

Muswellbrook Shire Council



**State of the Environment
Report
2007 - 2008**

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This report has been prepared by the Environmental Services Department, Muswellbrook Shire Council to fulfil the requirements of the Local Government Act 1993.

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1.0 Introduction

Muswellbrook Shire Council's State of the Environment Report reports on the status of the main environmental issues facing Muswellbrook Shire. The State of the Environment Report is structured around 6 major themes

- Towards sustainability
- Human Settlements
- Land
- Atmosphere
- Water
- Biodiversity

State of the Environment (SoE) Reports are a common tool used by Local Government to monitor and report identified environmental indicators which consider the impacts and level of sustainability that a community or Council has on the environment. Once these impacts have been assessed an organisation such as Council can manage its activities to improve its environmental performance.

Environmental and socioeconomic indicators are assessed and reported in the "Pressure – State – Response model" which provides a clear indication of the issue at hand, the current state of the indicator and the responses proposed to address the level of impact identified.

This SoE Report (2007/2008) is a supplementary report which provides an assessment of the state of the environment in the Muswellbrook Shire for the financial reporting period from 1st July 2007 to 30th June 2008, in accordance with the *Local Government Act 1993*. The last Comprehensive SoE report for the Muswellbrook Shire was completed for the 2003/2004 reporting period.

1.1 The Council's Role

Council activities include the provision of facilities and services to the community, the construction and maintenance of roadways, infrastructure, recreational areas and facilities; and the regulation of activities concerning the public, businesses and organisations. The execution of Council activities has associated environmental impacts which need to be managed to reduce the level of affect. The main environmental impacts associated with Council activities generally involve the consumption of materials and resources such as energy, water, chemicals and building materials.

The protection of the environment by Local Government is facilitated by the utilisation of a variety of Acts which can be implemented in relation to a specific circumstance. The Acts which provide Council with legislative powers to manage environmental activities include the *Local Government Act (1993)*, the *Environmental Planning and Assessment Act (1979)* and the *Protection of the Environment Operations Act (1997)*.

These Acts provide a range of tools which can be used by Council to address breaches of the legislation. The most effective tools to address environmental breaches are those listed by the *Protection of the Environment Operations Act (1997)* which includes infringement notices, Clean Up Notices and Prevention Notices. These tools can be issued in a variety of circumstances for a number of applications such as matters relating to water, air, noise and odour pollution which are deemed to be an offence under the Act.

Other tools listed under the *Local Government Act (1993)* relate to the maintenance of properties in a healthy manner which relate to such circumstances as wastewater management. Tools provided under the *Environmental Planning and Assessment Act (1979)* relate predominantly to the compliance with conditions of consent issued for the management of a development



2.0 Towards Sustainability

Management Plan Goals

- *To protect and improve the environment by developing an environmentally sustainable community, to achieve world best practice standards in the rehabilitation of mines and extractive industries, to promote wildlife corridors, to reduce mainstream flooding, to promote community participation in the determination of major developments and to enhance the quality and enjoyment of the environment for present and future generations.*
- *To co-operatively manage growth, development and construction that recognises environmental standards, particularly clean air and waterways and promotes energy and water efficiency.*
- *To provide a comprehensive planning framework to protect the environment, satisfy legislative requirements, to meet community needs and to involve the community in the decision making process.*
- *Develop strategies to properly manage, protect, restore, enhance and conserve the environment in a manner that is consistent with and promotes the principles of Ecologically Sustainable Development*

Principles of Ecologically Sustainable Development (ESD) are today of primary consideration in a wide array of applications and activities. Local Government is required to consider the sustainability of all activities or proposals which relate to the community or environment.

According to the Brundtland Report, World Commission on Environment and Development Sustainability is **“forms of progress that meet the needs of the present without compromising the ability of future generations to meet their needs.”**

Ecologically Sustainable Development is **“using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future can be increased.”**

Indicators

Number of Penalty Infringement Notices issued	The most effective tool that Council uses to address environmental breaches is the <i>POEO Act 1997</i> which includes infringement notices. The number of infringement notices has increased from the last reporting period.	✓
Number of Clean Up and Prevention Notices issued	Clean Up and Prevention Notices are used as part of the <i>POEO Act 1997</i> . The number of Clean Up and Prevention Notices has increased significantly.	✓
Community Event Participation	Council has undertaken a number of community environmental activities to increase environmental awareness. There has been a marked decrease in the number	✗

	of participants in the community events.	
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Results and Data

Community Event Participation

Event	Numbers participating 2007/2008	Numbers participating 2006/2007	Numbers participating 2005/2006	Numbers participating 2004/2005	Numbers participating 2003/2004	Numbers participating 2002/2003
National Tree Day	40	33	10	10	41	62
Clean Up Australia Day	47	102	57	60	87	51
Upper Hunter Enviro Youth Forum	65	126	120	140	97	87

