



# NORTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS STATE OF THE ENVIRONMENT REPORT 2011-2012

“End of Term”  
NSROC State of the Environment Reports  
2008-2012

## NORTHERN SYDNEY REGIONAL ORGANISATION OF COUNCILS

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



## PRESIDENT'S MESSAGE



NSROC has now produced Regional State of the Environment reports for eight 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 2011-2012 NSROC Regional State of the Environment Report is also an End of Term Report. It provides updates on key data and highlights through case studies, the relevant regional and council initiatives relating to the environment in the 2011-2012 financial year.

As per the 2010-2011 report, an “at a glance” comparator of environmental data across councils is designed as a quick reference guide.

As an End of Term Report, where possible, trend data is presented for the four years 2008 to 2012.

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Hornsby Shire Council

President of Northern Sydney Regional Organisation of Councils

September 2012

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Mayor Berman



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#### KU-RING-GAI

Mayor Cross



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#### LANE COVE

Mayor Gaffney



Councillor Delegate  
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#### NORTH SYDNEY

Mayor McCaffery



Councillor Delegate  
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#### RYDE

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Councillor Delegate  
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#### WILLOUGHBY

Mayor Reilly



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## KEY FINDINGS OF END OF TERM REPORT

- **Expenditure** on environmental activities and related initiatives fell by \$24 million across NSROC member councils but over the four year term investment has been substantial in environmental activities.
- 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' Community Strategic Plan and other sustainability related plans.
- As the population grows, environmental pressures increase however there appears to be substantial **positive outcomes being achieved in areas such as energy and water** across the region.
- **Waste** is an important environmental challenge for the NSROC region. Current waste activities are not seeing major improvements in terms of reduction to landfill against previous year's substantial declines. NSROC councils have initiated an investigation into regional waste management options to improve recovery rates and lower waste to landfill which promote best economic and environmental outcomes.
- **Energy consumption** in the region has generally trended downwards across the last four years. This year information has also been provided about solar connections. This has been an area of dramatic results for the region with exported solar power in the region growing from 219 MWh in 2007-2008 to 15,473MWh in 2011-2012.
- **Water consumption** in the region continues to decline. This year water consumption across all users fell by around 3million kL against a drop of only 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 four years consumption by member councils has dropped from 860,832kL in 2006-2007 down to 564,788 kL in 2011-2012.
- **Bushland** and bio-diversity 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 fallen slightly this year as have number of hours. Although there is considerable uptake in other related activities in the privately owned areas through participation in initiatives such as Backyard Habitat programs.
- NSROC councils are recognizing 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.
- Councils continue to undertake **CO<sub>2</sub> 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 2011-2012								
Council	Hornsby	Hunter's Hill	Ku-ring-gai	Lane Cove	North Sydney	Ryde	Willoughby	NSROC
ABS Population 2011 – Estimated Resident Population @June 2011*	163,865	13,880	114,704	33,197	67,033	108,371	71,637	572,687
2011 Census Actual *	156,842	13,216	109,297	31,510	62,289	103,038	67,355	543,547
Area of LGA	462	6	84	10	10	40	23	635
Expenditure on Environmental Activities								
2011-2012 \$m	49.62	2.52	24.43	8.54	29.32	32.00	33	171.2
2010-2011 \$m	44.82	2.85	21	8.38	29.4	53.01	35.7	195
2009-2010 \$m	44.77	2.7	20.3	8.36	27.51	45.35	31.6	180
Planning								
Dwelling Targets set 2007	11,000	1,200	10,000	3,900	5,500	17,500	6,800	56,400
Employment Targets set 2007	9,000	300	4,500	6,500	15,000	21,700	16,000	72,300
Development								
New dwellings in 2011-2012	238	20	736	21	313	126	13	1,467
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 2011-2012	41,795	3,950	44,192	6,095	16,057	22,700	7,942	142,731
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
Waste to landfill in 2011-2012	36,166	2,151	28,842	7,249	7,194	25,150	13,947	120,699
Waste to landfill in 2010-2011	34,505	923	28,208	6,348	7,991	23,863	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
Energy consumption in LGA in KWH								
Residential Consumption 2011-2012	431,378	44,968	389,272	93,996	179,389	255,175	177,064	1,571,242
Change from previous year	-28,668	-3,238	-23,147	-5,573	-9,789	-18,699	-15,165	-104,279
Residential Consumption 2010-2011	460,046	48,206	412,419	99,569	189,178	273,874	192,229	1,675,521
Change from previous year	-4,899	202	2,767	156	1,008	-1,479	1,072	-1,173
Residential Consumption 2009-2010	464,945	48,004	409,652	99,413	188,170	275,353	191,157	1,676,694
Non residential Consumption 2011-2012	289,563	26,174	167,179	121,643	424,884	583,581	469,167	2,082,191
Change from previous year	-9,065	-954	-5,229	-4,886	-17,790	-6,703	-13,004	-57,631
Non residential Consumption 2010-2011	298,628	27,128	172,408	126,529	442,674	590,284	482,171	2,139,822
Change from previous year	-5,443	49	-253	-547	-12,429	6,828	2,670	-9,125
Non residential Consumption 2009-2010	304,071	27,079	172,661	127,076	455,103	583,456	479,501	2,148,947
Water consumption in LGA in KL								
Total Consumption 2011-2012	12,504,873	1,428,120	9,411,466	2,919,873	6,893,873	10,107,313	7,553,776	50,819,294
Change from previous year	-682,014	-134,871	-603,836	-162,818	-38,619	-303,608	-392,721	-2,318,487
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
Change from previous year	-476,660	-24,189	-405,413	56,296	-41,152	-3,896	200,234	-694,780
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

\*Footnote: The 2012 official estimated residential population (ERP) for each LGA is not released until 2013. 2011 Actual (raw) Census data is provided. Due to this difference 'per capita' trend information cannot be provided.



## ACRONYMS

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



# Introduction

## Introduction



### THE NSROC REGION

**T**he 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. All are collectively represented by NSROC.

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:

- Address the eight environmental sectors of land, air, water, biodiversity, waste, noise, and Aboriginal and non-Aboriginal heritage;
- Provide, as a basis of comparison in subsequent reports, a statement outlining the condition of each environmental sector at the date of the report and make the relevant comparison with the equivalent statement in the last SoE report;
- Report 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;
- Councils are required to prepare comprehensive reports 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 an "End of Term" report for 2008-2012. It provides updates on key data and highlights through case studies, regional and council initiatives relating to the environment in the 2011-2012 financial year. This Report should be read in conjunction with 2008-2009, 2009-2010 and 2010-2011 NSROC Regional State of the Environment Reports.



# 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 then 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.

In September 2011 the new State Government released “NSW 2021 – A plan to make NSW Number 1”. This plan articulates the following environmental goals for NSW:

**Figure 1: NSW 2021 State Plan – Goals 222, 23, 24, 25, 26, 27 and 28**

#### GOAL 22 – PROTECT OUR NATURAL ENVIRONMENT

##### TARGETS

##### **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

##### **Target illegal dumping**

- Reduce the incidence of large scale (greater than 200m<sup>3</sup> 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
- Increase renewable energy by 20% by 2020

#### GOAL 23 – INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS

##### TARGETS

##### **Increase the devolution of decision making, funding and control to groups and individuals for local environmental and community activities, including:**

- Catchment Management
- Landcare

##### **By 2016, NSW will have the lowest litter count per capita in Australia**

##### **Increase recycling to meet the 2014 NSW waste recycling targets**

##### **Reduce graffiti**

##### **Increase neighbourhood crime prevention**

##### **Minimise impacts of climate change in local communities**

**Figure 1: NSW 2021 State Plan – Goals 222, 23, 24, 25, 26, 27 and 28 (continued)****GOAL 24 – INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS****TARGETS****Increase Volunteering**

- Increase the proportion of the NSW population involved in volunteering, to exceed the national average by 2016

**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

**GOAL 25 – INCREASE OPPORTUNITIES FOR SENIORS IN NSW TO FULLY PARTICIPATE IN COMMUNITY LIFE****TARGETS**

**Develop and implement a whole of NSW government strategy on ageing by 1 July 2012**

**Implement standard retirement village contracts**

**GOAL 26 – INCREASE OPPORTUNITIES FOR PEOPLE TO LOOK AFTER THEIR OWN NEIGHBOURHOODS AND ENVIRONMENTS****TARGETS**

**Close the life expectancy gap within a generation**

**Increase the number of Aboriginal communities the State Government is partnering with to improve local outcomes**

**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

**GOAL 27 – ENHANCE CULTURAL, CREATIVE, SPORTING AND RECREATION OPPORTUNITIES****TARGETS**

**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%**

**Increase the number of major international sports, artistic, creative and cultural events in NSW from 2010 to 2016 by 10%**

**Increase the number of opportunities for cultural participation, including:**

- Aboriginal cultural activities/events
- Multicultural activities/events
- Community events which are planned and delivered locally

**Enhance the cultural and natural heritage in NSW**

- Recognise and protect the State's most significant heritage places and values

**Figure 1: NSW 2021 State Plan – Goals 222, 23, 24, 25, 26, 27 and 28 (continued)**

**GOAL 28 – ENSURE NSW IS READY TO DEAL WITH MAJOR EMERGENCIES AND NATURAL DISASTERS**

**TARGETS**

**Ensure NSW has appropriate arrangements in place to respond to and recover from natural disasters**

**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

**Increase the number of Floodplain Risk Management Plans available to support emergency management planning**

**Maintain preparedness to deal with biosecurity threats**



## NSROC Regional Priorities – Key Actions for Northern Sydney’s Future

In March 2012 NSROC released “NSROC Regional Priorities – Key Actions for Northern Sydney’s Future”. This document articulated seven priority areas for the region encapsulating sustainability in its broadest terms including natural environment, as well as the social, economic and cultural environment of the region.

The NSROC Regional Priorities illuminate some of activities in the State of the Environment Report. For example, in the Priorities document NSROC has specifically identified sportground shortages and regional waste management as issues. These are active NSROC projects that link to concerns about environmental management of open space and resource recovery that are identified in the State of the Environment Report.

### Figure 2: Regional Priorities – Summary

#### PRIORITY 1: Make transport infrastructure work for businesses and communities, by:

- Prioritising new major transport infrastructure in the region, including the completion of the North West Rail Link; the Parramatta-Chatswood rail link; second Harbour rail crossing and fast North Shore line; bus or light rail link from Chatswood to the Northern Beaches; transport strategies for Military-Spit Corridor, Victoria Rd, Pennant Hills Rd and the Pacific Hwy; bus/train interchanges for Macquarie Park (Herring Road) and St Leonards Station; completion of the M2-F3 link into the Sydney Orbital; and improved regional rail services to the Central Coast and Newcastle.
- Requiring transport agencies to genuinely engage with local government and incorporate its expertise in the planning and delivery of transport infrastructure from the earliest stages to develop strong partnerships and streamlining that engagement.
- Reconcile, integrate and combine the Metropolitan Strategy and Transport Plan to clearly link land use strategies, densities, centres policy, staging and funding of infrastructure.
- Adopting a consistent sustainable carparking policy for commercial centres, business parks and higher density residential development across Sydney where there is access to public transport.

#### PRIORITY 2: Provide a complete transport service for communities, by:

- Reforming transport regulations to decouple State bus contestability requirements for community transport. Including active transport and community transport as part of the metropolitan transport plan.
- Establishing regional level planning for walking and cycling networks in proximity to employment centres as part of a complete metropolitan transport plan including credible funding.
- Providing new cycling, personal mobility devices and pedestrian infrastructure in all new transport projects and ensure that this new infrastructure properly links to existing networks.

#### PRIORITY 3: Provide for ageing in region, by:

- Planning and collaborating with State Government and other partners on retrofitting council facilities and other public infrastructure to accommodate the needs of an ageing population.
- Urgently investigating and reforming existing systems to make it easier for the private sector to deliver facilities for ageing in place and ageing in region, including examination of the acquisition of sites, the role of planning, and the potential for incentives, and removal of barriers.
- Developing planning and regulatory tools to make it easier to provide housing that can be adapted at low cost to support ageing communities, including an examination of subdivision barriers, easy conversion to sub-letting, and adaptable designs.
- Amending strata title legislation to facilitate the redevelopment of strata properties subject to appropriate thresholds, compensation and consultation with affected parties.
- Ensuring the continuing improvement of primary health care services in Northern Sydney

#### PRIORITY 4: Grow access to open space to support community productivity, by:

- Reviewing development contributions as a source of revenue, with a view to their restructuring to reflect both the reality of major infill development occurring in NSW, and the differentials across the state in infrastructure outlays and development returns.
- Amending funding mechanisms for local and community infrastructure such as removal of rate pegging, use of innovative funding measures (tax credits, local infrastructure bonds, tied levies like the Sydney Regional Development Fund or the parking levy) or fixed, project based uniform levies.
- Revising the NSW Government school access policies and general state land disposal process to include the need for consultation with local government and transparent public engagement.
- Developing better mechanisms for funding open space acquisition in Northern Sydney with a focus on providing open space for active recreation in close proximity to population growth centres.
- Reviewing the operation of the Sydney Region Development Fund to investigate the distribution of its investments, and its potential (including any necessary reforms) to undertake a greater level of acquisitions in Northern Sydney.

**Figure 2: Regional Priorities – Summary (continued)**

**PRIORITY 5: Reinvigorate existing urban centres to grow business, by:**

- Revising the centres hierarchy under the Metropolitan Strategy to recognise specialist centres around Macquarie Park (Information Technology and Communications), Macquarie University, (Education), and St Leonards (Health) and encourage further specialisation and clustering of business
- Revising the centres hierarchy under the Metropolitan Strategy to reclassify Chatswood CBD as a Sub-Regional Centre instead of a Major Centre, given its characteristics and role.
- Reviewing the use of development contributions as a source of revenue for upgrading existing public and community infrastructure in centres
- Reviewing options for business improvement district style levies and other tools that would assist in reinvigorating existing centres.
- Recognising Councils as leaders in place making and the necessity for ongoing revitalisation of business centres with high quality urban design that mixes cultural and community elements to maintain vibrancy.
- Prioritise new business growth in the “global arc” where there is good access to transport and other infrastructure as part of an explicit policy within the Metropolitan Strategy.
- Piloting affordable housing projects with the not-for-profit sector to provide increased housing for key workers and student (including options that can be more broadly applied, such as inclusionary zonings where a levy is collected from development and used to fund affordable housing projects).

**PRIORITY 6: Develop regional sustainable waste treatment and resource recovery, by:**

- Developing a regional solution for waste management for Northern Sydney consistent with the NSW Waste Avoidance and Resource Recovery Strategy 2011-2015 and with support from the NSW Government.
- Providing education and training of local government in new waste markets and systems
- Reforming the Local Government Act to allow councils to work effectively with other public, private and research entities to establish improved regional waste collection.
- Identifying, through the Metropolitan Strategy, appropriate locations for Alternative Waste Disposal Technology and for disposal of non-recyclable, non-reusable putrescible waste for Northern Region residences and commercial properties.

**PRIORITY 7: Encourage collaborative regional performance improvement, by:**

- Maximising opportunities for and remove barriers to aggregating and sharing of services and functions by local government at a regional level in order to drive efficiencies of scale
- Aligning State and local planning frameworks, with a view to aligning with Federal planning.
- Developing genuine partnerships with local government in the delivery of government services, including a paradigm shift in formal and informal engagement and collaboration with local governments.
- Developing guidelines for minimum indicators for measuring community well-being across metropolitan Sydney to support, over time, community engagement on important issues, inform policy development, and enable outcome based performance measurement.





## NSROC Regional Action and Results

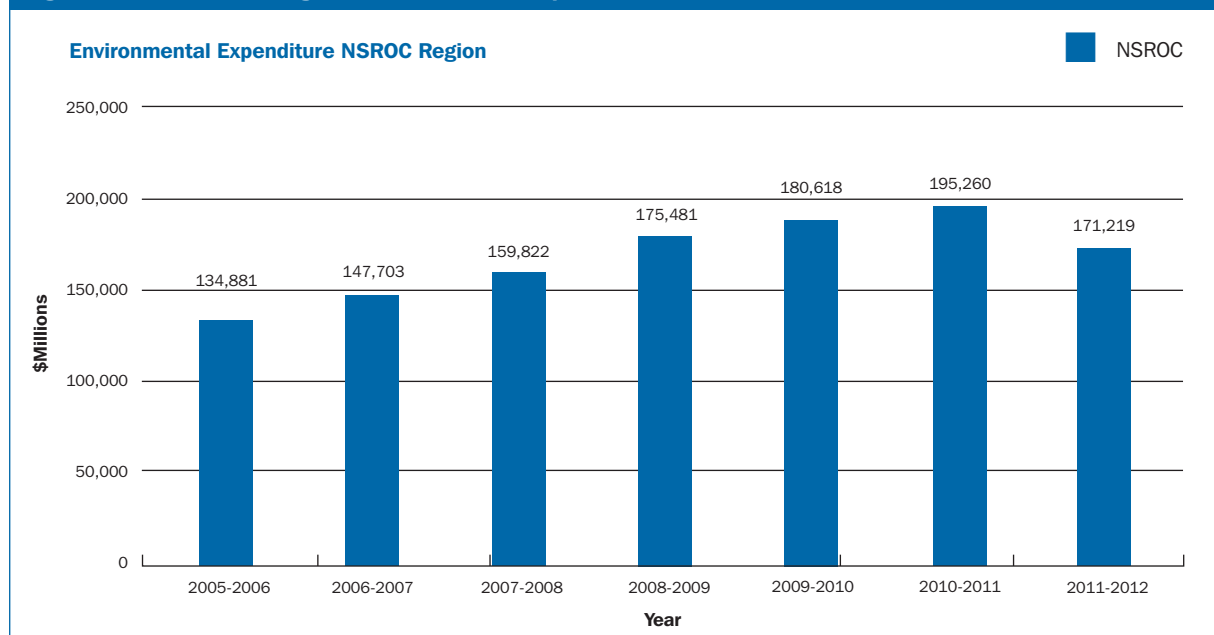
In the context of these state-wide environmental trends and objectives, in 2011-2012 NSROC councils continued to invest in environmental action. One indicator of this commitment is the increased expenditure associated with environmental activities as noted in Figures 3 and Figure 4. Although spending has increased over the 4 years, the 2011-2012 spend across the region has dropped slightly. This is due to a combination of factors including the completion of certain capital projects and changes to accounting treatments of environmental expenditures.

