

Wingecarribee Shire Council
State of the Environment Report

2009/2010

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Introduction

This report is produced in accordance with the requirements of the Local Government Act 1993, which requires the Wingecarribee Shire Council to produce a State of the Environment (SOE) Report annually. This Report is a **Supplementary State of the Environment Report**, with the last comprehensive report prepared in 2008/2009

This report provides information on Land, Water, Biodiversity, Air, Waste, Noise and Heritage issues. The Land and Water chapters have been divided into Sub- chapters, namely, Land Use, Land Degradation, River Health, Supply of Drinking Water, Waste Water Treatment, and Urban Stormwater. This has been done as these are sub-areas which Council has a high degree of influence and interest.

Each section in the report is addressed according to a model called the State, Pressure, and Response Model. The State section describes the present condition, the pressure segment describes the factors influencing the environment, and the Response heading describes what activities are being done to influence the situation. Each chapter has a section called "What we are Monitoring" which contains a number of monitored indicators for the Chapter.

As this report is produced and owned by Council, particular focus has been given to areas of Council's interest and influence. The "Response" segments for instance are dominated by Council's own actions, with often only minor reference to external agency programs or community activities. This does not mean those efforts are inconsequential. The focus has been done in this way to make this report most relevant to Council, so it can strongly influence our decision making and planning processes.

This SOE Report is formatted with an aim to summarise the main issues affecting each environmental parameter, and present this information in a simplified manner. In this way, the information should clearly identify the factors effecting each environmental issue, and what actions are being undertaken in response to these factors. Also it should become apparent when there are gaps in actions and when future responses are needed.

How the SOE Report is Used

The report provides Council with a gap analysis as it helps to identify where Council is not responding to pressures and threats. The SOE Report needs to inform the management planning process. To do this, the finding of this report will be analysed by the Management Program Teams, with recommendations and actions from these teams being fed into the Management Plan.

Land Use

Land Use at a Glance		
State	Challenged	Supply of urban land is sufficient for the short term, but still insufficient for predicted 25 yr growth. Use of rural land supply is changing, with less commercial agricultural activities carried out.
Pressure	Steady (temporarily?)	Growth plans are outlined for the next 25 years. Development activities still down, most likely the result of effects of the economic downturn.
Response	Good	REP No.1 and new draft LEP 2010 have an emphasis on environmental outcomes. Council is working on a growth strategy to identify areas to meet expected demands.

State

The shire consists of an area of approximately 2,700 square kilometres. The Figures below describes the amount of land set aside for various land uses, as described in councils Local Environmental Plan (LEP) 1989. Comparison is also made to LEP 2010 which came in force in June 2010. The main land use in the shire is rural use which accounts for approximately 50% of the shire, followed by managed bush lands and forests which account for 41%.

Rural Land accounts for approximately 50% of the land use in the Shire, however, the amount of commercial agricultural activity is declining. From 2004 to 2009 the number of properties qualifying for special rural rating declined from 1694 to 1368. This figure remains unchanged in the last year. It appears the demographics of rural land ownership is changing with some properties being turned into the primary function of residences with ancillary 'hobby' use. It may be that these property owners are prepared to invest in property price increases, rather than in year-to-year profitable farming.

Urban Land accounts for approximately 2.5% of the shire. A feature of the shire is the 'green' space between the towns and villages. To keep this distinction, there are limits on the amount of development in these precincts. A study in 2007 estimated that the urban areas have the remaining infill potential of 2,772 lots.

Pressure

Development Demand in the Sydney to Canberra Corridor continues to increase. The NSW Government's "Sydney to Canberra

Corridor Strategy" identifies a growth strategy for the period to 2031 which includes a population growth of 16,400 and the need for an additional 8,700 lots. As of 2007 it was estimated that the shire had an existing infill growth potential of 2,772 lots. Since then 1,000 lots have been created at Renwick and South West Moss Vale. This means an additional 4928 residential lots need to be accommodated for. The challenge will be to maintain the 'green' space between the larger towns, but planning tools are currently in place to maintain this feature.

Development activity over the last year has increased in comparison with the 2008/2009 period, with 1369 new land use applications received. This is still below the annual figure for the 3 years prior to this. This trend has been graphed in the *monitoring* section below. This is most likely still a result of the effects felt from the global economic downturn. Also graphed below is an overview of the trends of development with respect to each land use zone.

The subdivision of land generally results in greater intensification of land use. The number of lots created in subdivisions during the last year was 87. This number continues a decreasing trend (graphed below). This may be a reflection of the economic downturn, or the impact of new planning provisions outlined in the REP No.1.

Response

Local Environment Plan

For the majority of the year, Council operated under LEP 1989. This document was the main environmental planning instrument used for land use planning and development decisions. It establishes land use zones

which indicate what is permitted and prohibited in certain areas of the Shire.

On 16 June 2010 The NSW Department of Planning gazetted the LEP 2010 which Council had adopted in 2009. This new LEP identifies regional biodiversity corridors and riparian zones and includes provisions for the protection of these natural resources.

The Drinking Water Catchments Regional Environmental Plan No 1

The Drinking Water Catchments Regional Environmental Plan No 1 (REP No.1) is a key planning instrument for this Shire. It replaces State Environmental Planning Policy No 58 Protecting Sydney’s Water Supply (SEPP 58). The REP sets out obligations relating to planning and regulating new development in the catchments, and preparing plans to rectify the effects of existing development on the catchments.

The REP:

- sets water quality objectives for the catchments
- requires the SCA to develop rectification action plans (RAPs)
- requires councils to prepare and review local environmental plans (LEPs), including considering strategic land and water capability assessments (SLWCAs), and
- requires councils to assess and approve new developments and activities in the catchments, and to apply the requirement for proposals to have a neutral or beneficial effect (NorBE) on water quality.

The REP requires proposed development and activities to incorporate any current recommended practices (CRPs) and performance standards endorsed or published by the SCA that relate to water quality.

Development Control Plans (DCP’s)

Council has adopted new DCP’s covering each of the towns and villages and the rural areas. The DCP’s do cover Ecological Sustainable Development issues such as water sensitive urban design, and vegetation protection.

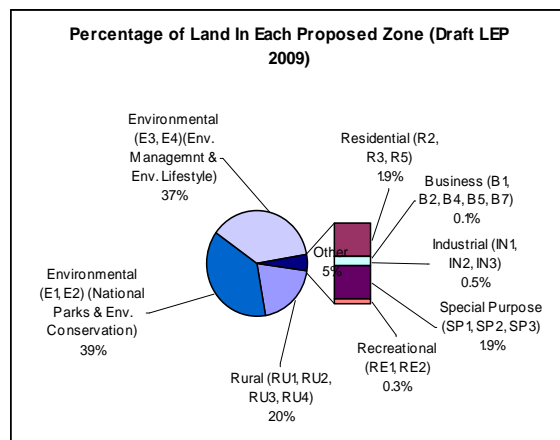
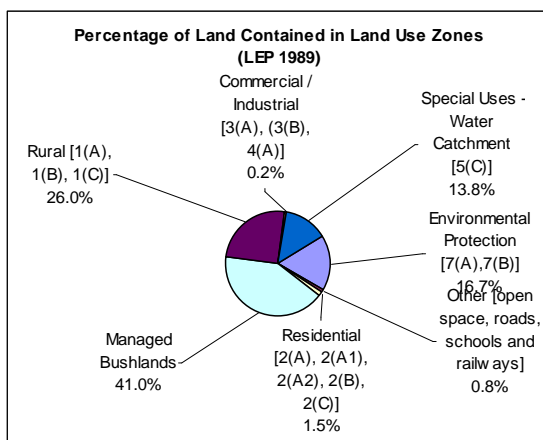
Residential Growth Strategy

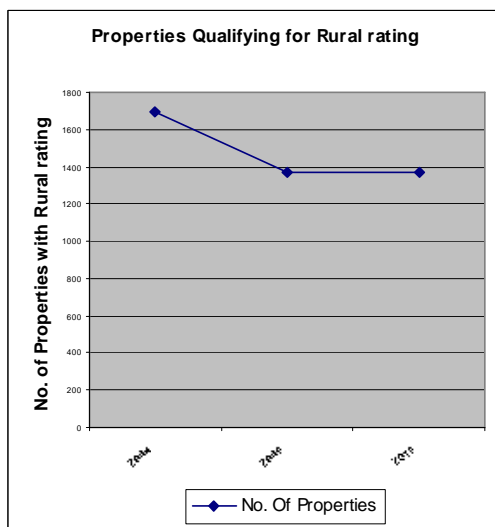
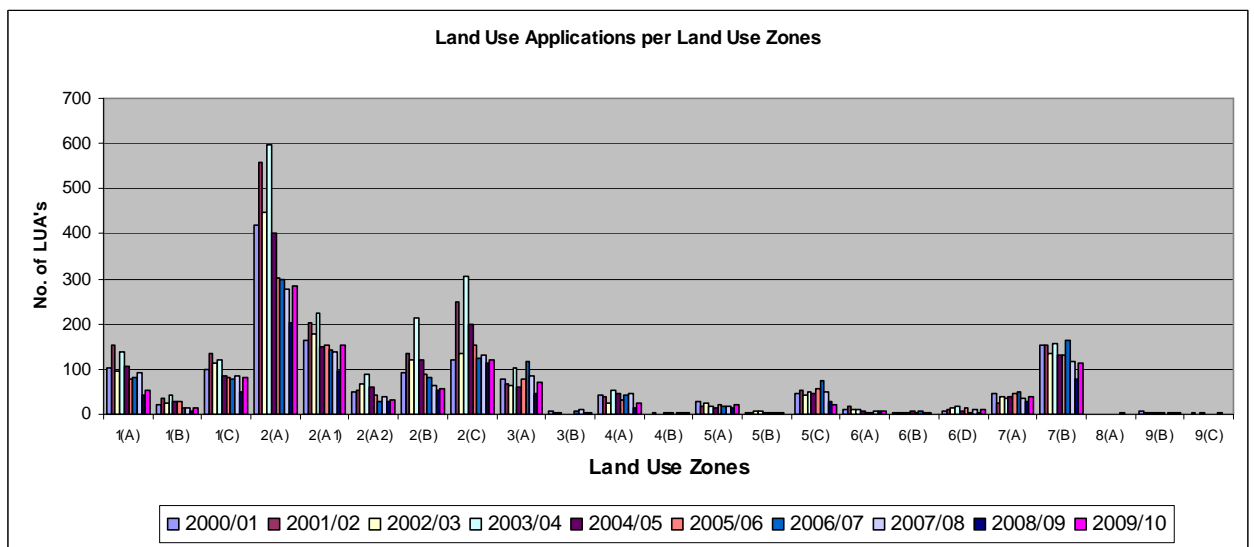
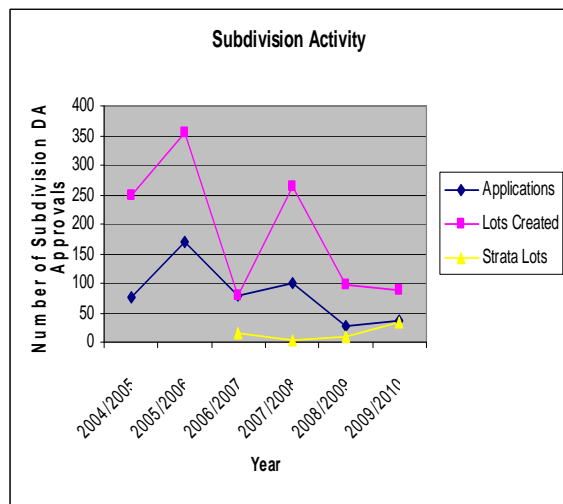
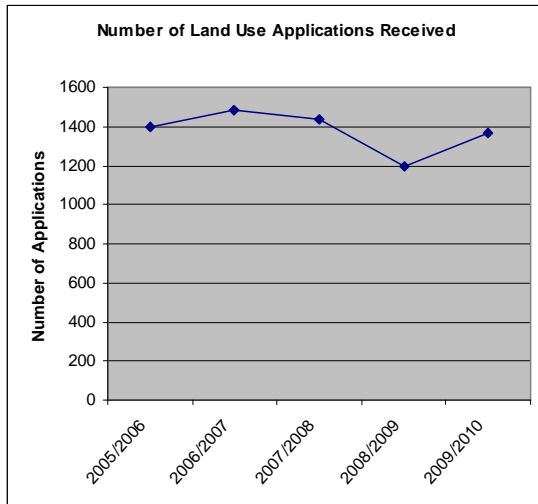
To meet the growth expectation outlined in the Sydney to Canberra Corridor Strategy, Council is investigating a number of land release areas. The table listed below outlines details of potential release areas. In addition the LEP does provide for infill potential in certain areas of the main towns and villages.