Waste as Art

WAA aims to promote the waste-to-resource concept through encouraging the use of recovered waste products and materials in the creation of art. Winners of the various categories are determined by three independent judges from art and waste management backgrounds. All entries are displayed in a six week exhibition hosted by the Newcastle Regional Museum. The exhibition is free to the public to encourage community members to view the artworks and take home the waste to resource message

The photograph below is the overall winning entry 'Circus of Lost Souls – Peg. A. Suess' entered by Mr Robert Callander



Table 2: Waste as Art Participation Rates

Event	Number of works in WAA 08 exhibition	Number of participants in WAA 08 exhibition	Community numbers who visited exhibition	Number of works in WAA exhibition from Upper Hunter region (Muswellbrook, Upper Hunter Shire and Singleton)
Waste As Art 08	198	157	3,358	16
Waste As Art 07	223	204	7,302	19

Future Directions

A decrease in community participation rates results in a direct decrease in community environmental awareness as well as a decrease in on ground works such as tree planting on National Tree Day. It is clear from the results that Council will need to implement actions to increase community participation, these will include:

- An increase in promotion of community events
- A Community survey to assess what environmental events the community would attend
- A Community Education Plan
- An evaluation of current community events to assess effectiveness and make necessary changes to ensure a future positive indicator.

3.0 Human Settlements

3.1 Population and Settlement Patterns

Management Plan Goals

- *Ensure that the residents continue to have access to community services when needed*
- *Provide opportunities for disadvantaged residents of Muswellbrook Shire to improve their well being*
- *Improve links between community services and the Aboriginal community*
- *To improve the environmental status and knowledge of the community.*

Human settlements affect the environment by creating a demand for infrastructure and services. The demand for housing, energy, water, transport and land for waste disposal continues to grow with human settlement.


According to the Australian Bureau of Statistics website Muswellbrook Shire Council's population as of 30 June 2007 was 16039. This is an increase from the previous reporting period of around 95 people. This increase may be attributed to the economic growth occurring within the Shire due to the expansion of some local major industries such as mining.

Council implements the following strategies to ensure consistency in the planning of developments:

- Muswellbrook Local Environmental Plan (LEP)
- Development Control Plans (DCP)
- State Environmental Planning Policies (SEPP)
- Hunter Regional Environmental Plan (Hunter REP)
- Synoptic Plan – Integrated Landscapes for Mine Site Rehabilitation
- Planning for Bushfire Protection



Indicators

Development Applications Received	Economic growth in Muswellbrook has continued over the past few years, with the recent growth in population expected to further enhance the economic advancement of the area. Council will continue to provide consistency with surrounding land uses, ensure proposed land use is appropriate and undertaken in an environmentally sustainable manner. There has not been enough data collected over the reporting period to determine a trend and its affect on the local environment.	
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Results and Data

Table 3: The number of development applications received and by category

Application Type	DA's received
Dwellings	123
Multi Unit Housing	32
Commercial	29
Industrial	12
Subdivision Strata	22
Subdivision Torrens Title	39

Future Directions

Economic growth in Muswellbrook has continued over the past few years, with the recent growth in population expected to further enhance the economic advancement of the area. Council will continue to provide consistency with surrounding land uses, ensure proposed land use is appropriate and undertaken in an environmentally sustainable manner. The review of all existing Development Control Plans (DCP's) and the Local Environment Plan (LEP) will enhance the Council's ongoing achievements towards sustainable development. This will reduce all future developments impacts on the local environment whilst still allowing for economic growth and maintaining quality of life.

3.2 WATER

Management Plan Goals

- *To provide environmentally sustainable Water and Sewerage services that are customer orientated, meet present and future needs, are efficient and cost effective and follow best management practices*
- *Reuse 100% of effluent in Muswellbrook and Denman excluding peak wet weather conditions*
- *To improve water quality within the Catchment System.*

The quality of urban water supply is of the highest priority for Muswellbrook Shire Council, along with securing a sustainable water supply for the future. An increasing population and an expanding industry within the Shire both have an effect on the water quality and consumption. Increasing population places a larger demand on potable drinking water supplies for domestic and industrial uses, this growth can inadvertently cause pollution incidences and effect the environmental flows within the river system, but as a positive can increase the demand for recycled effluent.

Muswellbrook Shire Council as the local water authority undertakes the ownership, operation and management of three water supply systems which operate within the towns of Muswellbrook, Denman and Sandy Hollow.

