The stormwater system is reusing stormwater for irrigation and toilet flushing, while the solar panels are offsetting electricity used to pump water within the recycling system. The technologies will greatly improving the facility's sustainability by reducing water and power usage.

The stormwater harvesting component of the upgrade was a partnership with the adjacent Roseville Golf Course. This water is captured by a local stormwater drain, golf course and oval drainage systems and stored in a large dam on the golf course. The water is pumped to a 120 kilolitre tank located next to Roseville Chase Oval and linked to a fully automatic irrigation system for the oval.

5

Climate Change

Climate Change

The earth's atmosphere consists of nitrogen (78.1%) and oxygen (20.9%), with small amounts of argon (0.9%), carbon dioxide (variable, but around 0.035%), water vapour, and other gases. The atmosphere protects life on earth by absorbing ultraviolet solar radiation and reducing temperature extremes between day and night.

The atmosphere regulates the earth's temperature through a phenomenon called the greenhouse effect. However, with an increase in human activity, this effect is being enhanced causing climate change. Climate change can cause severe weather patterns including droughts, floods and severe storms and also climate zone shifts causing polar ice melts and rising sea levels.

There is a widespread acceptance that climate change is occurring and being affected by greenhouse gas emissions, and that this process is set to continue for the near future. Federal, state and local governments are all working to try and reduce greenhouse gas emissions through educational programs and the introduction of energy conservation measures.

NSROC councils track their CO_2 emissions of their key assets and activities. CO_2 emission reductions achieved by councils can vary from year to year as new facilities and new initiatives take place which can cause dramatic variation in reductions from year to year.

Figure 33: CO2 emissions from Councils in 2010-2011

Council	Tonnes of CO_2 created by council for top three sites	Tonnes of CO_2 created by council for top ten sites	Tonnes of CO_2 saved through projects for all council assets in 2010-2011	Tonnes of CO_2 saved through projects for all council assets in 2009-2010
Hornsby Shire[4]	1793	3391	3305	3204
Hunter's Hill	226	NA	30	40
Ku-ring-gai[2]	1405	NA	NA	2384
Lane Cove[1]	2322	2509	486	2002
North Sydney[3]	3400	4351	2966	4277
Ryde[6]	5000	5,591	2390	2092
Willoughby[5]	2962	4047	2993	4924

Notes

1. Lane Cove Council savings have dropped from last year. In June 2010 Council was paying for 100% GreenPower for the library, Civic Centre and Community Centre. Since that time Council is only paying 100% GreenPower for the Civic Centre. The Council has alternatively invested this expenditure into solar panels which were installed in June 2011. Future CO_2 savings will be generated by the panels but are not reflected the 2010-2011 figures when purchase and installation took place.
2. Ku-ring-gai Council is currently investigating the implementation of new reporting systems for annual CO_2 emissions and savings measurement
   Ku-ring-gai Council has used specific and readily available data for these results. Council's GreenStyle program has not been included in this dataset as accurate data is not yet available.
3. North Sydney Council's top three sites includes the North Sydney pool and the 'saved' figures includes energy generated by photovoltaic and offset through Greenpower purchases.
4. Hornsby Shire Council's GreenStyle program has not been included in this data set as accurate data is not yet available.
5. Willoughby City Council emissions savings includes quantifiable energy efficiency measures, renewable energy production, GreenPower and offsets purchases.
6. City of Ryde's tonnes of CO_2e created for Council's top three sites is largely due to the Ryde Aquatic and Leisure Centre's (RALC) energy demands, which account for almost two thirds of Council's energy demands. The RALC is frequented by approximately 4,500 members of the public, every month.

Figure 34: Current NSROC Carbon Emission Reduction Targets

Council	Date adopted	Target for council	Date to be achieved	Target for community	Date to be achieved
Hornsby[3] (revised)	2009	30%	2020	5%	2010
		35%	2025		
		60%	2050	10%	2050
Hunter's Hill	2007	20%	2010	10%	2010
		50%	2025	30%	2025
		100%	2050	60%	2050
Ku-ring-gai[4] (revised)	2009	20%	2000 – 2020	10%	No set date
Lane Cove	2007	50%	2001 – 2017	50%	2017
North Sydney	2001	50%	1996 – 2020	25%	1996 – 2020
Ryde[2]	2007	30%	2003-2004 – 2012	20%	2001 – 2010
Willoughby[1] (revised)	2000	50%	1999 – 2010	15%	2007 – 2015

Notes

1. Willoughby endorsed a new community target of a 15% reduction of greenhouse gas emissions associated with electricity consumption based on 2007 levels.
2. City of Ryde targets are currently being revised as part of the new Climate Change Adaptation and Mitigation Strategy and are subject to change shortly. Please contact the Environment Unit for up to date emissions targets.
3. Hornsby's recently revised corporate emissions targets have become more stringent, capping CO_2 emissions regardless of any further assets acquired or changes in staffing and business activities.
4. Ku-ring-gai's corporate emission reduction target excludes streetlights. The Ku-ring-gai community commits to reducing greenhouse gas emissions by minimising the use of energy derived from fossil fuels.

Councils have set targets for CO_2 emission reductions both within the council and for the community. Some of these targets have been revised in the last year following discussions with communities as noted below.

The 2008-2009 NSROC SOE Report reported on Hornsby Council's "Climate Change Adaptation Strategic Plan". In 2009-2010 Ku-ring-gai has developed its draft "Climate Change Adaptation Strategy" which identifies the risks associated with these NSW changes at a local level.

In 2010 each NSROC council continued to investigate the impacts of climate change and developing response strategies. The City of Ryde has just completed its climate adaptation plan while Willoughby City Council has retrofitted one of its major facilities to reduce its carbon footprint. North Sydney has established the Coal Loader Centre for Sustainability to inform its community on sustainability initiatives and actions.

CASE STUDY

CITY OF RYDE COUNCIL – Climate Change Adaptation

The City of Ryde completed a study to develop a clear picture of Climate Change impacts for the CoR and its community over various timescales and to develop a strategic plan to manage the risks. The project consisted of three key aspects:

1. Mapping of five physical Climate Change impacts for the entire city over five different timescales 2010, 2020, 2050, 2060 and 2100 to assess physical exposure to each impact, the urban and residential communities sensitivity to those impacts and the communities overall adaptative capacity to these impacts. These maps were based on the very best available science and policy positions. Figure 5 presents a flowchart of the process that shaped the impact assessment process.
2. Provisional Local Environment Plan amendments for strategic planning purposes
3. Proposed DCP revision to DA's to ensure resilience to Climate Change impacts in new developments. A new structure for assessing Climate Change risk to developments was proposed. Figure 6 presents a potential template.

These three key aspects are mapped below to show their connected nature.

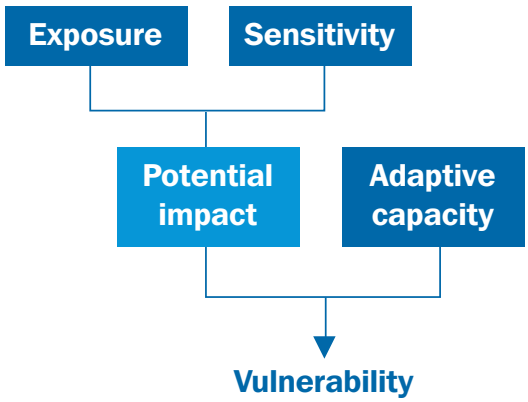


Figure 4: Flow chart for how maps relate to one another.

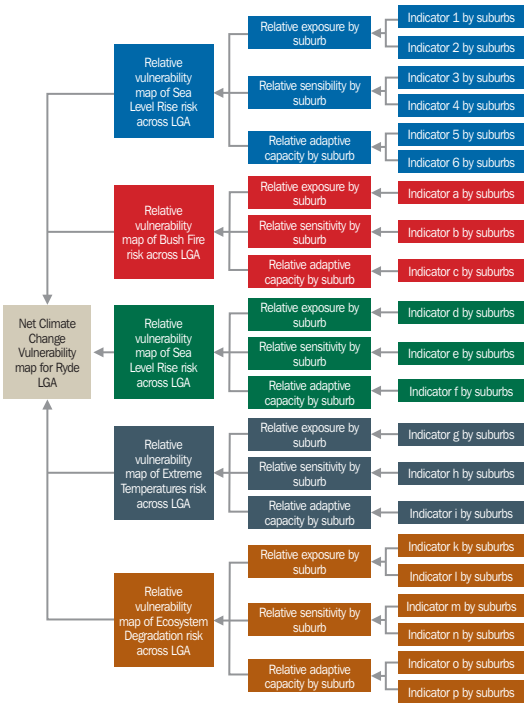


Figure 5: Flow chart of process that informed Climate Change Vulnerability Mapping.