Sustainability and Design Criteria for New Urban Release Areas

Council has released a policy outlining Sustainability and Design Criteria that must be considered in the design of new release areas within the Shire. Council seeks to ensure all new release areas incorporate innovative solutions and best practice to provide future communities which provide a place where people will enjoy and want to live and at the same time embrace the character of the built environment of the Southern Highlands.

What we are Monitoring





Potential Residential Growth Areas

Braemar	350 lots
Chelsea Gardens (Moss Vale)	1000 lots
Total	1350 lots

Land Degradation

Land Degradation at a Glance		
State	Fair	Conditions generally appear stable compared to previous known data. Much of this problem may be hidden though, and yet to come to the community's and Council's attention.
Pressure	Stable	Pressures appear stable. Some pressures may have the appearance of decreasing, but it is likely the effects of these issues may be delayed.
Response	Fair	Measures are mainly linked to development controls, and are mainly responsive. Proactive measures are limited.

State

Land Contamination

Historic land uses as well as poor management practices can lead to contamination of land. Contaminated land has the potential to affect human and environmental health, and can affect the development potential of land. Contaminated sites that present significant risks of harm are regulated by the DECCW. Council maintains a data base of properties that are either contaminated or potentially contaminated. The number of sites that have been identified in this database are tabled below in the *monitoring* section.

Salinity

Salinity risk maps prepared by DIPNR in 2005 showed areas of localised salinity risk occur mainly in the western part of the shire, and also with pockets of risk in the south. The Southern Highlands Ground Water Technical Status Report identified the potential for salinity to occur in areas of poor groundwater quality, such as that associated with Wianamatta Group Shales.

Confirmed evidence of affected land still remains limited. 8 ha of affected land in the upper reaches of the Paddy's river and Uringalla Creek region has been fenced for control purposes.

Erosion

The SCA 2007 Catchment audit identified only minimal, isolated pockets of land affected by gully erosion in the shire. The main risk in the Shire is mainly linked to poor management practices and unprotected earthmoving works.

Pressure

Land Contamination is usually linked to commercial and industrial processes identified

in the SEPP55 guidelines. Actual contamination though is the result of poor management practices. This is usually linked to the level of awareness, diligence, and proper means / resources. This pressure probably increases in economic downturns and when there is a lack of regulatory monitoring. The reduced capacity of the Council's Environmental Review Program may be increasing the risk of contamination on some properties.

Salinity risk increases with the raising of the water table. This is usually related to the removal of vegetation, and recharge / discharge issues. With the Native Vegetation Act restricting large scale vegetation removal, this will probably reduce the risk of salinity in some areas. The risk of salinity remains dependent on sustainable land management practices. Usually though, the issue of salinity gets worse before gets better, and the full effects of salinity in the shire may not have presented yet.

Erosion is accelerated through land disturbance (such as earth works) or inadequate ground cover (such as through land clearing or land degradation). In the Shire this is most often linked to land development and changes in uses. A decline in land use applications may have seen the risk decrease (temporarily) for this year.

Response

Contaminated Land Management Policy
Council has adopted a Contaminated Land Management Policy. Through this policy, Council maintains an affected land database which identifies properties that are known to be contaminated as well as properties that have the potential to be contaminated as a result of previous land uses. Council considers contamination issues during

assessments of land use applications in accordance with SEPP 55.

Development Assessment

Development applications are considered by Council and land degradation are issues that are considered and addressed. Implementation of sediment and erosion control is a requirement of all new developments. Other limitations are considered during the application process and approval conditions can address these issues.

Environmental Review Program

The WOFE strategy has funded 2 programs which help reduce the impact of erosion, and

reduce the risk of land contamination. Part of the function of 1 Environmental Project Officer has been to monitor and regulate sediment and erosion control at building and construction sites. During the reporting period 205 site patrols were conducted.

The function of 1 Environmental Project Officer has included the environmental review of commercial and industrial businesses. This function however has been reduced while efforts are focused on Council sustainability issues. An outline of review inspections are detailed below.

What we are Monitoring

Properties Affected by Contamination	
	No. of Properties Affected
Known Contamination	158
Potential Contamination	545

Areas of Localised Salinity Risk (shown in yellow)



(Adapted from map produced by DIPNR 2005)

Proactive Environmental Reviews			
	No. reviews in the last 1 year	No. reviews in the last 5 years	No. reviews in the last 10 years
Sediment & Erosion monitoring	205	710 Monitoring for only 2 years	Not monitored
Commercial / Industrial Activities	0	170	411

Water - River Health

River Health at a Glance		
State	Under pressure	Water quality in the catchments has shown some improvement in the last year. A number of sites in the Wingecarribee and Nattai River catchments, both containing modified environments (urban and rural), regularly have elevated levels of Nutrients (P&N) which can lead to eutrophic conditions.
Pressure	Increasing	Damaging access to waterways (stock and human) and unstable riparian zones significantly deteriorates the condition and health of the waterways.
Response	Improving	Council is working at improving the condition of riparian zones that is in its care and control. HNCMA River Health Program targets riparian access in rural lands. All new development applications have a requirement to demonstrate a Neutral-or-Beneficial-Effect (NORBE) on water quality.

State

Water Quality

Water quality data is obtained from the Sydney Catchment Authority (SCA). Council does not run an ongoing water sampling program of its own. The SCA undertakes water sampling at 14 permanent water sampling points and produces an annual report on the results of the program. A three yearly audit is also conducted of the Catchment Area, which provides the best interpretation of this data and catchment condition.

The 2007 SCA Catchment Audit showed that all sub catchments in the Wingecarribee Shire were either in a "disturbed" or "degraded" condition. The water quality in the Wingecarribee, Wollondilly and parts of the Nattai rivers consistently exceeded ANZECC guidelines for nutrients, toxicants, chlorophyll a, dissolved oxygen, and aquatic life indicators. Factors that are leading to these poor conditions include the Sewerage Treatment Plants in the catchments (discussed separately in this SOE report), large volumes of water being extracted from surface and ground water, agricultural and urban run-off (discussed separately in this SOE Report), and the quality of standing vegetation cover along the riparian zones (discussed below). The full findings of this audit can be found at <http://www.environment.nsw.gov.au/water/sdwc2007.htm>.

The Table being *monitored* below provides an indication of water quality in the sub catchments for the 2009/2010 year. This table does not refer to compliance with Primary Industry guidelines. However, none of the sites exceeded any of the Primary Industry guideline values for the reported analytes.

SCA data indicates a decreasing trend in nutrient levels at certain sampling points in the Wingecarribee River, but still increasing trends in Coliform and glue Green algae presence

Riparian Vegetation and Condition

When riparian zones are intact (i.e. stable bushland vegetation along the river corridor), they can provide an effective barrier to pollution from land-based activities, including agriculture and urbanisation. The riparian zone also contributes to ecosystem health by providing shade, stabilising banks, minimising erosion, limiting downstream flooding, supporting fisheries, taking up and storing nutrients and contaminants, and by providing habitat for a range of species.

There are areas in the Shire with good proportions of native vegetation cover along the riparian corridors, particularly in the special Catchment Areas and National Parks. However, much of the riparian zones in the parts of the catchments affected by human habitation are more likely to be under a variety of pressures, ranging from: little to no standing vegetation cover; areas of pasture with stock access; and the presence of exotic species.

Data relating to the vegetative condition of the shires water ways has been extrapolated from SCA Landsat Imagery study, and tabled below in the *Monitoring* section.

Pressure

Water Quality

Factors that are leading to the degraded and disturbed condition of our waterways include the discharges of Sewerage Treatment Plants (discussed separately), large volumes of water being extracted from surface and ground water, urban and agricultural run-off

(Urban Stormwater discussed separately), damaging access to water ways, and poor condition of riparian vegetation (discussed below).

Point Source Water Pollution. The DECCW have issued approximately 9 licences to premises that are likely to have discharges to waterways. Of these premises, Councils STP's probably place the greatest load on environmental water quality. Councils STP's are discussed separately in this report.

Diffuse Source Water Pollution is less commonly recognised because it arises in a catchment from many different sources that do not have an obvious discharge point. Diffuse source water pollution is caused when pollutants from a range of dispersed urban and rural land use activities contaminate our waterways.

An important characteristic of diffuse source water pollution is that it mainly results from rainfall runoff, particularly during storms. As water flows over land it picks up pollutants and moves them into rivers, lakes, and groundwater. Common sources of pollution include runoff from road surfaces, urban developments, construction sites, parks and gardens, and farms.

Pollutants in runoff may include:

- nutrients, e.g. from overuse of fertilisers, and from sediments
- sediments, e.g. from soil erosion
- pathogens, e.g. bacteria from leaking septic tanks
- toxicants, e.g. pesticides, and oils
- salts, e.g. from dryland salinity
- gross pollutants, e.g. litter.

Diffuse source water pollution by its nature is complex to manage however, as it is closely linked to land use at a myriad of properties across a large area. At its source, the amount of pollutants generated from a property is determined by the use of the land, knowledge of the landholder, management practices, and available resources and technology. Unfortunately it may also be dependent on the amount of policing/regulating and the level of inducements/incentives.

The effect of diffuse source water pollution is dependent on riparian vegetation and stormwater controls. These aspects are discussed below separately.

Riparian Vegetation and Condition

The primary pressures on riparian condition are removal of riparian vegetation, and damaging access from humans and stock. Added to this is the impact from introduced plant species such as willows.

Agricultural Use. Riparian zones are often the most fertile part of the landscape, and therefore there has been great pressure to have this land used for agricultural pursuits such as grazing, pasture, or cropping. Much of our rural landscape suffers the legacy of having most of its riparian vegetation cleared as a result of previous standard land management practices. As a result we have lost the effective pollution barrier that it provides, as well as losing the benefits the vegetation provides for shade, stabilising banks, minimising erosion, limiting downstream flooding, supporting fisheries, taking up and storing nutrients and contaminants and providing habitat for a range of species.

Authorities and regulators now push for the repair of these environments. The pressure opposing this challenge include: a lack of appreciation and understanding of the benefits of good riparian vegetation; large costs to revegetate areas and providing fences and alternative watering points; the apparent loss of workable land; and the apparent burden on the individual for the greater good of the masses.

Cost and Scale. As the cost and effort to repair the damaged landscapes appears as a massive challenge, conservation of intact systems must be a priority.

Council Land. One of the pressures that Council faces is the fact that it currently doesn't maintain a record of: all the land that it manages; the amount of riparian land under its control; nor the condition of this riparian land. As a result, management plans aren't in place for all riparian land in its control.

Response

HNCMA and SCA Riparian Restoration Projects

There are a number of programs being run for the restoration and rehabilitation of riparian zones, which are all likely to improve riparian zone conditions and provide improved protection of water quality. The 2007 SCA Audit recommended that restoration records, which are currently maintained by individual agencies and organisations, should be

collected systematically across the Catchment to enable better information for both future audits and development and co-ordination of management decisions.

