

STATE OF THE ENVIRONMENT REPORT

2015 - 2016



Moree and Narrabri
Local Government Areas



Acknowledgements

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Ploughing in Narrabri LGA



Abbreviations

AHIMS	Aboriginal Heritage Information Management System
DCP	Development Control Plan
EECs	Endangered Ecological Communities
EPA	NSW Environment Protection Authority
GJ	Gigajoule
GL	Gigalitre
GPT	Gross Pollutant Trap
ha	Hectare
IP&R	Integrated Planning and Reporting
kL	Kilolitre
km ²	Square kilometres
LBL	Load Based Licensing
LGA	Local Government Area
LLS	Local Land Services
ML	Megalitre
NSW	New South Wales
RSoE	Regional State of the Environment
SoE	State of the Environment



Introduction

Why a SoE report?

A State of the Environment (SoE) Report is an important management tool which aims to provide the community and Council with information on the condition of the environment in the local area to assist in decision-making.

Environmental issues are not restricted to Council boundaries. Regional State of the Environment (RSoE) Reports have been recommended by the NSW Government and used by some groups of Councils in NSW to enable a better understanding of the state of the environment in a regional context and to identify future collaborative pathways. More specifically, a regional approach to reporting:

- facilitates a better understanding of the state of the environment across the region
- encourages collaboration in regards to partnering on projects and sharing ideas and resources
- assists in the management of shared environmental resources
- forges stronger regional links across participating Councils.

For these reasons Moree Plains Shire Council and Narrabri Shire Council have decided to combine to produce a regional report across the two local government areas (LGAs).

This report

In 2009, the *Local Government Act 1993* was amended. The amendments require the use of an Integrated Planning and Reporting (IP&R) Framework to guide a Council's future strategic planning and reporting. As part of the IP&R Framework, Councils are required to develop environmental objectives with their communities in relation to local environmental issues. These environmental objectives form part of each Council's overarching Community Strategic Plan.

The IP&R Framework required that the Councils prepare annual reports which will include reporting on environmental objectives in their Community Strategic Plans. It is only in the year in which a Council election is held (planned for 2016) that the annual report must include a SoE Report.

The themes covered in this report relate broadly to both Council's environmental objectives. The themes are:

- Land
- Biodiversity
- Water and Waterways
- People and Communities
- Towards Sustainability

Indicators are important management tools used in environmental reporting. They summarise and communicate information about the condition of key aspects of complex environments so that decision making can be better informed.

In this report, a suite of indicators has been identified that help report on the environmental themes listed above.

This is the first year that the Councils have prepared a joint SoE report and therefore there is little data available from previous years to compare. However, where indicator data for previous years is available, it is provided along with data for 2015-16 in the tables for both LGAs at the end of this report.

There is a description for each indicator trend within the chapters and an explanation of possible reasons for it occurring. There are also case studies highlighting responses to environmental issues across the region.

Council Snapshot Reports

In the main report, data for each indicator is aggregated across the region. At the back of the report, a tailored 2015-16 snapshot report is provided for both LGAs.

The trend arrows in the summary tables are based on comparing the average of data from the past three years with the data for 2015-16, where direct comparison can be made.

The trend arrows used in the summary table are:



improvement

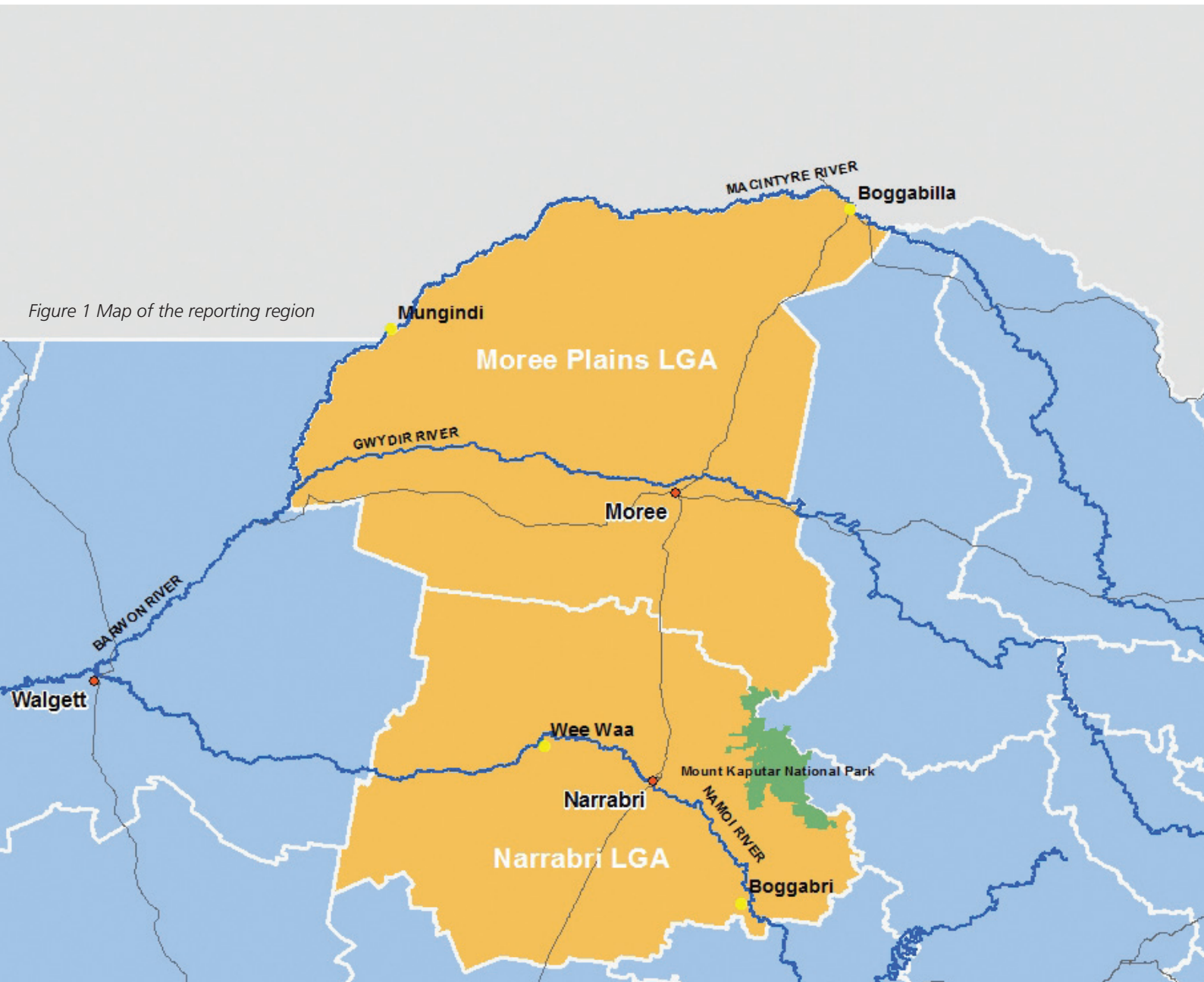


no or little change



worsening trend

Background



Moree and Narrabri LGAs are located in north-western NSW (see Figure 1). Together they extend across approximately 31,000 sq. kms.

The climate of the region is temperate, with average temperatures of 4°C–19°C in winter and 18°C–33°C in summer. The annual average rainfall is 585mm.

The main geologic feature of the region is the Nandewar Ranges including Mount Kaputar National Park, created by erupting volcanoes between 17 and 21 million years ago.

The Kamilaroi (pronounced Gam-ill-a-roy) people were the first inhabitants of the region. Radiating from Narrabri, their land extends north to Goondiwindi, west to Lightning Ridge and south to Quirindi. In Moree LGA, Indigenous people make up about 21% of the population, whilst in Narrabri LGA it is 11%.

The region overlies a portion of the Great Artesian Basin and has access to extensive artesian and sub-artesian underground water resources. Surface water, flowing from the tableland region of northern New South Wales into the extensive inland river system crossing the plains, is also in reliable supply. This access to water along with fertile black soils has enabled the region to become one of the most productive agricultural areas in Australia. Large scale cereal crops and cotton provide export industries for the region, while sheep, cattle, oil seeds, olives and pecan nuts contribute significantly to the local and national economy.

The region is well endowed with extensive coal and natural gas deposits with Santos in the process of developing coal seam gas from the Pilliga State Forest area - one of the largest on-shore natural gas reserves. There are a number of coal mines currently operating in Narrabri LGA.

The total population of the two LGAs is about 27,000, almost equally divided between them. The two main towns are Moree (population 9,500) and Narrabri (population 7,500). Other towns include Wee Waa, Boggabri, Boggabilla and Mungindi. These towns provide extensive manufacturing and support industries, and well-developed artistic, cultural, educational, sport, recreational and social opportunities.



Gwydir River



Wetland near Boggabri

The primary transport routes are the Newell Highway, which connects Victoria with Queensland, the Kamilaroi Highway west from Walgett to Willow Tree and the Gwydir Highway, which connects the East Coast with western New South Wales. NSW Trains, regular air services and the major coach lines provide transport for passengers, and rail services provide seasonal services for the transport of bulk agricultural produce.

Environmental Objectives



Basalt columns, Mount Kaputar National Park



According to the *Local Government Act 1993*, the Community Strategic Plan should be developed and delivered as a partnership between Council, state agencies, community groups and individuals. It should address a broad range of issues that are relevant to the whole community. These issues can include ones relating to the environment.

Moree LGA

Community consultation for the development of the initial *Moree Plains 2030* Community Strategic Plan identified 12 high priority issues including some relating to the environment such as waste management/minimisation/recycling, and flood protection and preparedness.

The *Moree Plains 2035* Community Strategic Plan comprises four broad strategies:

- 1. An inclusive, caring community**
- 2. A vibrant regional economy**
- 3. Coordinated, Committed Leadership**
- 4. Committed, coordinated leadership**

Within the third strategy above, there are ten environmental objectives:

- E1.1 Identify and manage threats to our native flora and fauna
- E1.2 Support the healthy function of our ecosystems
- E1.3 Protect our key resources – our agricultural land, our artesian water and our waterways – from any adverse impacts of mining and State/Federal policies
- E2.1 Reduce resource consumption, recycle and minimise waste
- E2.2 Encourage sustainable production and technologies
- E2.3 Secure sustainable water supplies
- E2.4 Minimise our contribution and exposure to the changing climate
- E3.1 Enhance the character of our local area through good design and protection of Aboriginal and other heritage sites
- E3.2 Improve the appearance of our town and villages
- E3.3 Provide opportunities for the enjoyment of community spaces and places

In the Community Strategic Plan, there are some indicators identified to measure success of the environmental objectives.

- Residential Waste - Total waste to landfill, recycled waste and green waste
- Greenhouse Gas Emissions from Electricity Use - Tonnes of greenhouse gases from total billed electricity and estimated emissions per capita
- Recycled Water Supplied - Volume of recycled water used by the local authority or provided to others to use
- Drinking Water Quality - Proportion of microbiological water quality samples reaching or exceeding the water quality targets for the year (>90%)

This RSoE report will report on these and other indicators related to the environmental objectives in the *Moree Plains 2035* Community Strategic Plan.

Narrabri LGA

To develop its Community Strategic Plan, Narrabri Shire sought ideas from residents, businesses and interest groups about how to retain the existing population while attracting new people to the LGA. Three central themes emerged that capture the essence of the community's view of the future of Narrabri Shire:

- 1. A place to thrive**
- 2. One community**
- 3. Proactive leadership and advocacy**

Council strengthened its second edition of the Community Strategic Plan by adding an additional theme that focuses on the environment. This theme responds to community input into such plans as the Local Environmental Plan, and through previous consultative forums and meetings.