STAGE 1		
A. Is the site of the proposed development wholly or partly within the areas shown on the City of Ryde Flood Planning Map as being flood prone under current climatic conditions?	Yes	No
B. Is the site of the proposed development wholly or partly within the areas shown on the City of Ryde Flood Planning Map as being subject to seawater flooding by 2110 due to rising sea levels and storm surge prone?	Yes	No
C .Is the site of the proposed development wholly or partly within the areas shown on the City of Ryde Bush Fire Prone Land Map as being bush fire prone by 2060?	Yes	No
INSTRUCTION: if the answer to all questions A to C is 'No', you do not have to complete the rest of the Climate Change Resilience Report. If any answers are 'yes' proceed to the following questions.		
D. Does the proposed development's close proximity to sources of potential hazard (i.e. sea, creek, bushland) mean that it will have a high exposure to certain climate change impacts?	Yes	No
E. Do the physical characteristics of the proposed development or its functions mean that it will be highly sensitive to climate change impacts?	Yes	No
F. Do the age, physical abilities, financial resources, aptitude or other characteristics of the expected occupants of the proposed developments mean that occupants will have limited adaptive capacity and hence ability to cope with climate change impacts?	Yes	No

Figure 6: Climate change screening.

CASE STUDY

WILLOUGHBY CITY COUNCIL – Willoughby Leisure Centre Carbon Footprint Reduction

Willoughby Leisure Centre was built in the late 1980's and as with any leisure centre, has a high demand for gas, electricity and water; as a consequence it has a very large carbon footprint (CO_2).

The overall footprint for the centre from energy use is 1,600 tonnes per annum and is Councils largest energy consumer. In recognition of the Centre's goal of becoming a low carbon leisure centre, a number of projects have been completed or are underway aimed at reducing energy and water use.

Upgrade of Hot Water Pump and Reticulation Pipes

The Centre uses a lot of hot water to keep the pools at an appropriate temperature for swimming and hot showers. A special dedicated pump is required to pump this hot water around the centre. Every day the pump uses as much electricity as thirteen large houses!

The upgrade includes:

- Replacing the old hot water pump with a new computer controlled pump. This allows the pump to slow down when the demand for hot water is low;
- The pipe work and fittings around the pump have been redesigned so the water can now flow efficiently.

The new pump will save up to 100 tonnes of CO_2 per annum.

Rainwater Harvesting

The Centre has a capacity of over 100,000 litres of rainwater storage, enough to fill all the pools up at the leisure centre nearly twice over. The rainwater harvesting includes:

- Five tanks, each one holding up to 22,000 litres;
- A smart inline first flush diverter and gutter guard systems to assist in maintaining high water quality;
- An advanced rainwater filtration and treatment system to ensure the highest quality for pool top up water;
- Capability to use rainwater for flushing of toilets in the change rooms.

Efficient Lighting

The lighting in the main swimming hall has been retrofitted to save energy and includes:

- The old 36 watt (T8) fluorescents tubes being replaced with new efficient 28 watt (T5) fluorescent tubes;
- Overall 96 fittings were replaced offering a CO_2 saving of 7.1 tonnes per annum;
- A payback period is expected to be within two years.

Water Filtration

The old water treatment equipment was starting to age and required extensive capital upgrades to keep it operational. Willoughby City Council conducted extensive research to find a suitable replacement of the system. The water treatment system has subsequently been upgraded to Ultra Violet (UV). The UV system consists of:

- Water pumped into special chambers housing large UV lamps. These lamps treat the water to maintain a high water quality
- Considerable water saving as the old system required extensive water to keep it clean;
- Savings in electricity costs alone are $12,000 per annum!
- The UV system saves around 90 tonnes CO_2 per annum from the savings in electricity.

This project was made possible through a grant from the Office of Environment & Heritage.

Solar Hot Water

Solar is an effective way to supply warm water for the pool and has been integrated into the Centre operations:

- There is over 320m^2 of solar hot water heating installed on the roof at the Centre.
- The solar will be used to preheat water for the pool.
- The solar hot water is being integrated into the upcoming optimisation of plant room heating system.

Cogeneration System

A cogeneration plant has been installed in the Centre. The cogeneration system uses gas to drive its engine, the engine drives an alternator which generates electricity, and waste heat from the engine is used to make hot water for the showers and warm water for the pool.

- The engine can generate up to 173 kW of electricity over a day. The system is capable of generating enough electricity to supply more than 50% of the Centres total electricity requirements (equivalent to the daily demand of 170 homes!)
- The heat created by the cogeneration plant will be captured and used to make hot water. There will be enough hot water to make over 90,000 cups of tea every day!

The cogeneration project is expected to save up to 700 tonnes CO_2 per annum.

CONTINUED ON NEXT PAGE

CASE STUDY

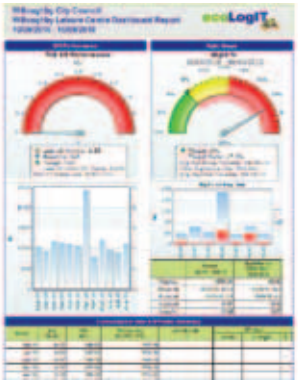
WILLOUGHBY CITY COUNCIL – Willoughby Leisure Centre Carbon Footprint Reduction (continued)

Real Time Monitoring System

The Centre uses a lot of electricity, gas and water, and has a vast network of pumps, controls and other equipment. To help keep an eye on this, a computer web enabled system is used to monitor the consumption of these valuable resources.

Summary

Overall the works over the past twelve months will offer a carbon saving of over 1,000 tonnes of CO_2 from entering the atmosphere. The energy saved is equal to having enough coal to fill up the swimming pool.



CASE STUDY

NORTH SYDNEY COUNCIL – Coal Loader Sustainability Centre

North Sydney Council's historic Coal Loader site on the Waverton Peninsula has been transformed from an industrial coal dock-front to a regionally significant sustainability centre. Completed and launched mid 2011, the 2.8ha Coal Loader Centre for Sustainability showcases innovation, enables hands-on learning about sustainability for everyday Australians, and serves as a community meeting hub for Council's extensive range of environmental and sustainability programs.

The Coal Loader encapsulates the potential for society to embrace sustainability. Formerly a site centred upon the mining and transportation of coal, the Centre now provides a location where visitors can be inspired by best-practice sustainability. It showcases a range of sustainability concepts including energy efficiency, water capture and reuse, waste minimisation, use of non-toxic, renewable and recycled building materials, urban food production, native gardening and community participation. The Centre's Sustainability Principles and Vision (*to operate a high quality facility that will educate and inspire the wider community to putting sustainable living ideas into practice*) were developed with the local community and informed the design, development and operation of the site. The Coal Loader embodies the phrase *'learn from the past – embrace the future'*

Participants at the Sustainability Festival to open the centre

The Centre is now being used for formal and informal sustainability education. It is anticipated that the Centre will receive approximately 3000 participants in its formal programs each year, as well as thousands of drop-in visitors who visit the sustainability education centre, sustainable technology markers, interpretive signage, community garden, bushland reserve, aboriginal engraving, bush nursery and historical features of the site. Innovative smart metering and interpretive electronic displays monitor and educate about energy, gas and water production and consumption.

AIR QUALITY

As population density in the NSROC region rises, the incidence of vehicle usage will increase, with the potential of creating more frequent high pollution days. Natural processes can also increase high pollution days, with higher air-pollution levels across Sydney being more likely to occur on cooler, clearer nights. This is because temperature inversions restrain pollution from dispersing.

The key air quality and health issue in the NSROC region is traffic related air pollution. Air pollution measurement across NSROC region is not comprehensive with only one permanent state-funded regional air quality monitoring station in the NSROC region at Lindfield. Furthermore the links between pollution levels and community health are subject to debate and continuous research. Nevertheless NSROC councils recognise this is a community concern and maintain awareness of pollutant levels.