Bush Regeneration in Riparian Zones

The *WOFE program* funds a Bush Regeneration Team. Work undertaken by this team includes regeneration work in riparian zones owned and managed by Council. The team implements regeneration activities including:

- Survey and maintenance works on Council owned bushland reserves.
- Programs with riparian zone restoration, habitat/wildlife corridor protection, and environmental weed control.
- Assistance to volunteer Bushcare and Landcare efforts, and education of community groups.

Unfortunately statistics relating specifically to works in Riparian zones are not recorded separately from other regeneration works. (See general summary of works in the *monitored* "stat sheet" in the Biodiversity Chapter)

Diffuse Source Water Pollution

To assist in better management of diffuse water pollution, the State's natural resource managers have developed the NSW Diffuse Source Water Pollution Strategy. DECCW has

also developed the Diffuse Source Water Pollution Estimator, which estimates changes in pollutant loads resulting from land use changes.

The Drinking Water Catchments Regional Environmental Plan No 1

The Drinking Water Catchments Regional environmental Plan No 1 (the REP) is a key planning instrument for this Shire.

The REP:

- sets water quality objectives for the catchments
- requires the SCA to develop rectification action plans (RAPs)
- requires councils to prepare and review local environmental plans (LEPs), including considering strategic land and water capability assessments (SLWCAs),
- requires councils to assess and approve new developments and activities in the catchments, and to apply the requirement for proposals to have a neutral or beneficial effect (NorBE) on water quality.

The REP requires proposed development and activities to incorporate any current recommended practices (CRPs) and performance standards endorsed or published by the SCA.

What we are Monitoring

Figure 1 Indicator of Catchment Water Quality by Sub-catchment 2007-2008

Sub catchment	Visual	Eutrophication	Recreational	Drinking Water
Wingecarribee River				
Wollondilly River				
Nattai River				
Upper Nepean River				
Kangaroo River				

Legend to Table – Percentage of samples exceeding relevant ANZECC and ARMCANZ guidelines

Not Applicable	0-25% outside guideline range	25-50% outside guideline range	50-75% outside guideline range	75-100% outside guideline range
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Figure 2 Riparian Vegetation Condition (length in kilometres)

	Total Length	Little or no native or woody vegetation, poor connectivity	Scattered native or woody vegetation, fragmented connectivity	Near intact, well vegetated, good Connectivity
Shire wide	7294.8 Km	1778.6 km (24%)	702.7 km (9%)	4813.6 km (66%)
Council owned / managed	130.2 km	13.8 km (10%)	12.8 km (10%)	103.6 km (79%)
Private ownership	4063.8	1640.8 km (40%)	537.2 km (13%)	1885.8 km (46%)

Water - Supply of Drinking Water

Supply of Drinking Water at a Glance		
State	Low level increases	Council has 2 dams with 3216 ML capacity. Dams are at approximately 100% capacity. Water is also purchased from the SCA's Wingecarribee Reservoir. 19,098, properties are connected across 653 km of network.
Pressure	Increasing	Although the number of connected properties continues to increase, actual demand has been in decline. Algae growth (including Blue Green Algae) remains a concern to the supply dams. Supply dam catchment areas contain mixed land uses, which have the potential to affect water quality. Climate Change predictions suggest there may be decline in rainfall and increase in temperature – this may affect water quality and quantity.
Response	Improving	Council has completed an Integrated Water Cycle Management study. The study has identified a number of actions to be implemented. Areas immediately surrounding our water supplies are protected. A number of demand control strategies are in place to help manage demand.

State

Council owns the Bundanoon Creek and Medway Creek drinking water supply dams with a combined capacity of 3216 ML. Council also purchases water from the Wingecarribee Reservoir which is owned by the SCA. During the reporting period, all dams were at, or near capacity. Raw water at these dams is monitored for physical parameters. Monitored levels remain similar to those experienced in previous years.

Council operates 3 Water Treatment Plants with a supply network of 653 km. It is the intention to develop a distribution network which will allow the network to be supplied by anyone of these dams and treatment plants.

Council currently supplies water to 19,098 properties.

Pressure

Supply demand for the year was 4789ML which is nearly a 15% decrease from 2002 levels. Although this pressure is being managed now, growth prediction for the Shire indicate the potential for an additional 8,700 dwellings by the year 2031.

Algae growth (Including Blue Green Algae) remains a concern for all dams. The situation in the reporting period was much improved with very little impact in the Wingecarribee and Bundanoon dams which required treatment. This was a significant improvement from the previous year, and the amount of Powdered Activated Carbon (PAC) used to treat this algae was significantly decreased as

a result. The amount of PAC use is listed below in the *Monitoring* section.

Catchment Condition for the Bundanoon Dam is largely forested crown land. The nearest public road access is 1.4km from the dam wall and the nearest road crossing is 3.5 km from the dam wall. The closest freehold land is 1.2 km from the dam wall (distance of water flow).

The immediate catchment for the Medway Dam has far less protection by way of reserved land. Freehold land adjoins the reservoir, and much of the reservoir has a vegetated bushland buffer of only 75 – 150m from cleared pastureland. The nearest public road crossing is approximately 4.7 km from the dam wall.

The greater catchments for both of these dams include agriculture and urban activities as well as roads. These land uses in the catchment pose certain risks of adding nutrients, bacteria and toxicants to the reservoirs. The number of septic tanks in these catchments has not been quantified, and identification of key properties has not been undertaken.

Climate Change may alter rainfall and temperature in the region and this has the potential to impact on water availability and quality. This may lead to increases in algae growth and a deterioration of raw water quality.

Response

Catchment Management

The bushland surrounding the Council owned dams are managed by Council.

While Council does not have management plans in place for these areas, Council is currently developing fire management plans and will follow with vegetation management plans.

The vegetation around the Bundanoon dam is in excellent condition requiring limited weed management activities. Council is undertaking Asset Protection Zone control works in areas around the Bundanoon treatment plant

The Medway Dam has good vegetation cover, but this is prone to weed attack. Council has been successful in obtaining a grant to address the weed problem around the dam and further down the rivulet.

Integrated Water Cycle Management Study (IWCM Study)

Council conducted an IWCM study within the reporting period which considered sewer, water supply and stormwater in an integrated approach with the objective of optimal use of our water resources. A set of actions and recommendations were raised. With respect to water supply, the following actions were identified:

- negotiate and adopt a bulk water supply agreement with the SCA
- conduct a gap analysis for compliance with the Australian Drinking Water Guidelines framework for the management of drinking water quality and adopt actions resulting from this analysis
- gather relevant data in relation to ground water availability for emergency supplies

- consult with DWE and SCA during preparation of Water Sharing Plans in relation to town water entitlements and extraction conditions
- improve the accuracy of water loss prediction through the use of Reservoir drop tests and/ or water loss management leakage studies.

Water Treatment

Water is treated at Councils Water Treatment Plants to meet Australian Drinking Water Guidelines using coagulation, filtration and Chlorination. PAC is added as required to treat Blue Green Algae.

Demand Control

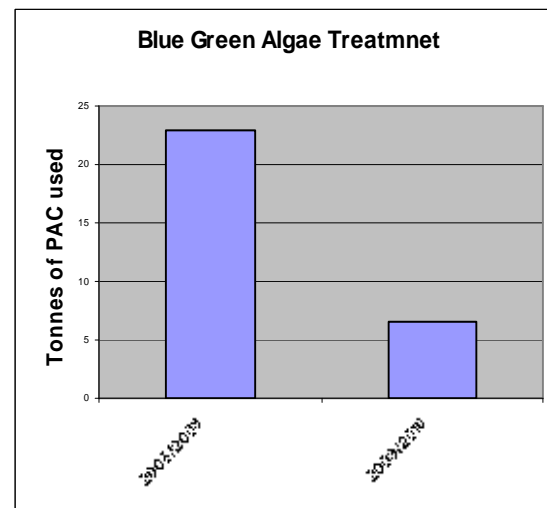
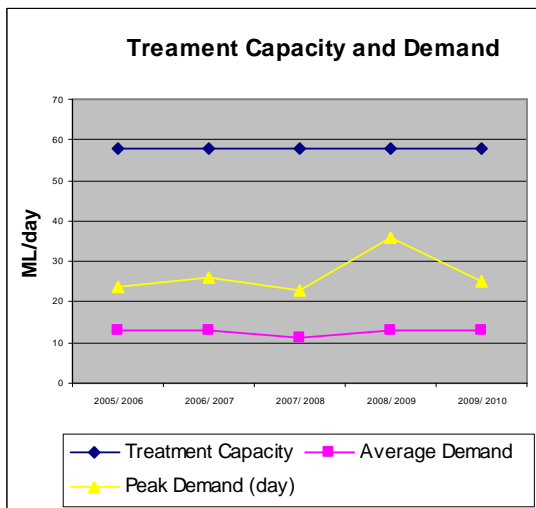
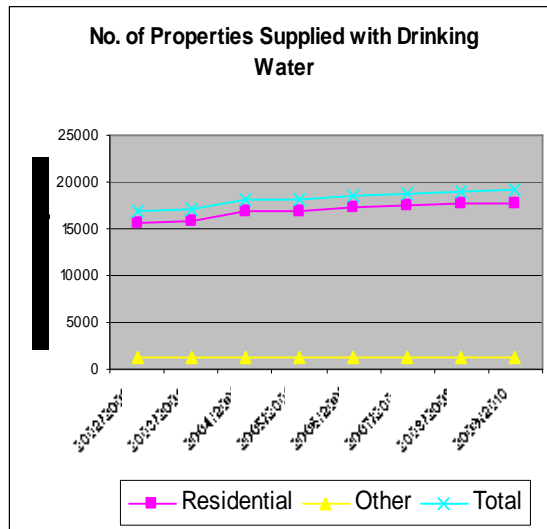
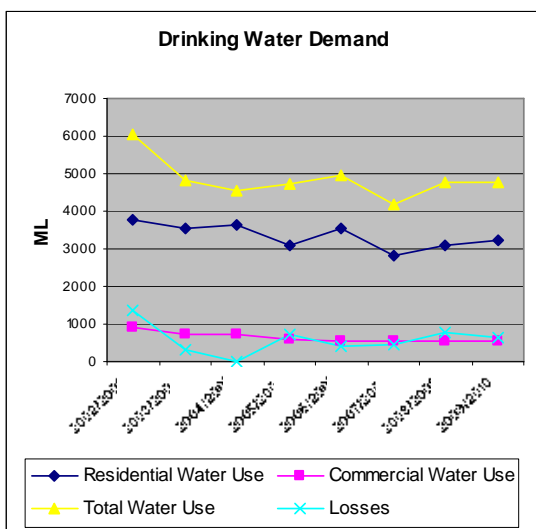
A number of demand control activities are carried out by Council to reduce water consumption. These include:

- Customer education
- Effluent and stormwater reuse
- Leakage reduction program
- Water saving showerhead retrofits (historic)
- Year round Level 1 water restrictions, and
- Pricing incentives

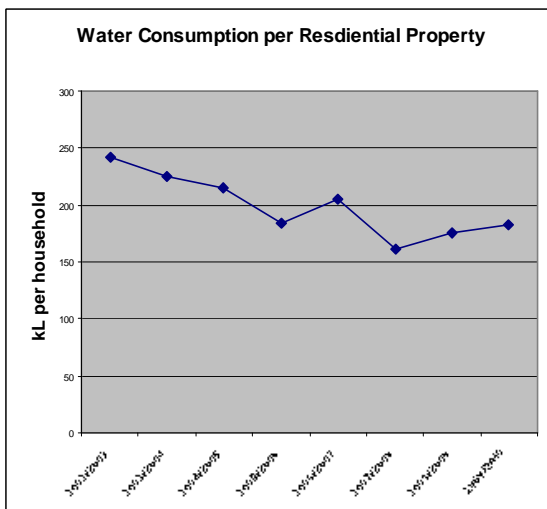
In addition, a number of State Government rebate schemes are being utilised by residents. Rebate program have encouraged the installation of 441 water tanks, and 542 water saving washing machines, and 11 dual flush toilets.