The additional theme is:

4. A sustainable environment

Under this theme, there are two strategic environmental objectives:

- SE1 Sustainable land use
- SE2 Ensure a clean, green environment for the future

There are several strategies to achieve both environmental objectives. Measures of success are as follows:

- Suitable land is available for rural, residential, commercial and industrial development
- Environmentally sound operation of assets
- Biodiversity respected by maintaining native vegetation
- Clean air and water that meets standards
- Climate change impacts and initiatives are considered
- Alternative energy sources are considered
- Specific environmental features are protected
- More recycling of waste by residents and Council
- Wastewater/ stormwater and effluent managed for future needs
- Council involvement in Community Consultative Committee and environmental monitoring of dust and noise in the resource sector

This RSoE report will report on these and other indicators related to the environmental objectives in the Narrabri Shire Community Strategic Plan.

Land

Moree Sewerage Treatment Plant



This chapter focuses on aspects of sustainable land management in the region. There are a number of challenges to the sustainable use and management of our soil and land resources, such as wind and water erosion, soil contamination, soil acidity, soil salinity, soil structure decline, soil nutritional fertility and water repellence. These challenges can be caused by overgrazing and pollution from disused operations such as petrol stations. The sustainable use of soil and land in agricultural areas of the region is of increasing significance, particularly in the face of a changing climate.

Sustainable land management is an environmental objective for both local councils. The Moree Community Strategic Plan has an objective "protect our key resources – our agricultural land, our artesian water and our waterways – from any adverse impacts of mining and State/Federal policies". The Narrabri Community Strategic Plan has a strategic objective of "sustainable land use."

Indicator - Contaminated land sites (Contaminated Land Register)

Across the reporting region there were a total of four sites currently on the Contaminated Land Register at 30 June 2016, all in the Moree LGA.

The sites are:

- Former Freedom Service Station Site, Moree
- Caltex Service Station, Moree
- Former Mobil Depot, Moree
- Former Golden Fleece Service Station, Moree

A further three sites in Moree LGA and three sites in Narrabri LGA are under assessment by the EPA.

One of these sites has completed the first stage and another has commenced the second stage of remediation.

Indicator - Contaminated land sites (potentially contaminated sites)

Fifty-one potentially contaminated sites have been identified in the Moree Plains LGA. This information was not available for Narrabri LGA.

Indicator - Erosion affected land rehabilitated

Approximately 269 hectares of erosion affected land were rehabilitated in the Narrabri LGA. At Cox Creek, a barrier was constructed to capture sediment and trees were planted on top of the bank to minimise further erosion.

Indicator - Number of development consents and building approvals

Narrabri Shire Council reported a decline in development activity compared with 2014-15 but over the last four years development is still trending upwards. This growth has been driven by recently established mines which have attracted permanent residents. There is also continuing activity in commercial development from facilities like the Sydney University Wheat Research Centre and Santos Limited Operations.

Indicator - Landuse conflict complaints

There were six complaints recorded by Moree Plains Shire Council, mostly consisting of business noise and dust complaints. No complaints were recorded in Narrabri LGA.

Indicator - Loss of primary agricultural land through rezoning

The last time any primary agricultural land was lost was in 2014 when 196 hectares was rezoned in the Narrabri LGA.

Indicator - Number of mining and exploration titles

Area covered by mining and petroleum exploration projects

There are currently 80 titles for extractive industries and mining or petroleum exploration projects, covering a total area of 2.3 million hectares across the two LGAs, with 92.6% of the area allocated to minerals exploration.

CASE STUDY: Illegal Dumping (Moree Plains LGA)

During the 2014/2015 financial year Moree Plains Shire Council implemented an illegal dumping program in a bid to reduce the number of illegal dumping incidents that were occurring throughout the Shire.

Council applied for funding through the Environment Protection Authority (EPA) – Waste Less Recycle More program and was fortunate enough to receive \$100,156 which Council matched dollar-for-dollar.

Clean-up activities were carried out in South West Moree on Crown Land along Amaroo Drive, the Old Rifle Range and the reserve along the Mehi River adjacent to Mehi Crescent which is owned by the Moree Aboriginal Land Council.

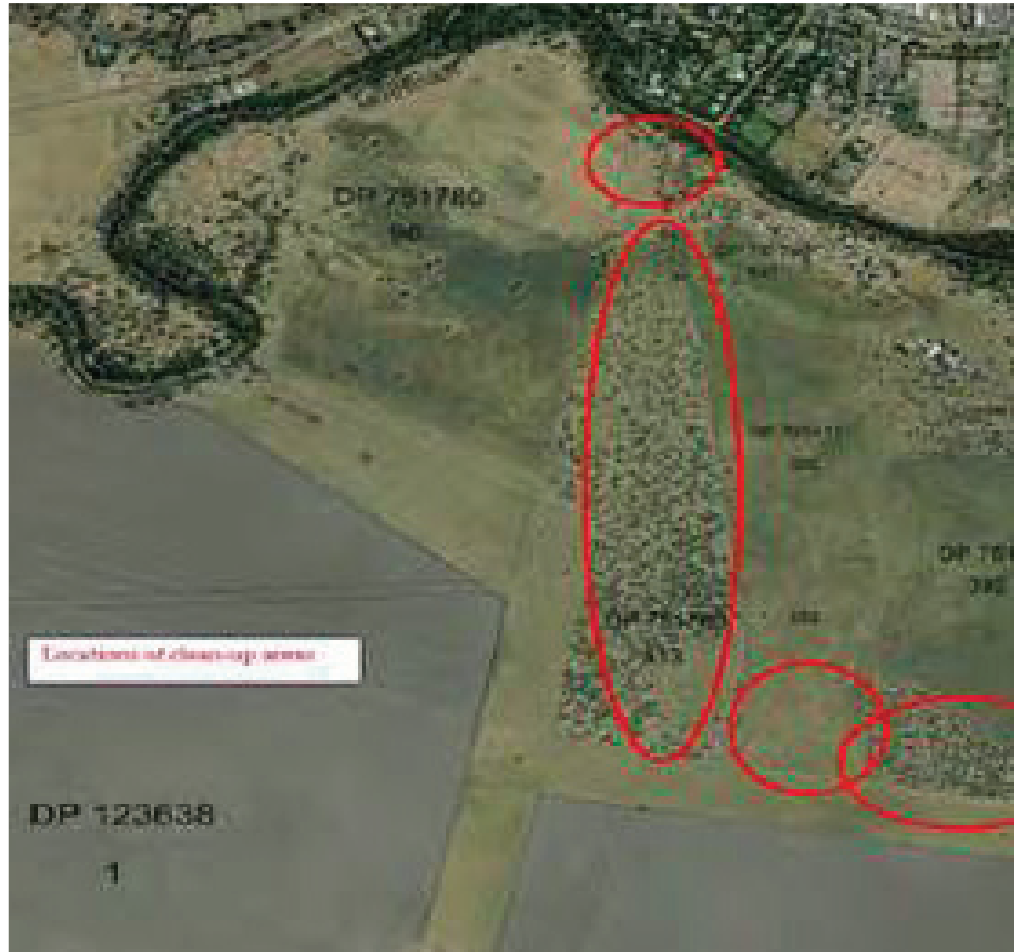
The extent of illegal dumping in these areas alone was severe with 450 tonnes of unsorted waste, one tonne of metal, 20 tons of concrete and 118 tyres being removed at a total cost of \$67,542.