**Figure 3: Total Expenditure on Environment by council 2008-2012**

NSROC council	Expenditure 2011/2012 (\$)	Expenditure 2010/2011 (\$)	Expenditure 2009/2010 (\$)	Expenditure 2008/2009 (\$)
Hornsby	\$49,617,622	\$44,820,418	\$44,772,534	\$45,801,561
Hunter's Hill	\$2,526,900	\$2,850,000	\$2,700,000	\$2,855,000
Ku-ring-gai	\$24,431,453	\$21,000,000	\$20,303,854	\$20,303,854
Lane Cove	\$8,549,423	\$8,385,430	\$8,316,143	\$8,943,596
North Sydney	\$29,328,751	\$29,407,514	\$27,512,594	\$26,459,471
Ryde*	\$31,989,993	\$53,018,255	\$45,359,729	\$42,772,732
Willoughby	\$33,352,130	\$35,778,951	\$31,653,474	\$28,345,039
<b>NSROC Total</b>	<b>\$171,219,869</b>	<b>\$195,260,568</b>	<b>\$180,618,328</b>	<b>\$175,481,253</b>

\*Ryde Council's expenditure is inclusive of development assessments, stormwater infrastructure, environmental and sustainability projects, domestic and commercial waste management and sportsfield, playground and parks facility maintenance and (capital works) upgrades. The reduction from last year is due to a number of factors. The capital works figures included in the previous year were over-estimated by approx. \$1.1m due to incorrect accounting. The Ryde Community and Sport Centre at ELS Hall Park item incurred major building expenses in the previous year and is almost \$4M less this year. Some of the reduction is also due to the exclusion of parking control costs, and general (not associated with parks), public toilet expense items that were included in the previous year, however, some environmental programs and new major sportsfield upgrades have been added this year.

**Figure 4: Total NSROC regional environmental spend 2005/2006 to 2011/2012**



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.

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 7 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
<b>1. Climate Change and Energy Consumption</b>	<p><b>Reduce energy consumption</b></p> <ol style="list-style-type: none"> <li>1. Reduce non-renewable energy use</li> </ol> <p><b>Reduce GHG emissions</b></p> <ol style="list-style-type: none"> <li>2. Reduce emissions by councils</li> <li>3. Reduce emissions by the community</li> </ol> <p><b>Adapt to climate change</b></p> <ol style="list-style-type: none"> <li>4. Plan to adapt to climate change</li> </ol>	<p>Improving</p> <p>Improving</p> <p>Improving</p>	<b>Chapters 2 and 5</b>
<b>2. Development and Built Environment</b>	<p><b>Manage development sustainably</b></p> <ol style="list-style-type: none"> <li>1. Avoid overdevelopment</li> <li>2. Minimise impacts of medium / high density housing on infrastructure and the community</li> <li>3. Maintain and increase open space</li> </ol> <p><b>Increase sustainable building</b></p> <ol style="list-style-type: none"> <li>4. Adopt and champion sustainable building practices for both new buildings and retrofits</li> </ol> <p><b>Provide adequate infrastructure</b></p> <ol style="list-style-type: none"> <li>5. Ensure adequate infrastructure overall</li> </ol>	<p>Unknown</p> <p>Improving</p> <p>Deteriorating</p>	<b>Chapter 2</b>
<b>3. Water and Sewerage</b>	<p><b>Save water</b></p> <ol style="list-style-type: none"> <li>1. Increase recycling by Councils and businesses</li> <li>2. Increase on-site and household water capture and storage</li> <li>3. Increase use of grey water</li> <li>4. Increase sewer mining</li> <li>5. Support water sensitive urban design (WSUD)</li> </ol> <p><b>Improve water quality and health</b></p> <ol style="list-style-type: none"> <li>6. Improve water quality</li> <li>7. Improve public health and reduce damage to waterways</li> </ol>	<p>Improving</p> <p>Stabilising</p>	<b>Chapter 2 and 4</b>
<b>4. Sustainable Businesses</b>	<p><b>Help businesses be more sustainable</b></p> <ol style="list-style-type: none"> <li>1. Educate businesses</li> <li>2. Save water in businesses</li> <li>3. Businesses to prepare and implement sustainability plans</li> </ol> <p><b>Recognise and encourage business sustainability</b></p> <ol style="list-style-type: none"> <li>4. Implement Region-wide sustainability business ratings scheme</li> </ol>	<p>Improving</p> <p>Unknown</p>	<b>Chapter 1</b>
<b>5. Biodiversity Conservation and Protection</b>	<p><b>Improve terrestrial and aquatic biodiversity</b></p> <ol style="list-style-type: none"> <li>1. Improve the ecological integrity of native bushland and aquatic habitats</li> <li>2. Protect undeveloped rural and urban land and habitats</li> <li>3. Consolidate and/or expand canopy cover and native floral diversity</li> <li>4. Improve the health of our rivers and creeks</li> </ol> <p><b>Demonstrate improvement</b></p> <ol style="list-style-type: none"> <li>5. Generate ways to assess and monitor biodiversity</li> </ol>	<p>Stabilising</p> <p>Improving</p>	<b>Chapter 3</b>
<b>6. Resource Recovery and Waste Avoidance</b>	<p><b>Reduce waste</b></p> <ol style="list-style-type: none"> <li>1. Reduce solid waste – move towards exporting near-zero waste from the Region</li> <li>2. Reduce green/organics waste</li> </ol>	<p>Improving</p>	<b>Chapter 2</b>
<b>7. Transport and Traffic</b>	<p><b>Improve sustainable transport options</b></p> <ol style="list-style-type: none"> <li>1. Greater use of public transport to reduce use of private cars</li> <li>2. Increase healthy methods of travel (e.g. walking and cycling for local commuting) to reduce car use and improve community health</li> <li>3. Maximise job retention and working from home to reduce car use and improve community</li> </ol>	<p>Stabilising</p>	<b>Chapter 2</b>

## COMMUNITY CONSULTATION AND CORPORATE ACTION

Councils are continually speaking with and listening to their communities about environmental issues. 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.

Four case studies below illustrate how councils are engaging in sustainability. Councils are educating themselves on sustainability and training their staff and building staff capacity in environmental careers. Through outreach programs, Councils are also helping to educate the next generation on these issues. Further councils are also designing major projects such as the new regional library and entertainment complex of the Concourse in Willoughby Council to meet the highest of sustainable standards.

### CASE STUDY

#### HUNTER'S HILL COUNCIL – Rethinking Waste

Hunter's Hill Council has made many achievements in improving waste and resource recovery in the last year. This has included:

- undertaking audits of Council's Office and Depot kitchen waste streams
- providing waste education and a new recycling system for all employees and visitors to Council
- establishing a Council Resource Management Team to address Sustainable Procurement and other ways to reduce waste and increase resource recovery across Council
- developing a Sustainable Events Policy
- producing and commencing the implementation of the Moocooboola Sustainable Event Action, and Measurement and Evaluation Plan for sustainable events.

An important part of Council's strategy to avoid waste and reuse resources is to collect baseline data using audits of Council's waste streams (including large events). This will help Hunter's Hill Council set targets for waste reduction and help with the targeting of education to staff, residents, businesses, schools and festival goers.

Capacity for resource management is being built within the organisation with the recent establishment of a Resource Management Team (RMT). The RMT has representatives from each department of Council. The RMT has undergone education in sustainable purchasing through LGSA Sustainable Choice program, and has begun to prioritise areas for future action to avoid waste and increase resource recovery. The RMT will meet quarterly to review outcomes of Planet Footprint reporting and help with follow-up actions.

The objectives of the RMT are:

1. To assist Council in making informed decisions regarding its commitment to sustainable procurement, and thereby reducing our impact on the environment while increasing our ability to provide services to the Community.
2. To assist Council in identifying and making reductions in the environmental impact of its operations, through decreasing waste sent to

landfill, making energy, and water efficiency savings.

3. To allow Council staff to make suggestions to reduce our impact on the environment, with the knowledge that these suggestions will be discussed meaningfully at management level.

Hunter's Hill Council also believes one of the best ways to engage the community in resource recovery is to model sustainability behaviours to the community through holding sustainable events. In 2011-2012 Hunter's Hill Council adopted a Sustainable Event Management Policy, and also developed the Moocooboola Sustainable Event Action Plan and Measurement Tool for its festival that attracts over 20 000 people from businesses and the community. There are great opportunities for Council to model best practice resource savings and waste avoidance behaviours, and strategies for the wider community by holding sustainable events. Hunter's Hill Council has introduced food composting and worm farming at the Moocooboola Festival, and will conduct audits of waste generated by the event.

These projects have achieved an ongoing progression towards changing the culture of Hunter's Hill Council.

The Kitchen project provided opportunities for staff to become leaders and champions for waste avoidance. Hunter's Hill Council staff are 'walking the walk, and talking the talk', and are able to take action in their own environments. The kitchen waste resource recovery program also opened up opportunities to engage in cross departmental discussions and knowledge sharing. As you will note from the results below, Council staff changed their behaviour and a significant result was recorded.



Bin system in Depot



Bin system in Kitchen

CASE STUDY

**CITY OF RYDE COUNCIL – World Environment Day 2011**



City of Ryde celebrated the United Nations World Environment Day (WED) on the week commencing Tuesday 5th June. Three free public workshops and a staff initiative based on the 2011 theme of 'Green Economy' were facilitated. This included a partnership 'Careers for the Environment' Seminar with Macquarie University, attended by 130 University, TAFE and senior High School students. The well received event featured talks by inspirational and experienced professionals, from Local and State Government, an NGO, corporations and academia. Each speaker's talk was filmed and can be viewed in you-tube, see [www.youtube.com](http://www.youtube.com) (type 'Careers for the Environment Macquarie University') in the search box). The WED celebrations also included public and staff workshops on Ethical Investment and Superannuation featuring speakers from Australian Ethical Investment and Superannuation and the Responsible Investment Association of Australasia (RIAA). A public talk on Sustainable Home Design and Renovations was also held, featuring an expert from Enviroecture and a Council planner.

CASE STUDY

**HORNSBY SHIRE COUNCIL – Ready Set Grow Schools Program**

In 2011 Hornsby Shire Council partnered with Northern Sydney Local Health District to deliver the Ready Set Grow program to local primary schools (teachers and students). The program encourages integration and involvement from parents and the wider community. The schools commit to the program for three years. Each year there are three milestones (Ready, Set & Grow) for the schools to achieve. Prizes are given for each milestone as it is achieved. Each year builds on the previous year and includes buddy training, so by the end of the three year program there should be at least six (6) teachers/parents involved in the program.

The aims and objectives of the program are to:

- Encourage and support the creation of sustainable school fruit and vegetable gardens;
- Introduce concepts such as composting, consumption, recycling and healthy eating;
- Providing links to the school curriculum and the environmental management plan;
- Run a series of workshops, ensuring schools have the assistance and advice on how to start, maintain and expand a school food garden.

Hornsby Shire Council started with 8 primary schools in the first year with another 13 joining in the second

year of the program. We hope to have our remaining 13 schools join the program in 2013.

The benefits of the program to council have been:

- Better relationship with schools and their community;
- Promotion of composting and less food waste to landfill;
- Linking of waste reduction messages back to the home and the wider community;
- Increases sustainability within the school.

Benefits to the schools:

- Ongoing support and management from Council;
- Making food gardens a sustainable solution via a 'buddy system' for the teachers;
- Funding, resources and milestone prizes from Council;
- Involving not only the children but the families as well;
- Gaining a positive attitude to healthy eating for the children.

Due to the success of Ready Set Grow schools program in Hornsby Shire the program will be rolled out across six other council areas in the Northern region in 2013.

## WILLOUGHBY CITY COUNCIL – Sustainable Buildings The Concourse

Willoughby City Council formally opened The Concourse in September 2011. The Concourse is an innovative building integrating key sustainability principles. WCC has created a landmark building which is a vibrant hub for culture, entertainment and information right in the heart of Chatswood's CBD – and a meeting place where we believe everyone will feel at home.

The Concourse has transformed the old Civic Centre site and created a new ecologically friendly footprint, right in the heart of Chatswood. We have carefully redeveloped the old site with a sustainable new precinct, using sensitive urban design, to give our CBD its very own green centre. Some notable features include:

- A massive 5ML detention tank has been incorporated to capture, treat and reuse water from the Chatswood CBD. The treated water will be used extensively throughout The Concourse including in the cooling towers, bathroom facilities as well as subsoil irrigation in the landscaped garden areas. This will reduce the buildings potable water requirements by more than 80%. Excess water will be sold to neighbouring shopping centres for use in their facilities.
- High energy efficiency light fittings have been used throughout including, switching and zoning to allow more flexibility and control of lighting. Natural lighting throughout the foyer and a double-glazed atrium have been designed to maximise natural lighting for the library;
- Energy efficient air-conditioning such as chilled beams for the library and displacement air-conditioning in the theatre spaces, saving more than 30% energy than regular air-conditioning systems;
- The foyers utilise passive ventilation initiatives such as night purge, floor thermal mass, shading and stack ventilation to provide thermal comfort for patrons whilst minimising energy consumption.
- Sustainable materials were sourced including carpet made from recycled and recyclable materials, Forestry Stewardship Council certified timber throughout, low and no VOC paints, 70% recycled insulation and acoustic panelling made from compressed wheat and rice straw.



# 2

## Human Settlement

### Human Settlement



**T**he 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. These 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.



The NSW Department of Planning are due to release revised population and employment targets for each council are anticipated from the Metropolitan Plan Review in late 2012. Preliminary documents indicate that these targets will be readjusted upwards.

**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	5,500	15,000
Ryde	17,500	21,700
Willoughby	6,800	16,000
<b>Total</b>	<b>56,400</b>	<b>72,300</b>

### 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 the opportunity to allocate new land uses. However land use figures do not reflect uplift of development on existing 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.

Annual trends in development applications and new dwelling 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.

**Figure 7: Type of development applications (DAs) in NSROC region in 2011-2013**

Council	Number of Commercial DAs	Number of Industrial DAs	Number of Residential DAs	Number of aged persons housing DAs	Other
Hornsby Shire	81	20	716	1	244
Hunter's Hill	8	0	161	0	0
Ku-ring-gai	6	0	235	0	8
Lane Cove	23	12	265	0	10
North Sydney	76	0	344	0	36
Ryde	110	3	434	2	41
Willoughby	305	48	667	0	20
<b>NSROC region 2011-2012</b>	<b>609</b>	<b>83</b>	<b>2822</b>	<b>3</b>	<b>359</b>
<b>NSROC region 2010-2011</b>	<b>653</b>	<b>90</b>	<b>4,247</b>	<b>21</b>	<b>361</b>
<b>NSROC region 2009-2010</b>	<b>813</b>	<b>95</b>	<b>3,828</b>	<b>18</b>	<b>608</b>
<b>NSROC region 2008-2009</b>	<b>961</b>	<b>132</b>	<b>4,448</b>	<b>37</b>	<b>847</b>

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 reflects that many DAs relate to renovations of existing homes rather than new homes.

**Figure 8: Number of new dwellings in the NSROC region in 2011-2012 and previous years**

Council	New dwellings 2011-2012	New dwellings 2010-2011	New dwellings 2009-2010	New dwellings 2008-2009	New dwellings 2007-2008	New dwellings 2006-2007
Hornsby Shire	238	244	213	383	390	640
Hunter's Hill	20	25	19	27	13	16
Ku-ring-gai	736	109	640	126	621	126
Lane Cove	21	39	40	48	35	10
North Sydney	313	444	3	6	29	20
Ryde	126	127	127	445	479	7
Willoughby	13	161	53	148	65	25
<b>NSROC region</b>	<b>1,467</b>	<b>1,149</b>	<b>1,095</b>	<b>1,183</b>	<b>1,632</b>	<b>844</b>

While the data above shows the simple trends across the region, urban development is a complex process with many factors to consider. Hornsby Council recently completed its Epping Town Centre Study which illustrates the planning processes behind development growth.