BASIX planning requirements require new homes to be designed to incorporate water savings. The BASIX water savings target for this Shire is 40%.

What we are Monitoring



*Monitoring started 2008/2009



Water - Waste Water Treatment

Waste Water Treatment at a Glance		
State	Improving	Council's 5 STP's have a capacity of 44,800 EP. In the last year 3,145ML (~36,600 EP) was treated, with all STP's operating within capacity.
Pressure	Increasing	Population growth continues. Infiltration estimated at 514ML or approximately 10% of system operation. 280 sewer overflows were experienced.
Response	Improving	\$9.8 Mill investment on capital expenditure to increase capacity, and environmental performance of the treatment systems. Bundanoon Sewerage Augmentation works were completed, which has upgraded its capacity from 2,000 to 5,400 EP

State

Council Sewer System

Council operates 5 Sewerage Treatment Plants (STP's). These are located at Braemar, Bowral, Moss vale, Berrima, and Bundanoon. A network of 513 km of sewer main services these plants. It is estimated that these plants currently serve a permanent population of 33,002 people, as well as meeting peak demand of 39,602 people.

Council's STP's capacity has increased to a capacity of 44,800 equivalent people (EP). In the last year, 3,145ML (~36,600 EP) was treated, with none of the systems operating over capacity since the upgrade to the Bundanoon STP.

All treatment plants operate under licences from the DECCW. The figure below outlines compliance details with environmental parameters. 73ML of effluent was recycled during the year.

On-Site Sewerage Management (OSSM)

Approximately 4,500 OSSM systems are present in the Shire. 2,238 have been inspected by Council in the last 5 years (actual program started 2007) which is resulting in improvements to operation of these systems. 17% of the systems have been identified as High risk, 49% Medium risk, and 34% Low risk.

Pressure

Council Sewer System

Population Growth remains high. The Sydney to Canberra Growth Strategy predicts an additional 16,400 residents by the year 2031. Most of these are likely to reside in

sewered areas. In the last year 84 new properties were connected to the system.

Infiltration from stormwater and other fugitive flows remains an issue. Last year these flows were estimated at 514ML or 16% of treated effluent.

System Maintenance is a constant requirement. Failures in the system can result in overflows and chokes. In the period 280 sewer overflows were experienced, which is a 137% increase from previous years. This was mainly as a result of severe weather events. Seven of these overflows did have an impact on the environment.

OSSM Systems

The number of systems are increasing as intensification of rural land continues. However, new systems do need to meet a NorBE performance objective.

The risk from individual systems can depend on the age of systems. Aging systems can decrease in effectiveness and increases the risk of pollution / nuisance. The level of owner knowledge and the level of maintenance on OSSM systems are key risk factor on system performance. It is felt that these risks are improving as a result of active monitoring.

Ongoing funding of the monitoring program remains in doubt as the current SCA grant funding arrangement remains for only 1 more years. The monitoring program is currently not self funding.

Response

Council Sewer System Improvement Works

In the last year Council invested \$725,000 on capital expenditure to increase capacity, and environmental performance of the treatment systems. Bundanoon Sewerage Augmentation works were completed which upgraded the plants capacity from 2,000 to 5,400 EP. This also incorporated a new treatment processes, and an effluent reuse system.

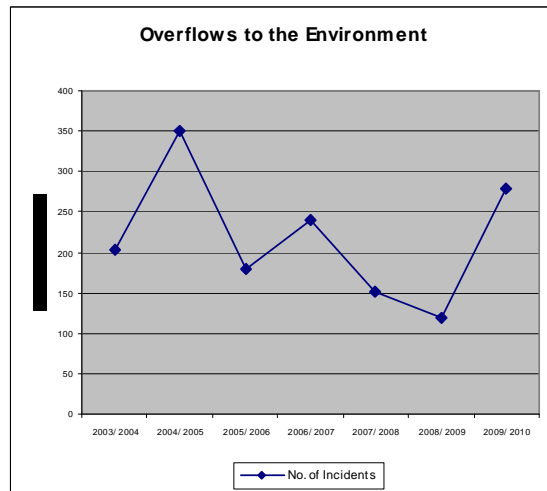
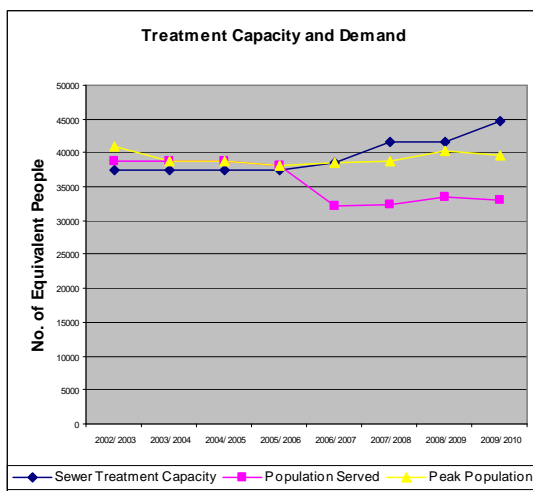
Maintenance Works

In the last year, 1.7km of sewerage mains were renewed or replaced, and 70 property connections were renewed. In 2004 Council adopted a Sewerage Strategic Plan which identifies management requirements for the coming 30years.

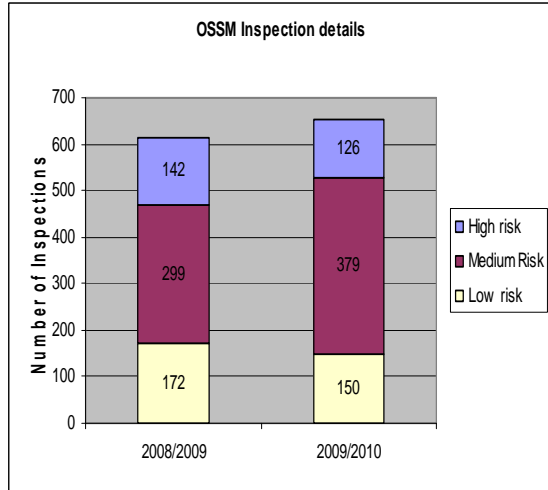
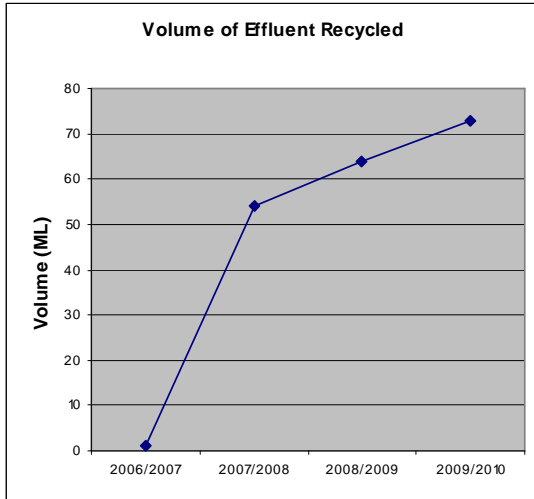
OSSM Systems

Active and systematic monitoring program is being undertaken by Council. 655 new systems were inspected in the last year, which identified 183 failing systems requiring major works.

What we are Monitoring



Treated Effluent Environmental Compliance							
	BOD	TSS	Nitrogen	Ammonia	Oil & Greases	Phosphorus	Faecal Coliforms
Bowral	100%	100%	100%	100%	100%	100%	100%
Moss Vale	100%	100%	89%	100%	100%	100%	100%
Berrima	100%	100%	100%	100%	100%	100%	100%
Mittagong	100%	100%	100%	100%	100%	100%	100%
Bundanoon	100%	100%	100%	67%	100%	100%	100%



Water - Urban Stormwater

Urban Stormwater at a Glance		
State	Unknown	Substantial infrastructure to convey stormwater, with a small, but increasing number of SQID's. Quantity and quality of discharges to the environment is unknown.
Pressure	Increasing	Urban intensification will continue to occur. Environmental controls for stormwater comes at an increasing cost.
Response	Improving	Number of SQID's are increasing. New Stormwater Management Plan being prepared, which will consider S/W quantity and quality.

State

Stormwater from the urban settlements flow to the following waterways

- Bowral - Wingecarribee River
- Mittagong - Nattai River
- Moss Vale - Whites Creek and Wingecarribee River
- Robertson - Wingecarribee River (majority), also Shoalhaven & Nepean
- Berrima - Wingecarribee River
- Bundanoon - Paddy's River and Shoalhaven River
- Southern Villages - Wingecarribee, Paddy's, Shoalhaven, & Whites Creek
- Northern Villages - Nattai & Nepean Rivers

The volume and quality of actual urban stormwater discharges to the environment is largely unknown. Modelling can produce an estimate of the potential quality of a discharge, but currently Council cannot account for the positive impact of Stormwater Quality Improvement Devices (SQIDs) that have been installed across the Shire.

Stormwater pollutants come from diffuse sources and typically are a result of rain picking up sediment, fertilisers, litter, debris and minor spills from roadways. Stormwater from urban areas are collected in an infrastructure network which is owned and maintained by council. This includes 181 km of conduits (pipes, channels etc), 4920 pits and headwalls, with approximately 245 discharge points to the environment.

Council has started placing SQIDs throughout the stormwater network. To date, Council has installed 35 SQID's. These are located in 14 stormwater sub-catchments, which cover an area of 6.62 km², and contain 2513 properties.

Pressure

Population and Development Demand continues to increase. This means subdivision areas as well as infill development will continue. Whenever vegetated 'unused' land is converted to urban use, or cleared and disturbed, or used for a more intensive use, it increases the potential for pollutants to runoff in rain events, and enter waterways. In the reporting period ~1000 LUA's were approved for urban zones. Beyond this activity, there are a numerous potentially polluting activities that don't need council's approval (such as some landscaping, exempt development, and housekeeping). REP No.1 has required all new developments to demonstrate a Neutral or Beneficial Effect (NorBE) in water quality.

Property Management. The majority of existing urban development and infrastructure have little or no built-in controls to manage stormwater volume or quality. Property Management practices can have a significant impact on stormwater quality. These practices include the management and storage of chemicals, application of fertilisers and pesticides, wash down procedures, waste disposal, and protection of stormwater drains.

Stormwater Infrastructure Maintenance is an ongoing issue. While traditional infrastructure required relatively little maintenance, SQID' are much more resources intensive. Maintenance cost need to be factored into SQID installations. Environmental protection is coming at a cost. This is offset by the benefits to the environment, community (social/civic pride), and possible deferring of maintenance and repairs downstream.

Response

Stormwater Quality Improvement Devices (SQIDs)

Council has installed the following SQIDs:

- 5 detention ponds
- 13 gross pollutant traps
- 4 sediment ponds
- 9 wetlands, and
- 4 industrial treatment devices

Environmental Review Program

The WOFE program has funded 2 programs which help reduce the impact of erosion, and reduce the risk of water pollution from commercial and industrial premises. Part of the function of 1 Environmental Project Officer has been to monitor and regulate sediment and erosion control at building and construction sites. During the reporting period 205 site patrols were conducted.

The function of 1 Environmental Project Officer has included the review of commercial and industrial premises. This function however has been reduced while efforts are focused on sustainability issues. An outline of review inspections are detailed below.