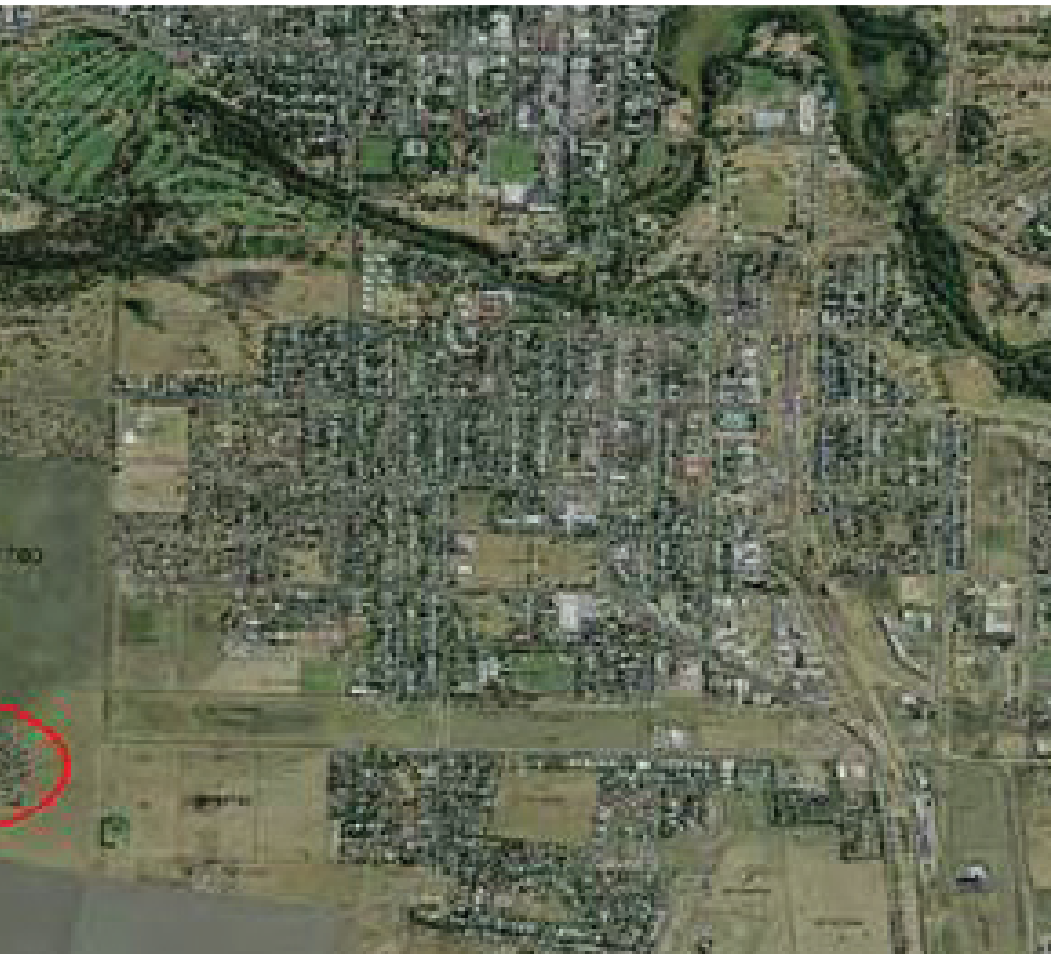
Many other known hot-spots throughout the Shire were also cleared which included areas at Boggabilla, Mungindi and Pallamallawa. The total amount of rubbish collected and disposed of during the program included just over 1,000 tonnes of unsorted waste collected, two tonnes of metal, 20 tonnes of concrete and 475 tyres costing a total of \$204,677.

Proactive surveillance of the cleaned-up areas is now being undertaken by Council Rangers in partnership with Authorised Officers from Crown Lands. Surveillance cameras have been installed and twenty four 'Report Illegal Dumping' signs in previously known hot-spots.

Council's program has been a huge success with the number of reoccurring incidents reducing strategically. However, it is still an area of concern due to the negative environmental effects that dumped rubbish has on our soil, waterways and animal habitats.

Education and enforcement will continue to ensure that the previously cleaned up sites are not contaminated in the future.





*Crown Land / Stock Route off Amaroo Drive, Moree commonly known as the Old Rifle Range.
Hot Spot for Illegal Dumpers where intense clean-up activities were
undertaken during 2014-2015 financial year*

Biodiversity



Sheep grazing, Moree LGA



Biodiversity is the variety of all life forms on earth - the different plants, animals and micro-organisms and the ecosystems of which they are a part.