Indicators

Urban Drinking Water Quality	Council has maintained a sampling and testing program in accordance with the NHMRC Guidelines as the local water authority. Overall the water quality has improved with the water treatment plant in Denman going online. However there are still issues with turbidity and hardness from the Hunter River as a water source	✓
Urban Water Supply and Demand	Council has met its target of reducing water consumption despite a population increase. Water saving measures have been effective in reducing the per capita water consumption. Council is making a significant commitment to securing a sustainable water supply.	✓
Recycled Water and Discharges	Council has met its target of 100% effluent reuse. This results in no effluent being discharged into the Hunter River during normal flow periods. Council remains committed to this program, with plans to expand the program if supply of effluent outgrows current demand	✓



Results and Data

Table 4: Percentage Compliance with NHMRC Drinking Water Guidelines 2007/2008

Parameter / Type	Period 2007/2008		
	Muswellbrook	Denman	Sandy Hollow
Water Consumption (ML)			
Physical and Chemical:			
Physical	99%	57%	64%
Chemical	99%	96%	90%
Key Characteristics:			
Turbidity	100%	28%	99%
pH	100%	94%	100%
Colour	100%	100%	100%
Microbiological:			
E. coli	100%	100%	100%
Total coliforms	98%	97%	95%

Figure 1: Water Consumption as compared to population

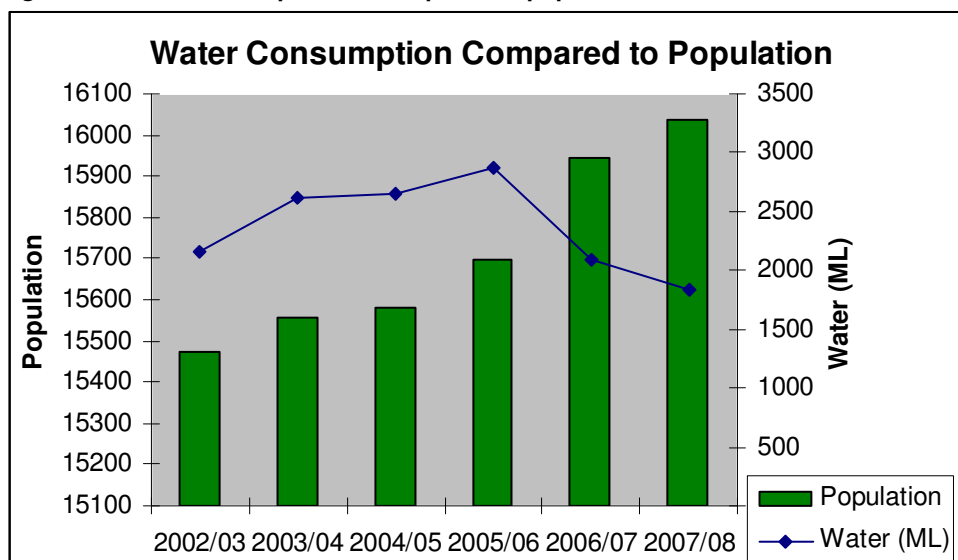


Table 5: Amount of recycled water used

Participant	Amount of recycled water used (ML)
Mt Arthur (Bayswater)	812
Muswellbrook Golf Club	78
Denman Golf Club	69
TOTAL	959 ML

Future Directions

Council will continue to maintain its high level of commitment to providing a sustainable and high quality water resource for its residents. Additional educational programs will be developed for the community and Council staff in conjunction with the Water Campaign and Integrated Water Cycle Management Plan. Further water saving measures will be put in place, including support for residents to retrofit their homes with rebates and education, water restrictions and more effective use of the current water supply.



Effluent being reused at Muswellbrook Golf Course



3.3 Energy

Management Plan Goals

- *To complete the Greenhouse Milestone Program;*
- *To reduce reliance on energy consumption.*

The majority of electricity in NSW is produced through coal fired power stations. More sustainable forms of energy are also available in some areas of the State such as natural gas, petroleum products, thermal, solar and wind energy. These forms of energy production are becoming more widely recognised and utilised as they become more efficient and cost effective however the combustion of coal to produce electricity remains the predominant energy source.

Indicators

Council Energy Consumption	Council operations use a lot of energy in the form of electricity for buildings and street lighting, along with fuel for vehicles. During this reporting period energy usage has decreased by 172603 kWh. This can be attributed to Council in house energy efficiency and reduction programs. Overall petroleum products use has increased by 19.05kL as Council fleet size has increased. However Council has increased its usage of more sustainable fuel types including diesel, LPG and E10 Unleaded, this has contributed to Council reducing it's greenhouse gas emissions	✓
Community Energy Consumption	The community of Muswellbrook has appeared to have embraced the principles of energy efficiency within the home. Energy use across both businesses and residential areas has decreased by 6.0% from the previous reporting period.	✓