Stormwater Management Plan (SMP)

During the reporting period Council adopted a new SMP. The new SMP was prepared to keep pace with changes since the 2000 plan, including new legislation, new planning requirements, new water quality objectives, and the collection of the stormwater levy.

This program also provide the funding strategy to provide and maintain the infrastructure necessary to cope with new development.

Stormwater Levy

Resources are being raised for stormwater improvement work through a Stormwater Management Service Charge. Stormwater management services are broadly defined as managing the quantity and quality of stormwater runoff from a catchment with the aim of:

- minimising stormwater impacts on aquatic ecosystems
- minimizing flooding impacts
- utilising stormwater as a water resource.

Within the reporting period, raised funds were spent on 5 capital works projects, maintenance works, and scoping works.

Flood Studies

Council has conducted 4 Flood Studies for Bowral, Berrima, Whites Creek (Moss Vale), and Burradoo BU2 catchment. The aim of these studies is to assess potential flood behaviour in the study areas and develop a plan for mitigating the effects of potential flooding. The study will form part of the overall Floodplain Risk Management process in accordance with the NSW State Government Floodplain Development Manual.

What we are Monitoring

Urban Stormwater Stat Sheet	
Number of Stormwater discharge points to the environment	245
Length of Stormwater pipes/ channels	181
Number of SQID devices	35
Number of sub-catchments with SQID's	14
Number of properties in sub-catchments with SQID's	2513

*Monitoring started 2008/2009 – No trends to report

Proactive Environmental Reviews			
	No. reviews in the last 1 year	No. reviews in the last 5 years	No. reviews in the last 10 years
Sediment & Erosion monitoring	205	710 Monitoring done for only 2 years	Not monitored
Commercial / Industrial Activities		170	411

Biodiversity

Biodiversity at a Glance		
State	Under threat	The Shire has significant biodiversity assets, with a large percentage of protected lands. Outside of these areas, biodiversity assets are under threat. The number of threatened species has increased, and 6 ecological communities remain endangered.
Pressure	Increasing	While land clearing threats are slowing, considerable threat is posed by weeds and pests, and loss of localised biodiversity. Up front costs to 'repair' damaged systems are a large burden on governments and individuals.
Response	Improving	A number of planning & legislative tools have helped to preserve habitat and biodiversity. Council's response works are heavily reliant on the WOFE program.

State

Remnant Vegetation

The Wingecarribee Biodiversity Strategy (2003) identified approximately 63% of the Shire as being covered with vegetation communities. 49 different vegetation communities have been identified in the Shire. The predominant vegetation communities are Mittagong Sandstone Woodland, Hawkesbury Sandstone Woodland, Wingecarribee Woodland, and Bindook Porphyry Woodland and communities of the Woronora Plateau. These communities account for over 1/2 of the remnant vegetation in the Shire.

Six Endangered Ecological Communities are found in the Shire including Mt Gibraltar Forest, Southern Highland Shale Woodland, Robertson Basalt Rainforest, Robertson Basalt Tall Open Forest, Shale/Sandstone Transition Forest and Montane Peat lands and Swamps. Between them they cover an area of nearly 11,000 ha. However this area is highly fragmented.

Approximately 39% of the Shire's remnant vegetation is contained in protected lands i.e. National Park, SCA Catchment land and Council bushland reserves.

Wildlife Corridors

The following important regional corridors have been identified in the Shire:

- Nattai-Woronora
- Blue Mountains
- Wollondilly
- Joadja
- Shoalhaven

These corridors play an important role in linking large areas of contiguous vegetation and are of particular importance to migratory and nomadic species and during times when environmental pressures (eg, climate change, drought, fire) prompt movement of species.

Many local corridors had been mapped in the Wingecarribee Biodiversity Strategy.

Species

1558 species of flora and 359 species of fauna have been identified in the Shire. 40 species of the flora and 42 species of fauna species have been classified as endangered or threatened.

The Wingecarribee Biodiversity Strategy modelled the potential habitat of threatened species. The model showed that all the rare flora species in the Shire are associated with either Sandstone or swamp vegetation. With regards to fauna habitats, the model indicated that there is a potential for the occurrence of at least two threatened species to occur in every vegetation community. Dry Nattai Escarpment Forest was identified as having potential habitat for as many as 15 of the threatened fauna species found in the Shire.

Wetlands

346 wetlands have been identified in the shire. 30% are classified as upland wetlands, 37% as riverine wetlands, and 33% as drainage / seepage channel wetlands.

The Wetland Management Strategy, (*WOFE project*) included a study of 33 indicator wetlands against the attributes of Hydrological and Geomorphological Function, Chemical Function, Biological Function, and Social /Economic Function. These results show highest total value wetlands occur within

protected areas such as SCA area, National Parks and flora reserves. Lowest value wetlands occur within intensively grazed, drained or cropped areas. The reduced value is largely due to loss of biological values. Loss of hydrological functions was also significant in drained wetlands.

Montane swamps and peat lands have been declared as an Endangered Ecological Community in the Shire under the Threatened Species Conservation Act.

Pressure

Land clearing

Land clearing is a major driver of ecosystem damage. Most of the clearing in the Shire over the last 200 years has occurred on flatlands with highly fertile soils and thus the communities that occurred in these landscapes are the most extensively cleared.

The Native Vegetation Act and the REP No.1 have introduced substantial controls which have stopped broad scale land clearing. Under the Native Vegetation Act clearing of native vegetation can only be approved if it improves or maintains environment outcomes. Some exemptions or RAMAs (Routine Agricultural Management Activities) do apply. This act does not apply to urban or industrial zoned land.

In the 2008/09 period 1.4 ha were approved to be cleared.

Weeds

Weed species can overwhelm native vegetation and dominate an area to the point where native species are excluded and/or arable lands are depleted. Noxious plants are those weeds that have been declared under the Noxious Weeds Act. There are 19 species of noxious weeds found in the Shire. Environmental weeds are those which readily colonise and overrun bushland areas. 38 species have been identified as environmental weeds in the Shire.

The Graph below in the *Monitoring* section provides details on the number of properties identified with Noxious weeds. Substantial increases over recent years indicate the scale of the issue. Significant problems with Serrated Tussock.

Factors of introduction and spread include:

- areas of disturbed or cleared land (including pasture)

- decline in ecological processes through increased fire, high nutrient loads and climatic changes
- arterial roads and railways entering the shire from the north, south and west provide a pathway for weeds to enter the shire.
- introduction by livestock, contaminated feed, wind, truck movements
- lack of cooperation to a coordinated efforts (100% corporation from all affected landholders is required to successfully eradicate weeds)

Pest animals

At least nine species of pest animals are present in the Shire. Many of these have been linked to Key Threatening Processes by The Threatened Species Act. These include predation by the Fox, feral cat, wild dog and wild pig. It also includes competition and degradation from rabbits, feral goats, and deer.

An emerging issue is that of The Indian Minor. This introduced bird is becoming prolific in urban areas and provides aggressive competition to many native bird species.

Climate Change

Climate change is recognised as a Key Threatening Process in the Threatened Species Act. Within the Shire the key threat to biodiversity appears linked to:

- Bushfire is highly destructive to rainforest communities and some species and is likely to be the most serious threat to this ecosystem under climate change. For example, *Beronia fraseri* is almost extinct because of fire and El Nino droughts. Fire may not initially cause loss of rainforest ecosystem as such but rather result in depauperate or scrub rainforest with loss of height, shift to dry rainforest and increase in abundance of pioneer species. Repeated fire may cause a cascade of effects that result in transformation to a non-rainforest system.¹ The fragmented distribution of this community may offer some protection against bushfire.
- Wind surges and extreme storms during summer rainfall events could cause tree fall and open up the forest canopy, thus increasing its vulnerability to invading

¹ Steve Douglas, pers. comm., 2010

- species. Weed growth may also increase as CO₂ levels increase².
- Severe and prolonged rainfall could cause landslip and destroy patches of this community.
 - Loss of mature trees with hollows due to storms, landslip etc would reduce fauna habitat. Increasing timber debris could increase fire risk.
 - The area of Robertson Rainforest contains relatively fertile soils and cooler temperatures than areas to the west or on the coast. Areas of Robertson Rainforest are therefore likely to experience increasing pressure from agriculture and urban land uses as other areas become less favourable under climate change.
 - Changes in climate may alter when controlled burns can be undertaken and this may in turn mean that fires occur at times that favour exotic species over native species.
 - Changes in weed communities may alter the flammability of communities (especially grasses) and therefore increase the frequency and intensity of understorey fire, which has implications for burning of canopy and tree crowns.
 - Changing fire regimes may inhibit some weeds e.g. privet, but favour others e.g. Boxthorn, Pyracantha.
 - Potential for changes in synergy of events. E.g. Christmas beetle larval emergence is linked to soil moisture and these pests are controlled by migratory birds – increased rainfall may mean larvae emerge before birds arrive leading to severe tree defoliation.

The Economics of Conservation

The cost to regenerate disturbed land is an enormous burden on Governments and individuals. Because of the many variables involved, the average costs of revegetation projects and weeding projects have not been quantified. Despite this, this factor does highlight the priority to conserve biodiversity conditions, rather than letting them fall into a state requiring repair.

Conversely, often overlooked, or undervalued, is the benefits of biodiversity, be it in economic, social and environmental terms. A resilient biodiversity plays a role in pest control, wind protection, prevention of erosion, provision of clean water, clean air, healthy

soils, and underpins an ecosystem which supports our agriculture sector and improves land values.

These 'Ecosystem Services' are usually seen as so-called free, and the benefits usually span beyond a boundary fence, and beyond the current generation. Overlooking or undervaluing these roles leads to reduced incentives to protection. The provision of concessions or incentives to an individual to conserve biodiversity can be a recognition that the benefits do span into the wider community and future generations.

Loss of Localised Biodiversity

There is value in all biodiversity. Native flora and fauna does not need to be in a national park or protected area before it can be of value. Biodiversity provides many benefits such as pest control, crop pollination, wind protection, clean air, soil conditioning, clean water, and increased land value. The decline in the diversity in any localised area is a valuable loss, which does have consequences. Loss of localised genetic diversity can reduce the resilience of ecosystems. When remnant trees die out and their progeny are not given opportunities to grow, genetic resilience is being lost.

Wetlands

The Wetlands Management Strategy has identified the following Major threats to wetlands across the shire:

- Fire
- Dams, weirs and drainage
- Agriculture and forestry
- Urbanisation and recreation activities
- Introduced species
- Lack of wetland consideration in shire planning and operations.

• Wetlands located in, or surrounded, by high intensity grazing/cropping, or that are artificially drained with grazing, are experiencing the greatest pressure in the Shire.

Fire

High frequency fire resulting in disruption of life cycle process in plants and animals and loss of vegetation structure and composition is a Key Threatening Process listed in the Threatened Species Conservation Act. Land affected by fires becomes more sensitive environmentally. Life cycles of flora and fauna will be disrupted, resulting monocultures and local extinction of flora and fauna species. Land is susceptible to erosion, weed species

² Low 2008

may spread and out compete native species after fire events, and pest animals can gain an advantage after fires.

Information and Understanding

The Wingecarribee Biodiversity Strategy highlighted the paucity of information about flora and fauna species within the Shire. Data that is collected is done so in an ad hoc manner and in a limited way stop

Response

Native Vegetation Act

The *Native Vegetation Act 2003* came into force in NSW in December 2005 and introduced a new approach to the management of native vegetation across NSW. The Act is designed to promote sustainable management of native vegetation across NSW, to protect native vegetation of high conservation value, to protect water quality and biodiversity and to prevent land degradation. The HNCMA is charged with implementing the Act within the region and assists landowners in managing native vegetation on their properties. In general, any clearing approved under the Act must be offset by improving the condition of another area of native vegetation of the same or similar type. However there are some clearing activities that do not require consent under the Act. Rural landholders can carry out certain clearing activities if these are defined as Routine Agricultural Management Activities (RAMAs).