Ecosystems that are rich in biodiversity are more resilient and healthy and are better able to recover from outside stresses such as drought, pests, bushfire and climate change.

The Community Strategic Plans of both councils recognise the importance of biodiversity management. The Moree Community Strategic Plan has two environmental objectives for biodiversity management:

E1.1 identify and manage threats to our native flora and fauna

E1.2 Support the healthy function of our ecosystems

A measure of success in the Narrabri Community Strategic Plan is "Biodiversity respected by maintaining native vegetation."

Indicator – Total area in the National Parks Estate

Indicator – Addition to the National Park estate

The National Park estate includes national parks, nature reserves, state conservation areas and regional parks. In June 2016, the total area of the National Park estate in the reporting region was 273,876 hectares, 84.4% of which is in Narrabri LGA. There was an addition of 2,989 hectares in the region from the previous year.

Indicator – Total Area of State Forests

Indicator – Change in Area of State Forests

In June 2016, there were 184,274 hectares of State Forests in Narrabri LGA and none in Moree Plains LGA. There was a slight decline in the area of State Forests in the reporting region from the previous year.

Indicator – Total Area Protected in Wildlife Refuges

The Wildlife Refuges scheme has existed since 1948 and is one of the longest-running schemes in Australia that supports conservation on private and public land. Wildlife refuges may contain remnant native vegetation, as well as habitat provided by wildlife corridors, windbreaks, woodlots or farm dams. The area protected in Wildlife Refuges on private property for the two LGAs is 11,611 hectares, almost 90% of which is in the Moree Plains LGA.

Indicator – Total area protected under voluntary conservation agreements and property agreements

The Conservation Partners Program supports landholders in voluntarily protecting and managing native vegetation, wildlife habitat, geological features, historic heritage and Aboriginal cultural heritage on their properties. A conservation agreement is a joint agreement between landholders and the NSW Minister for the Environment. The agreement provides permanent

protection for the special features of land. The area under the agreement is registered on the title of the land, ensuring that, if the land is sold, the agreement and management requirements remain in place. Landholders can choose from a range of protection options which recognise and formalise their commitment to conservation on their properties.

Almost 4,000 hectares of land was protected under Voluntary Conservation Agreements and property agreements in 2015-16 with all but 33 hectares of this area in the Moree Plains LGA.

Indicator - Proportion of Council reserves that is bushland/remnant vegetation

The lower bank and land along Broadwater Creek are the only bushland reserves in the Moree Plains LGA - they represent just 16.7% of their Council Reserves area.

This data was not available for the Narrabri LGA.

Indicator - Roadside vegetation management plans

Moree Plains Shire reported that it has a roadside vegetation management plan in place, managed by its Engineering Department. Narrabri Shire Council does not have a plan in place yet.

Indicator – Area of roadside vegetation rehabilitated

Whilst only roadside clearing took place in 2015-16, Moree Plains Shire Council is looking into rehabilitation in the 2016-2017 financial year.

Indicator - State Threatened species listed in the region

There are 327 listed threatened species, Endangered Ecological Communities (EECs) and Endangered Populations across the region. There are a total of 154 species listed in Narrabri LGA and 173 in Moree Plains LGA. There were no formal threatened species actions implemented in either LGA during 2015-16.

Indicator - Fish restocking activities: native species

Almost 80,000 native fish were restocked across the two LGAs, with the majority of these in the Narrabri LGA where a total of just under 63,000 native fish were restocked comprising Golden Perch, Murray Cod and Silver Perch.

Indicator - Fish restocking activities: non-native species

There was no restocking of non-native fish (for recreational fishing) in either LGA during 2015-16.

Indicator - Number of declared noxious weeds

The reporting area has 118 declared noxious weeds (NSW Department of Primary Industries, 2016), and a significant number of environmental weeds present. Noxious weeds declared for the reporting Councils can be found at www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed.

Narrabri Shire Council actively controls Green Cestrum (highly toxic to cattle), Mother of Millions (again highly toxic to stock), African Boxthorn, Common Pear, Tiger Pear, Noogoora Burr and to a lesser extent Rope Pear, St. John's Wort, Honey Locust. Council is in a program with Gunnedah Shire Council to control Honey Locust in the riparian zone along the Namoi River. It is constantly monitoring High Risk Pathways for Parthenium weed.

Other weeds Narrabri Shire Council controls are Blue Heliotrope, Silver Leaf Nightshade and Bridal Creeper. Sweet Briar has recently been discovered in south eastern area of its boundary with Tamworth Regional LGA.

Indicator - Invasive species (listed noxious or Weeds of National Significance) under active management

Twenty different noxious species are being actively managed across the two LGAs. African Boxthorn, Cats Claw Creeper and Madeira Vine are the only three species being actively managed by both Councils.

One of the key initiatives in the Narrabri LGA has been the partnership between Council and the Local Land Services to remove invasive weeds from river foreshores.

CASE STUDY: Rehabilitation of Tarriaro Reserve (Narrabri LGA)

In 2015, Narrabri Shire Council received \$22,605 from a Recreational Fishing Trust Grant to enhance and rehabilitate a degraded recreational fishing reserve by removing noxious, invasive and environmental weeds, revegetating with native species, and removing rubbish along the Namoi River. The grant is to be equalled by Narrabri Shire Council with another \$22,605 as an in-kind contribution.

The project site is located within the Namoi Demonstration Reach and is commonly known as the Tarriaro Reserve, 14 km from the town of Narrabri. The Travelling Stock Reserve (TSR) has approximately 2 km of river frontage and consists of 148 hectares.