**HORSNBYS SHIRE COUNCIL – Epping Town Centre Study**

*The Epping Town Centre Study explores the potential for the Epping Town Centre to accommodate increased residential and employment growth. Urban Development – Epping Town Centre Study (Source – JBA Planning)*

The Epping Town Centre Study has been undertaken by a consultant on behalf of Hornsby and Parramatta Councils and the Department of Planning and Infrastructure to explore the potential for the Centre to accommodate increased residential and employment growth to fulfil its role as a “Town Centre” and to maximise the benefits arising from State Government infrastructure investment.

The Study proposes:

- A compact high density Town Centre Core with increased development around the railway station permitting a wide range of retail, residential and community uses and opportunities for high density dwellings.
- Opportunity for new dwellings outside the Town Centre Core in the form of town houses and residential units within 5 new residential intensification precincts.
- New and upgraded traffic, pedestrian and cyclist facilities, including upgrades to key streetscapes and intersections to improve traffic and pedestrian connectivity.

- The creation of Heritage Conservation Areas in East Epping, Essex Street and Rosebank Avenue.
- New recreational facilities and community spaces.

At its meeting on 20 June 2012, Council considered a report presenting the outcome of the exhibition of the Study. The report recommended that Council progress a planning proposal generally in accordance with the Study recommendations subject to further review of a range of matters including Heritage Conservation Area boundaries, potential heritage items, urban form in the Town Centre Core, residential precinct heights, property acquisition and North West Rail Link impacts. Council resolved to endorse progression of a planning proposal generally in accordance with the recommendations of the report. Council has also submitted a nomination for the Epping Town Centre under the NSW Government’s Urban Activation Precincts Program.

## POPULATION DISTRIBUTION

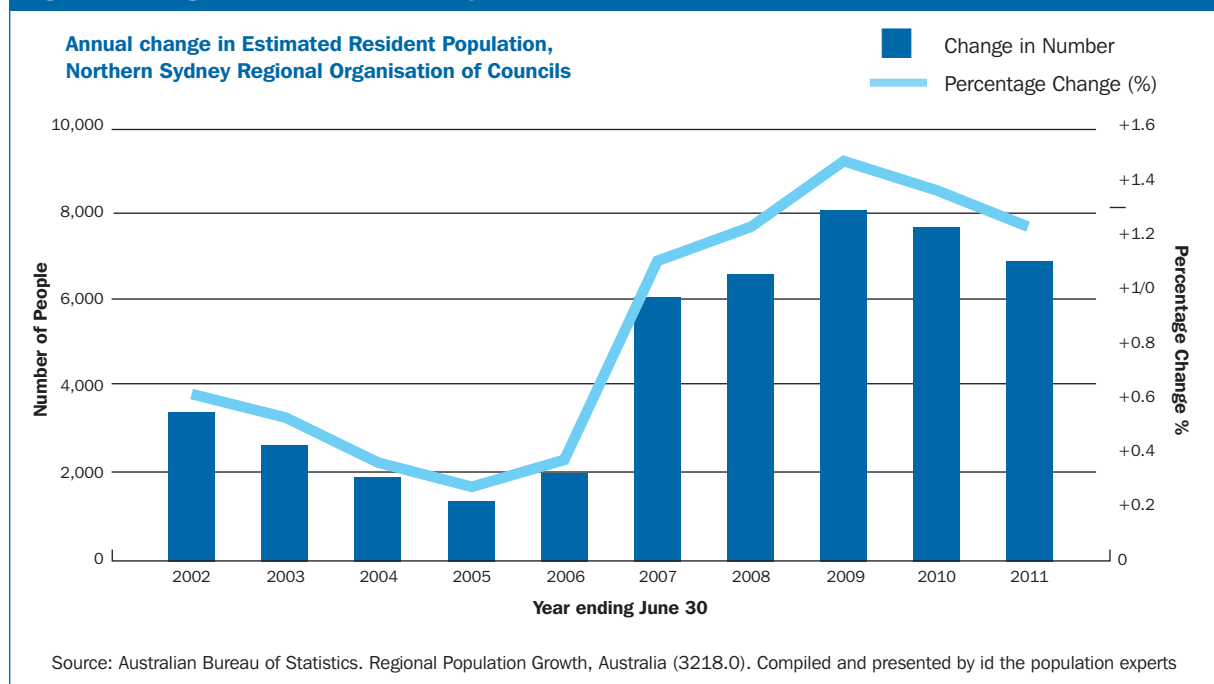
The size, rate of increase and settlement patterns of the NSROC population influence the environmental impacts within and outside the NSROC region. Changes in land uses can damage natural ecosystems. Population growth is also associated with a range of other issues, such as energy consumption, transport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

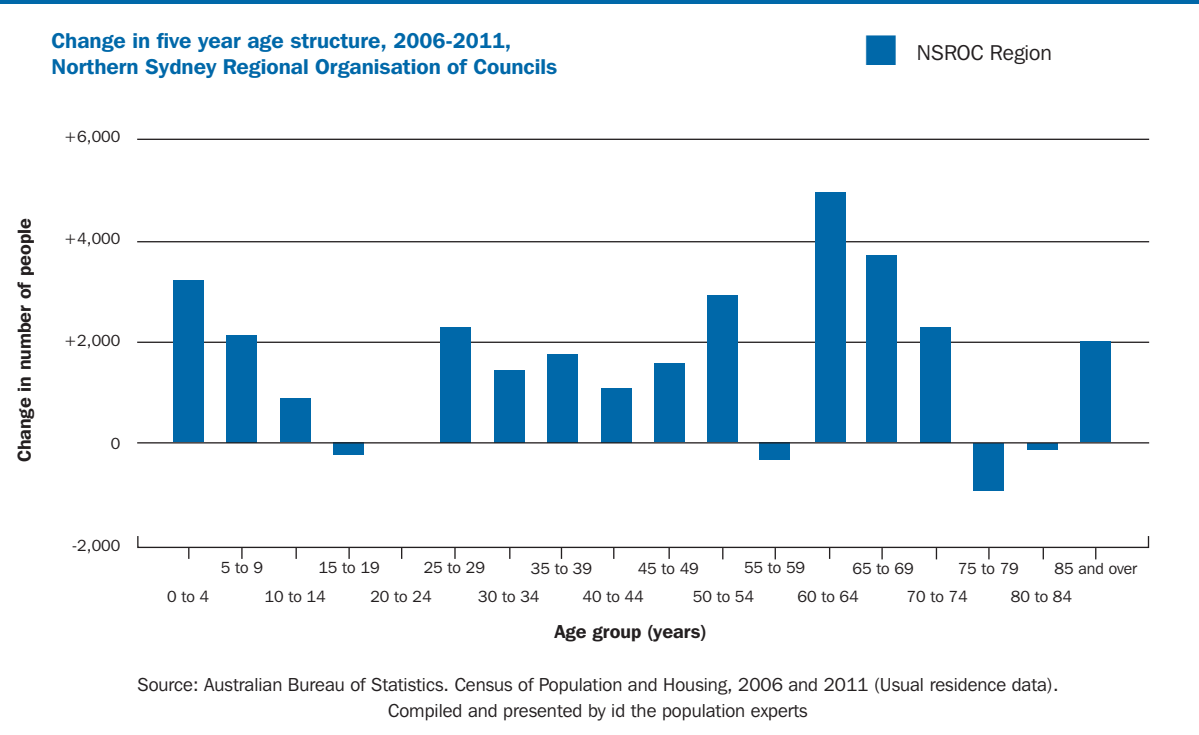
Below are estimates of the population of the NSROC region based on figures provided by the Australian Bureau of Statistics (ABS). Although the region has experienced significant growth in the past decade, the data illustrates that the rate of population growth is slowing. The 2001 to 2006 ABS data indicated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

**Figure 9: Change in NSROC Resident Population 2002-2012**



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 aging population compared to the rest of Sydney. Future planning in the NSROC region is premised around large group of residents aged 35 and above as its predominant population.

**Figure 10: NSROC Region Age Structure relative to Sydney average**



## HERITAGE

### 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.

The Aboriginal Heritage Office works to ensure the protection of Aboriginal sites and cultural heritage. In 2011-2012, 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.

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

**Figure 11: Identified Aboriginal Sites**

Council	Total sites	New sites	Protection works done-in progress
Hornsby	235	0	0
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](http://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 NSW Heritage Office 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.

The Aboriginal Heritage Office also runs a Volunteer Program, which trains Community members in Aboriginal Site recording. This program has won a State based award from the Heritage Office and presented by the Minister on the 2nd November 2012. The program continues with more volunteers joining the program each month.

## NON-ABORIGINAL HERITAGE

All Councils have ongoing commitment to preserving local heritage sites and to review and assess the heritage value within their communities. Hornsby Shire Council recent Heritage Review illustrates this point.

### CASE STUDY

#### HORNSBY SHIRE COUNCIL – Heritage Review



1549 Singleton Rd, Singletons Mill.

Since the initial Hornsby Shire Heritage Study was undertaken in 1993, Council has continually reviewed its heritage listings, conservation areas, and heritage related development controls to ensure the effective management of heritage in the Shire.

The review of heritage items has clarified the heritage status of a number of properties. The inclusion of heritage items in the heritage Schedule of the *Hornsby Shire Local Environmental Plan 1994* has resulted in a number of items identified as significant to the community being protected under an environmental planning instrument. The heritage assets identified can now be appropriately managed via the development application process under the

*Environmental Planning & Assessment Act 1979*. In this way, heritage assets and heritage significant areas can be protected in the long term.

Council is currently progressing Heritage Review Stage 5. This involves a review of houses, archaeological items, trees and gardens for their retention, inclusion or deletion from Council's Heritage List.

There are 78 items in the review, including 42 privately owned gardens, have been nominated to be assessed for their retention, inclusion or deletion from the Heritage Schedule. The items are currently being reviewed by an independent heritage consultant.

## NORTH SYDNEY COUNCIL – Community Garden

Located on the Waverton Peninsula, the Coal Loader Centre for Sustainability is an outstanding example of innovative redevelopment and re-use of former industrial infrastructure, with community engagement at its core. The site is classified on the National Trust Register and has been developed by North Sydney Council, with Federal and State Government funding partners and extensive involvement by local community members, other government and non-government agencies and private sector representatives.

The site had been inaccessible to the public since the early 1900's but contained significant relics of Australia's social and economic development. The innovative reuse and conversion of this former industrial site has meant that a regionally significant cultural landscape and harbourside site is now accessible and available for public use, enjoyment and recreation.

Officially opened in July 2011, this 2.8ha harbourside site provides the local and regional community with a unique environment for hands-on learning about sustainability in everyday life; a community meeting point and a hub for Council's extensive range of environmental and sustainability programs; all within an open space setting.

Recently awarded the 2012 Keep Australia Beautiful Sustainable Cities Heritage Award, the 2012 National Trust Heritage Award for Sustainability and both the 2012 Parks and Leisure Association's Sustainable Initiatives Award and Open Space Development Award, the Centre clearly demonstrates best practice and innovation.

The Centre presents a diverse range of formal and informal opportunities for learning and community engagement. It is home to many of Council's sustainability and environment programs and workshops; the range and nature of these will continue to grow and develop over time in conjunction with Council's project partners.

Learning opportunities are enhanced by the site's intrinsic qualities including Aboriginal heritage, proximity to natural bushland and Sydney Harbour and



substantial intact remnants of industrial heritage. These themes are explored across the site through a range of media including interpretive signage, audiovisual presentations, and sculpture and art installations.

Open space areas of the site support facilities which build on and support community pride, commitment and involvement, including a community garden, community nursery and Aboriginal bush-foods garden which offer further opportunities to meet and interact with community members.

What distinguishes the Coal Loader Centre for Sustainability from other facilities is found in:

- the multiple layers of history conserved and celebrated on this unique site;
- the achievement of a delicate balance between community expectations and long term conservation principles;
- the use and demonstration of innovative and leading technologies within a heritage site;
- the underpinning of the site with an extensive research and planning framework;
- the integration of sustainability principles throughout all components of the project and;
- the striking juxtaposition of 'old' industry overlaid with new ideas and technologies as captured by the phrase 'Learn from the Past – Embrace the Future'.

## 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 previous NSROC SoE Reports.

Sustainable urban planning and transport must strike the right balance of effective and economic people movement with transport modes offering low energy and 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.

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 lineBus 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.

In May 2012 NSROC commenced a specific campaign for the F2-M2 motorway and produced a research report and promotion kit recognising this link as a regional infrastructure priority. This campaign is ongoing but already has captured substantial media coverage, also generating interest from both levels of government and now the private sector.



## DELIVERING SUSTAINABLE TRANSPORT

NSROC member councils manage public roads and related transport infrastructure that is 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 is currently assisting the development of better transport management in Macquarie Park and along with other councils promoting sustainable transport options as illustrated by the following case studies

### CASE STUDY

#### CITY OF RYDE COUNCIL – Macquarie Park Transport Management Association



Macquarie Park is considered the northern anchor of the Global Economic Corridor and has been identified in the NSW Government's Metropolitan Strategy as a specialised employment centre. Macquarie Park is not only important to the City of Ryde, but also to the broader NSW economy.

Macquarie Park (and Riverside Park) is home to some of Australia's largest employers, including Optus, Fuji Xerox, Johnson & Johnson, BOC, Microsoft, Macquarie University, AstraZeneca, Foxtel, Siemens and Sony. With the Macquarie Park Corridor expecting to double in size and worker numbers by 2031, this success has its challenges, in particular, traffic congestion.

To address the traffic and transport issues in the Macquarie Park Corridor, City of Ryde, in partnership with Transport for NSW and the local business community has established NSW's first Transport Management Association (TMA).

The TMA aims to:

- Build a collaborative platform for local businesses to partner with government agencies and transport providers to improve the efficiency and sustainability of the transport network
- Reduce demand for peak-period private vehicle travel by expanding multi-modal access and off-peak access
- Expand the number of businesses and institutions supporting and delivering workplace-based transport programs

Businesses and institutions that join the TMA will have the opportunity to benefit from the economies of scale of being part of joint programs, partnerships and initiatives which address traffic and transport issues in Macquarie Park.

Transport issues are complex; requiring a shift in thinking. The Macquarie Park TMA is an exciting response to these issues and challenges.



## CITY OF RYDE COUNCIL – Personal Mobility Devices

The congestion produced by multiple short trips is an issue that has proved intractable for transport planners in sites such as Macquarie Park in the Ryde Local Government Area.

A YouTube Video was produced by the City of Ryde showing a potential solution to this problem. See [www.youtube.com](http://www.youtube.com) (search for 'Improving transport in urban areas, personal mobility devices').



As a result, a project has now commenced between the City of Ryde and Macquarie University (under the Macquarie – Ryde Futures Partnership), that will conduct a multi-faceted feasibility study of the incorporation of Personal Mobility Devices (PMDs) into travel usage and transport planning in multi-user areas.

Use of PMDs – powered devices that allow the user to travel short distances quickly and to transfer between transport modes – is emerging as a possible solution

and there is solid evidence to suggest “the missing distance” (800 m to 5000 m), can be a leverage point to start changing our dependence on cars and their associated problems (parking, pollution, infrastructure costs, social inequity).

This project is aimed at showing that PMD's can fulfil a viable option as an alternative vehicle and be easily used on existing pathways (without any major physical or financial infrastructure requirements) to traverse those distances involving short trips to shops, schools, appointments, recreational and other activities which represent 61% of all trips in Sydney.

The problem is that PMD's are currently illegal in Australia for use on footpaths and existing pathways and the City of Ryde is lobbying the introduction of legislation to allow the safe use of PMD's to align the Australian legislation with international standards and regulations.

This project has currently garnered unparalleled support from key government agencies on the basis that it will directly inform the development of national policy and regulations in the area of alternative vehicles.

On completion, the project will be of broader significance in that its findings will shape the development of regulations governing alternative vehicles; including PMD's and provide guidelines for other local governments and/or precincts addressing the question of short journeys in congested locations.

Some examples of PMD's to be tested under this project are depicted below.



CASE STUDY

**LANE COVE COUNCIL – Riding Around Lane Cove**

Bike North Bicycle User Group, with the support of Lane Cove Council, has produced the ‘Riding Around Lane Cove’ brochure with six easy-to-follow rides around the Lane Cove area.

The brochure includes a map and easy to follow instructions for each of the rides, with clear directions and advice about potential route hazards. Local landmarks are highlighted and all rides are graded from easy to hard. The routes have been developed and tested by Bike North members.

The ‘Riding Around Lane Cove’ map was produced with funding from Lane Cove Council’s Sustainability Small Grants Program. This program gives local community groups the opportunity to apply for up to \$2,000 in funding to implement local sustainability projects.



Front cover of the new Riding Around Lane Cove Brochure.

CASE STUDY

**NORTH SYDNEY COUNCIL – Electric Bikes**

Council has a number of pool cars used by staff members for work-related travel such as inspections and external meetings. Cars are normally replaced every three years. In 2011 one of these pool cars was replaced with two electric bikes, aiming to reduce the social and environmental harm caused by Council transport. Electric bikes were chosen so that staff could ride them in normal work clothes without getting hot and sweaty, even with North Sydney’s difficult topography and hot summer days.