Results and Data

Table 6: Energy Use by Council by Type 2007/2008

Fuel/process	Quantity used 2007/2008	Quantity used 2006/2007
Electricity	4,285,669 kWh	4,458,272 kWh
Petroleum Products		
Petrol/Gasoline	32.776 kL	109.10 kL
Automotive Diesel Oil	164.55 kL	135.19 kL
LPG - transport	23.052 kL	13.96 kL
E10 Unleaded	56.92 kL	
Total	277.30 kL	258.25 kL

Table 7: Muswellbrook LGA Community Energy Use

	2006/07 MWh	2007/08 MWh	% Change
Residential Energy Use			
Domestic Use	57409	51983	-9.5%
Controlled Load (Off Peak)	20739	18779	-9.5
Residential Total	78148	70762	-9.5%
Business Electricity Use			
Small Business	56559	50218	-11.2%
Large Business	218268	210747	-3.4%
Business Total	214827	260965	-5.0%
Total Electricity Use	352975	331727	-6.0%

Future Directions

Council is a member of the Cities for Climate Program, as part of this Council needs to implement programs to reach the agreed upon energy reduction target between CCP and Council. As part of this Council will be auditing all energy use and retrofitting buildings and fleet to reduce the amount of energy used and in turn greenhouse gas emission. This is a long term project that will be reported upon in future State of the Environment Reports and Greenhouse Gas Reduction Policies.



3.4 Waste




Management Plan Goals

- *To achieve a self funding environmentally sound waste management service*

Waste disposal is becoming a highly prioritised issue in most local government areas including Muswellbrook due to the increasing awareness of the unsustainable nature of depositing large quantities of waste into landfill sites. The basis for sustainable landfill management relies on the removal of all possible resource streams such as recyclables and greenwaste which could be reused or recycled rather than being placed into landfill sites. The existing landfill facility in Muswellbrook is projected to have the capacity to receive waste material for a period of 10 to 15 years.

Muswellbrook Council provides a system of waste collection which uses a triple bin system which separates the streams of garbage, green waste and recyclables. The bins are red lidded for garbage, yellow lidded for recyclables and green lidded for greenwaste. The introduction of the triple bin system has improved the ability of Council facilities to handle, process, reuse, recycle and/ or dispose of specific waste streams.

Indicators

Recycling	The triple bin system is utilised by Council for domestic waste collection. There has been a slight increase in the amount of recycling diverted from landfill. Recycling rates should have increased by a more significant amount as the population increased. The introduction of the triple bin system should also have increased the amount of recycling collected and processed.	
The Waste Stream	It is Council core business to reduce the amount of waste that goes to landfill. With recycling rates remaining static and the population increasing the waste to landfill has increased by 2709 tonnes. Residential waste has decreased showing that the community has reduced their domestic waste. Construction and demolition and commercial and industrial have increased significantly.	
The Greenwaste Stream	The introduction of the triple bin system allowed for further greenwaste to be collected from residential premises. The amount of greenwaste collected and mulched has increased by over 1000 tonnes diverting a resource from landfill.	

Results and Data

Figure 2: Composition of the Recycling Stream as a percent by volume 2007/2008

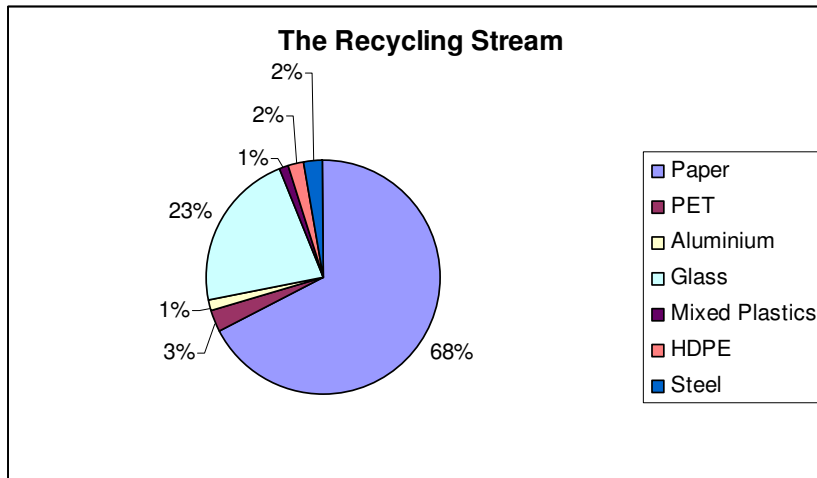


Table 8: The Waste Stream Composition 2007/2008

Waste Stream (Tonnes)	2007/2008	2007/2006
Residential	7543	9520
Commercial and Industrial Construction and Demolition	9460	4480
Contaminated Recyclables to Landfill	286	580
Total	17289	14580

Table 9: Greenwaste (tonnes) diverted from landfill

	2007/2008	2007/2006
Greenwaste diverted from landfill (tonnes)	3793	2298



Future Directions

A core Council target is the reduction of waste to landfill. Analysis of the waste stream shows that the vast majority of waste has come from the commercial and industrial and construction and demolition sectors. This shows a clear direction for future Council business in educating and working with the commercial and construction sectors to reduce their waste. Recycling rates from this reporting period and the last reporting period have remained static, whilst the amount of contaminated recyclables diverted to landfill has increased. With these statistics in mind Council will develop a Waste Education Plan that will have as its main objective the promotion of correct waste avoidance behaviour and actions for both the community and Council staff.