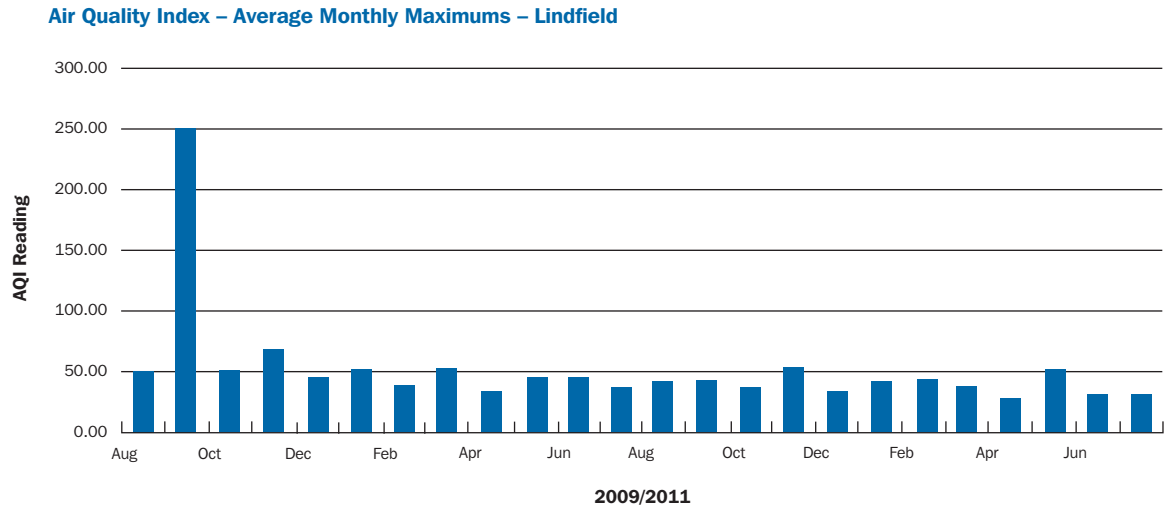
The 2008-2009 NSROC SoE report noted the air quality measurement activities of some NSROC Councils. The figure below charts the average of maximum Air Quality Index (AQI) readings for the regional state government funded site at Lindfield from August 2009 to July 2011. The AQI is a derived value (based on the various data readings). The data readings are recorded in different units of measure, depending on the type of pollutant:

Pollutant	Units used for air quality data
Ozone	pphm (parts pre hundred million)
Nitrogen dioxide	pphm (parts per hundred million)
Visibility (as B_{sp})	10^{-4} m^{-1}
Carbon monoxide	ppm (parts per million)
Sulfur dioxide	pphm (parts per hundred million)
Particles	μg/m3 (micrograms per cubic metre)

Because data readings have different underlying units of measure, it is difficult to compare the various pollutants. The AQI uses a formula to standardize these set of values that they can be compared and presented.

It can be seen, with the exception of 29 September 2009 when severe dust storms affected Sydney (affecting the September average), that the air quality index readings are relatively constant for the last 2 years as measured by the regional air quality station in Lindfield.

Figure 35: Air Quality Index – Lindfield 2009-2010 – 2010-2011



In addition to the Lindfield Site, Willoughby City Council continues to operate an air quality monitoring station in the grounds of Mowbray Public School. Readings from this station indicate air quality as measured by Particulate Matter is generally good. However NSROC feels that additional monitoring is required due to population increases and due to predicted future exceedances of ozone and particles associated with increased traffic congestion and growth in the region.

The current number and distribution of monitoring stations relates to National Environmental Protection (Ambient Air Quality) legislation and is cross referenced to 2006 census data. With the 2011 Census now undertaken and the population estimates of Sydney expected to be revised, it is suggested that this is an appropriate time to review Sydney's air monitoring program to ensure the legislative requirements under the National Environment Protection (Ambient Air Quality) Measure are adhered to.

In June 2011 NSROC requested the NSW Minister for the Environment commit to a long term monitoring 'Trend Site' for Northern Sydney. At this time the Minister has argued an additional site is not required however NSROC will continue to lobby on this matter as the 2011 Census data becomes available.

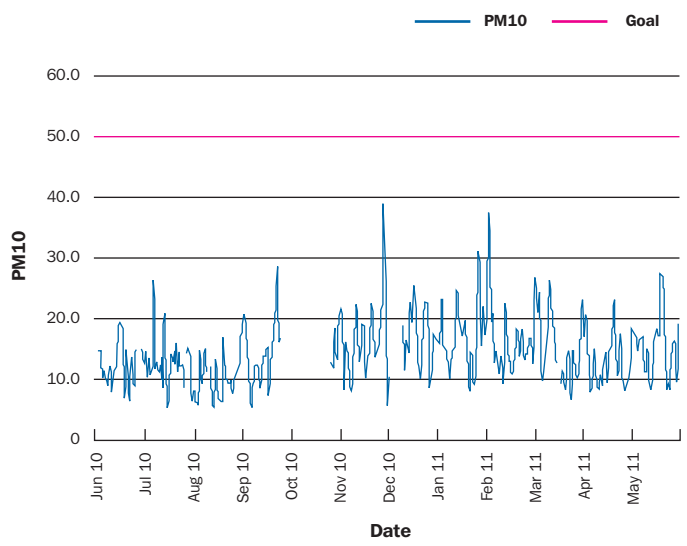
CASE STUDY

WILLOUGHBY CITY COUNCIL – Air Quality Monitoring

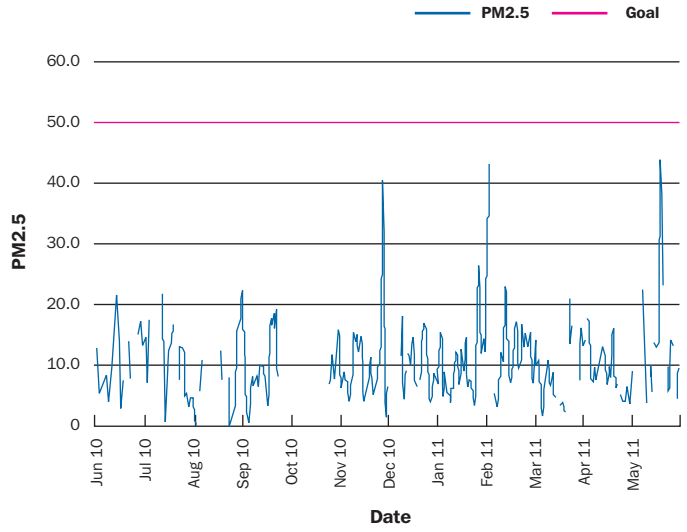
Willoughby City Council, continues to operate an air quality monitoring station (AQMS) which is in it's sixth year of operation and is located in the grounds of Mowbray Public School. The AQMS was initially installed to monitor the impacts of the Lane Cove Tunnel ventilation stacks on the local air shed. The AQMS currently monitors Particulate Matter of less than 10 microns in diameter and Particulate Matter of less than 2.5 microns in diameter (PM10 & PM2.5). The goals for Particulate Matter are set by the National Environmental Protection Council (NEPC) and the NSW Office of Environment and Heritage (OEH). The assessment goals set for PM10 are a 24hr maximum of 50 $\mu g/m^3$ with an annual average of 30 $\mu g/m^3$ and for PM2.5 a 24hr maximum of 25 μg/m3 with an annual average of 8 μg/m3.

To date the data indicating air quality in the monitoring stations area is generally good and can only be seen to be exceeding National Environmental Protection Measure guidelines when there is a bushfire or dust storm affecting the area, but a downward trend of air pollution has been noted since the opening of the Lane Cove Tunnel by the AQMS.