Council’s Greenhouse Action Plan 2009 called for the implementation of a bike fleet for staff work trips. A staff travel survey conducted in 2010 confirmed that there was sufficient demand to justify the replacement of one pool car with two electric bikes at Council’s main offices.

An inter-departmental project team was set up to plan and implement the electric bike fleet. Led by Council’s



Sustainable Transport Officer, it included staff from Engineering, OHS, IT, Communications, Road Safety, Corporate Risk and Fleet Management.

The project took six months from concept to delivery and included the following steps:

- Conversion of one parking space to a secure bike compound with electric recharging points
- Corporate Risk Assessment
- OHS Risk Assessment and Action Plan
- Development of bike booking system
- Development of staff induction process, including bicycle rider training and certification
- Procurement of electric bicycles
- Internal and external promotion of bike fleet
- Development of fleet management guidelines, including responsible end-of-life disposal

**Outcomes**

- 22 staff have completed an induction for using the electric bikes.
- CO2 emissions for the electric bikes are 0.5kg per 100km, compared to 14.5kg for a fuel-efficient car (Toyota Yaris).
- Each trip made using an electric bike costs Council about \$4, compared to \$23 for a car trip.
- Council has been able to increase its number of pool vehicles without needing more parking space.

## WASTE

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

In 2011-2012 residents of the NSROC region generated 120,699 tonnes of material which went to landfill. Another 142,713 tonnes of material was recovered through recycling systems. In total, more waste was collected in 2011-2012 than in previous years, reflecting the region's growing population.

**Figure 12: Landfill and recycled waste tonnages by councils in 2011-2012**

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	36,166	41,795	220	119	136
Hunter's Hill	2,151	3,950	165	111	98
Ku-ring-gai	28,842	44,192	208	326	192
Lane Cove	7,249	6,095	210	180	70
North Sydney	7,194	16,057	111.3	284	23
Ryde	25,150	22,700	232	210	103
Willoughby	13,947	7,942	165	111	98
<b>NSROC 2011-2012</b>	<b>120,699</b>	<b>142,713</b>	<b>1,311</b> (Average 219)	<b>1,341</b> (Average 191)	<b>720</b> (Average 102)
<b>NSROC 2010-2011</b>	<b>114,501</b>	<b>139,761</b>	<b>1,192</b> (Average 170)	<b>1,607</b> (Average 229)	<b>585</b> (Average 83)
<b>NSROC 2009-2010</b>	116,631	108,145.5	1,381 (Average 197)	1,357 (Average 193)	552.5 (Average 78)

Councils look for innovative ways to help the community see the value in waste reduction and the opportunities for waste recycling. As noted in the 2010-2011 SoE report, NSROC has commenced a major investigation of regional collaboration on waste management in light of higher levies on waste to landfill and changing market conditions.



## HORNSBY SHIRE COUNCIL – Highrise Unit Waste Management Program



*High rises in Waitara.*

In the past twelve months Hornsby Council has experienced an increase of illegal dumping of household goods in and around the Hornsby and Waitara highrise units causing environmental issues and visual pollution.

There are 35 high rise unit blocks consisting of 2,500 units in and around the Hornsby and Waitara area. Approximately 72% of residents renting, 40% new to Hornsby shire and over 40% of residents born overseas.

Council's highrise program aims to reduce illegal dumping in the Hornsby area and to provide residents with the back to basic information regarding Hornsby Council's waste management service.

The program includes

- Tagging illegal household goods and leaflet distribution of nearby unit blocks.
- Updating of data bases
- Production and distribution of language appropriate education material

- Auditing highrise garbage room with unit manager (signage, bins and access)
- Placement of signage inside the lobby and or garbage rooms.
- Personal contact with unit managers and cleaners.
- Information campaign. Leaflet drop for audited unit residents – every second week over a six week period.
- Workshops and relationship building with Culturally and Linguistically Diverse (CALD) communities.

Outcomes include the reduction of tagged illegal dumping from initially once a week to monthly. Over 30 garbage rooms audited with distribution of bin sticker and signs, bin replacement and improved bin placement. The development of a better working relationship with unit managers, cleaners and residents has been the best outcome.

## NOISE

Throughout the NSROC region, six types of noise complaints predominate - 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 former Department of Environment and Climate Change (DECCW) 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 four years have been relatively stable.

**Figure 13: Noise complaints received by Council within the NSROC region in 2008-2012**

Council	Barking dogs	A/C	Building sites/ construction	Licensed premises	Garbage trucks	House & car alarms	Domestic noise source	Other	Total
Hornsby Shire	235	15	56	0	3	2	43	17	371
Hunter's Hill	16	0	0	0	8	0	0	0	24
Ku-ring-gai	243	40	25	1	2	8	53	21	393
Lane Cove	1	5	18	1	4	0	12	17	59
North Sydney*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ryde	131	7	21	3	7	3	32	45	249
Willoughby	145	9	17	2	10	7	97	131	371
<b>NSROC 2011-2012</b>	<b>771</b>	<b>76</b>	<b>137</b>	<b>7</b>	<b>34</b>	<b>20</b>	<b>237</b>	<b>231</b>	<b>1,467</b>
<b>NSROC 2010-2011</b>	<b>1,034</b>	<b>110</b>	<b>599</b>	<b>139</b>	<b>83</b>	<b>35</b>	<b>150</b>	<b>215</b>	<b>2,163</b>
<b>NSROC 2009-2010</b>	1,047	104	228	7	17	10	461	425	2,299
<b>NSROC 2008-2009</b>	1,024	88	206	41	43	30	142	481	2,055

\* North Sydney Council no longer collects categorised noise complaints.

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 13.

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.



**Figure 14: Aircraft Complaints Key NSROC Suburbs 2008-2012**

Suburb	2008-2009 Complaints (complainants)	2009-2010 Complaints (complainants)	2010-2011 Complaints (complainants)	2011-2012 Complaints (complainants)
Artarmon/ Naremburn	1 (1)	6 (5)	5 (5)	0 (0)
Chatswood /Willoughby	12 (3)	39 (8)	36 (5)	13 (3)
Cremorne/Neutral Bay	2 (1)	4 (3)	6 (5)	1 (1)
Epping	4 (4)	16 (8)	10 (5)	14 (2)
Gordon	1 (1)	1 (1)	3 (3)	17 (5)
Hornsby	5 (4)	26 (8)	11 (6)	7 (6)
Hunter's Hill	1,736 (41)	61 (34)	91 (30)	158 (33)
Killara	5 (5)	13 (11)	9 (4)	10 (6)
Lane Cove	67 (24)	98 (24)	45 (16)	37 (16)
North Sydney	0	1 (1)	3 (3)	0 (0)
Pymble (& West Pymble)	26 (9)	18 (8)	22 (13)	24 (8)
Riverview	13 (2)	21 (5)	33 (9)	21 (5)
Ryde*	90 (58)	46 (34)	118 (47)	55 (33)
St Ives	7 (3)	0	5 (4)	0 (0)
Wahroonga/ Waitara	9 (8)	14 (5)	10 (2)	17 (8)

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

In September 2010 the Federal Government created an Airport Noise Ombudsman (ANO) 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.

From establishment to 30 June 2011, the ANO has received 100 complaints. A significant number of complainants related to Perth Airport (24) and Sydney Airport (21). By 30 June 2012, 92 of these matters had been closed.

In its first year of operation, the Airport Noise Ombudsman also reviewed Sydney Airport and made the following recommendations:

Ongoing recommendations ANO assessment of Airservices' response Sydney Review
<p><b>Sydney Issues Recommendation 2:</b> Airservices should improve the clarity of maps produced in reports used to convey aircraft noise information.</p>
<p><b>Sydney Issues Recommendation 3:</b> Airservices should provide more textual and qualitative assessment of aircraft noise in reporting.</p>
<p><b>Sydney Issues Recommendation 4:</b> Airservices should provide more information, clearly presented, on daily or seasonal variations, where significant.</p>
<p><b>Sydney Issues Recommendation 5:</b> Airservices should provide at least one Sydney specific fact sheet explaining Airservices' roles in noise sharing, LTOP, runway selections and noise respite and when appropriate, refer enquirers to other existing noise information sources.</p>
<p><b>Sydney Issues Recommendation 6:</b> Airservices should produce a short report on LTOP performance, and the efforts currently being made to ensure the best possible noise sharing results are delivered.</p>
<p><b>Sydney Issues Recommendation 7:</b> Airservices should explore the provision of a more timely (as well as historical) method for complainants to understand why a particular Runway Mode was in use, or why a preferred Runway Mode (noise sharing) was not able to be used at that time.</p>

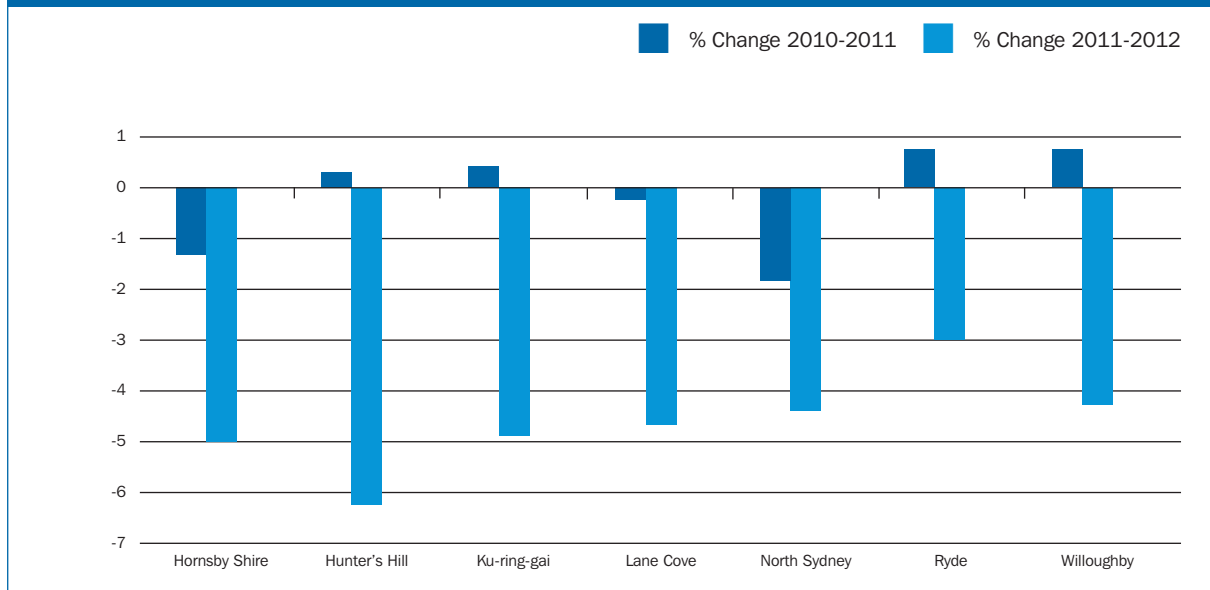
Source: Airport Noise Ombudsman, Assessment of Aircraft Noise Information (Sydney) – Airservices Australia March 2012.

## ENERGY

NSROC Councils can contribute to improving 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 previous NSROC SoE Reports.

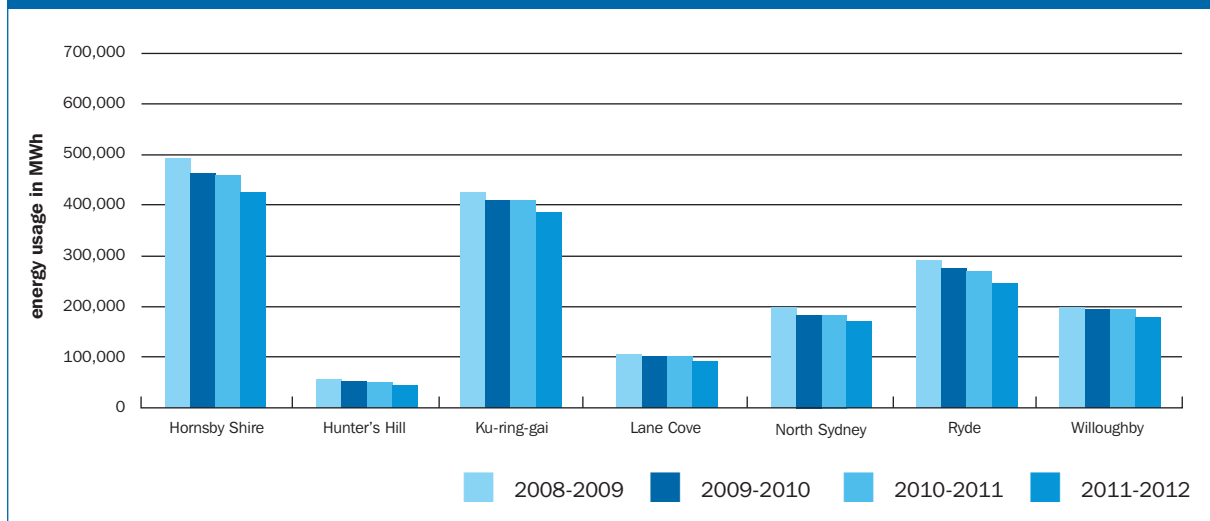
In terms of general consumption trends in 2011-2012, all NSROC councils residential and non residential consumption has decreased. This is a marked change on the individual variations experienced the previous year.

**Figure 15: Percentage Change in consumption per council 2010-2011 to 2011-2012**

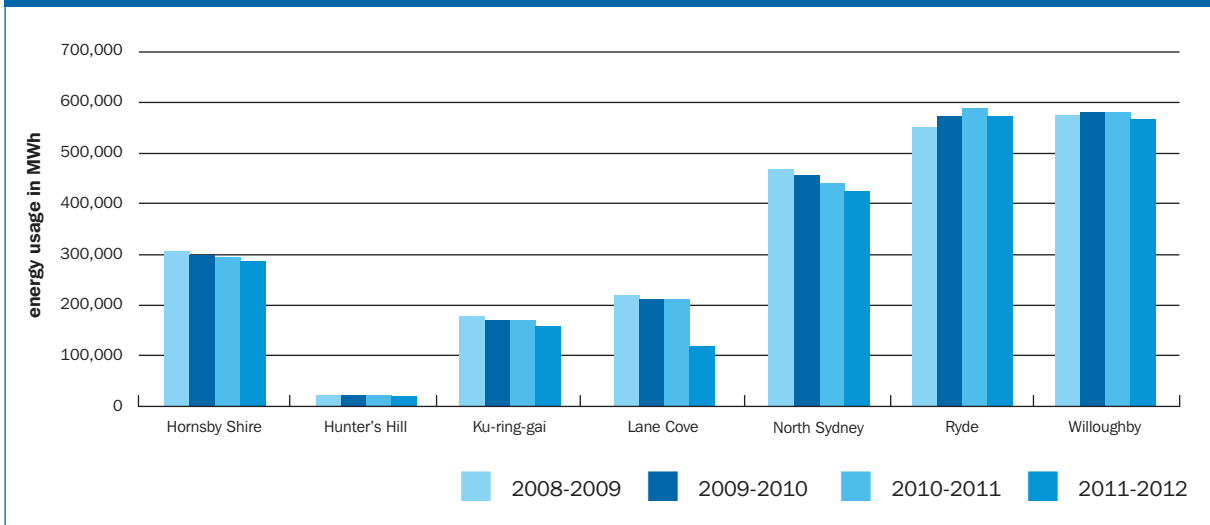


Overall NSROC council's residential and non residential consumption have achieved a steady decline over the four year term.

**Figure 16: Energy Consumption Residential Users**



**Figure 17: Energy Consumption Non Residential**



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 on issues such as solar connections and streetlighting. In 2012 Ausgrid has provided for the first time trend series of solar energy exported from the NSROC region. As the Figure 18 and Figure 19 dramatically illustrate the exponential impact of solar power initiatives across the region.