JR Richards waste contractors collecting a recycling bin

3.5 Amenity

Management Plan Goals:

- To ensure that outputs are controlled within established licensing criteria.
- To provide facilities commensurate with community needs and the ability of Council to provide, maintain and operate.
- To provide and maintain assets which allow the sustainable delivery of selected services in the interest of fulfilling recognised social, sporting and recreational needs, to a standard which is understood and accepted by the community.
- To effectively manage and maintain Council owned property.
- To improve the environmental status and knowledge of the community

Amenity can be defined as what people value about a place and how it affects their quality of life. The qualities of a place vary from person to person and with cultural and socio-economic differences. Things that can affect the amenity of an area includes the physical landscape, open spaces, recreational areas, accessibility and level of noise.

Urban green space or community lands are areas which are managed by Council as vacant areas for uses such as recreational parks, reserves, gardens and other open spaces such as nature strips. It provides a arrange of social, cultural, economic and environmental benefits.

Council receives a large number of complaints from the community regarding issues that affect the amenity of the local area. Issues such as noise pollution which can be described as any noise that has a negative effect on daily life, odour which is difficult to regulate against and very subjective and dust which is a major issue in this area due to the high number of extractive industries. Below is a table of the complaints received by Council during this reporting period in the different categories.

Indicators

<p>Number of Complaints Council received</p>	<p>Council receives a large number of complaints on issues that affect amenity. The number of complaints Council has received has increased, which could be attributed to an increase in population and extractive industries. Council will continue undertake their extensive monitoring program. Enough data is not available to determine if the increase in complaints has had a positive or negative effect.</p>	<p style="text-align: center; color: blue; font-size: 2em;">?</p>
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Results and Data

Table 10: Number of complaints received by category

Complaint Category	Number of Complaints
Illegal Dumping	13
Dust	39
Noise	38
Odour	6
TOTAL	94

Future Directions

A high level of amenity is important to the local community and environment. Without it the standards of living drop and the sense of community decreases. Council will continue to manage local amenity through its regulatory role, liaison with extractive industries and Council plans and policy.

3.6 Heritage



Management Plan Goals

- *Establish a competent heritage assessment process*

Impacts on Aboriginal and non aboriginal heritage sites and relics can be caused by factors such as the increasing population, the spread of urban development, land use changes, inappropriate land use, industrial development and changes to water flow regimes.

Apart from investigations undertaken during the development assessment process, there is a lack of knowledge and certainty in the location of Aboriginal sites throughout the Shire. The majority of the sites identified have been as a result of systematic surveys undertaken as part of the environmental assessment for large developments. Those reported to the Department of Environment & Climate Change, which includes the National Parks and Wildlife Service - NPWS are listed in the Aboriginal Heritage Information Management System (AHIMS) maintained by the department. Contributions are made to this database by Council through its Heritage Committee and Officer.

Indicators

<p>Approvals that impact on heritage sites</p>	<p>All developments undertaken must consider and preserve where possible the sites and artefacts considered to be of cultural significance to local Aboriginal tribes and non aboriginal heritage. There has been a non significant increase in the number of approvals granted that will impact on heritage sites. Council has prepared a draft LEP and DCP containing heritage planning controls with the assistance of the Heritage Office and Council's Heritage Officer</p>	
<p>Number of heritage sites listed by the LEP</p>	<p>The LEP identifies zoning and corresponding permissible land uses for all parcels of land throughout the Shire. There have been no new heritage areas added to the LEP</p>	



Results and Data

Table 11: Heritage sites affected by Council development tools 2007/2008

	2007/2008	2007/2006
Approvals that impact on Aboriginal heritage sites	0	19
Approvals that impact on non aboriginal heritage sites	3	0
Number of heritage sites listed by LEP	134	134
Number of sites added or lost from inventory	0	0

Future Directions

Heritage sites provide a sense of connection for the community to the past of their local area. The management of these can be very specialised due to the often intensive maintenance and specific skills required. Council management of heritage sites is currently being reviewed in the Local Environment Plan. This review will reflect the importance that Council places on local heritage.