WCC AQMS 2010-2011 PM10



WCC AQMS 2010-2011 PM2.5



As Willoughby Councils AQMS is one of a limited number of air quality monitoring stations in the NSROC region, it is fair to say that systematic air quality data is lacking. The ongoing running of this station therefore continues a necessary service to the residents of Willoughby as the air quality across the Sydney basin is affected by an ever increasing human population. Real time air quality data from the AQMS can be viewed on Willoughby City Councils website at www.willoughby.nsw.gov.au

6 Landscape

The forests, woodlands, grasslands and other vegetated landscapes of New South Wales are important for a healthy environment and society. Native vegetation controls erosion, land degradation and discharge of salinity into rivers, and provides habitat for a wealth of unique flora and fauna. In addition, the vast amount of carbon stored in native vegetation makes a significant contribution to moderating climate change. *(DECCW 2008 – NSW Annual Report on Native Vegetation)*

The landscape in the Northern Sydney region varies from highly urbanised environments to relatively undisturbed tracts of native bushland. It includes coastal estuaries, escarpments, steep ridgelines and farmed rural lands. The landscape has been undeniably altered through the process of human settlement and this change has accelerated from the period of European settlement until the present day through land clearing, urban development and consolidation.

Because of the steep inclines, gullies and undulating terrain of the NSROC region, and the presence of many natural water bodies contiguous to this terrain, the region is particularly vulnerable to accelerated erosion, nutrient run-off, flooding, sedimentation and the associated decrease in water quality. Native bushland has an important ecological role in binding soil matter, maintaining infiltration, absorbing water and greenhouse gas sequestration.

Councils continue to work actively to minimise erosion impacts through a mixture of land-use planning, development controls, water-management practices, education and regulatory enforcement. Because of the region's variable terrain and abundance of natural water courses and water bodies, particular care is taken in zoning land for development to ensure erosion and erosion-related impacts do not significantly affect the environment. Where major development occurs, the use of sediment and erosion controls are required with controls specified on development consents and enforced by council's regulatory officers or rangers.

The NSROC councils have introduced a number of development controls to reduce the impact on the local waterways, including requiring and enforcing the use of sediment controls on building sites, setting maximum site-coverage limits, and promoting the installation of rainwater tanks or the provision of storage to delay the release of stormwater. Councils have also been rehabilitating areas where stormwater drains enter creeks and providing rock armouring to reduce erosion potential. They also ensure appropriate controls around sites on public land where soil is disturbed, planting steeply graded banks and surfaces to retain soil integrity and managing storm water flows to minimise channelling and run-off impacts.

Most NSROC councils have information readily available for the management of soil erosion caused by construction, and work closely with the construction industry in an educational and regulatory role. In some cases, this information is provided directly with development consents which include specific erosion mitigation measures. The councils continue to develop educational materials and investigate new engineering solutions to address this ongoing issue.

Soil contamination is also an issue in the region given the history of urbanisation and industry.

Councils are often involved in collaborative exercises which deal with soil and vegetation matters. For example Lane Cove and North Sydney recently restored Greendale Park to improve bushland and soil quality and minimise erosion.

CASE STUDY

LANE COVE AND NORTH SYDNEY COUNCIL – Restoration of Endangered Coastal Littoral Rainforest, Greendale Park

Greendale Park lies between Lane Cove and North Sydney LGAs, and is home to a diverse range of fauna and flora species. A stretch of Coastal Littoral Rainforest, classified as Endangered Ecological Community, follows along Berry Creek, which is the natural boundary between Lane Cove and North Sydney LGAs. The area is home to a number of endangered species such as Powerful Owl and Golden Crown Snake. Because of its close proximity to Sydney CBD, the area holds significant natural value and is regarded as an important urban bushland feature in the Sydney Harbour area.

Under the Sydney Metropolitan Catchment Management Authority's 'Caring for Our Coast' program, Lane Cove Council and North Sydney Council jointly secured funding to restore the remnant Coastal Littoral Rainforest along Berry Creek.

By working closely together, both Councils engaged local Bushcare groups to conduct a series of bush regeneration and revegetation activities. Having worked in the area for many years, the local Bushcare groups were very excited by the project and the opportunity to undertake extensive restoration work.

In addition to the existing Bushcare activities, both Councils also engaged local residents in the area to conduct educational planting sessions to attract new participants to the program. The planting session saw over 300 seedlings being planted and a number of participants from the community expressed their desire to be involved in the program on an ongoing basis.

Boardwalk in the southern end of Greendale Park before the project

Boardwalk in the southern end of Greendale Park after the project

Both Councils contributed significant resources into the work area, by installing sediment control measures and performing extensive weeding sessions. An educational brochure was also designed to publicise the program and educate the public.

The project was well-regarded by the local community and received extremely good results. Large tracts of the highly disturbed Costal Littoral Rainforest have been cleared of invasive species, and the local Bushcare groups are highly motivated by the project.

Figure 36: Number of declared contaminated land sites in the NSROC region in 2010-2011							
Hornsby Shire	**Hunter's Hill**	**Ku-ring-gai**	**Lane Cove**	**North Sydney**	**Ryde**	**Willoughby**	**NSROC Total**
0	**2**	**3**	**1**	**2**	**0**	**2**	**10**

MAPPING and COASTAL LANDSCAPE INITIATIVES

Various mapping initiatives have been undertaken by NSROC member councils as part of their revision of planning instruments including the Standard Local Environmental Plan.

Each iteration of these plans involves re-examining openspace and other natural areas and their relationships to urban development which adds to the region's understanding of its natural assets.

Hornsby, North Sydney and Willoughby Councils are members of the Sydney Coastal Councils Group (SCCG). The SCCG was originally formed to focus on beach pollution but now focuses more broadly on coastal management issues. It includes 15 councils along the Sydney Coastal area and includes Pittwater to the east and Sutherland to the South.

Through this group NSROC member councils have also participated in the following studies and programs which improve the depth of knowledge of the landscape:

SCCG Finalisation of Beach Sand Nourishment Scoping Study

The SCCG 'Beach Sand Nourishment Scoping Study – Maintaining Sydney's Beach Amenity Against Climate Change Sea Level Rise' examines information and data on the environmental, physical, social and economic aspects of utilising offshore marine sands to meet immediate and medium term requirements of adopted nourishment strategies at selected beach environments. The project aims to improve protection and augmentation of beach systems under immediate threat from coastal storm activity and sea level rise. During the reporting year, the final report was prepared and published in late 2010.

SCCG Environment Monitoring Site

The SCCG launched an environmental monitoring website in March 2010. The site www.monitor2manage.com.au promotes sustainable environmental management through an improved understanding of monitoring and good decision-making. The site aims to assist users in identifying monitoring needs, designing monitoring programs, dealing with data management and analysis as well as reporting. This will improve the likelihood of good decisions leading to improved environmental outcomes.

Mapping and Responding to Coastal Inundation

In 2009, SCCG was awarded funding under the Natural Disaster Mitigation Program to undertake the *Mapping and Responding to Coastal Inundation Project*. This project aims to provide Councils and the community with the science, management and planning provisions and community awareness-raising materials necessary to effectively incorporate sea level rise and extreme storm surge events into Local Government planning and management systems. The project involves the following stages:

- **Stage 1:** Map the effect of climate change on sea level rise and extreme sea levels.
- **Stage 2:** Develop planning guidance to assist the integration of sea level rise and extreme sea level events into relevant planning strategies of the SCCG.
- **Stage 3:** Develop and distribute community risk disclosure information and corresponding community and stakeholder education program.

All products from the project are expected to be released in late 2011 by the SCCG.

7 Appendix

Appendix

Environmental extracts from Councils' Community Strategy Plans

- Hornsby
- Hunter's Hill
- Ku-ring-gai
- Lane Cove Council
- North Sydney
- Ryde
- Willoughby

HORNSBY SHIRE COUNCIL

Protect and enhance our natural environment

With almost two thirds of the Shire consisting of native bushland, it is not surprising that the community appreciates the natural beauty of the area and wants the natural environment protected and cared for.