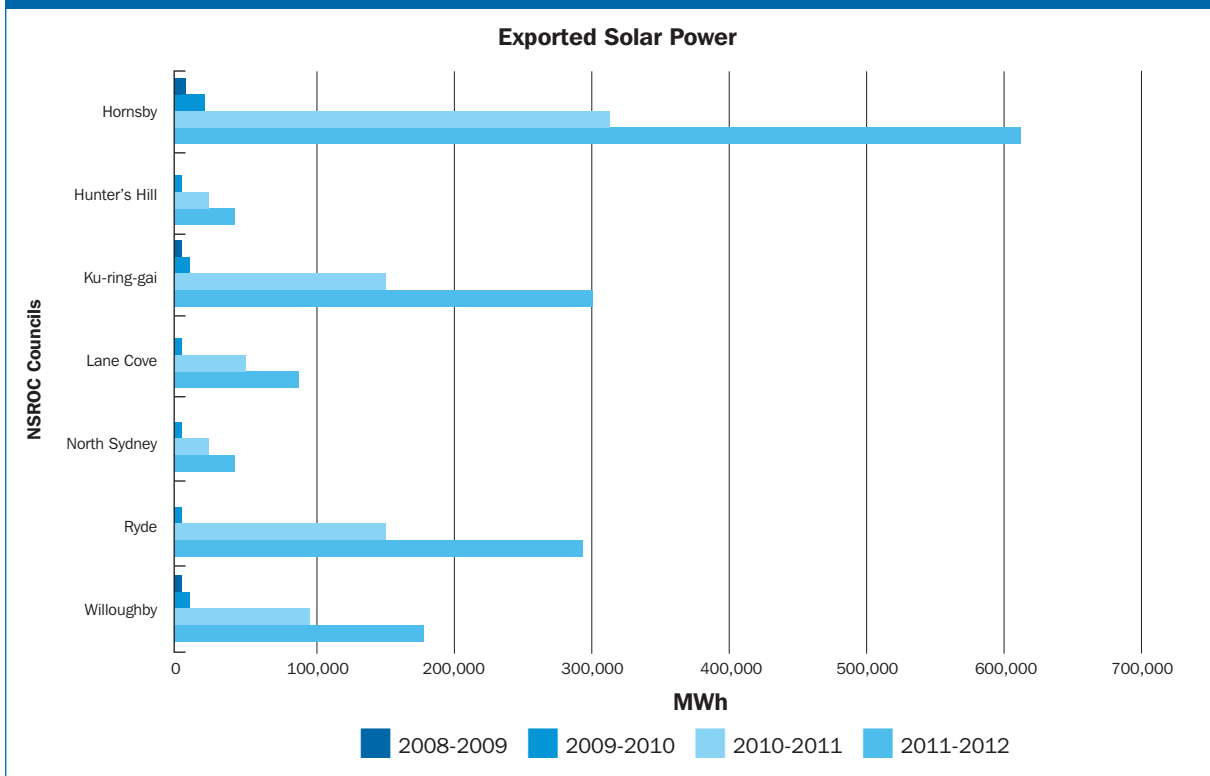
**Figure 18: Exported Solar Power by NSROC Councils in MWh**

Council	2008-2009	2009-2010	2010-2011	2011-2012
<b>Hornsby Shire</b>	73	256	3,249	6,209
<b>Hunter's Hill</b>	17	26	179	348
<b>Ku-ring-gai</b>	38	117	1,660	3,027
<b>Lane Cove</b>	18	35	423	793
<b>North Sydney</b>	18	73	249	443
<b>Ryde</b>	18	122	1,431	2,940
<b>Willoughby</b>	37	73	938	1,713
<b>NSROC Total</b>	<b>219</b>	<b>702</b>	<b>8,129</b>	<b>15,473</b>





**Figure 19: Exported Solar Power by NSROC councils area 2008-2012**



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

**CASE STUDY**

**WILLOUGHBY CITY COUNCIL – The Coolest Parking in Town**

Willoughby City Council is just completing stage 2 of its innovative Solar Farm on top of Albert Avenue car park. With the completion of this stage, the 166 kW array now extends for 200 metres and provides shading for over 70 car spaces. The 680 photovoltaic panels incorporated into this solar photovoltaic system are expected to save over 250 tonnes of

greenhouse gas from being generated each year. The power generated by the system is distributed by a private network of cables to Council operated buildings in the area. The Solar Farm is expected to substantially reduce the demand for coal fired power at the two buildings currently connected.



Stage 2 Solar Farm in Chatswood' Albert Street car park.

## CITY OF RYDE COUNCIL – Home, Waste and Sustainability Advisory Service 2012

The Home, Waste and Sustainability Advisory Service builds on the achievements previously undertaken by the City of Ryde during 2011, to further promote the Home Power Savings Program.

This supplementary program aims to target an additional 500 households including residential flats / units and Culturally and Linguistically Diverse (CALD) Communities over 2 years, offering a free advisory service to encourage sustainable living, efficient use of resources and improved waste management behaviour.

Council staff will connect with residents to help design tailor made sustainability solutions to their needs, targeting water and energy efficiency and improved waste management practices. Residents can find more information about this exciting new

program by contacting Council's environment unit on 9952 8000, or by accessing the website at [www.ryde.nsw.gov.au/Environment/Sustainable+Living](http://www.ryde.nsw.gov.au/Environment/Sustainable+Living)

The project will also provide access to residents to Power Savings Kits, to help them measure the energy used by appliances in their home. Residents can borrow kits through their local library or eligible households will be issued with a Power Savings kit to their home as part of the Home Power Savings Program.

Residents can get more information about the Home Power Savings Program at the following website:

[www.savepower.nsw.gov.au/households/home-power-savings-program/about-the-program.aspx](http://www.savepower.nsw.gov.au/households/home-power-savings-program/about-the-program.aspx)

Home > Households > Home Power Savings Program > About the program

## Home Power Savings Program

FREE Visit by an energy expert + FREE Power Savings Kit Valued up to \$200 + FREE Power Savings Action Plan

save \$\$ and help the environment

### Free help to save power

Through the **Home Power Savings Program**, 220,000 eligible households will save up to 20% a year on their power use.

Every **eligible household** that joins the program will get a **FREE!**

- **Home power assessment by an energy expert** to identify ways to save power in the home
- **Power Savings Kit** to help kick start savings which includes:
  - stand-by saver power board
  - 4 energy efficient light bulbs
  - low flow showerhead
  - shower timer
  - tap aerator
  - draught-proof strips for around the door
  - door snakes.
- **Personal Power Savings Action Plan.**

Find out what happens during a home power assessment.

THE HOME POWER SAVINGS PROGRAM

Click to watch video

Book your free home power assessment  
Call 1300 662 416  
or  
Request a call back

Available to NSW residents with a Personal Connection, Low Income Household, Care or Disability Allowance and a single utility service customer.

## 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.

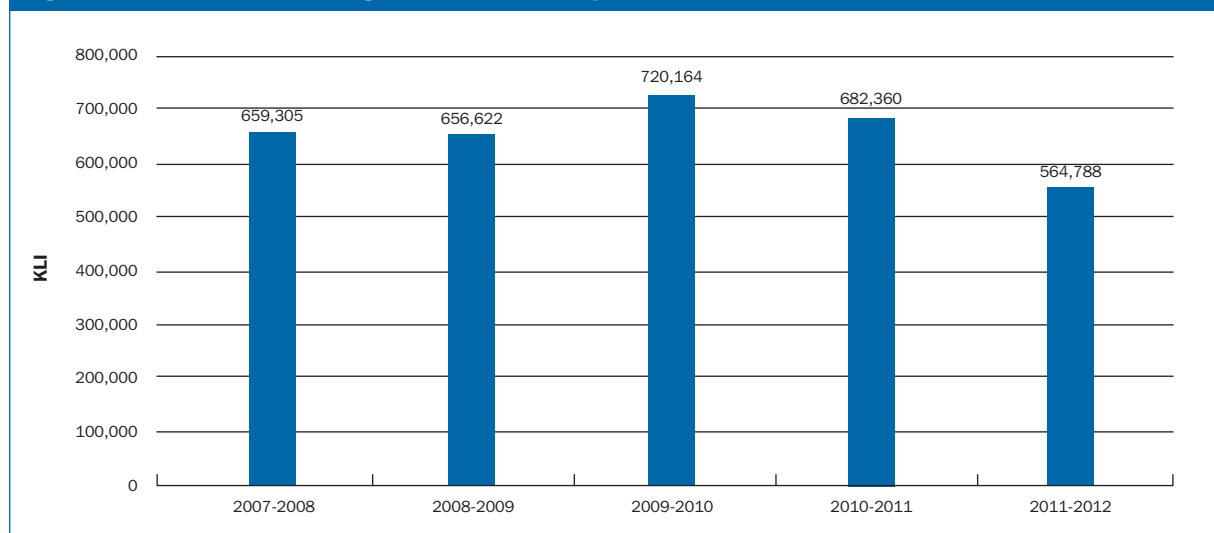
In 2011-2012 water consumption across the NSROC region declined from the previous year by over 2 million kL to 50.8million from a previous year of 53.1million kL This is a substantial drop from the previous year of where water consumption across the NSROC region declined by around 700,000 kL.

**Figure 20: Water Consumption across the NSROC region by building type in kilolitres 2011-2012**

Council	Hornsby	Hunter's Hill	Ku-ring-gai	Lane Cove	North Sydney	Ryde	Willoughby	Total
<b>Commercial</b>	1,360,702	224,266	696,755	339,850	1,801,896	1,865,704	1,577,393	7,866,566
<b>Houses</b>	8,090,158	795,105	7,130,701	1,407,293	1,143,764	4,470,202	3,034,769	26,071,992
<b>Industrial</b>	393,341	1,049	8,625	182,625	18,370	520,591	568,575	1,693,175
<b>Other</b>	512,186	137,212	340,022	116,343	181,302	309,828	112,927	1,709,821
<b>Units/Flats</b>	2,148,485	270,489	1,235,362	873,762	3,748,541	2,940,989	2,260,113	13,477,740
<b>Total 2011-2012</b>	<b>12,504,873</b>	<b>1,428,120</b>	<b>9,411,466</b>	<b>2,919,873</b>	<b>6,893,873</b>	<b>10,107,313</b>	<b>7,553,776</b>	<b>50,819,293</b>
<b>Total 2010-2011</b>	<b>13,186,887</b>	<b>1,562,991</b>	<b>10,015,302</b>	<b>3,082,691</b>	<b>6,932,492</b>	<b>10,410,921</b>	<b>7,946,497</b>	<b>53,137,781</b>
<b>Total 2009-2010</b>	<b>13,663,547</b>	<b>1,587,180</b>	<b>10,420,715</b>	<b>3,026,395</b>	<b>6,973,644</b>	<b>10,414,817</b>	<b>7,746,263</b>	<b>53,832,561</b>

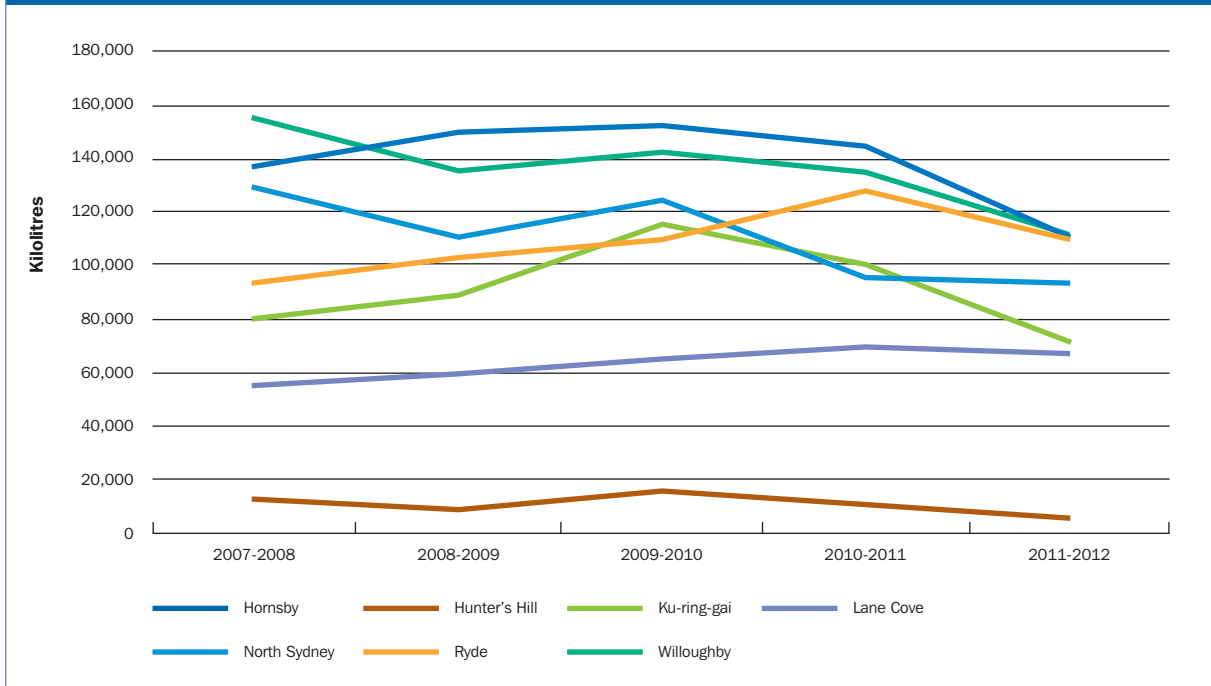
Councils also set objectives to reduce their own consumption across their sites and assets. In 2011-2012 this trend continued with water consumption dropping over 100,000kL from the previous year.

**Figure 21: NSROC Council's regional water consumption 2007-2012**



In 2011-12 all NSROC councils were able to reduce their own water consumption as illustrated below.

**Figure 22: Water consumption by individual councils 2007-2012**



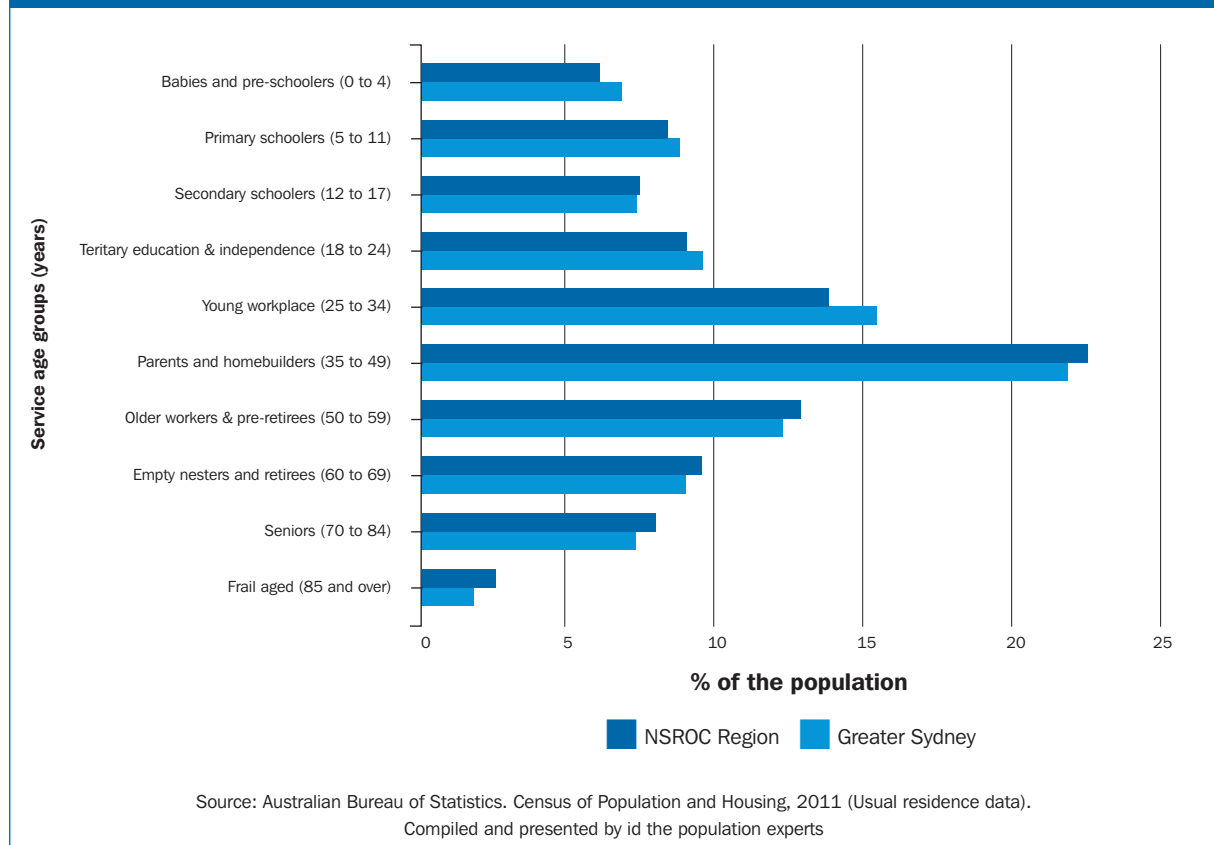
## COMMUNITY HEALTH

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 NSROC Region has a lower proportion of pre-schoolers and a higher proportion of people at post retirement age than Greater Sydney. The ageing demographic are illustrated in the Figure below:

**Figure 23: Age distribution across NSROC region compared to Greater Sydney**



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 recognizing future facility needs.

In 2011-2012 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. Lane Cove Council's initiative of the Walk around the World and Hunter's Hill's Tarban Creek Cycleway are two initiatives that are about enabling the community to be physically active.

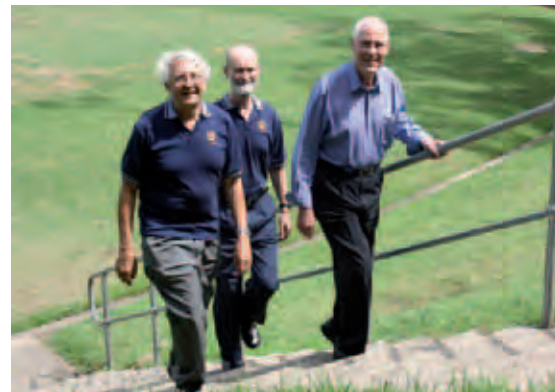
CASE STUDY

**LANE COVE COUNCIL – Walk Around the World**

*Walk Around the World* is a month-long initiative to help people increase levels of physical activity and reduce the likelihood of chronic disease. The inaugural event was held in March 2012 and was a collaborative effort between Lane Cove Council, Rotary Club of Lane Cove and the Bluefit Foundation.