Baerami Homestead

4.0 Atmosphere (Air)



Management Plan Goals

- To complete the Greenhouse Milestone Program
- To reduce reliance on energy consumption

The quality of the air we breathe is affected by a range of natural and human contributing factors. These factors include climate and weather patterns (e.g. seasons, temperature, and precipitation), human pollutants (e.g. industrial emissions) and natural pollutants (e.g. dust, sea salt). The most significant pollutants are however those produced in large quantities by human activities such as gaseous emissions and particulate matter.

The term 'greenhouse effect' relates to a natural phenomenon which involves the natural heating of the earth's atmosphere through trapped radiation. Human activities which produce 'greenhouse gases' include power generation, motor vehicles, various industries, vegetation burning, agriculture and waste decomposition. These activities all emit gases which contribute to the enhanced greenhouse effect and the increased heating of the earth known as 'global warming'. Greenhouse gases (natural and anthropogenic) which absorb heat energy include water vapour, carbon dioxide (CO₂), methane (CH₄), ozone (O₃), nitrous oxide (N₂O) and halocarbons.

Indicators

Air Quality	<p>Council participates in a PM_{2.5} air quality monitoring program with the Australian Nuclear Science and Technology Organisation (ANSTO). The program analyses particulate matter less than 2.5 micrograms in size for a 24 hour period twice weekly. The air sampling unit is located at the Water Treatment Plant in Scott St, Muswellbrook. There has been an overall improvement in air quality from the previous reporting period. All parameters have improved. PM_{2.5} as weight has on average met the NEPM standard for air quality 8 ug/m³ which equals 8000 ng/m³, there was a spike in October 2007 when it was over. Lead levels in the air have been under the NEPM standard of 0.5ug/m³ which is 500 ng/m³</p>	
Greenhouse Gas Emissions	<p>Council has decreased its greenhouse gas emissions by 646.16 tonnes. This can be attributed to a reduction in energy used throughout Council buildings and change in fuel usage with a decrease in petrol and increase in LPG, Fuel and E10 Unleaded.</p>	



Results and Data

Table 12: Absolute Values ng/m³ for Muswellbrook Air Sampling Site

2007/08	Weight	NH ₄ SO ₄	Organ	Soil	Elt C	Salt	K	Fe	Zn	Pb
July	4690	652	1392	231	736	311	31	27	3	3
August	5261	1296	1324	361	753	318	39	32	6	2
Sept	4969	1308	669	464	653	705	38	33	3	3
October	8534	2843	428	825	686	1227	56	88	2	3
Nov	5336	2304	544	403	651	312	23	28	1	1
Dec	6688	2969	603	341	673	685	28	28	2	2
January	6612	2857	430	372	576	809	25	25	1	1
Feb	3783	1344	330	303	623	510	21	24	1	2
March	4835	2014	289	442	587	455	26	37	3	2
April	4075	897	986	667	520	38	29	49	1	1
May	6184	1798	1325	531	666	114	42	43	4	3
June	6330	1348	1995	286	992	168	34	33	4	3
Average	5608	1803	860	436	676	471	33	37	3	2
Stan Dev	1325	793	539	170	119	340	10	18	1	1

Table 13: Comparison of 2007/08 and 2006/07 Air Sampling Results

Average ng/m ³	2007/08	2006/07
Weight	5608	6870
NH ₄ SO ₄	1803	1982
Organ	860	1342
Soil	436	640
Elt C	676	796
Salt	471	687
K	33	48
Fe	37	46
Zn	3	4
Pb	2	3

Table 14: Advisory Reporting Standards and Goal for Particles as PM_{2.5}

Pollutant	Averaging Period	Maximum Concentration
Particle as PM _{2.5}	1 day	25µg/m ³
	1 year	8µg/m ³

Note: Air Sampling in Muswellbrook is recorded in ng/m³ and the standard above is reported in ug/m³. The conversion is 1 ug/m³ is equivalent to 1000 ng/m³.

Table 15: Carbon emissions from Council energy use

Fuel/process	Emissions 2007/2008 – Tonnes CO₂-e	Emissions 2006/2007 – Tonnes CO₂-e
Electricity	3840	4346.82
Petroleum Products		
Petrol/Gasoline	80	272
Automotive Diesel Oil	440	365
LPG - transport	0.00	22.34
E10 Unleaded	0.00	0.00
Net Emissions	4360	5006.16

* The net CO₂-e emissions are calculated using the emission factors listed by the Australian Greenhouse Office in the 'AGO Factors and Methods Handbook'.

Future Directions

The air quality within the Muswellbrook area has remained under the National Environmental Protection Measures guidelines. Council will continue to participate in the PM 2.5 air quality monitoring program with ANSTO. The data gathered from this testing will guide further air quality programs. It will also allow Council to determine the sources of air pollution and to work together with the sources to maintain the high quality of air.