There are a substantial amount of billabongs and flood runners in the reserve which provide an important habitat for native fish during high river flow. The control of African Boxthorns, Osage Orange, Willows, Tree of Heaven and Mimosa (which are either noxious, environmental weeds or invasive native species) will help to protect these important fish habitats. By controlling these weeds



remnant vegetation will be protected and the river system's health will improve. Native trees will be planted along the river bank where erosion has begun and in locations where the removal of Willows is proposed. Removal of rubbish from the reserve will also help with the restoration of the river.

The works to be undertaken will directly benefit key recreational fish species including Yellow Belly and Murray Cod. By returning the reserve back to its natural environment, any run off water around this area will be clean. Debris from rubbish will be reduced encouraging a cleaner river system which in turn will be a safer environment for native fish and an improvement to their fish habitat. Control of environmental weeds within the reserve will improve biodiversity of native flora and fauna and will provide improved access to the river for local fishers. The reserve is a popular place for fishers and campers throughout the year and especially at the Annual Carp Muster during the month of March.

The project is midway through its funding with Osage Orange, Willows and Tree of Heaven controlled. African Boxthorn and Mimosa have started to be controlled but rain events and climatic conditions have slowed this down. Community engagement will be encouraged with tree planting and further removal of rubbish. The project is due to finish by June 2017.

*Felled willows,
Tarriaro Reserve*

CASE STUDY: Mehi River Corridor Revitalisation Plan (Moree Plains LGA)

The Mehi River is a prominent feature in Moree's landscape running through the middle of the township. The central location of the Mehi River Corridor gives it the potential to become a significant focal point for locals and tourists visiting Moree through its leisure, recreational and environmental opportunities.

The purpose of the revitalisation plan is to consolidate the work done in previous studies and provide a coordinated approach to revitalising the Mehi River Corridor. The corridor is a major asset to Moree and has opportunities for improvement and embellishment.

The Mehi River Corridor will have a revitalised and attractive landscape which promotes its use for leisure and recreational activities while maintaining and protecting its environmental integrity.

The Corridor, with the river as the focal point, will become a tourist attraction for Moree complementing its water image and identity as the nation's Spa Capital. The River Corridor will promote outdoor activities for locals (especially youth) with facilities nearby including the BMX track, Skate Park, proposed Moree Scout hall, proposed leash free dog park, tennis courts, fishing, canoeing, botanic gardens, Lloyd Oval, Kirkby Park and nature walks through various interconnected shared cycle/walking paths which navigate the corridor.

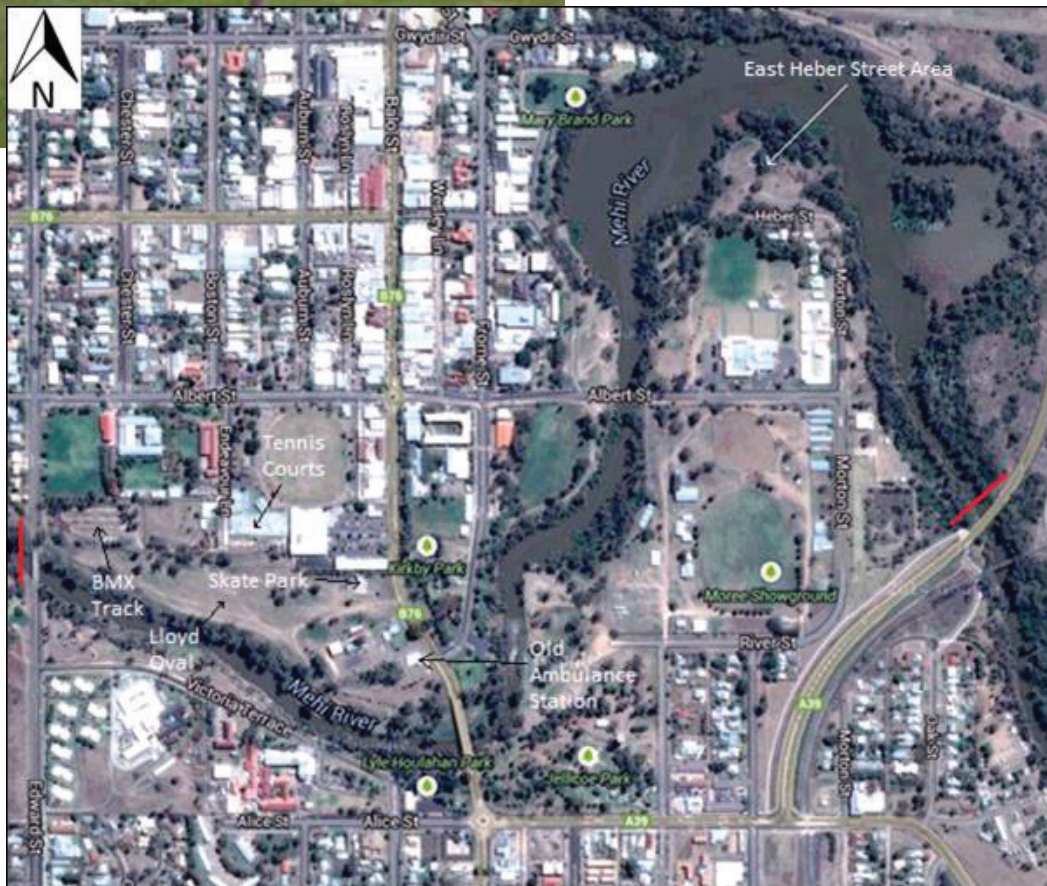
The Mehi River Corridor revitalisation will provide pedestrian/bicycle linkage to Jellicoe Park and the MAAC through integration with the Spa Bath's Precinct Beautification Master Plan.

Collaboration with North West Local Land Service (LLS) through funding initiatives has provided opportunities for Council to work together to undertake planting activities to increase the number of native species along the Mehi River Corridor and invasive weed species control works including the removal of willow, castor-oil, balloon vine, green panic and other invasive weed species from within riparian corridor.

This will be a long term project which will engage various user groups and will promote Moree in a positive manner.