The initiative was developed in response to a rise in chronic diseases which have overtaken infectious diseases as the leading cause of death world-wide and in Australia. Research has shown that most chronic diseases are preventable or can be mitigated by implementing lifestyle changes, including increasing physical activity. Education campaigns are vital in improving knowledge about chronic diseases but knowledge by itself is insufficient unless accompanied by significant behaviour change.

As part of *Walk Around the World*, members of the community were invited to participate by registering online. They then selected a ‘challenge’ (a set number of steps to walk each day) and, with the aid of a pedometer provided as part of the registration pack, recorded the number of steps they walked each day.



Members of Rotary Club of Lane Cove prepare to Walk around the World.

*Walk Around the World* was officially opened with the assistance of celebrity spokesperson Rob Palmer (Better Homes and Gardens). 480 people registered for the challenge and with all their steps registered they together achieved the goal of ‘walking around the world’! Proceeds raised from the program will contribute to the use of exercise stations in parks in next year’s program and the purchase of accessible playground equipment for children with a disability.

CASE STUDY

**HUNTER’S HILL COUNCIL – Tarban Creek Cycleway**

Hunter’s Hill Council received a grant from the Sharing Sydney Harbour Access Program to complete the final link for pedestrians and cyclists through Riverglade/ Tarban Creek Reserve, along Tarban Creek. The grant included associated works i.e. installation of seating, directional and interpretative signage and bush regeneration works. The new shared pathway and improvements are anticipated to be completed over the next two years. The project will complete the final section of the pathway, which was proposed in the Sharing Sydney Harbour Access Plan – allowing access directly between Pittwater Rd and Parramatta River.

Seating will be provided at key locations along the shared pathway to allow people to rest and enjoy the natural environment. Track signage will facilitate access to the reserves and the foreshore of the Parramatta River. Interpretative signage will highlight the natural values and cultural history of the reserves. Strategic revegetation and bush regeneration works are being undertaken along the shared pathway to improve the aesthetics and biodiversity values of the reserves, and to provide a continuous wildlife corridor along Tarban Creek.

This project links with the vision of the Parramatta River Catchment Group, which is to create a regional walking/ cycle trail for the Parramatta River and its tributaries. In addition, the project aims to encourage bush friendly behaviours in neighbours and new volunteers to join existing bushcare groups in the reserves.



## NORTH SYDNEY COUNCIL – The Coal Loader Community Garden and Community Health

In 2009 North Sydney Council created a space for a Community Garden at the former industrial site in Waverton known as The Coal Loader. The space had a former tenant's garden and a bitumen carpark. The community embraced the idea and put time and effort into creating a part in-ground and part raised vegetable garden. One member of the community garden group applied for and won a grant from Australian Broadcasting Commission's Open Garden Scheme to create a keyhole garden. Another element has since been added in the form of a poultry house

Several aspects of community health soon emerged from the Community Garden:

- Community members meet at the garden each Wednesday to tend and harvest. It's a ten minute walk from the nearest public transport, but most of them take the opportunity to walk. The garden has become a way of exploring organic food production and the pride that comes from

harvesting your own plants. It's also an opportunity for like-minded people to share ideas.

- Council's Community Development unit joined with NSW Health in 2008 to involve local primary school students in the Healthy Eating Project, in which students were given the knowledge to connect what they eat to how it is produced and harvested. In 2010 more than 120 students participated in the program at the Coal Loader. The program still promotes healthy eating in schools and is part of NSW Health "Healthy Kids Messages".

The Coal Loader Community Garden now includes a nearby vertical garden. It continues to accommodate school groups and local residents in learning about what constitutes fresh food. The Coal Loader Community Garden is on a very popular walking track to nearby Balls Head so acts as a place to inspire many people from other parts of Sydney.



# 3

## Bushland

### Bushland

**T**he 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 24). 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 including 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 24: Bushland across the NSROC area in 2011-2012**

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 (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	37
Willoughby	338	290	85
<b>NSROC</b>	<b>42,347</b>	<b>7,582</b>	<b>18</b>

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 2,700 and a slight drop in value.

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

In 2011-2012 volunteer numbers were down from the previous year as well as total hours. However on general estimates NSROC region is maintaining a strong commitment from its communities for engagement in bushland preservation.

Innovations in programs are illustrated in this chapter in the case studies that are featured.

**Figure 25: The contribution of bushcare volunteers in the NSROC region in 2011-2012**

Council	Volunteer numbers	Volunteer hours	Value of hours (in dollars @ \$25 per hour)
Hornsby Shire	760	10,822	270,550
Hunter's Hill	65	1,100	27,500
Ku-ring-gai	800	12,000	300,000
Lane Cove	249	3,726	93,150
North Sydney	271	4,309	107,725
Ryde	464	4,728	118,200
Willoughby	250	5,097	127,423
<b>NSROC 2011-2012</b>	<b>2,859</b>	<b>41,782</b>	<b>1,044,548</b>
<b>NSROC 2010-2011</b>	<b>3,019</b>	<b>46,680</b>	<b>1,171,344</b>

CASE STUDY

**CITY OF RYDE COUNCIL – River to River Corridors Project 2010-2013**

The River to River Corridors Project is a 3-year urban wildlife corridor project, grant funded by the NSW Environmental Trust and the Sydney Metropolitan Catchment Management Authority. The City of Ryde and Hunter's Hill Councils are project partners. The project is in its second year and aims to reconnect fragmented and previously disconnected bushland, whilst establishing new and enhanced habitats for birds and other fauna, along two corridors between the Lane Cove and Parramatta Rivers.

The project has utilised surveys of vegetation and ecological landscape and community land features, as well as a historical literature review on bird populations, to design and implement strategic corridor plantings. Bird population responses are

comprehensively monitored in 40 sites before and some years after plantings.

Education for wildlife habitat is instrumental in establishing vegetation connectivity across private land, which makes up significant parts of the corridors. A social values and ecological knowledge survey was distributed to 2,000 households within both LGAs as a questionnaire to directly consult community on their knowledge, interest and awareness of biodiversity and corridors, with a return of over 400 surveys. Educational facets have drawn on the survey outcomes, and a brochure and council web-pages were developed to assist landholders in understanding habitat needs of urban wildlife, in particular small birds, and how to choose native plants to create structurally diverse habitat gardens.

To date the project area has included more than 500 local community volunteers planting over 12,500 plants in 16 corridor sites on community land and at three schools across the two Local Government areas, also involving corporate and voluntary organisations. Over 1,200 households within the corridors have been approached and offered free native plants of local provenance, and have been invited to educational planting days. It is hoped that many more residents will accept native plants in future years to improve their garden wildlife habitats.



## KU-RING-GAI COUNCIL – Canopy Connect

Canopy Connect is a program developed to provide Ku-ring-gai residents with a semi mature native tree. The aim is to enhance the biodiversity of the Ku-ring-gai area and assist with reducing carbon emissions as future carbon sinks. The native trees are personally delivered to each of the resident's properties and left in a chosen location on the property if they are not home.

The species range in size from 7m to 25m when fully mature and cover a range of soil types, flowers and foliage. The species range are also endemic to the Ku-ring-gai area except for the Firewheel Tree (*Stenocarpus sinuatus*) and the Macadamia Tree (*Macadamia integrifolia*) which have been placed on the list due to their popularity with residents. Almost all of the species listed are sourced from and grown at the Ku-ring-gai Community Nursery.

This has been a very popular program with a high uptake from residents.



## 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 Report. 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 threaten or vulnerable species classifications in the region. Programs to increase awareness of biodiversity are being undertaken by councils such as Lane Cove Council's Backyard Habitat Program.

### CASE STUDY

#### LANE COVE COUNCIL – Backyard Habitat Program

Lane Cove's Backyard Habitat Program is designed to help residents create habitat havens in their gardens, leading to enhanced wildlife corridors throughout the municipality. Council's Backyard Habitat Officer conducts on-site consultations to educate residents on issues such as controlling environmental weeds and encouraging remnant bushland. Residents are also offered free seedlings from the Council Nursery. All plants are local natives that have been propagated by community volunteers.

In the past four years almost 200 individual consultations have been delivered. In the coming year, Council will be giving out the 10,000th native plant for the Backyard Habitat Program.

In order to build on the success of the program, in 2011-2012 Council refocused efforts to target backyards which adjoin Council bushland. Works on private land will help support the ongoing bush regeneration in reserves, which is undertaken by Bushcare volunteers, contractors and Council staff. This integrated approach consisted of 44% of the consultations delivered in the past 12 months.

The Backyard Habitat Program has also highlighted the importance of collaboration. In Warraroon Reserve there was a joint-approach to restoring bushland –



*A Native Garden Design workshop held as part of the Backyard Habitat Program.*

residents near Council bushland were invited to be part of the new Bushcare group being established.


In addition, New Resident Information Packs were distributed to 85 properties which adjoin Council bushland. The packs are a means of familiarizing new residents with their environment and encouraging participation in the Backyard Habitat Program.

Council continues to map the properties involved in the Backyard Habitat Program, providing a strategic approach to this innovative service which is free to Lane Cove residents.

In addition to these initiatives a key concern is for bushland management is fire management. 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. In 2011-2012 over xxx hectares was burnt by x councils.

**Figure 26: NSROC Fire Hazard Management 2011-2012**

Council	Number of sites of hazard reduction burns	Area burnt (by hectare)
Hornsby Shire	12	210
Hunter's Hill	0	0
Ku-ring-gai	19	80
Lane Cove	0	0
North Sydney	0	0
Ryde	0	0
Willoughby	4	1.72
<b>NSROC 2011-2012</b>	<b>35</b>	<b>291.72</b>
<b>NSROC 2010-2011</b>	<b>31</b>	<b>136.2</b>
<b>NSROC 2009-2010</b>	<b>63</b>	<b>904*</b>



\*The 2009-10 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 in which is currently underway.

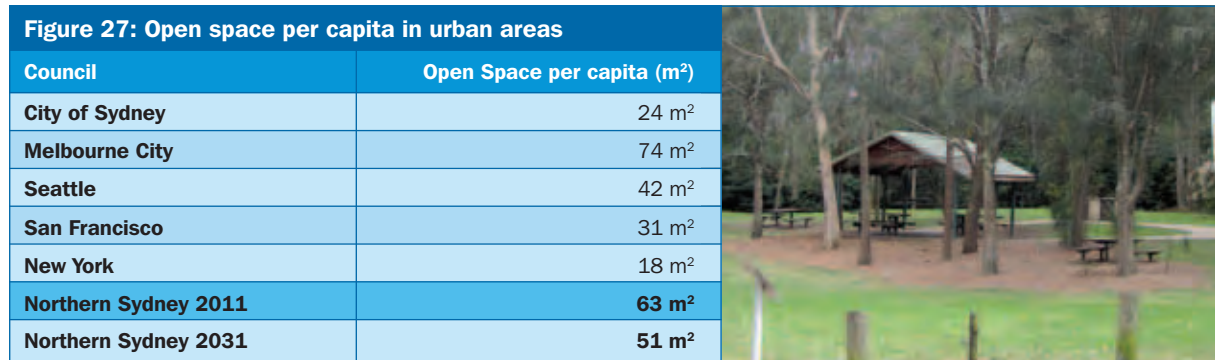
Councils are being innovative and proactive in maintenance of open space and will be considering how best to maximise the public utility from existing places and facilities. This is demonstrated through activities such as upgrading walking trails and installing exercise stops, dog and playground equipment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

Open space is not only for recreation and conservation of environmental and cultural values, it is the foundation of urban liveability. It underpins many social, ecological and economic benefits that are essential to the healthy functioning of urban communities. The Federal Cities Planning Criteria suggest that planning address issues of social inclusion and health liveability and community wellbeing (Criteria 4h and 4g). Open space directly influence State and Federal government expenditures over time due to beneficial impacts on rates of obesity and health conditions related to inactivity and isolation.

Northern Sydney region currently enjoys good access to open space. Currently, just over 3,600 ha of open space are managed by Northern Sydney councils. This equates to 63m<sup>2</sup> per capita. Without the addition of new open space, this will decline by 2031 to 51m<sup>2</sup> per capita due to the addition of an extra 130,000 people to the region.

Though the region's total quantity of open space compares favourably with some other cities, this does not tell the whole picture. Accessibility to open space is generally a better measurement of excellence than total area. Two factors that most strongly affect access to open space are its distribution and accessibility. Whilst there is a good supply of bushland recreational areas in Northern Sydney, these are often steep and can be comparatively inaccessible, especially for an ageing population.

The southern half of the region with high density residential areas and apartment based living also has a significant lack of private open space such as traditional suburban backyards. As urban densities rise, residents will be increasingly relying on public open space for activity. But the majority of the region's open space, over two-thirds, is in Hornsby and Ku-ring-gai on the northern fringes of the city, least accessible to the population. There is also a critical lack of active recreation spaces for team sports and other fitness activities, on level sites close to residential centres.



Source: City of Sydney 2006 Draft Open Space and Recreation Needs Study – Volume 2 Background and Research. Figures rounded to the nearest square metre.

NSROC is very concerned about the maintenance of open space in the region, particularly in increasingly dense areas. Local government in the Northern Sydney region is responding by intensifying the use of sport grounds and playing fields and planning within existing means for additional facilities to meet future needs. But as the region’s population intensifies, the ability of existing open space use to support the high productivity of the area is coming under pressure.

Opportunities to acquire new space are limited, because of the area’s high land values. Unlike most acquisition models for development, which rely on the generation of a revenue stream, open space adds only ongoing operational cost. Current systems go some way to addressing the issue, through regulating land use and providing funding through levies or developer contributions, but these are only partly effective.

Development contributions are a charge on new dwellings (levied per lot) designed to contribute to supporting community infrastructure demanded by the development. Contributions are a not a very stable source of income for councils because the peaks and troughs in the development industry. As a result they tend to be aggregated by local government until they are at a sufficient scale to fund entire projects, often many years later. Governments must also strike a balance between setting a price that reflects the cost of providing infrastructure and one that is not so high as to pose a barrier to development occurring at all.

NSROC has identified “growing access to open space” as a key priority within its NSROC Regional Priorities (Priority 4 – released in March 2011) and is campaigning for more capacity for councils to grow and maximise the utility of open space in the region.



# 4

## Water

### Water



**A**n 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.

From 2009-2010 the signal score system is similarly used as a proxy for measuring creek health.



**Notes**

At Hornsby Shire Council three key water parameters were used to rank the water quality across the Shire: at freshwater sites – suspended solids, total nitrogen and total phosphorus; and at estuarine sites - chlorophyll, total nitrogen and total phosphorus. The rating was considered to be “good” at a site if the ANZECC Guideline values for the three parameters are simultaneously satisfied more than 50% of the time, a “fair” rating for 25 to 50%; and a “poor” rating for under 25% of the time. Based on this methodology the measured ratings for 2011-2012 were “Good” at 17% of our 35 sampling sites, “Fair” at 14% and “Poor” at 67% of sites. During 2011-2012 total rain was higher and there were more samples taken on wet sampling days than 2010-2011. Nine sampling sites were ranked lower than the previous year. All estuarine sites were affected by higher nutrients than in 2010-2011. More thorough analysis of results of the Shire’s wide-ranging water quality program are available in the Water Quality Annual Reports and the Water Quality Report Card (<http://www.hornsby.nsw.gov.au/environment/water-catchments/water-quality>)

It should be noted that City of Ryde has not provided WQM results as monitoring had been put on hold for a year to conduct a Water Quality Monitoring Strategic Overview. This Overview will examine 7 years of data to inform improvement strategies and a new monitoring program.

North Sydney Council is undertaking a review of 12 years of sampling data and evaluating sites and parameters tested so no data is available this year.



## 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.

Below are the main Beach Suitability Grades for NSROC swimming sites which will be reported in the 2009-2010, 2010-2011 and 2011-2012 State of the Beaches Report available on the NSW Environment website:

<http://www.environment.nsw.gov.au/beach/ar1112/>

The Beach Suitability Grades can be either Very Good, Good, Fair, Poor or Very Poor.

**Figure 29: Beach Suitability Grades in Region 2009-2012**

Swimming site	Beach Suitability Grade 2009-2010	Beach Suitability Grade 2010-2011	Beach Suitability Grade 2011-2012
Tambourine Bay	Poor	Poor	Poor
Woodford Bay	Fair	Good	Good
Woolwich Baths	Fair	Fair	Poor
Greenwich Baths	Good	Good	Good
Northbridge Baths	Fair	Fair	Poor
Hayes Street Beach	Good	Poor	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](http://www.environment.nsw.gov.au/beach/thewaterqualityguidelines)

Compared with previous years the results of the water quality around some key northern Sydney harbour beaches are disappointing. Some of this relates to higher periods of rainfall affecting the region.