The Drinking Water Catchments Regional Environmental Plan No 1

The Drinking Water Catchments Regional Environmental Plan No 1 (the REP) is a key planning instrument for this Shire. The REP sets out obligations relating to planning and regulating new development in the catchments, and preparing plans to rectify the effects of existing development on the catchments. One of the key features of the REP is the requirement for any new development to demonstrate a neutral or beneficial effect (NorBE) on water quality.

The REP also requires proposed development and activities to incorporate any current recommended practices (CRPs) and performance standards endorsed or published by the SCA.

Tree Preservation Order (TPO)

Council's TPO restricts the removal of trees from: 5(C) and 2(b) zones; within Endangered Ecological Communities; certain significant and rare trees.

Flora and Fauna Guidelines

Council guidelines have been prepared to provide guidance to Council planners and potential developers on the preparation and use of Flora and Fauna Assessment Reports. The guidelines aim to maintain biodiversity in the shire and reduce the impact of development.

Reserved and Protected Lanes

The Shire contains a number of protected areas with significant biodiversity resources. The DECCW manages 84,019 ha of national park and water catchment land (mutually managed with the SCA). 14,718 ha Of State Forest are also contained in the Shire. Council manages 3457 ha Of Bushland Reserves. This comes to a total of 102,193 Ha which represents 39% of the Shire. The Nattai National Park is also an important part of the Blue Mountains World Heritage Area.

Bush Regeneration

The *WOFE program* funds a Bush Regeneration Team. The team implement regeneration activities including

- Survey and maintenance works on Council owned bushland reserves.
- Programs with riparian zone restoration, habitat/wildlife corridor protection, and environmental weed control.
- Assistance to volunteer Bushcare and Landcare efforts, and education of community groups.

(See *monitored "stat sheet"*)

Bushcare Program

The Wingecarribee Shire Council 'Bushcare Program' is designed to integrate the community with the management of bushland. Members of the community concerned with the declining health of their local bushland are able to play an active role in the bushlands rehabilitation and assist Council with management issues related to the reserves.

Due to the importance of Volunteers within the Shire, Council is committed to the long-term support of the program. Council supports the program by providing the necessary skills, information, support and direction to achieve success in their work.

Voluntary Conservation Agreements

Through the WOFE program, Council assists landholders to retain remnant endangered ecological communities on their property with the aim of conserving wildlife habitat and to create corridors of vegetation within the shire. By entering into a conservation agreement landholders may obtain financial assistance with fencing, weed control, revegetation as well as technical advice

Pest and Weed Control

Environmental weeds in Council bushland reserves are controlled by Council's Bush regeneration Team and through the Bushcare groups. Summary of weeding efforts are listed below in the *Monitoring* section.

Noxious Weeds are managed through the application of the Noxious Weeds Act. Council conducts inspections of land holdings affected by noxious weeds, and initiates control activities and enforcement procedures in compliance with legislation pertained in the Noxious Weeds Act 1993. Council maps areas of noxious weed outbreaks on Councils GIS using GPS technology.

Council conducts education campaigns on both noxious and environmental weed control including displays for Weed Buster Week, and field days.

Council facilitates an Indian Myna control program with the promotion and distribution of cages, euthanasia facilities, and educational material.

Wetlands

Council's Wetland Management Strategy (2003) was prepared with the aim to develop various wetland management strategies for the protection of natural wetlands within the Shire, particularly those identified with having high conservation values.

A key component of this strategy is to increase government and community awareness and understanding of wetlands.

During the reporting period Regeneration works were undertaken on 4 publicly owned wetlands (Paddys River swamp, Stingray Swamp, Currabunda wetland and Garland Rd reserve), and 1 wetland on private property has been conserved.

World Wetland Day was celebrated by Council with the publication of educational material covering wetland management on private properties, and the hosting of community education workshops.

Bush Fire Risk Management Plan

A Bush Fire Risk Management Plan has been prepared for the Shire. This plan identifies the level of risks posed by bushfires to various assets including environmental and ecological assets.

All proposed Hazard Reduction Burns must have an approved Hazard Reduction certificate in accordance with The Bush Fire Environmental Assessment Code, 2003. Whilst every effort is made to achieve dual objectives, management priority is necessarily given to the protection of life and property.

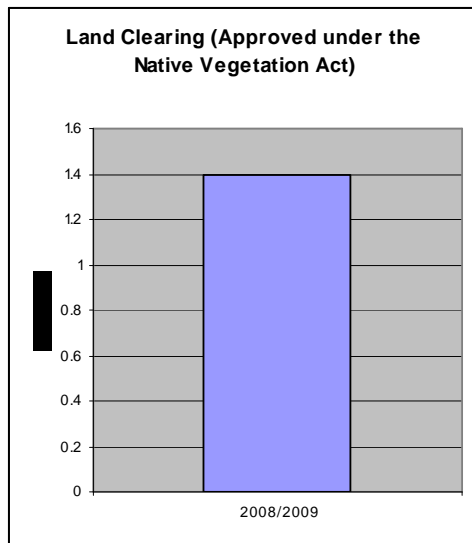
Great Eastern Ranges Initiative

A conglomerate of NGO's and DECCW are leading the Great Eastern Ranges Initiative which is a plan to strengthen the resilience of eastern Australia's mountainous ecosystems so they can better respond to the impacts and threats from:

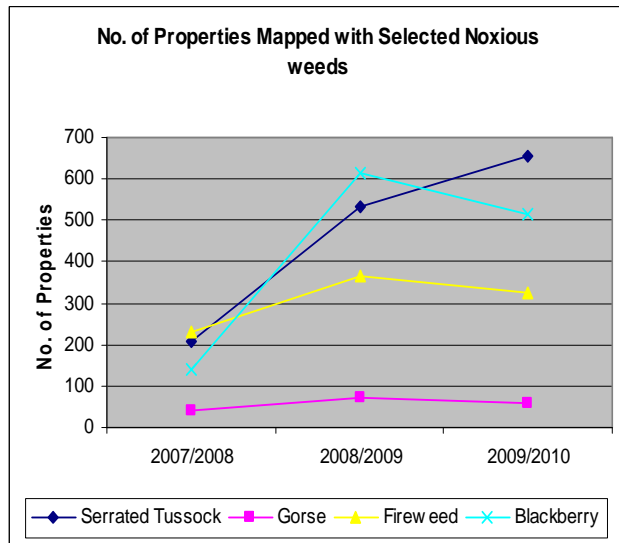
- climate change
- development activities, including ongoing growth in our population
- invasion by introduced pests and weeds.

Council is working in partnership with DECCW, GA, and HNCMA to facilitate corridors that can allow plants and animals to migrate north and south as well as from the mountains to coast.

What we are Monitoring



*Monitoring started 2008/2008



Biodiversity Stat Sheet

	2009/2010 Results	Change from 08/09 (or previously recorded)
Number of Vegetation Communities	49	
Number of Endangered Ecological Communities	6	
Number of Identified Native Species (Flora/Fauna)	1558 /359	↑
Number of Threatened Species (Flora/Fauna) – Endangered (E) & Vulnerable (V)	19(E) & 19(V) / 9 (E) & 39(V)	↑
Weed Species (Noxious/ Environmental)	19 / 48	↑
Number of plants planted	5000	↑
Area weeded	700ha	
Bushcare Groups	15	
Bushcare Volunteer Hours	6584	↑
Wetlands Maintained	5	
Feral Animal Control Program	2	
Voluntary Conservation Agreements (cumulative in brackets)	5 – 11ha (60 – 291.8ha)	↑

Atmosphere

Atmosphere at a Glance		
State	Reasonable	Indications are that air quality remains generally good, with a variable amount of local nuisances prompting complaints.
Pressure	Sustained	Many influences occur from outside the Shire. Woodsmoke is an ongoing issue in winter months.
Response	Reasonable	Appropriate controls have been placed on backyard burning. Vehicle use remains a challenge

State

Air quality

The quality of the air in the Shire is largely unknown, as there is no permanent air monitoring station within the Shire boundary. The Shire falls outside the Metropolitan Air Quality monitoring area carried out by the DECCW. The closest air monitoring stations are located at Bargo and Albion Park. The Wingecarribee Shire is located in the Wollongong-Sydney air shed, so results from these stations do provide some indication of air quality in our Shire. Air quality in the last year was generally within air quality guidelines. The number of times these guidelines were exceeded is graphed below in the *monitoring* section. This shows an overall improvement compared with the last 5 years results.

Complaints and inquiries about air pollution are handled by both Council and the DECCW. The DECCW manages issues emanating from licensed premises. In the last year the DECCW responded to 7 complaints/enquiries. Meanwhile the Council responded to 45 general complaints/enquiries and 68 burning complaints.

Greenhouse Gas Emissions

Council's Greenhouse Gas Emissions from energy and fuel use for 2009/2010 totalled 12,998 tonnes of CO₂-e which remains consistent with previous years (refer to Monitoring section below).

Greenhouse gas emissions from waste disposal for the year 2008/2009 totalled 7960 tonnes of CO₂-e.

An inventory of community emissions undertaken in 2005 showed that annual output of 685,072 tonnes of CO₂-e. This equates to approximately 16 tonnes per person, which is slightly lower than the national per capita average.

Pressure

Regional Impacts. The Shire is part of the larger Sydney - Wollongong air shed. Some of the influences from this air shed include an increase in ozone levels during late spring and summer as the dominant north easterly breezes can carry coastal air to the shire, where it remains until westerly or south westerly winds blow it eastwards. Also The Southern Hawkesbury Basin which borders the Mittagong region is a receptor region for polluted air transported into the area by afternoon and early evening sea breezes.

The main emitters of pollutants in the air shed are Motor vehicles (11.7%), Solvent and aerosol use (11.6%), Iron Manufacturing (11.3%), Electricity generation (10.2%), and Architectural surface coatings (8.3%).

Motor Vehicle numbers in the Shire continue to increase. Motor vehicle registration numbers are graphed below in the *monitoring* section. The number of vehicles using leaded petrol continues to decline and now accounts for only 3.9% of the fleet.

Woodsmoke from backyard burning and wood heaters is a major source of air pollution for this Shire. Woodsmoke contains a number of noxious gases and fine particles. The DECCW estimate that during winter, wood heaters are the main source of particle pollution in the air-shed and can produce up to seven times as much particle pollution as cars.

The impact of woodsmoke from wood heaters increases significantly when devices are operated incorrectly. Little data is available on the number of the wood heaters used in the Shire, as it would be difficult to maintain this information accurately.

Industrial Discharges from licensed premises are managed by the DECCW. Eight premises hold licences which allow air pollutant emissions. The main sources of industrial air emissions are cement and concrete product manufacturing, ceramic product manufacturing, mineral metal and chemical wholesaling, and coal mining.

Greenhouse Gas Emissions

The biggest energy uses within Council are street lighting, water treatment and distribution, sewerage treatment and distribution and waste disposal. Population increases have direct links with increased waste generation, increased water usage, and increased sewer usage. Population increase will have an impact of both Council and community emissions.

Motor Vehicle use and fuel consumption continues to be a concern. Motor vehicle registrations continue to increase. The decentralised nature of the shire and commuting distance to Sydney and the Illawarra make transport a continuing issue.

Response

Regional Improvements

Air quality in the region has generally been improving since the 1980s. Ambient levels of carbon monoxide and lead have fallen dramatically. These improvements were due mainly to cleaner motor vehicle technology, particularly with the introduction of unleaded petrol. A number of programs have seen a reduction of the levels of nitrogen dioxide, particles, and dioxins.