HORSNBY SHIRE COUNCIL – 10 year goals and targets desired by the community
Goal 1.1 – Protect and enhance biodiversity
We conserve native plant and animal communities, understanding their value and services help to sustain our existence. We work to minimise threats posed to biodiversity, partnering with the community and other agencies to maintain diversity and achieve positive conservation outcomes.
Targets The existing area of bushland available in 2009 for habitat and ecosystems is not impacted by development • No net loss of bushland from development compared to previous year Illegal land clearing is actively discouraged • Land cleared compared to 2007 Smiths Report
Strategy 1.1.1 – Protect and preserve existing bushland and natural areas
Actions for Council • Provide education to the community on the importance of existing bushland and natural areas to biodiversity • Deliver projects which work towards protecting biodiversity and regenerate the bushland in the Shire
Strategy 1.1.2 – Ensure future land use planning and management enhances and protects biodiversity and natural heritage
Actions for Council • Include biodiversity and heritage as key components in any strategic planning process and documents • Manage trees in streets, parks and public land administered by Council • Manage and maintain parks, reserves, picnic facilities and playgrounds throughout the Shire
Strategy 1.1.3 – Provide opportunities for community involvement in projects directed towards improving the quality and amount of bushland
Actions for Council • Regenerate bushland in the Shire
Goal 1.2 – Maintain healthy waterways and catchments
We protect the landscapes and health of our waterways and catchments, including the Hawkesbury River, Berowra Creek and associated tributaries, applying a total water cycle management approach to maintain water quality in our creeks, wetlands and rivers.
Targets The health of the waterways is improving • 50% or more of monitored waterways are classified as healthy
Strategy 1.2.1 – Protect and improve the catchments in the Shire by providing support and direction to the water catchments program
Actions for Council • Construct water quality remediation devices as per the Catchments Remediation Rate (CRR) 10 year capital works program • Undertake the Estuary Management Program
Strategy 1.2.2 – Identify and implement innovative water conservation and sustainable water cycle management practices
Actions for Council • Implement the Total Water Cycle Management Strategy • Implement water conservation and reuse projects
Strategy 1.2.3 – Work with the community to care for, protect, enjoy and enhance the health of waterways in the Shire
Actions for Council • Provide education to the community on the importance of waterways and estuaries

HORSNBY SHIRE COUNCIL – 10 year goals and targets desired by the community
Strategy 1.2.4 – Provide a water quality monitoring service using methods that are reliable, professional and contemporary
Actions for Council • Monitor and report environmental conditions, including water quality, at creeks and estuaries
Goal 1.3 – Reduce our ecological footprint
We lead the community and work to reduce the impact of our ecological footprint, supporting sustainable use of natural resources and reduction of waste, striving towards our emission reduction targets for energy and water, encouraging increased use of sustainable transport, and using renewable, non-polluting resources.
Targets The total water consumed and per capita consumption is decreasing • 18% reduction against 1995-96 levels by 2011 An increasing use of sustainable transport for local trips • 25% or more of local trips (less than 5 kms) by residents use sustainable options
Strategy 1.3.1 – Implement technologies in Council's facilities and infrastructure to reduce Council's greenhouse gas emissions
Actions for Council • Work towards Council becoming a carbon neutral organisation
Strategy 1.3.2 – Undertake community education on best practice in environmental sustainability and management of climate change issues
Actions for Council • Build community awareness through environmental education • Continue to implement the Companion Animals Strategy • Contribute to the management of public health and public cemeteries
Strategy 1.3.3 – Provide opportunities for community involvement in projects directed towards developing a more environmentally sustainable shire
Actions for Council • Build community awareness through environmental education
Strategy 1.3.4 – Educate, promote and support the community in implementing waste minimisation strategies including reduce, reuse, recycle
Actions for Council • Provide a domestic recycling and waste service for all residents • Implement a scheduled program of works based on sustainability principles
ECOLOGY – Actions for the community – what you can do
• Protect the environment by using sustainable energy sources • Become a bushcare volunteer • Plant native vegetation in gardens • Recycle and reuse resources • Use sustainable transport options (walking, riding or public transport) for local trips
ECOLOGY – Actions for others
• Improve air quality by meeting national air quality goals as specified in the National Environment Protection Measure for Ambient Air quality – NSW State Plan 'Green State' • Lobby for more sustainable transport options for northern Sydney – Northern Sydney Regional Organisation of Councils – Regional Sustainability Plan 2009-2014

HUNTER'S HILL COUNCIL

Goal

1. To work in partnership with the community to achieve an environmentally sustainable Hunters Hill and to preserve and restore our bushlands and waterways.
2. Achieve a balance of environmental, social and economic interests today without harming the prospects of the generations of tomorrow.

CSP Outcome 1.1 – Protection of the natural and built environment for the benefit of future generations			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
1.1.1 Maintain and improve the tree cover of Hunters Hill	1.1.1.1 Review street tree asset management plan. Report on number of trees removed and planted	Review completed and submitted to Council No. of trees removed and no. of trees replanted (include photo with a 3 year snapshot)	Plan adopted by June 12/13
	1.1.1.2 Complete street tree maintenance program	Program completed by agreed date	Street Tree Asset Management Plan
1.1.2 Maintain the heritage buildings and assets of Hunters Hill	1.1.2.1 Continue protection of significant trees through development control process	% of significant trees retained. Number of trees removed and planted	Significant tree list
CSP Outcome 2.1 – Reduction energy consumption			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.1.1 Reduce direct energy consumption (transportation fuels)	2.1.1.1 Advocate for increased use of local public transport through community education	No. of initiatives to promote public transport	SP
	2.1.1.2 Seek funding to implement the next stage of Hunters Hill Bike Plan	Funding applications submitted by due date	SP
2.1.2 Reduce internal energy consumption (electricity, heating and cooling)	2.1.2.1 Continue to implement Energy Saving Action Plan	Number of actions initiated to educe internal energy rconsumption State of the Environment Reporting or similar for OEH	SP Energy Saving Action Plan
2.1.3 Enhance internal energy conservation and efficiency reporting mechanisms	2.1.3.1 Establish reporting mechanism for energy conservation and efficiency	Quarterly report to SMT Annual report to Council State of the Environment Reporting or similar for OEH	SP Energy Saving Action Plan
2.1.4 Move towards and facilitate a greater use of renewable energy options	2.1.4.1 Increase consumption of renewable energy	Number of substitutions of non-renewable energy with renewable energy % green power purchased State of the Environment Reporting or similar for OEH	SP
	2.1.4.2 Create opportunities for investment in local carbon sinks to offset emissions (tree planting days)	Number of trees planted. % increase of net trees planted	SP
2.1.5 Implement activities to reduce councils fleet emissions as per Sustainable Fleet Policy	2.1.5.1 Continue to purchase low emission vehicle technology	Number of low emissions in fleet % Improvement of fleet fuel consumption Reporting completed for OEH	SP Fleetwise Program Green Fleet Policy

CSP Outcome 2.2 – Enhanced management of bushland and its biodiversity			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.2.1 Enhance management of areas containing biodiversity value	2.2.1.1 Review and update reserve plans of management	Plans updated according to rolling program.	Reserve PoM Asset Management Plan
	2.2.1.2 Complete enhanced stands of bushland program	Program completed by agreed date	
	2.2.1.3 Complete natural assets maintenance program	Program completed by agreed date	
	2.2.1.4 Ensure compliance with Companions Animal Act	No. of complaints No. of court attendances notices No. of penalty notices issued and no. of nuisance dog declaration and dangerous dog declarations	Rangers
2.2.2 Increase habitat information available for research purposes	2.2.2.1 Communicate habitat information available for research purposes through River to River Corridors Project 2010/13	Information collected and collated Report to agreed schedule	POMs and EVRPs Estuary Management Plans
2.2.3. Increase compliance and enforcement of bushland management	2.2.3.1 Implement reporting and recording systems	Reporting and recording systems maintained	
2.2.4 Increase knowledge of local ecosystem values and potential impacts	2.2.4.1 Investigate corridors through River to River Corridors Project 2010/13	No. of reserves connected through River to River Corridors Project	POMs, EVRPs and Estuary Management Plans
	2.2.4.2 Continued attendance at meetings internal and external eg. Parramatta River catchment group	No. of meetings attended No. of reports case studies written for PRCG	
2.2.5 Increase habitat restoration and protection	2.2.5.1 Implement effective weed control programs	Completion of approved programs by agreed dates	POMs and EVRPs
	2.2.5.2 Increase effectiveness/ expenditure on weed management and track maintenance	No. and hours contributed by Bushcare volunteers No. of hours contributed by contractors No. of grant applications submitted	POMs and EVRPs
	2.2.5.3 Continue education through community events and activities	No. of Events No. of attendees and list of activities	SP
2.2.6 Increase ecosystem resilience through enhancing natural vegetation corridors	2.2.6.1 Increase bush regeneration and revegetation through River to River Corridors Project 2010/13	No. and hours contributed by Bushcare volunteers No. of hours contributed by contractors No. of grant applications submitted No. of plantings per year	POMs and EVRPs, Estuary Management Plans
	2.2.6.2 Carry out feral animal control program	No. of feral animal control programs per year	
	2.2.6.3 Carry out hazard reduction activities	No. of hazard reduction burns per year	Bushfire Risk Management Plan
2.2.7 Minimise biodiversity loss	2.2.7.1 Increase biodiversity information available for research purposes	Required reporting on state of biodiversity by agreed dates	POMs, EVRPs and Estuary Management Plans
	2.2.7.2 Increase protection of remnant local indigenous vegetation on private property through tree preservation order	No. of policies/plans updated	DCPs
	2.2.7.3 Encourage the planting of locally sourced native flora	No. or % of native species planted	POMs and EVRPs