Councils have some capacity through improved management of stormwater to improve these outcomes. The case studies below illustrate some of these actions.



## HORSNBYS SHIRE COUNCIL – Epping Stormwater Harvesting Project

The Epping Oval stormwater harvesting project is presented as a case study. The project delivered the harvesting of stormwater for the purpose of irrigating the ovals at the Epping Oval complex. The project was completed in 2011.

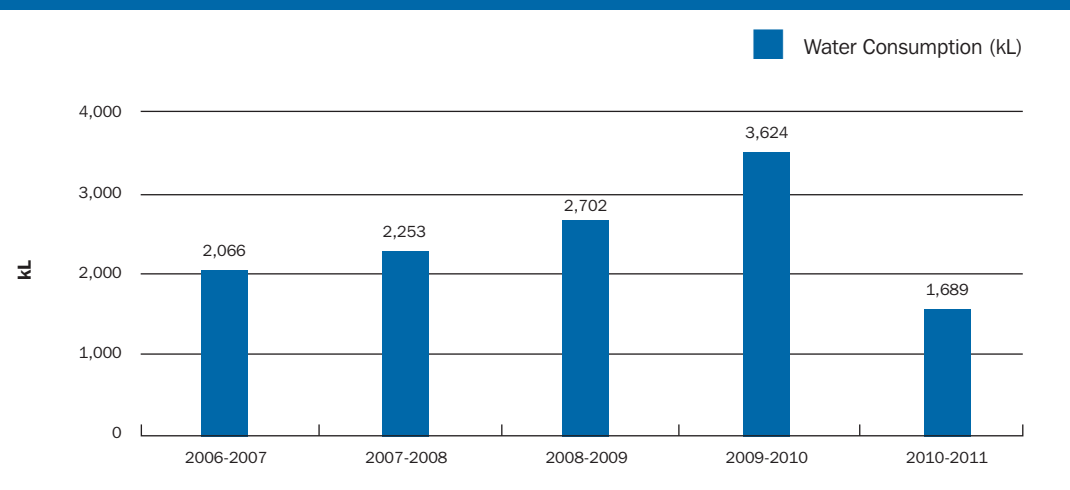
- A catchment assessment and water balance were undertaken to demonstrate water end user demand efficiency resulting in a reduction in water consumption and the volume of storage required.
- Environmental considerations ensured that the stormwater extraction did not compromise downstream environmental flows and aquatic ecosystems.
- Water quality treatment technologies removed gross litter, sediments and bacterial pathogens to make sure that public health and the environment was not adversely impacted downstream.
- Water quality monitoring sampling points were installed to assess the performance of the system. Water monitoring sampling was taken at pre and post stages of the project. Permanent water quality monitoring is applied to assess the water efficiency and environmental risk and to ensure acceptable standards are maintained.
- Online water consumption monitoring was also installed to determine the efficiency of the stormwater harvesting system. The online monitoring system enables the monitoring of water storage and potable supply and have determined water consumption trends, water profiling and have identified inefficiencies.



Epping Oval Stormwater Harvesting Project – Storage Tanks – Photo: Neil Keraunos.

- To ensure the scheme is managed and operating efficiently, a Stormwater Harvesting Management Plan (SWHMP) has been developed. The Plan provides a framework for the operational management and environmental risk.
- Water consumption has decreased by 37% (1935kL) in 2011 compared to the preceding 4 year average.
- Promotional and educational programs were implemented to raise public awareness and understanding of stormwater recycling within the LGA. These programs have further highlighted council's commitment to water recycling and sustainable total water cycle management. The promotion campaign focused on the environmental, social and economic benefits of stormwater harvesting and water reuse.

### Epping Oval Stormwater Harvesting Project



## CASE STUDY

**KU-RING-GAI COUNCIL – Rehabilitation of South Branch of Cowan Creek**

Work is nearing completion on the Kent Oval park creek stabilisation and stormwater improvement project. The project has also seen the previously deeply incised and weed infested stormwater channel be rocklined, with the addition of stormwater filter areas and a gross pollutant trap. The project will also see the construction of a formalised creek crossing, as it was previously difficult to get from one side of the stormwater channel to the other. The gross pollutant trap will capture litter such as drink bottles and leaves, while the creek bed allows some additional filtration of stormwater, removing nutrients and metals that would otherwise pollute our local waterways. The project also allowed for future reuse of the treated stormwater for irrigation of Kent Oval, which is planned to undergo refurbishment in 2015.



This project will provide increased aesthetic amenities, increased accessibility, increased water quality and once the treated stormwater is reused, will also save up to 2,500,000 litres of drinking water every year.

## CASE STUDY

**HORNSBY SHIRE COUNCIL – Bioretention Stormwater Treatment Basin**

As part of the Catchments Remediation Capital Works Program, Hornsby Shire Council completed construction of an end-of-pipe bioretention system in North Epping during the 2011-2012 year. Bioretention systems are specially designed vegetated sand filters used to treat stormwater.

The site is located within Lane Cove National Park, downstream of a North Epping residential catchment area, and was impacted by polluted stormwater run-off and associated weed infestation and erosion.

Key objectives of the project were to:

- Improve quality of stormwater run-off entering Devlins Creek – a tributary to the Lane Cove River
- Reduce erosive flows and the quantity of stormwater runoff
- Reduce weed infestation and encourage the regeneration of native vegetation
- Increase visual aesthetics and public amenity



Photo: Belinda Crescent Bioretention Basin.

The project used the latest advances in bioretention treatment technology, including a submerged saturated zone. Saturated zones provide advanced nitrogen removal, with significantly improved removal rates of oxidised nitrogen as well as dissolved phosphorus.

At the initial concept phase, the projected pollution removal rates were: Suspended Solids: 84%, Total Phosphorus: 64% and Total Nitrogen: 45%. Based on this modelling the system will significantly reduce pollutants entering Devlin's Creek from the surrounding residential catchment area.

Over 3000m<sup>2</sup> of degraded land has now been regenerated with over 3000 plantings to date. Local residents took part in a National Tree Planting Day and planted over 700 trees above and around the site. Plants were sourced from Council's community nursery. Where possible seeds were collected on-site and locally sourced, recycled building materials were used during construction of the basin.

Strong focus was placed on stakeholder collaboration to ensure that all key stakeholders were engaged and consulted. The decision making process involved a wide range of Council staff and external stakeholders (e.g. design and construction, bushland, water catchments, contractors and land managers) and benefited greatly from the hands-on experience of on-ground works crews and contractors.

- The total cost for the project was \$210,000
- Concept and detailed design: \$13,000 + Construction: \$197,000
- Approximately \$625 /m<sup>2</sup>

# 5

## Climate Change

### Climate Change



**T**he earth's atmosphere consists of nitrogen (78.1 per cent) and oxygen (20.9 per cent), with small amounts of argon (0.9 per cent), carbon dioxide (variable, but around 0.035 per cent), 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 CO2 emissions of their key assets and activities. CO2 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 30: CO2 emissions from Councils in 2010-2012**

Council	Tonnes of Co2 created by council for top 10 sites 2011-2012	Tonnes of Co2 created by council for top 10 sites 2010-2011
Hornsby Shire	2,855	3,391
Hunter's Hill	361	NA
Ku-ring-gai	2,531	2,548
Lane Cove	2,772	2,509
North Sydney	5,326	4,351
Ryde	6,327	5,591
Willoughby	9,187	8,268

## CASE STUDY

### KU-RING-GAI COUNCIL – Climate Wise Communities

Ku-ring-gai Council adopted a Climate Change Adaptation Strategy in 2010. This strategy used a unique cost/ benefit analysis model to determine a prioritised suite of adaptation measures against bushfire, storm, drought and extreme heat. The highest priority adaptation options demonstrate a need for solid capacity to minimise the risk of harm arising from extreme weather events and while generating the least impact across the Triple Bottom Line (considering environmental, social and economic issues) for least cost. Adaptations have been split into internal actions by Council and external adaptations that promote the benefits of a shared responsibility response between the community and Council.

The Climate Wise Communities project converts Council's Climate Change Adaptation Strategy into action. The project aims to assist local communities to improve their own resilience to climate related

vulnerability. Residents will be assisted to self assess their level of risk and contribute to a collaborative learning process to identify opportunities to improve the resilience of people, properties, neighbourhoods and the local environment. Council is encouraging the development of communication networks and neighbourhood capacity to better prepare communities for extreme events and aid recovery with less dependence on assistance from external agencies hard pressed at times of large scale weather events.

This project is currently in its pilot phase. Council is undertaking workshops with residents to test a number of networking approaches and activities that attract participation, most effectively engage these participants and produce enduring relationships between community members.

**Have you discussed your bushfire plans with neighbours & friends?**

What are your back-up plans for when something unexpected happens

Do you know your neighbours and what their bushfire plans are?

**Together, we can plan for bushfires**

Ku-ring-gai Council

## CITY OF RYDE COUNCIL – Low Carbon Growth Plan for the Macquarie Park Precinct

Macquarie Park is set to experience unprecedented growth over the next 20 years from 77,000 to 210,000 residents and workers. The demand on resources and space will be significant. In August 2011, Climate Works Australia in collaboration with the City of Ryde, the NSW Office of Environment and Heritage and members of the Sustainability Working Group of the Macquarie Park Business Forum developed a Low Carbon Growth Plan for the Macquarie Park Precinct.

The Plan aims to assist the Macquarie Park community to identify a range of cost effective actions that will reduce energy consumption and greenhouse gas emissions.

### KEY FINDINGS of the report:

Building owners and tenants in the Macquarie Park precinct can significantly reduce their energy use – and hence the amount of money spent on energy bills – between now and 2020 using a range of widely available technology solutions that can be implemented at relatively low cost.

For Macquarie Park’s commercial buildings:

- \$24.4 million could be saved per year by fully implementing the opportunities identified by ClimateWorks Australia. This would also reduce the precinct’s greenhouse gas emissions from commercial buildings by 42% each year.
- Three quarters of all opportunities can save money, even after taking into account upfront costs.
- While the largest overall energy savings can be found by retrofitting buildings in the Offices and Education sectors, all of MacQuarie Park’s existing buildings can benefit from substantial energy savings of between 21% and 42%.



- Macquarie Park can also reduce its dependence on grid supplied electricity by 27,900 MWh each year through the installation of cogeneration and mid-scale solar PV.
- A carbon price associated with Australia’s 5% emissions reduction target would increase the volume of profitable opportunities available to Macquarie Park’s businesses by 28%.

For more information the plan can be accessed at [www.ryde.nsw.gov.au/Environment/Sustainable+Living/Sustainable+Business/Macquarie+Park+Precinct+Low+Carbon+Growth+Plan](http://www.ryde.nsw.gov.au/Environment/Sustainable+Living/Sustainable+Business/Macquarie+Park+Precinct+Low+Carbon+Growth+Plan)

## WILLOUGHBY CITY COUNCIL – Carbon Management

Willoughby City Council has committed to working towards becoming a carbon neutral organisation. To achieve this, Council has invested in an online cloud based Environmental Sustainability Platform (ESP) called Carbon Systems. The system can upload data and provide reports on carbon emissions, costs and consumption. Willoughby's electricity, natural gas, water, waste, fleet and electricity generated have been automated to feed the data directly into the system.

This reporting tool offers a deeper insight into Council's operations and will assist in the management of emissions, costs and consumption over time. Willoughby City Council looks forward to continue using the system data in corporate and regional reports, as well as engaging the staff to help manage and reduce Council's emissions accordingly.



## 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.

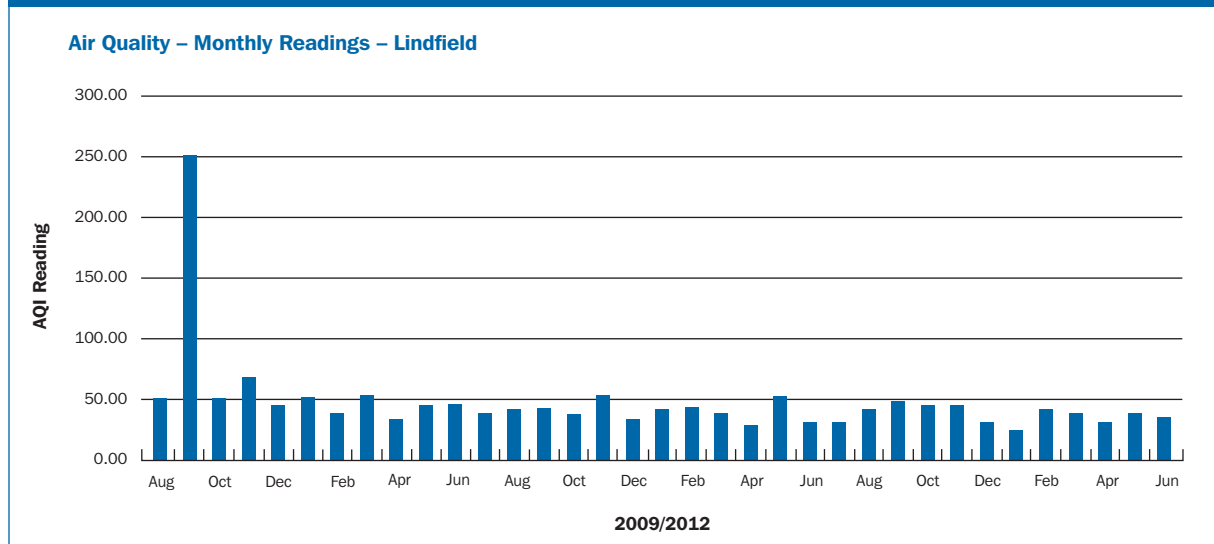
Pollutant	Units used for air quality data
Ozone	pphm (parts pre hundred million)
Nitrogen dioxide	pphm (parts per hundred million)
Visibility (as B <sub>sp</sub> )	10 <sup>-4</sup> m <sup>-1</sup>
Carbon monoxide	ppm (parts per million)
Sulfur dioxide	pphm (parts per hundred million)
Particles	µg/m <sup>3</sup> (micrograms per cubic metre)

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 2012. 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:

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 that the air quality index readings are relatively constant for the last 3 years as measured by the Lindfield Air Quality Monitoring station. There is an exception of 29 September 2009 when severe dust storms affected the whole of Sydney (impacting on the September average for 2009).

**Figure 31: Air Quality Index – Lindfield 2009 to 2012**



In addition to the Lindfield Site, Willoughby 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 increases 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 to commit to a long term monitoring 'Trend Site' is considered for Northern Sydney. At the time the Minister argued an additional site is not required. NSROC will reinvestigate this issue when the 2011 Census becomes available (in late 2012) as this may change the ratio of population to site locations.





# 6

## Landscape

### Landscape



**T**he 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. The case study below from Strangers Creek is typical of an erosion prevention initiative.

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.

CASE STUDY

### CITY OF RYDE COUNCIL – Strangers Creek Rehabilitation & Bioretention Basin

The City of Ryde has undertaken waterway rehabilitation & improvement works at Strangers Creek, Ryde. The project consisted of the construction of a bio-retention basin and creek rehabilitation.

A section of Strangers Creek was identified as needing rehabilitation due to retaining walls and other structures adjacent to the creek becoming unstable with a risk of damage to people and property. The highly erodible and unstable nature of the channel was the primary cause. Rehabilitation works were in the form of rock armoury and riparian zone re-establishment.

In addition to the waterway rehabilitation, Council staff identified an opportunity to improve stormwater quality through the construction of a bio-retention basin. The basin was designed and constructed by Council staff and functions by filtering pollutants out of the stormwater using densely planted surface vegetation to absorb excess nutrients and percolating the water through several layers of filter media. The media treats the stormwater through fine filtration, absorption and biological uptake. The treated water is then collected in slotted under-drains and diverted back into the creek.



## 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 (LEP).

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

A recent mapping exercise by Ku-ring-gai highlights the variety of mapping activity undertaken by councils. Similarly the Urban Forest Strategy by North Sydney Council also map out key elements of the environment.

### CASE STUDY

#### KU-RING-GAI COUNCIL – Biodiversity and Riparian Lands Mapping

The state-wide update of the NSW statutory planning process provided an opportunity for Ku-ring-gai to incorporate biodiversity and riparian considerations into the Local Environment Plan (LEP) to help improve the protection of biodiversity in this urban context. In order to meet the strict accuracies required for including maps in statutory planning instruments an update of two key maps, vegetation communities and riparian lands was undertaken. Revision of both maps utilised updated topographic data sourced from LIDAR imagery (aerial laser survey) and a strong emphasis on site investigations to confirm presence, condition and appropriate riparian category or vegetation community. For the riparian lands mapping this includes a new category – piped and discontinuous waterways to help facilitate re-instatement of more natural channels where possible.

The revised mapping has been combined with bushland reserve, fauna habitat and biodiversity corridor mapping to create an overlay for biodiversity significance.

The riparian lands and biodiversity mapping has been included as two separate overlays to the LEP zoning maps and accompanies objectives that trigger issues for consideration to be addressed during development of these areas.