Control of Backyard Burning

Council regulates and controls backyard burning in the Shire. Restrictions apply to burning in the major urban areas and controls are placed on the burning of dead and dry vegetation elsewhere. These controls are enforced rigorously by Council with 10 fines issued in the last year for burning related offences.

Smoky Wood Heater Patrols

Patrols are undertaken to identify smoky wood heaters during winter. During this period 13 warning letters and education packages were issued, and 1 Smoke Abatement Notice was issued. Council distributes education material at its offices and outlets and provides information on its web site and newspapers.

Bike Paths

Wingecarribee Shire Council adopted a Bicycle Strategy in November 2008. The strategy identifies existing and proposed key bicycle routes for Moss Vale, Bowral and Mittagong with an annual action plan to implement upgrades and construct new bicycle routes. The Wingecarribee Bicycle Strategy aims to:

- improve links to key destinations identify a network of routes
- establish a practical works program for cycling infrastructure
- identify cycle paths and facilities that can be used by the whole community
- establish priorities for construction work
- update the previous bicycle plan proposals to meet current standards
- develop a plan that can be used to obtain external grant funding
- Council currently maintains 24 kilometres of bike paths.

Pollution investigation

Council investigates air pollution complaints, ranging from odour, dust and potential hazards. Council utilises the powers provided in the POEO Act.

Greenhouse Gas Emission Reductions

• Council Abatement Actions

Council has introduced a number of Greenhouse gas reduction measures. These include:

Green Power at Large facilities – 355 t CO₂
 Showerhead replacement - 1,068 t CO₂/yr
 Organic waste diversion - 16,689 t CO₂/yr
 Energy efficient equipment – 15 t CO₂/yr
 Green Car option -29.8% of fleet (an increase of 1 % since 08/09) ~ 18 t CO₂/yr.

• Basix

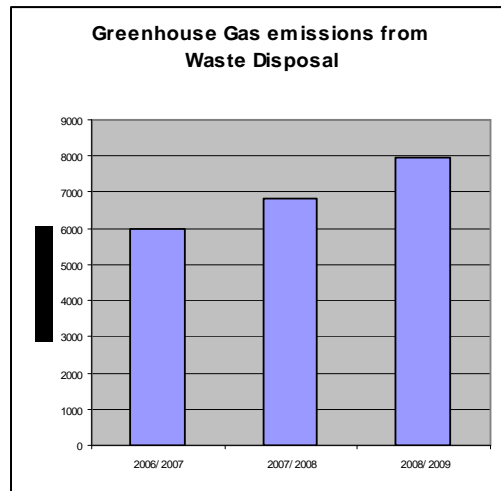
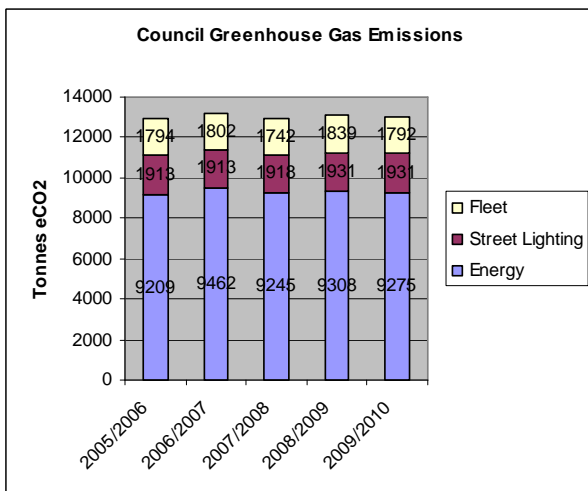
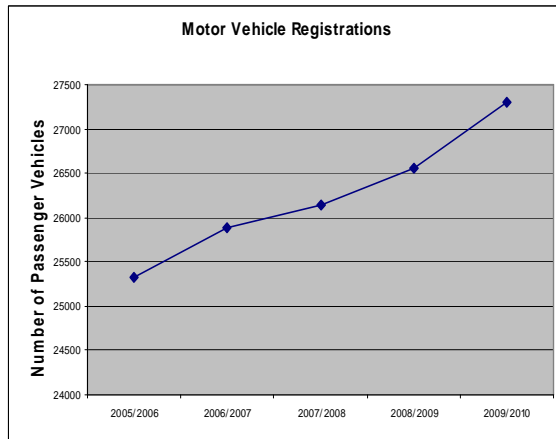
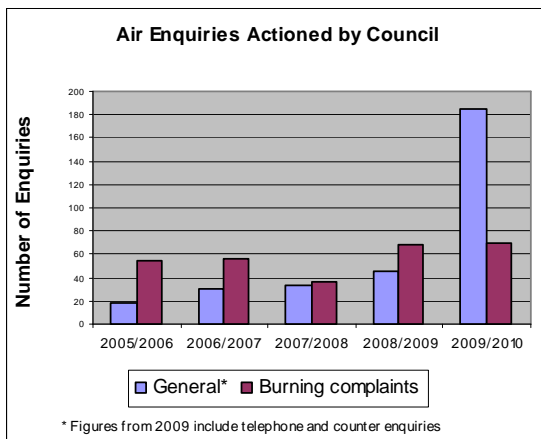
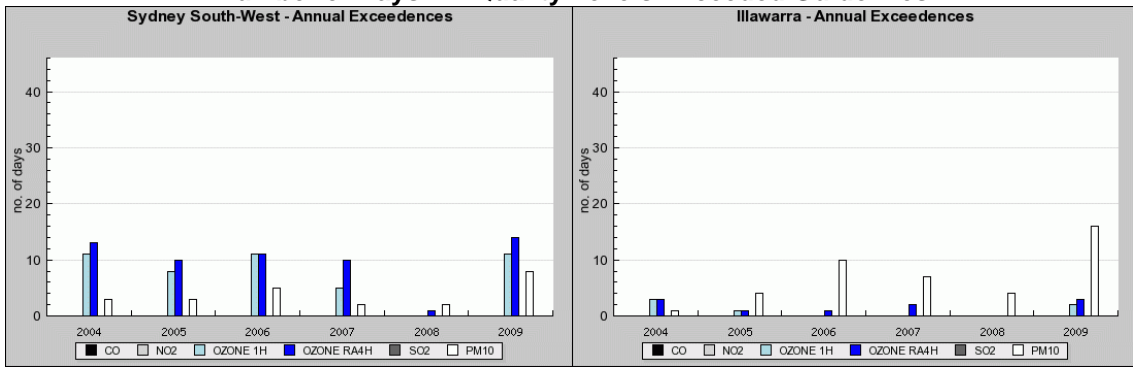
Basix is a planning tool which is applied across NSW. Every development application for a new dwelling must be submitted with a BASIX certificate, which shows the house meets energy reduction targets. The target for this Shire is a 25% reduction for detached dwellings and 20% reduction for low-mid rise apartments.

• Retrofit Rebates

A number of rebates have been made available from the NSW and Australian Governments. NSW Government rebates have initiated the uptake of 1000 energy efficient Hot Water Systems and 136 Ceiling insulations in the Shire.

What we are Monitoring

Number of Days Air Quality Levels Exceeded Guidelines



Noise

Noise at a Glance		
State	Fair	Quiet background levels are a good natural asset for the Shire. Increase in noise complaints, but still manageable.
Pressure	Increasing	Transport corridor noise to increase as Shire meets growth demand.
Response	Fair	Council is currently responding to fairly good conditions within the Shire. Some arising pressures may need attention.

State

Anecdotal evidence shows that background noise levels particularly in residential areas are still lower than the amenity criteria suggested by the DECCW. The average residential background level recorded during investigations throughout the year was 35dBA.

Council received 61 noise complaints during the year. The noise issues ranged from barking dogs, noisy air-conditioners, trail bikes, agricultural activities, noise from industrial premises, and that time of use of power tools and heat pumps.

The DECCW received 2 complaints relating to noise emanating from licensed premises. There are currently 22 premises that hold licences with the DECCW, 15 of which are likely to have potential to generate noise. No data has been made available from NSW Police regarding noise complaints they have investigated. NSW police usually investigate complaints relating to motor vehicle noise (often related to antisocial behaviour), loud music, and other antisocial behaviour.

Pressure

Antisocial Behaviour (such as loud music and motor vehicle noise) has been rated in DECCW public surveys as the most annoying source of noise. These activities are usually investigated by the NSW police. Rise or fall in this level of noise occurrences may be linked in overall trends in levels of other antisocial behaviour.

Noise from Transport Corridors (Road and Rail) The level of impact is not being monitored, but anecdotal evidence shows transport noise is a key component of background noise, and background noise levels are influenced by proximity to the main

arterial transport corridors. This impact is likely to increase. The level of Motor vehicle ownership continues to rise. The Shire Wide traffic Network Model conducted in 2008 highlighted traffic volumes. Details on some of the Shires busiest roads are listed below with approximate 24 HR Maximum Weekday Traffic Volumes listed:

- Hume Hwy – 22,000
- Bowral Rd / Mittagong Rd – 25,000
- Old Hume Hwy, Mittagong – 22,000
- Argyle Rd, Moss Vale – 17,000
- Illawarra Hwy – 6000/7000

A growing population and commercial / industrial base, as outlined in the Sydney to Canberra Corridor Strategy, will have an impact on the level of vehicle traffic. The most noticeable increase is likely to occur on the main roads linking the various towns, and the industrial growth corridor.

Likewise rail movements are likely to be on the rise. The Main Southern Railway Line passes through the Southern Highlands. This line links Sydney with Melbourne, Canberra, and Southern New South Wales. The Southern Sydney Freight Line is currently under construction in the southern suburbs of Sydney. This will provide a designated freight line to ease conflict with passenger demands, and remove freight rail curfews. This may have a flow on impact on the Southern Highlands.

Land-Use Conflict can be a source of nuisance noise. This occurs when noise from one land use interferes with the noise amenity of an adjacent land use. Common examples of this include:

- agricultural bird scaring equipment affecting neighbouring residences,
- entertainment noise affecting residences,
- off road trail bikes being driven in areas adjacent to residential areas.

Noise nuisance from Land-use conflict appears to be increasing, possibly as a result of an increase in diversity of land uses and a change in the demographics of the region.

Residential Intensification as a result of increasing population and the demand for infill development will place pressure on noise amenity. Residential intensification will increase the number of residential appliances such as air-conditioners, heat pumps, power tools etc.

Barking Dogs continue to be a key source of nuisance in the community. This pressure is expected to remain high as it is closely linked to the rate of dog ownership, the level of ownership responsibility, and the number of houses left vacant during working hours.

Response

Conflict Resolution

Investigations of complaints are carried out by a number of agencies, depending on the noise source. Council investigates complaints relating to land use conflict, time of use of certain articles, and barking dogs. In the first instance Council encourages neighbours to

speak and discuss noise matters between the affected parties. Council encourages the use of mediation services such as the Community Justice Centre (CJC), and provides advice about these services on its web site.

Complaint resolution is achieved by Council through the use of education, warning letters, and the use of POEO Act pollution notices.