CSP Outcome 2.2 – Enhanced management of bushland and its biodiversity (continued)			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.2.8 Enhance harbour (marine) ecosystem management	2.2.8.1 Monitor stormwater quality effects on biodiversity	Water quality index	SP Estuary Plans for Lane Cove & Parramatta Rivers
	2.2.8.2 Liaise with Sydney Water regarding Tarban Creek overflow	Ongoing Work collaboratively with Sydney Water on agreed projects.	
2.2.9 Increase number of trees planted in riparian zones and erosion prone areas	2.4.9.1 Develop future planting regime	No. of plantings per year	SP
	2.4.9.2 Enhance riparian zones and erosion prone areas as appropriate	Riparian zones and erosion prone areas managed	SP
2.2.10 Minimise impact of spills	2.3.8.1 Increase enforcement of spill and dumping regulations	No. of enforcement notices issued under the POEO Act	SP Litter and Illegal Dumping Action Plan
CSP Outcome 2.3 – Decrease waste sent to landfill and increase recovery of resources through recycling and sustainable purchasing			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.3.1 Decrease waste sent to landfill from Council Operations	2.3.1.1 Increase sustainable Purchasing	No. of sustainable products purchased No. of resource management meeting held year No. of staff attending resource management meetings	SP WaRMAP EfSAP
	2.3.1.2 Increase professional development in waste	No. of professional development activities undertaken	SP WaRMAP EfSAP
	2.3.13 Conduct education workshops for staff	No. of workshops/ training opportunities conducted with staff	SP WaRMAP EfSAP
2.3.2 Increase levels of sustainable consumption in the wider community	2.3.2.1 Decrease waste sent to landfill from the wider community	Kgs/person/year to landfill % of resource recovery Three annual waste reports (including WASIP) for OEH	SP WaRMAP EfSAP
	2.3.2.2 Conduct education workshops for residents	No. of workshops/ conducted with residents No. of attendees	SP WaRMAP EfSAP
	2.3.2.4 Conduct education workshops for schools	No. of council funded workshops for schools	SP WaRMAP EfSAP
2.3.3 Increase levels of recycling	2.3.3.1 Continue to implement education for the roll out of the new waste service	No. of waste education and communication initiatives	SP WaRMAP EfSAP
2.3.4 Increase domestic organic waste processing	2.3.4.1 Investigate options for organic waste recovery	No. of options for organic waste processing presented to management	SP WaRMAP EfSAP
2.3.5 Increase e-waste and hazardous materials recovery and recycling	2.3.5.1 Continue to participate in programs to reduce e-waste and hazardous materials recovery and recycling	No. of initiatives to reduce e-waste and hazardous waste ending up in landfill	SP WaRMAP EfSAP

CSP Outcome 2.3 – Decrease waste sent to landfill and increase recovery of resources through recycling and sustainable purchasing (continued)			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.3.6 Support best practice waste processing and resource recovery technology	2.3.6.1 Continue to investigate best practice waste processing and resource recovery technology	No. of professional training days in waste attended No of NSROC Waste Officers meetings attended	SP WaRMAP EfSAP
2.3.7 Minimise impact of dumping and littering	2.3.7.1 Implement plan for managing illegal dumping and littering	No. of initiatives implemented to reduce illegal dumping and littering	SP Litter and Illegal Dumping Action Plan
	2.3.7.2 Implement strategies for managing illegal dumping and littering through advertising and education campaigns.	No. of advertisements and education initiatives to reduce illegal dumping undertaken	SP Litter and Illegal Dumping Action Plan
2.3.8 Ensure waste collection service meets community expectations	2.3.8.1 Waste service completed as scheduled	Minimise missed services Budget not exceeded	WaRMAP
	2.3.8.2 Street & Park litter bins collection service	completed as scheduled	
	2.3.8.3 Waste disposal service completed as scheduled	Disposal costs minimised	WaRMAP
CSP Outcome 2.4 – Ensure the sustainable use and re-use of water			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.4.1 Decrease total water withdrawal	2.4.1.1 Implement Water Saving Action Plan	No. of Water saving improvements made as per water saving action plan Annual Water Reporting completed for OEH	SP Water Saving Action Plan
	2.4.1.2 Increase planting of native drought resistant plants on public property through education	At least one education initiative promoted per year	SP
2.4.2 Increase percentage and total volume of water recycled and reused	2.4.2.1 Investigate installations of rainwater tanks on public and private property	No. of education initiatives to promote BASIX	SP
	2.4.2.2 Continued support of Climate Clever Shop Increase compliance of BASIX	No. of residents taking up offers through the CCS % compliance with BASIX in DA's	SP SP
	2.4.2.3. Integrate water sensitive urban design into private development	No. of education initiatives to promote WSUD	
	2.4.2.4 Integrate water sensitive urban design into private developments	% complicance with DCP 25	DCP 25
2.4.4 Improve quality of stormwater discharge	2.4.4.1 Integrate water sensitive urban design into public development Integrate water sensitive urban design into public development	No. of grant opportunities investigated as per SMAP Integration of DCP 25 into public development designs	SP SMAP Stormwater Management Plan DCP 25
	2.4.4.2 Continued maintenance program of gross pollutant traps and stormwater drains	% of regular maintenance achieved as per SMAP schedule	SP SMAP
	2.4.4.3 Continue street cleaning program (including mechanical street sweeper)	Cleaning program completed as scheduled	

CSP Outcome 2.4 – Ensure the sustainable use and re-use of water			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
2.4.5 Improve water quality levels (decreased faecal coliforms and enterococci etc)	2.4.5.1 Continue monitoring water quality level	No. of Woolwich Baths Beachwatch faecal coliform levels outside acceptable range	SP SMAP
2.4.6 Increase monitoring (hours) of dumping	2.4.6.1 Installation of security cameras in hot spots	No. of investigations of illegal dumping which lead to prosecution	SP Littering and Illegal Dumping Action Plan
CSP Outcome 3.1 – Increased active and informed participation by local residents and business owners in creating a sustainable future			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
3.1.1 Establish and expand partnerships/networks within the community	3.1.1.1 Continue facilitation of SABAC and Bushland Management Working Group	No. of meeting facilitated per year No.of minutes and reports written to Council by Officers	SP EfSAP
3.2.4 Increase active and informed participation by local residents and schools in creating a sustainable future	3.2.4.1 Participation in community events and workshops eg Moocooboola	No. of EfS activities prepared for and promoted at Moocooboola	SP EfSAP
CSP Outcome 3.2 – Environmental education is improved and used in conjunction with other organisational tools and strategies to promote sustainability			
Delivery Plan Strategies	**Operational Plan Actions**	**Performance Measure**	**Sub Plan Link**
3.2.1 Council will educate the community about sustainability issues	3.2.1.1 2 facilitated environmental educational workshops with schools per year	At least two school facilitated activities undertaken each year	
3.2.2 Maintain and expand partnerships with the community, schools and businesses to improve environmental outcomes	3.2.2.1 Establish and expand networks within the community	No. of partnerships activities established	SP EfSAP
	3.2.2.3 Provide opportunities for increase number of participants in network activities	No of partnership activities facilitated with the community and businesses	SP EfSAP
3.2.3 Enhance training, professional development and other support available for Council employees, residents and local business owners to promote ecological sustainability	3.2.3.1 Implement education for Education for Sustainability Action Plan	No. of activities implemented from EfSAP No. of grants applied for	SP EfSAP
	3.2.3.2 Continued support of Parramatta River Catchment Group	No. of meeting attended	
	3.2.3.3 Continued participation in the Lane Cove River Catchment Management Committee	No. of meetings attended	

KU-RING-GAI COUNCIL

Goal

Council and the community value, respect and actively participate in the care and management of our environment.