Mehi River – maintained open space near Mary Brand Park



Mehi River Corridor where revitalisation will occur

Water and Waterways



Narrabri Creek



Increasing water consumption and declining water quality are two main issues in the region. The quantity of available water is often variable due to the periodic effects of drought and flood. Many rivers in the Murray-Darling Basin have been dammed to provide a reliable water supply for agriculture and urban use and increasing demand is placing pressure on inland water systems.

The quality of water within the river and groundwater systems is also under threat from industrial, urban and agricultural pollution sources, as well as from treated wastewater and stormwater.

Regional impacts of climate change and variability will include less reliable water supplies in the catchments as a result of higher temperatures, variable rainfall and higher evaporation rates. There are increased risks of relatively rare but more intense storms and flooding between protracted droughts.

The two council Community Strategic Plans acknowledge the critical importance of water management to the region. The Moree Community Strategic Plan has an environmental objective to "secure sustainable water supplies". The Narrabri Community Strategic Plan has two measures of success related to water management:

- Clean air and water that meets standards
- Wastewater/ stormwater and effluent managed for future needs.

Indicator - Riparian vegetation recovery actions

In recent years Narrabri Shire Council has undertaken a series of projects to reduce Green Cestrum infestation in riparian areas. In 2015-16, the recovery area was much larger at 148 hectares and was focussed on Tarriaro Reserve.

Indicator - Load Based Licencing volume

In the three previous years there was a strongly worsening trend for Narrabri LGA, with pollutants per year increasing from 42,000 kg to 106,000 kg as a result of numerous breakdowns experienced with the drum screen at the inlet works in Narrabri Sewage Treatment Plant. The breakdowns increased the amount of suspended solids significantly. During the last financial year the pollution load for Narrabri LGA stabilised again at 43,530 kg. By comparison, the 3,174 kg reported in Moree LGA for 2015-16 is insignificant.

Indicator - Erosion & Sediment Control complaints received by Council

There was only one complaint reported in the Narrabri LGA in 2015-16 and none for either LGA in the two prior years.

Indicator - Number of Gross Pollutant Traps (GPTs) installed

Indicator - Total catchment area of GPTs

The Moree LGA has five gross pollutant traps (GPTs) with a total catchment area of 171 hectares. Narrabri has no GPTs installed.

Indicator - Water pollution complaints

Neither Council received water pollution complaints in 2015-16.

Indicator - Number of Water Supply Work Approvals from surface water sources

The right to extract irrigation water from surface water sources is regulated under the *NSW Water Management Act 2000*. Under this Act, every pump used to extract water has to have a "Water Supply Work Approval". Therefore, tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water from irrigation (or other uses, e.g. industrial).

Whilst the Moree and Narrabri LGAs have roughly similar numbers of surface water approvals, the Moree LGA has over 30 times the approved volume permissible for extraction compared with Narrabri LGA.

Indicator - Volume of surface water permissible for extraction under licences

Under the *NSW Water Management Act 2000*, irrigators require an "Access Licence" to extract water from surface water sources governed by a water sharing plan, via one or more pumps (Water Supply Work Approvals). The Access Licences are denominated as volumetric entitlements and can be bought and sold with or separately to the land with which they were originally associated. NSW policy has been to cap the volume of water available for extraction from surface water sources by not increasing the total volume issued under Access Licences. Therefore, future increases in this indicator would not be expected unless there is a change in government policy. However, it is possible that there may be a decline over time due to a combination of government water buy-backs and some licence holders trading or surrendering their licences if they decide that the cost of water is no longer viable for them. On the flipside, relatively economically efficient water users may trade entitlements into the region.

Indicator - Number of Water Supply Work Approvals from groundwater resources

The right to extract water from groundwater sources via bores is regulated under the *NSW Water Management Act 2000*. As with surface water, every bore used to extract water has to have a "Water Supply Work Approval". Bores though fall into two categories:

- Stock & domestic bores which can be used by owners or occupiers of land overlaying an aquifer for domestic purposes or to water stock. In 2015-16 there were 4,388 stock & domestic bores across the two LGAs.
- Bores which are used to extract water via a groundwater access licence for irrigation or other non-domestic uses. In 2015-16, there were 559 of these in the two LGAs.

Tracking the number of Water Supply Work Approvals across the region, will provide an indication of the demand for water from the aquifers of the region.

Indicator - Volume of groundwater permissible for extraction under licences

Similar to surface water, extraction of groundwater for uses other than stock & domestic, is regulated under the *NSW Water Management Act 2000* via access licences. The implementation of water sharing plans and other controls to limit the total volume permitted for extraction from the region's aquifers is progressing but is probably not as advanced as for surface water. Therefore, there is likely to be more variability in the volumes reported for this indicator over the next few years.

Note that Narrabri LGA has a relatively high reliance on groundwater for irrigation, both in comparison to its surface water allocations and also to Moree LGA.

Indicator - Actual volume extracted through groundwater licences

The actual volume of water recorded as extracted through groundwater licences across the two LGAs in 2015-16 was 148.4 gigalitres. This was over 90% of the volume permissible for extraction under existing licences in both LGAs. This indicates that there is a high reliance on groundwater by irrigators and that extractions are running close to the capacities set by the current licences.

Indicator - Irrigated council managed parks, sports grounds, public open space

Moree Plains Shire Council reported that it irrigated 89% of its 14.6 hectares of Council-managed parks, sports grounds and public open space. In Narrabri LGA that proportion is only 14% of its much larger area of 365.5 hectares.

Indicator - Water used by Council for irrigation (treated and untreated)

Increased rainfall in 2016 reduced the need for irrigation with Narrabri Shire Council reporting a 32% reduction in the amount of treated water used. Note that Narrabri Shire Council uses very little untreated water for irrigation (less than two megalitres per year) whereas Moree Plains Shire Council used 192 megalitres of untreated water in 2015-16. Collins Park in Narrabri is watered from the Narrabri Creek at approximately 60 megalitres per annum.