To date the mapping has been exhibited as part of the draft Ku-ring-gai Local Environmental Plan



(Local Centres) 2012 and the Planning Proposal – Amendments to the Ku-ring-gai Planning Scheme Ordinance to incorporate provisions for Biodiversity and Riparian Land and Heritage Conservation Areas (Draft LEP218).

These mapping resources will support protection offered through existing legislation and provide strategic guidance for the protection of biodiversity and riparian resources across Ku-ring-gai. Although the biodiversity mapping does not include every record of an endangered ecological community it will help reduce the ad hoc nature of biodiversity protection, as it enables the development application process to consider impacts on the most significant areas.

## NORTH SYDNEY COUNCIL – Urban Forest Strategy

Adopted in June 2011, North Sydney's Urban Forest Strategy is the culmination of several years of research and mapping of North Sydney's tree cover; the Strategy provides an in-depth look at how our 'green infrastructure' is performing now and considers how we can maximise its performance into the future.

Urban forest is defined as the totality of trees and shrubs on all public and private land in and around

urban areas and is measured as a canopy cover percentage of the total area. Urban Forest is internationally recognised as a primary component of the urban ecosystem and an essential part of a "liveable" and economically sound community.

Unlike traditional 'grey' infrastructure such as transportation and water systems, which begin to depreciate as soon as they are installed, green



Aerial view of North Sydney c.2005 (Primrose Park in foreground) compare this image to the one on the previous page showing the same area 65 years earlier with virtually no trees.

## NORTH SYDNEY COUNCIL – Urban Forest Strategy (continued)

infrastructure accrues value and provides greater services as time passes: the vegetation resource of a sustainable urban forest can provide a continuous high level of net benefits for many decades. Scientifically proven and quantified benefits include energy conservation, reduction of atmospheric contaminants, enhanced property values, reduction in storm water run-off, and increases in social well-being.

The key objectives of the North Sydney Urban Forest Strategy are:

- To ensure no net loss of canopy.
- To value and manage the urban forest as an integral and essential component of urban infrastructure.
- To strategically plan and work across administrative boundaries and disciplines within the North Sydney Local Government Area to effectively manage the urban forest.
- To maximize community awareness, understanding and appreciation of the value and benefits of the urban forest.

The North Sydney Urban Forest Strategy has followed international best practice in Urban Forest Policy by undertaking the following steps:

1. Assess tree cover
2. Calculate its economic value as an ecosystem service
3. Set tree canopy goals
4. Implement steps to achieve goals
5. Monitor and assess performance

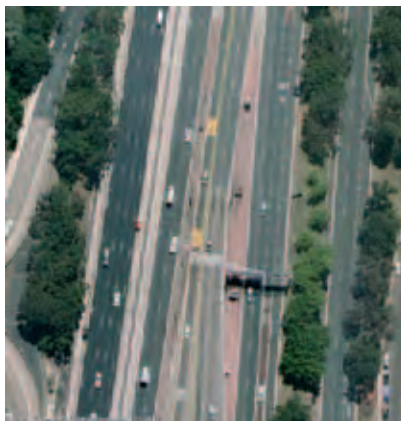
In 2008, North Sydney Council conducted a comprehensive street tree audit. The data was loaded into 'iTree', a software suite from the USDA Forestry Service. The modelling revealed that the North Sydney Street Tree Population has a replacement value of \$22,012,802 and provides a net annual return in benefits of \$3,095,002 (note - roads make up less than 10% of the North Sydney land area).

The internationally recommended canopy cover target for our climatic zone is approximately 40%. This recommendation is based on specific land-use targets. Based on our land use the North Sydney Canopy cover target is 35.5%

Using aerial photography and mapping technology, North Sydney Council has conducted three canopy cover assessments over the past 13 years with the following results:

- In 1997 total average canopy coverage was 19%.
- In 2001 total average canopy coverage had increased to 24%.
- In 2008 total average canopy cover had further increased to 34%.

It is anticipated that canopy cover targets will be exceeded when the next aerial assessment is conducted.



Two sections of the Warringa Freeway – showing capacity to provide canopy cover even in a freeway situation.

# 7

## Appendix

## Appendix

### **E**nvironmental 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.

<b>HORNSBY SHIRE COUNCIL – 10 year goals and targets desired by the community</b>
<b>Goal 1.1 – Protect and enhance biodiversity</b>
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.
<b>Targets</b> The existing area of bushland available in 2009 for habitat and ecosystems is not impacted by development
<ul style="list-style-type: none"> <li>• No net loss of bushland from development compared to previous year Illegal land clearing is actively discouraged</li> <li>• Land cleared compared to 2007 Smiths Report</li> </ul>
<b>Strategy 1.1.1 – Protect and preserve existing bushland and natural areas</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Provide education to the community on the importance of existing bushland and natural areas to biodiversity</li> <li>• Deliver projects which work towards protecting biodiversity and regenerate the bushland in the Shire</li> </ul>
<b>Strategy 1.1.2 – Ensure future land use planning and management enhances and protects biodiversity and natural heritage</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Include biodiversity and heritage as key components in any strategic planning process and documents</li> <li>• Manage trees in streets, parks and public land administered by Council</li> <li>• Manage and maintain parks, reserves, picnic facilities and playgrounds throughout the Shire</li> </ul>
<b>Strategy 1.1.3 – Provide opportunities for community involvement in projects directed towards improving the quality and amount of bushland</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Regenerate bushland in the Shire</li> </ul>
<b>Goal 1.2 – Maintain healthy waterways and catchments</b>
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.
<b>Targets</b> The health of the waterways is improving
<ul style="list-style-type: none"> <li>• 50% or more of monitored waterways are classified as healthy</li> </ul>
<b>Strategy 1.2.1 – Protect and improve the catchments in the Shire by providing support and direction to the water catchments program</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Construct water quality remediation devices as per the Catchments Remediation Rate (CRR) 10 year capital works program</li> <li>• Undertake the Estuary Management Program</li> </ul>
<b>Strategy 1.2.2 – Identify and implement innovative water conservation and sustainable water cycle management practices</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Implement the Total Water Cycle Management Strategy</li> <li>• Implement water conservation and reuse projects</li> </ul>
<b>Strategy 1.2.3 – Work with the community to care for, protect, enjoy and enhance the health of waterways in the Shire</b>
<b>Actions for Council</b>
<ul style="list-style-type: none"> <li>• Provide education to the community on the importance of waterways and estuaries</li> </ul>

<b>HORSNBYSHIRE COUNCIL – 10 year goals and targets desired by the community</b>
<b>Strategy 1.2.4 – Provide a water quality monitoring service using methods that are reliable, professional and contemporary</b>
<p><b>Actions for Council</b></p> <ul style="list-style-type: none"> <li>• Monitor and report environmental conditions, including water quality, at creeks and estuaries</li> </ul>
<b>Goal 1.3 – Reduce our ecological footprint</b>
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.
<p><b>Targets</b></p> <p>The total water consumed and per capita consumption is decreasing</p> <ul style="list-style-type: none"> <li>• 18% reduction against 1995-96 levels by 2011</li> </ul> <p>An increasing use of sustainable transport for local trips</p> <ul style="list-style-type: none"> <li>• 25% or more of local trips (less than 5 kms) by residents use sustainable options</li> </ul>
<b>Strategy 1.3.1 – Implement technologies in Council's facilities and infrastructure to reduce Council's greenhouse gas emissions</b>
<p><b>Actions for Council</b></p> <ul style="list-style-type: none"> <li>• Work towards Council becoming a carbon neutral organisation</li> </ul>
<b>Strategy 1.3.2 – Undertake community education on best practice in environmental sustainability and management of climate change issues</b>
<p><b>Actions for Council</b></p> <ul style="list-style-type: none"> <li>• Build community awareness through environmental education</li> <li>• Continue to implement the Companion Animals Strategy</li> <li>• Contribute to the management of public health and public cemeteries</li> </ul>
<b>Strategy 1.3.3 – Provide opportunities for community involvement in projects directed towards developing a more environmentally sustainable shire</b>
<p><b>Actions for Council</b></p> <ul style="list-style-type: none"> <li>• Build community awareness through environmental education</li> </ul>
<b>Strategy 1.3.4 – Educate, promote and support the community in implementing waste minimisation strategies including reduce, reuse, recycle</b>
<p><b>Actions for Council</b></p> <ul style="list-style-type: none"> <li>• Provide a domestic recycling and waste service for all residents</li> <li>• Implement a scheduled program of works based on sustainability principles</li> </ul>
<b>ECOLOGY – Actions for the community – what you can do</b>
<ul style="list-style-type: none"> <li>• Protect the environment by using sustainable energy sources</li> <li>• Become a bushcare volunteer</li> <li>• Plant native vegetation in gardens</li> <li>• Recycle and reuse resources</li> <li>• Use sustainable transport options (walking, riding or public transport) for local trips</li> </ul>
<b>ECOLOGY – Actions for others</b>
<ul style="list-style-type: none"> <li>• 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'</li> <li>• Lobby for more sustainable transport options for northern Sydney – Northern Sydney Regional Organisation of Councils – Regional Sustainability Plan 2009-2014</li> </ul>



## 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.

<b>CSP Outcome 1.1 – Protection of the natural and built environment for the benefit of future generations</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
<b>CSP Outcome 2.1 – Reduction energy consumption</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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 reduce internal energy consumption 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

<b>CSP Outcome 2.2 – Enhanced management of bushland and its biodiversity</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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

<b>CSP Outcome 2.2 – Enhanced management of bushland and its biodiversity (continued)</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
<b>CSP Outcome 2.3 – Decrease waste sent to landfill and increase recovery of resources through recycling and sustainable purchasing</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
	2.3.1.3 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

<b>CSP Outcome 2.3 – Decrease waste sent to landfill and increase recovery of resources through recycling and sustainable purchasing (continued)</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
<b>CSP Outcome 2.4 – Ensure the sustainable use and re-use of water</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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	SP
		% compliance with BASIX in DA's	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	% compliance 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
	2.4.4.3 Continue street cleaning program (including mechanical street sweeper)	Cleaning program completed as scheduled	

<b>CSP Outcome 2.4 – Ensure the sustainable use and re-use of water</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
<b>CSP Outcome 3.1 – Increased active and informed participation by local residents and business owners in creating a sustainable future</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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
<b>CSP Outcome 3.2 – Environmental education is improved and used in conjunction with other organisational tools and strategies to promote sustainability</b>			
<b>Delivery Plan Strategies</b>	<b>Operational Plan Actions</b>	<b>Performance Measure</b>	<b>Sub Plan Link</b>
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			
<b>Vision:</b> 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	<ul style="list-style-type: none"> <li>Increase participation in environmental education programs</li> </ul>
Bushland			
<b>Vision:</b> <ul style="list-style-type: none"> <li>Ku-ring-gai is a place of extensive bushland with native flora and fauna which we highly value and protect.</li> <li>Ku-ring-gai has adequate access to all bushland areas for fire protection operations.</li> </ul>			
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	<ul style="list-style-type: none"> <li>Increase resilience of bushland areas under regeneration</li> <li>Improve condition of tracks and trails</li> <li>Improve condition of biodiversity within Ku-ring-gai</li> </ul>
		Increased corporate understanding and implementation of best practice ecological management	<ul style="list-style-type: none"> <li>Maintain benchmark environmental management practices</li> </ul>
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	<ul style="list-style-type: none"> <li>Manage community concerns in relation to bushfires</li> <li>Implement the Hornsby – Ku-ring-gai bush district fire management plan</li> <li>Comprehensive review all Council policies and operations in relation to bushfires to determine possible areas for improvement</li> </ul>

<b>Water</b>			
<b>Vision:</b> Ku-ring-gai cares for the condition of its natural waterways and riparian zones.			
<b>20 year objective</b>	<b>20 year target</b>	<b>5 year objective (2015)</b>	<b>1 year objective (2011)</b>
Protect and enhance aquatic ecosystems	15% of Ku-ring-gai waterways demonstrate improved riparian condition	Improved condition of Ku-ring-gai waterways and riparian zones  Increase community awareness of approaches to sustainable water management	<ul style="list-style-type: none"> <li>Implement water savings and water sensitive urban design projects to improve urban water ways</li> </ul>
		Improved the adoption of integrated water cycle management	<ul style="list-style-type: none"> <li>Complete one sub-catchment integrated water cycle management plans</li> </ul>
	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	<ul style="list-style-type: none"> <li>Reduce Council's potable water consumption</li> </ul>
	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	<ul style="list-style-type: none"> <li>Identify Council sites to increase non-potable water consumption</li> </ul>
<b>Climate change</b>			
<b>Vision:</b> Ku-ring-gai is a place addressing and responding to climate change.			
<b>20 year objective</b>	<b>20 year target</b>	<b>5 year objective (2015)</b>	<b>1 year objective (2011)</b>
That Council minimises its levels of CO <sub>2</sub> and showcases sustainable energy technology and to identify and continuously monitor the sources of CO <sub>2</sub> emissions and actions implemented to reduce green house gas emissions	40% reduction of Council's CO <sub>2</sub> emissions	Council and community better adapted to climate change	<ul style="list-style-type: none"> <li>Identify gaps in knowledge of climate change and impacts on Ku-ring-gai</li> </ul>
		Reduce Council's carbon footprint	<ul style="list-style-type: none"> <li>To develop and implement a carbon accounting method</li> </ul>
		Reduce the community's carbon footprint	<ul style="list-style-type: none"> <li>Build partnerships with other Councils and industry to address funding for energy and water alternatives</li> </ul>
		Procurement strategy that incorporates sustainability and climate change	<ul style="list-style-type: none"> <li>Review existing procurement strategy by comparison to other councils and organisations</li> </ul>

## 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
<ul style="list-style-type: none"> <li>• Develop strategies to address Climate Change.</li> <li>• Implement a comprehensive education program to promote sustainable living including sustainable environmental practices for homes, workplaces, and public and open spaces.</li> <li>• Identify options and incentives for alternative energy use.</li> <li>• Identify options and incentives for water conservation, including the generation of local water supplies and increased use of recycled water.</li> <li>• Develop an integrated (regional) waste management initiatives.</li> </ul>	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:- <ul style="list-style-type: none"> <li>• Tackle climate change;</li> <li>• Develop a clean energy future; and</li> <li>• Secure sustainable supplies of water and use our water more wisely.</li> </ul> Sydney Metropolitan Plan 2036:- <ul style="list-style-type: none"> <li>• Developing a climate change adaptation strategy for Sydney in collaboration with Councils.</li> </ul>



<b>Bushland</b>			
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.			
<b>Strategies</b>	<b>Link to Council Plans</b>	<b>Responsibility</b>	<b>Link to State Plans</b>
<ul style="list-style-type: none"> <li>Extend programs that involve the community in bushland protection and conservation.</li> <li>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.</li> <li>Accelerate efforts to identify and protect local populations of threatened species.</li> <li>Review bushland management for effective management of bushfires and the potential for spread of bushfire to residential areas.</li> </ul>	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:- <ul style="list-style-type: none"> <li>Protect our native vegetation, biodiversity, land, rivers and coastal waterways.</li> </ul>
<b>Waterways</b>			
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.			
<b>Strategies</b>	<b>Link to Council Plans</b>	<b>Responsibility</b>	<b>Link to State Plans</b>
<ul style="list-style-type: none"> <li>Implement catchment management strategies to protect and rehabilitate high priority waterways and manage impacts on medium and low priority waterways.</li> <li>Identify key polluters / pollutants of local waterways as input into catchment management strategies.</li> <li>Trial and if successful implement innovative ways of reducing stormwater pollution of local waterways.</li> <li>Review and integrate estuary, bushland and catchment management strategies.</li> </ul>	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:- <ul style="list-style-type: none"> <li>Protect our native vegetation, biodiversity, land, rivers and coastal waterways.</li> </ul>

## 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 practice 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 Kilotres of drinking water by resident per year EN20 Kilotres 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 Kilotres 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.

<b>Goal One</b>
Our residents, businesses and visitors collaborate in the protection and enhancement of our natural environment.
<b>Strategies</b>
<ul style="list-style-type: none"> <li>• To raise awareness in our community on the future challenges to our natural environment and the actions required to mitigate them.</li> <li>• To actively collaborate with our community and businesses to care for and enhance our environment.</li> <li>• To provide incentives which encourage all to enhance, preserve and protect our natural ecosystems.</li> </ul>
<b>Goal Two</b>
To encourage and enable all our residents to live a more environmentally sensitive life.
<b>Strategies</b>
<ul style="list-style-type: none"> <li>• To collaborate with relevant partners to facilitate simple and flexible planning controls, to encourage our community to embrace sustainable development.</li> <li>• To promote and offer education on the benefits and savings that can be achieved by supporting sustainable lifestyles.</li> </ul>
<b>Goal Three</b>
As we grow, we protect and enhance the natural and built environments for future enjoyment and manage any impacts of climate change.
<b>Strategies</b>
<ul style="list-style-type: none"> <li>• To lead by example and demonstrate environmental sensitivity in all that we do.</li> <li>• To work collaboratively with neighbouring councils to develop measures to protect our natural environment and bio-diversity.</li> <li>• To take a leadership role and enhance our capacity to manage any impact of climate change and protect our community.</li> </ul>

## 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.





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

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