Councils Environmental Protection Officer operating the Air Sampling Unit




5.0 Water Resources

Management Plan Goals

- *To improve water quality within the Catchment System*
- *To improve attitudes to recycling and reuse of waste water*
- *To improve the environmental status and knowledge of the community*
- *To provide environmentally sustainable Water and Sewerage services that are customer orientated , meet present and future needs, are efficient and cost effective and follow best practice management*

The sustainable management of water resources throughout Australia has become a major focus for all populations and organisations, due to the apparent lack of resources for the majority of the country. This restriction of surface water resources has also caused an increased reliance on other water sources which have been previously under utilised due to water quality and quantity issues such as groundwater and reuse water such as grey water. The township of Sandy Hollow accesses groundwater as their main supply.

Indicators

Hunter River Water Quality	Council undertakes a monthly water sampling program, which samples the Hunter River and major tributaries such as Muscle Creek. River water quality is hard to control due to the number of external factors that can contribute to it. A comparison of the data between this reporting period and the last reporting period shows areas of improvement in the water quality along with areas of decline.	
Registered and Inspected Onsite Wastewater Management Systems	Council is undertaking an audit of all wastewater treatment systems within the Shire. It involves the assessment and inspection of all registered systems to ensure their satisfactory operation. During the reporting period there were 38 units registered but a lack of resources has resulted in not enough audit data to determine any trends.	?
Trade Waste Approvals	Council continues to undertake and approval process for the issuing of Trade Waste Permits in accordance with development control provisions. The issuing of permits ensures that trade waste source control measures are installed and the amount of pollutants being discharged into the sewer is maintained at a minimum. There have been no new trade waste permits issued and minimal inspections so there is not enough data to determine a trend.	?

Results and Data

Table 16: Hunter River Water Sampling Results

	Ford St		Denman Rd		Denman Pump Station		Muscle Creek		Aberdeen	
Sampling year	07/08	06/07	07/08	06/07	07/08	06/07	07/08	06/07	07/08	06/07
Phosphorous mg/l	0.21	1.44	0.41	1.06	0.55	0.35	0.24	0.6	0.34	0.7
Nitrate mg/l	1.66	1.79	1.22	2.14	1.17	1.7	1.72	1.9	1.29	2.1
E. coli MPN	561.22	93.0	680.86	449.29	245.33	379.5	306.75	666.1	411.33	473.9
Total Coliforms	>2419	2275.2	>2419	1960.4	>2419	1902.4	>2419	1984.1	>2419	1590.2
pH	8.23	8.26	7.95	8.2	7.99	8.3	7.87	7.7	7.98	8.4
Temperature	23.27	20.94	21.27	19.4	20.61	18.7	21.05	18.9	21.4	21.3
Turbidity NTU	16.90	149.67	36.71	21.7	33.57	26	14.31	32.5	15.19	147.4
Electrical Conductivity us	539.3	335.71	678.88	354.4	604.56	468.4	1340.44	1054.5	465.78	262.9
TDS mg/L	255.33	155.28	328.50	155.7	328.33	224.1	661	510.9	227.62	124.9
Total Hardness	206.78	147.28	231	159.8	226.67	188.72	334	314	184.89	131.9

Table 17: ANZECC Guidelines

Parameter	Lower Limit	Upper Limit
Turbidity (ntu)	5	50
Salinity ($\mu\text{s}/\text{cm}$)	280	1500
Faecal coliforms (cfu/100ml)	150	1000
pH	6.5	8.5

Future Directions

Council will continue to monitor the Hunter River and tributaries in accordance with the ANZECC Guidelines. Obtaining the results is an important step in water quality management as is allowing the public access to the results. Council will continue with the publishing of water quality results in local publication so as to inform the community as to the health of the river.

Onsite sewage management is an important issue and one that if it is not monitored correctly can result in environmental damage to our waterways. Council will increase its auditing program of onsite systems to ensure that these systems are working correctly and any failing ones are repaired and then monitored.

Trade Waste Permits will continue to be issued in accordance with development control provisions and a greater auditing process will be undertaken to ensure compliance with Council's Trade Waste Policy.



6.0 Biodiversity



Management Plan Goals

- *To maintain natural vegetation corridors*
- *Control growth of noxious weeds within the Shire*

Biodiversity is the variety of life, the different plants, animals and micro-organisms, their genes and the ecosystems of which they are part. Australia is one of the most diverse countries on the planet. It is home to more than one million species of plants and animals, many of which are found nowhere else.