What we do

Bushland: flora and fauna, riparian. fire, bushland maintenance, plant nursery
Water: water re-use, water conservation, water sensitive urban design
Energy: energy consumption, climate change

Environmental Education			
Vision: The Ku-ring-gai community has a strong understanding of environmental issues and impacts in the local area.			
20 year objective	**20 year target**	**5 year objective (2015)**	**1 year objective (2011)**
Our environmental education programs meet natural area management plans, policies, strategies and objectives	40% of the community engaged in Council environmental education opportunities	Increased environmental awareness within Ku-ring-gai	• Increase participation in environmental education programs
Bushland			
Vision: • Ku-ring-gai is a place of extensive bushland with native flora and fauna which we highly value and protect. • Ku-ring-gai has adequate access to all bushland areas for fire protection operations.			
20 year objective	**20 year target**	**5 year objective (2015)**	**1 year objective (2011)**
Protect, enhance and where appropriate increase local biodiversity and terrestrial, habitats and connectivity between reserves	10% improvement of bushland condition	Improved conservation and recovery of flora and fauna	• Increase resilience of bushland areas under regeneration • Improve condition of tracks and trails • Improve condition of biodiversity within Ku-ring-gai
		Increased corporate understanding and implementation of best practice ecological management	• Maintain benchmark environmental management practices
The management of bush fire risk for extreme to high prioritised areas addresses our need to protect life, property and the local ecology	75% of Ku-ring-gai bushland with adequate fire trail access	Management of bush fire risk for extreme to high prioritised areas addresses our need to protect life, property and the local ecology	• Manage community concerns in relation to bushfires • Implement the Hornsby – Ku-ring-gai bush district fire management plan • Comprehensive review all Council policies and operations in relation to bushfires to determine possible areas for improvement

Water			
Vision: Ku-ring-gai cares for the condition of its natural waterways and riparian zones.			
20 year objective	**20 year target**	**5 year objective (2015)**	**1 year objective (2011)**
Protect and enhance aquatic ecosystems	15% of Ku-ring-gai an waterways demonstrate improved riparian condition	Improved condition of Ku-ring-gai waterways and riparian zones Increase community awareness of approaches to sustainable water management	• Implement water savings and water sensitive urban design projects to improve urban water ways
		Improved the adoption of integrated water cycle management	• Complete one sub-catchment integrated water cycle management plans
	50% decrease in the use of potable water consumption of community and Council based on levels in year 2008	Decreased potable water consumption of community and Council	• Reduce Council's potable water consumption
	50% increase in the use of non-potable water at Council's major water using facilities based on 2008 figures	Increase the use of non-potable water in Council's major water using facilities	• Identify Council sites to increase non-potable water consumption
Climate change			
Vision: Ku-ring-gai is a place addressing and responding to climate change.			
20 year objective	**20 year target**	**5 year objective (2015)**	**1 year objective (2011)**
That Council minimises its levels of CO_2 and showcases sustainable energy technology and to identify and continuously monitor the sources of CO_2 emissions and actions implemented to reduce green house gas emissions	40% reduction of Council's CO_2 emissions	Council and community better adapted to climate change	• Identify gaps in knowledge of climate change and impacts on Ku-ring-gai
		Reduce Council's carbon footprint	• To develop and implement a carbon accounting method
		Reduce the community's carbon footprint	• Build partnerships with other Councils and industry to address funding for energy and water alternatives
		Procurement strategy that incorporates sustainability and climate change	• Review existing procurement strategy by comparison to other councils and organisations

LANE COVE COUNCIL

Goal

A green community and a beautiful natural environment appreciated by all.

What Council is Already Doing

Council plays an important role in ensuring the Natural Environment is respected, maintained and enhanced for the community to enjoy. This is done through educating and raising awareness of not only the valuable and unique environment but also how we can protect our environment by:-

- bush regeneration & bushcare programs;
- Community Nursery;
- environmental education, programs and events;
- programs for control of noxious weeds and feral animals;
- estuary management program;
- programs for bushland maintenance;
- programs for management of waterways;
- strategies for reducing addressing climate change; and
- environmental sustainability projects.

Environmental Impact			
To provide leadership so the community can play a vital role in addressing climate change. To reduce the community's impact on the local environment and its diversity of plants and animals. To arrest and reduce unsustainable demands on energy, water and waste resources.			
Strategies	**Link to Council Plans**	**Responsibility**	**Link to State Plans**
• Develop strategies to address Climate Change. • Implement a comprehensive education program to promote sustainable living including sustainable environmental practices for homes, workplaces, and public and open spaces. • Identify options and incentives for alternative energy use. • Identify options and incentives for water conservation, including the generation of local water supplies and increased use of recycled water. • Develop an integrated (regional) waste management initiatives.	Sustainability Action Plan PL 1, 4, 5 & PE 2, Open Space Plan Goal 5 & Plan of Management for Blackman Park Goal 4.3.	Council, Community, Community Organisations, Community Groups, Federal and State Government.	NSW State Plan Priority: Green State:- • Tackle climate change; • Develop a clean energy future; and • Secure sustainable supplies of water and use our water more wisely. Sydney Metropolitan Plan 2036:- • Developing a climate change adaptation strategy for Sydney in collaboration with Councils.

Bushland

To ensure Lane Cove's bushland is healthy and supports the greatest diversity of local native animal & plant life.
To maintain the principles of the Plan of Management for Bushland.

Strategies	Link to Council Plans	Responsibility	Link to State Plans
• Extend programs that involve the community in bushland protection and conservation. • Continue to develop and implement bushland management and rehabilitation programs with high priority to wildlife corridors, stands of remnant vegetation and significant natural landscapes and soil types. Continue to enhance and increase wildlife habitat on public and private land. • Accelerate efforts to identify and protect local populations of threatened species. • Review bushland management for effective management of bushfires and the potential for spread of bushfire to residential areas.	Sustainability Action Plan PL 1 & 2, Recreation Plan Theme 7, Open Space Plan Theme 1 & 5, Plan of Management for Bushland Goal 2.4, 3.1, 3.2, Plan of Management for Blackman Park Goal 4.2 & Open Space Action Plan Theme 1.	Council, Community, Community Organisations, Community Groups, Federal and State Government.	NSW State Plan Priority: Green State:- • Protect our native vegetation, biodiversity, land, rivers and coastal waterways.

Waterways

To ensure Lane Cove's creeks and rivers are healthy and support the greatest diversity of local native animal & plant life.
To maintain the principles of the Plan of Management for Bushland.

Strategies	Link to Council Plans	Responsibility	Link to State Plans
• Implement catchment management strategies to protect and rehabilitate high priority waterways and manage impacts on medium and low priority waterways. • Identify key polluters / pollutants of local waterways as input into catchment management strategies. • Trial and if successful implement innovative ways of reducing stormwater pollution of local waterways. • Review and integrate estuary, bushland and catchment management strategies.	Sustainability Action Plan PL 1 & 3, Lane Cove Estuary Management Plan, Plan of Management for Bushland Goal 3.3, 4.4 & 4.5.	Council, Community, Community Organisations, Community Groups, Federal and State Government.	NSW State Plan Priority: Green State:- • Protect our native vegetation, biodiversity, land, rivers and coastal waterways.

NORTH SYDNEY COUNCIL

Goal

North Sydney in 2020 will be greener and cleaner. As a community we will ensure that responsible stewardship of our natural environment is a guiding principle in all our activities. We will leave to future generations a better environment than we inherited.