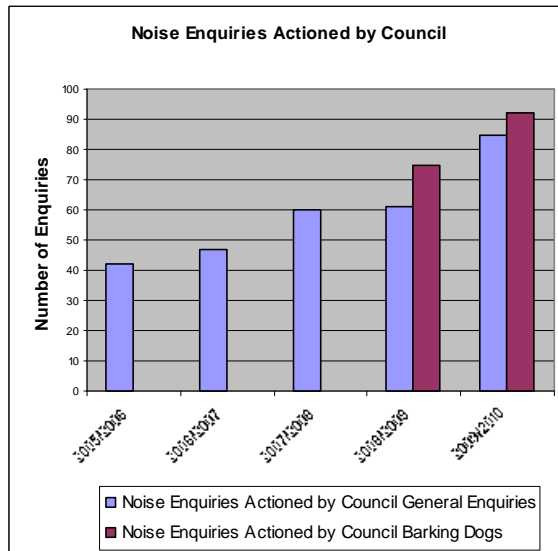
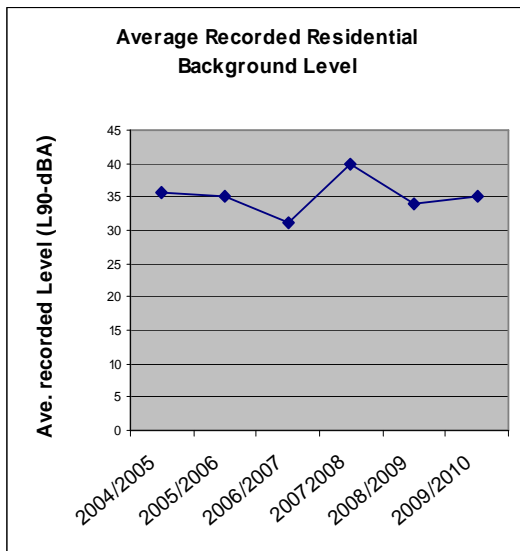
Community Education

Council publishes education material on its web site and provides brochures and leaflets at its offices.

Development Control

The LEP is the planning instrument that controls the locations of industry/commercial activities/residential developments. Council's DCP's provide some controls on the standards of construction, operation and location and some noise generating devices/activities. New developments are assessed on the level of noise impact that they may generate. Acoustic reports may be required for activities that are likely to generate a noise nuisance. Appropriate use of approval conditions can be used to control noise.

What we are Monitoring



Waste

Waste at a Glance		
State	Advanced	Council is achieving 2014 State targets for resource recovery, and is achieving well above the State average.
Pressure	Increasing	Increasing residential base will have a direct influence on waste generation. The economic downturn has had an impact on the economics of resource recovery, with resource prices dropping and commercial waste (i.e. resource) decreasing.
Response	Strong	Council is well advanced in waste minimisation and resource recovery processes. Recovery rate is increasing with the WSN Ecolibrium facility coming online.

State

It is estimated that Council received 28,415 tonnes of waste during the reporting period. On paper, this is a significant increase from previous years, however most of this increase is expected to be as a result of different reporting and measuring systems between the years. For instance a new weighbridge system has now been implemented to weigh vehicles before and after depositing.

In the future it is anticipated that far more accurate figures will be available, and the ability to compare trends will be significantly improved. Because of this change, this years figures have not been graphed along side previous years, as it may not be an accurate measure or comparison of trends.

Council manages to recover approximately 74% of resources in this waste prior to it reaching landfill. This result is far above the State average (40%), and is above 2014 Targets set by the DECCW. General waste to landfill increased in the last year to 7,347 tonnes.

Council operates 1 waste facility, the Resource Recovery Centre (RRC) in Moss Vale. The RRC is a waste transfer station which contains waste collection facilities, recycling facilities, and green waste collection facilities. Domestic waste and recycling from kerbside collection is transported to WSN's Ecolibrium Facility at Narellan for processing.

Council provides a waste collection service to 17,352 properties. Standard domestic collection services consist of an 80L general waste service (collected either weekly or fortnightly) together with a 240L recycling service (collected fortnightly). Council also

provides a drop-off service at the RRC, and regular kerbside cleanup programs.

Pressure

Population Growth has a direct influence on waste generation. Unlike commercial waste which can vary between economic cycles, the amount of domestic waste collection is directly related to the number of residents and the service provided. Growth allowances in the Sydney to Canberra Corridor Strategy provides for an additional 16,400 people before the year 2031.

Economic Downturn in recent years has had a big impact on the management of waste. This has resulted in reduced waste receipts, particularly commercial waste, which has an impact on amount of resources recoverable. Likewise, the prices of certain commodities have reduced considerably. Luckily, Council has managed to avoid the impact of some of this devaluation through its contractual arrangements. However it has had an impact on some recyclables that were not in the contract. These financial variables have placed a strain on waste management budget.

Response

Waste Minimisation Strategies

Council conducts a number of education programs focussing on waste minimisation. The RRC has an Education Program, to assist organisations and businesses to improve their resource recovery through waste assessments and reports. Assessments have been made on schools, retirement villages, TAFE and other businesses, with reports recommending changes for improved resource recovery. These assessments are currently being used in conjunction with the

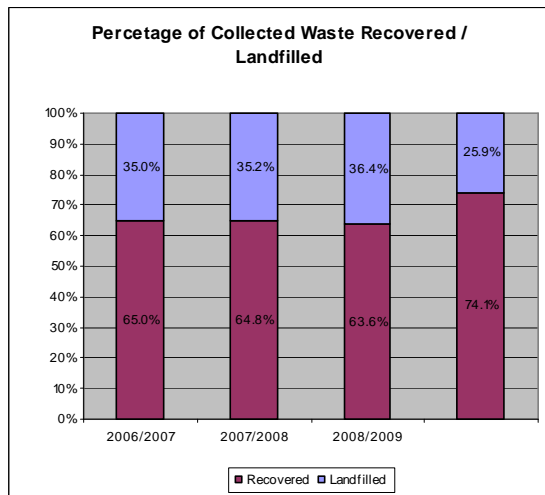
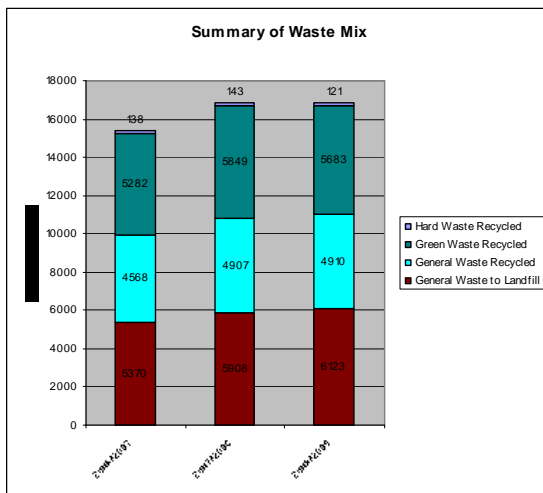
Business Treading Lightly (BTL) program of the Southern Councils Group for participating businesses in the Southern Highlands.

Recycling and Reprocessing

The RRC is designed to sort and extract as many re-usable/recyclable materials (other than kerbside recycling) and items from the waste stream as possible. These materials and items are either repaired and sold from the Reviva shop, processed on site and sold as RRC Products, or sent away to other businesses for re-use/recycling. The recovery process is controlled by a recently adopted Quality Assurance Program ensuring that materials meet relevant standards. The remaining inert material is sent to landfill.

Domestic waste and recycling from kerbside collection is now transported to the WSN Ecolibrium Facility at Narellan for processing, who are contracted to recycle 75% of this material leaving the RRC. With the commissioning of the WSN's facility, the RRC aims to achieve a total recovery (or diversion) rate of more than 85% (Domestic Waste Stream), and it is estimated that currently 74% is being achieved. This is significant in that the NSW target for resource recovery is 66% (Domestic Waste) by 2014.

What we are Monitoring



Heritage

Heritage at a Glance		
State	Stable	Heritage item listings remain constant.
Pressure	Increasing	Increasing age usually means deterioration. Pressure from land use change is set to continue.
Response	Reasonable	Planning controls in place to address heritage issues at the development stage. Programs to assist the promotion of Heritage continue to run.

State

Aboriginal Heritage

NPWS records indicate that there are at least 402 significant Aboriginal sites within the Shire. Unfortunately it is believed many sites have been destroyed, and much of the Gundungarra literature was contained on trees that have now been cleared.

Non – Aboriginal Heritage

There are approximately 346 items of heritage identified in the Wingecarribee Local Environment Plan 1989. Of these 38 items are also subject to controls under the NSW Heritage Act. The following heritage conservation areas have been declared in the LEP:

- Berrima
- Bowral
- Anglewood
- Burradoo Landscape
- Joadja
- Mittagong Main Street
- The Maltings Mittagong

Pressure

Aboriginal Heritage

The primary issue in relation to Aboriginal heritage is the loss of significant records of the local Gundungarra, and neighbouring Wodiwodi and Dharawal people. Two centuries of settlement has diminished the local traditional Aboriginal language groups. Key sites have been destroyed, and much of the Gundungarra literature was contained on trees that have now been cleared.

Non – Aboriginal Heritage

Lack of knowledge. Knowledge is contained on different registers. There is no national policy to integrate them. Identification of items and places tends to be on an ad hoc basis, as items come to the attention of responsible authorities.

Physical Condition of Places and Objects

Heritage places or objects are usually old, and there are problems in finding funds for regular maintenance.

Changes in Land Use. Changes in land use and development demands could create pressure to re-use or demolish heritage site. Decline of rural industries could mean a significant loss to farm culture and changes to the rural landscape.

Response

Planning and Development Controls

The Local Environment Plan (LEP) contains extensive provision for the identification and preservation of both Aboriginal and Non Aboriginal Heritage items and sites. Section 38G of the LEP states that "A person shall not, in respect of a building, work, relic or place that is an item of environmental heritage:

- a) demolish, alter or extend that building or work;
- b) damage or despoil that relic or place or any part of that relic or place; or
- c) excavate any land for the purpose of exposing or removing that relic, except with the consent of the council and with the concurrence of the Heritage Council of New South Wales.

Under the draft LEP there are two types of heritage listing:

1. Heritage Item
2. Heritage Conservation Area

Local government is the principal manager of heritage in NSW, mainly through local environmental plans (Shire / Town Plans). These plans contain schedules or lists of properties, buildings, places etc considered to be of local significance.

The Environmental Planning and Assessment Act provides protection through a requirement

to consider impacts on heritage in land use planning decisions.

National Parks and Wildlife Act

DECCW is responsible for the protection and preservation of all Aboriginal objects and places in NSW. The NPW Act protects all Aboriginal objects and Aboriginal places in NSW. It is an offence to do any of the following things without the permission of the Department of Environment and Climate Change (penalties can apply):

- disturb or move an Aboriginal object
- excavate land for the purpose of discovering an Aboriginal object
- knowingly destroy, damage or deface an Aboriginal object or Aboriginal place
- knowingly cause or permit the destruction, damage or defacement of, an Aboriginal object or Aboriginal place.

Aboriginal Liaison Officer

Council employs a part time Aboriginal Liaison Officer. Some of the objectives of this position are: the development of effective and strong links, communication and networks within the local Aboriginal community and between the Aboriginal community, Council and State and Federal Government agencies; develop appropriate policy for Council; promote a broad understanding of culture and protocols for Council personnel; and Initiate and facilitate projects with the aboriginal community

Wingecarribee Aboriginal Advisory Committee

This committee of Council meets 4 times a year or as required to do so by Council or by the Councillor Chair of the Committee. The objectives of this committee are: to act as an avenue for communication between the Shires Aboriginal and Torres Strait Islander residents, the wider community, service providers and Council regarding the concerns, issues and culturally appropriate service which the Aboriginal and Torres Strait Islander community require; and to provide advice to Council as required on matters concerning the Aboriginal and Torres Strait Islander community including the preparation and review of policies and protocols which affect the community.

Wingecarribee Heritage Advisory Committee

This committee of Council has been formed with the following objectives: provide advice to Council on the management of heritage within the Shire (this includes reviewing Council or government policies which affect the Shires heritage); assist in the preparation and monitoring of heritage policy.

Heritage Assistance Grants

In the reporting period Council operated the Wingecarribee Local Heritage Fund established jointly between Wingecarribee Shire Council and the Heritage Branch of the NSW Department of Planning to provide financial assistance to owners of buildings which have heritage significance within the Shire.

What we are Monitoring

Heritage Stat Sheet

Number of significant Aboriginal sites	402
Heritage Listings in LEP	346
NSW Heritage Act listings	38