Within the local area there a number of factors threatening biodiversity. These include:

- Key threatening processes (as detailed in Schedule 3 of the Threatened Species Conservation Act 1995)
- Inappropriate development
- Land use changes
- Urban sprawl
- Fire management practices
- Altered hydrology
- Pollution
- Salinity

Native Vegetation	All Catchment Management Authorities (CMA's) have been allocated the task by the Department of Water and Energy to provide assessment and approval of land clearing under the Native Vegetation Act 2003. There were no approvals given during the reporting period	
Threatened Species, populations and endangered ecological communities	The results based on NPWS Wildlife Atlas for the Muswellbrook LGA at surface level indicate that there has been 1 species of plant removed from the endangered list, 2 plants and 1 animal species removed from the vulnerable list and a number of both species removed from the protected list. Whilst this may seem positive, without detailed analysis of whether there have been new species added or existing species removed it is hard to determine a trend based upon the last reporting periods results	

Results and Data

Table 18: Endangered species and populations in Muswellbrook Shire Council 2007/2008

Classification	Listing	Number of species
FLORA		
• Endangered	Endangered - TSC Act (E1)	8
• Endangered	Endangered - TSC Act (E2)	4
• Vulnerable	Vulnerable - TSC Act (V)	16
• Protected Plants	Protected - NPW Act (P13)	95
FAUNA		
• Endangered	Endangered - TSC Act (E1)	8
• Endangered populations	Endangered - TSC Act (E2)	0
• Endangered	Presumed Extinct - TSC Act (E4)	0
• Vulnerable	Vulnerable - TSC Act (V)	35
• Protected	Protected - NPW Act (P)	302
• Unprotected	Unprotected (U)	20

Future Directions

The establishment of vegetation corridors linking areas of native and remnant vegetation will improve the ability of fauna species to move across the landscape and for endemic flora species to colonise protected areas. Findings of the HCCREMS mapping project indicate that few corridors currently exist isolating areas of remnant vegetation. The investigation and identification of the issue within the Hunter has been undertaken to promote a focus on enhancing the existing remnant vegetation by providing linkages.

The ongoing implementation of the Mine Rehabilitation Synoptic Plan within the Hunter Region will address the provision of corridors between mine sites which have been rehabilitated to other nearby vegetation. This process however is limited by the extended life of mine sites which can be over a period greater than 20 years.



The State Of Our Environment

The 2007/2008 State of the Environment Report is a tool that is used to compare Council's overall environmental performance with previous years and reports. Indicators and data are used to establish whether there has been a positive, negative or neutral trend in each area assessed.

Council has improved in the areas of water management, with overall urban drinking water consumption decreasing. The quality of the potable water has improved and the 100% effluent reuse target has been met.

Energy usage and subsequent greenhouse gas emissions is always an area that Council aims to improve on. During this reporting year Council has reduced its corporate energy usage and its greenhouse gas emissions through using less power and changing Councils fuel usage for Council fleet.

In the area of waste management Council has not improved its performance generally. The amount of recycling collected from yellow lidded recycling bins has increased but only marginally, despite the three bin system being relatively new. The amount of waste going to landfill has increased which is a negative as Council aims to reduce the amount of waste going to landfill. Improving the quality and volume of the recyclables collected will reduce the amount of resources going to landfill and helping to act as a buffer to the amount of commercial and construction waste that the landfill receives.

Community attendance at Council environmental education events such as Clean Up Australia Day and National Tree Planting Day has decreased

A number of areas have had no real change in their performance compared to last year and a number of indicators did not have enough data available to determine a trend.

Future Council policy and procedures will reflect the outcomes found within this report. Council will work to maintain all increases in performances. An assessment of all negative outcomes will be undertaken to determine why a decrease in performance has occurred. Appropriate actions and programs will be developed to improve the performance in these areas for the 2008/2009 State of the Environment Report.

The table below shows how the 2007/2008 performance compares with that of 2006/2007.

Table 19: Performance of Indicators for the State of the Environment Report 2007/08

Indicators from 2007/2008 Report	Comparison to 2007/2006 Indicators
Number of Penalty Notices Issued	✓
Number of Clean Up Notices issued	✓
Community Event Participation	✗
Development Applications Received	—
Urban Drinking Water Quality	✓
Urban Drinking Water Usage	✓
Recycled Water and Discharges	✓
Council Energy Consumption	✓
Recycling Collected	✗
Waste to Landfill	✗
Greenwaste Collected	✓
Number of Complaints Council Received	?
Approvals that impact on heritage sites	—
Number of heritage sites listed by LEP	—
Approvals that impact on heritage sites	?



Air Quality	✓
Greenhouse Gas Emissions	✓
Hunter River Water Quality	—
Onsite Sewage Management Systems Registered and Inspected	?
Trade Waste Approvals	?
Native Vegetation	—
Threatened Species population and endangered ecological communities	?