Goal	Objective	Indicators	Strategy
1.1 Enhance the local natural environment and urban greenspace	1.1.1 To protect, enhance and rehabilitate native vegetation communities	EN01 Proportion of bushland under active management EN02 Improved condition of and ecosystems EN03 Number of participants in Bushcare programs and community planting events EN04 Number of plants provided through Bushcare programs and community planting events EN05 Biodiversity inventory updated EN06 Participant satisfaction with environmental programs EN07 Number of pest animal control programs undertaken annually	1.1.1.1 Conduct baseline mapping of North Sydney's flora species and vegetation communities and assess bushland ecological condition 1.1.1.2 Rehabilitate bushland areas 1.1.1.3 Integrate biodiversity conservation in environmental planning instruments 1.1.1.4 Monitor and address threats to biodiversity using best practive 1.1.1.5 Implement community education programs regarding enhancement of the natural environment
	1.1.2 To ensure quality urban greenspaces	EN08 Percentage of canopy cover EN09 Total land area planted or landscaped through Streets Alive program and community planting events EN10 Number of rooftop gardens/greening EN11 Number of new developments that breach landscape requirements	1.1.2.1 Maximise tree plantings to enhance canopy cover in developed areas 1.1.2.2 Implement the North Sydney Street Tree Strategy 1.1.2.3 Develop an Urban Forest Policy 1.1.2.4 Promote community gardens, including the Streets Alive program 1.1.2.5 Promote use of local native plants 1.1.2.6 Reduce noxious weeds 1.1.2.7 Encourage rooftop and hard surface greening 1.1.2.8 Ensure landscape requirements on development sites are met
1.2 Improve the health and cleanliness of local waterways	1.2.1 To improve creek and harbour water quality	EN12 Percentage of creek and harbour water quality sites meeting internationally accepted ecological and human health standards EN13 Volume of litter, sediments and organics removed by pollution control devices	1.2.1.1 Capture and remove gross pollutants from stormwater 1.2.1.2 Conduct community education programs regarding water pollution 1.2.1.3 Monitor water quality 1.2.1.4 Promote and implement water sensitive urban design 1.2.1.5 Identify, monitor and take regulatory action if required against breaches 1.2.1.6 Advocate for improved sewerage infrastructure

Goal	Objective	Indicators	Strategy
1.3 Improve North Sydney's environmental footprint and encourage responsible use of natural resources	1.3.1 To effectively communicate and promote sustainable energy, water and waste practices to the community	EN06 Participant satisfaction with environmental programs EN14 Kilowatt hour of electricity per resident per year EN15 Kilowatt hour of electricity per business per year EN16 Kilograms of waste sent to landfill per capita per year EN17 Kilograms of resources recovered per capita per year EN18 Number of Waste Wise events EN19 Kilolitres of drinking water by resident per year EN20 Kilolitres of drinking water by business per year EN21 Uptake of water tank rebates EN22 Number of participants in residential, school, community groups and business sustainability programs	1.3.1.1 Promote renewable energy 1.3.1.2 Promote efficient use of water and use of recycled water 1.3.1.3 Effectively manage Council's waste collection and disposal contracts 1.3.1.4 Advocate for the introduction of container deposit legislation and extended producer responsibility 1.3.1.5 Pursue resource recovery and advanced waste treatment technologies 1.3.1.6 Implement environmental sustainability programs to facilitate community stewardship 1.3.1.7 Redevelop the Coal Loader site as a centre for sustainability 1.3.1.8 Ensure that sustainable energy, water and waste management practices are included in all environmental planning and development controls 1.3.1.9 Promote local achievements in sustainable design 1.3.1.10 Recognise community champions in environmental sustainability 1.3.1.11 Investigate best practice initiatives to prepare North Sydney LGA for the impacts of climate change and sea level rise
	1.3.2 To demonstrate and promote environmentally sustainable business practices in Council's own activities	EN23 Kilolitres of drinking water used by Council per year EN24 Tonnes of greenhouse gas emissions generated by Council per year EN25 Kilowatt hours of renewable energy by Council activities and facilities per year	1.3.2.1 Implement measures to improve the environmental performance of Council buildings 1.3.2.2 Advocate for and investigate efficient street and public domain lighting 1.3.2.3 Investigate the use of cogeneration and trigeneration 1.3.2.4 Increase use of recycled water 1.3.2.5 Implement Council staff education and capacity building to reduce energy, water and waste 1.3.2.6 Introduce initiatives to decrease greenhouse gas emissions of Council vehicle fleet 1.3.2.7 Implement sustainable procurement procedures

Goal	Objective	Indicators	Strategy
	1.3.3 To reduce air and noise pollution and ensure compliance with regulatory legislation	EN26 Number of days when airborne pollution exceeds regional air quality index EN27 Number of noise complaints responded to	1.3.3.1 Identify, monitor and take regulatory action if required against breaches and environmental legislation 1.3.3.2 Ensure development does not detrimentally impact on air quality and noise is mitigated 1.3.3.3 Conduct program of environmental audits of businesses
1.4 Provide appropriate public open space, recreation facilities and services	1.4.1 To ensure existing parks and reserves meet the community's recreational needs	S01 User satisfaction with Council's recreation facilities S02 Number of visits to North Sydney Olympic Pool per year S03 User satisfaction with North Sydney Olympic Pool	1.4.1.1 Provide a range of recreational facilities for people of all ages and disabilities 1.4.1.2 Provide a welcoming and vibrant waterfront with integrated green public spaces 1.4.1.3 Secure additional grant funding for the provision and upgrade of recreational facilities 1.4.1.4 Work with neighbouring councils and other land managers to accommodate regional demand for sporting facilities 1.4.1.5 Improve equity of access to open space and recreation facilities
	1.4.2 To provide new open space and recreation facilities as opportunities arise	S04 Total area of new public open space S05 Amount of open space acquired in line with contributions from Section 94 Plan	1.4.2.1 Advocate for the release of Crown Land holdings for public recreation 1.4.2.2 Pursue land swap and lease agreements 1.4.2.3 Pursue partnerships to access areas of land not dedicated as public open space 1.4.2.4 Pursue opportunities to upgrade and enhance foreshore access

CITY OF RYDE COUNCIL

Outcome

A City Of Environmental Sensitivity: Working together as a community to protect and enhance our natural and built environment for the future.

Goal One
Our residents, businesses and visitors collaborate in the protection and enhancement of our natural environment.
Strategies
• To raise awareness in our community on the future challenges to our natural environment and the actions required to mitigate them. • To actively collaborate with our community and businesses to care for and enhance our environment. • To provide incentives which encourage all to enhance, preserve and protect our natural ecosystems.
Goal Two
To encourage and enable all our residents to live a more environmentally sensitive life.
Strategies
• To collaborate with relevant partners to facilitate simple and flexible planning controls, to encourage our community to embrace sustainable development. • To promote and offer education on the benefits and savings that can be achieved by supporting sustainable lifestyles.
Goal Three
As we grow, we protect and enhance the natural and built environments for future enjoyment and manage any impacts of climate change.
Strategies
• To lead by example and demonstrate environmental sensitivity in all that we do. • To work collaboratively with neighbouring councils to develop measures to protect our natural environment and bio-diversity. • To take a leadership role and enhance our capacity to manage any impact of climate change and protect our community.

WILLOUGHBY CITY COUNCIL

Goal

To treasure and conserve the natural ecosystem for its intrinsic ecological, spiritual, educational, scientific, recreational and community value.

Goal 1.1 Conservation and maintenance of Willoughby's natural ecosystems
• Improve the protection of foreshores, watercourses and bays. • Manage natural areas using an ecosystems approach. • Protect and monitor creeks and waterways and improve water quality. • Protect environmentally sensitive areas from inappropriate development. • Manage potential impacts of bushfires on natural ecosystems and development.
Goal 1.2 Conservation and enhancement of the biodiversity of local indigenous flora and fauna
• Monitor and control feral animals. • Enhance habitat corridors and linkages between reserves. • Conduct bush regeneration projects.
Goal 1.3 Pressures on natural ecosystems are actively managed in partnership with the community
• Provide safe and sensitive pedestrian links into, through and between bushland areas without endangering ecologically sensitive areas. • Promote community involvement in volunteer activities. • Promote bushland awareness.
Goal 1.4 Reduced water, air and noise pollution
• Continue air and water quality monitoring program to ensure that appropriate guidelines are being met, and/or exceeded • Commence noise monitoring program to ensure background noise levels are not accumulating. • Work with NSW Government, other councils and the Catchment Management Authority to improve air and water quality.
Goal 1.5 Minimising soil erosion and contamination
• Monitor creek and streams to ensure stability of the riparian zone. • Ensure new developments consider soil and erosion management. • Work with NSW Government, other councils and developers to remediate contaminated sites and prevent future contamination.

NSROC

Northern Sydney Regional Organisation of Councils

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