Indicator - Annual metered supply

Water consumption by metered properties in the two LGAs was 2,218 megalitres with 97% in the Narrabri LGA. The Moree LGA figure appears to be very low suggesting that there are some problems with recording or reporting on metered use.

Indicator - Average annual household mains potable water usage

At over 500 kilolitres per household, residential water consumption is quite high for both LGAs.

Indicator - Level of water restrictions implemented

No water restrictions were in place in either LGA this year, apart from the normal permanent restrictions. These include no hoses or sprinklers allowed between 10:00 am and 2:00 pm any day in the Narrabri LGA.

Indicator - Number of water conservation programs

There was one water conservation program in 2015-16: the Save Water project in Toomelah in the Moree LGA.

Indicator - Number of drinking water complaints

Narrabri Shire Council recorded 52 drinking water complaints in 2015-16, almost all due to water colour. This was a reduction from the 72 recorded in 2014-15 but still double the previous year's total.

There were only five complaints reported in the Moree LGA this year.



CASE STUDY: Moree Water Park (Moree Plains LGA)

The Moree Water Park was constructed by the Moree Plains Shire Council for community water-based recreational and sports activities. The family-friendly facility is designed to cater for an array of water-based activities such as canoeing, dinghy sailing, dragon boat racing, jet skiing, kayaking, model boating, rowing, wakeboarding and water skiing.

The Park is located approximately 8 km south of Moree on land purchased by Council to provide opportunities for environmentally sustainable activities.

There are two water ski lakes built in compliance with international and Australian water ski tournament standards, which are 800 metres long. The third lake is designed as a circuit lake with an island in the middle for a wide range of water sports. It is almost 1.2 kms long with two runs of 100 metres wide.

There will also be a range of shore-based facilities such as amenities, vehicle and boat trailer parking areas, viewing areas and landscaping.

The lakes are being filled primarily by spent artesian water discharged from the Moree Artesian Aquatic Centre and the artesian spa industry, which was made possible by construction of a pipeline from Moree to the lakes. Rainwater captured on-site will be directed into the lakes.

Environmental issues relating to the disposal of spent artesian water from Moree's world renowned artesian water industry into the Mehi River required that an alternative disposal option be adopted.

The lakes are constructed to prevent water seepage into the groundwater or surface water, which has required extensive detailed design, quality controlled soil assessments and construction procedures.

Council's initiative to construct the water park has turned an environmental issue into positive economic, tourism, recreation and sport outcomes with benefits including:

- Enhanced health and wellbeing activities for the Moree LGA and region
- Increased range of water-based recreation and sports activities
- An opportunity to host national and international water ski tournaments
- Economic and tourism opportunities for local and regional businesses





Moree Water Park – Water Skiers enjoying the newly completed water park

CASE STUDY: Narrabri Lake Recreation Precinct (Narrabri LGA)

Narrabri Lake is situated in the western part of Narrabri township and draws water from O'Brien's Creek upstream. The lake and surrounding parklands covers approximately 39 hectares and provides facilities to encourage land and water-based recreation opportunities. Prior to construction of the lake during 1989 – 1991, the area was a floodway; the idea of creating a lake had been discussed since the 1960s.

In 2009, Council formed the Narrabri Lake Advisory Committee and developed a Plan of Management for the Lake and the surrounding parklands.

The vision for the Lake is:

Narrabri Lake will attract increasing numbers of visitors from the local community and further afield to enjoy a variety of quality facilities and settings which will cater for a range of land and water based recreational, social and educational interests of people of all ages. Over time the lake and its natural and recreational settings will become a showcase for Narrabri Shire and a source of pride of the community.

The lake's main attractions include a pathway of approximately 3 km around the water body, sand beaches, a jetty, electric BBQs, shelters with table and chair settings, a children's playground, basketball court and exercise stations.

Implementing the Plan of Management is ongoing with further detailed planning occurring to focus on key areas. Revegetation with native species has been made possible through development of a planting plan in 2014 and is progressing successfully with grants from both NSW Department of Primary Industries and North West LLS. Planting areas showcase different habitats such as Coolabah and River Red Gum. The LLS funding extends over three years to maximise longer term positive impacts on revegetation efforts.



Narrabri Lake is growing in popularity as a place to meet with others, socialise and take advantage of the lake's natural values and recreation facilities. Along with informal social gatherings, more community events are being attracted to this fantastic facility including the weekly Parkrun event which attracts locals and visitors to the park.



Narrabri Lake

People and Communities



Narrabri Old Gaol and Museum



This chapter reports on environmental issues relating to people and communities including development, cultural heritage and air quality.

Development may have economic and social benefits to communities but may also have negative impacts on the environment such as increased water pollution and loss of habitat through vegetation clearing.

Councils are responsible for urban planning, infrastructure, some aspects of environmental and heritage restoration, protection and conservation of resources, provision of community facilities, and community services.

Community volunteering is important to the implementation of environmental actions in many Council areas. Volunteers can be brought together for specific projects or can be drawn from existing community groups including Landcare, Greening Australia and other local environment groups.

Cultural heritage incorporates both Indigenous and non-Indigenous heritage and both may be threatened by increased development and a lack of management and awareness.

Air pollution can be harmful to our health. Air pollution can contain a mixture of solid particles, liquid droplets and gases from a variety of sources such as industry, motor vehicles, heating appliances, and tobacco smoke.

In its Community Strategic Plan, Moree Shire Council has three environmental objectives relating to this chapter:

- E3.1 Enhance the character of our local area through good design and protection of Aboriginal and other heritage sites
- E3.2 Improve the appearance of our town and villages
- E3.3 Provide opportunities for the enjoyment of community spaces and places

The Narrabri Community Strategic Plan has two measures of success that relate to this chapter:

- Clean air and water that meets standards
- Council involvement in environmental monitoring of dust and noise in the resource sector

In other sections, the Plan recognises volunteers and its diverse community.

Indicator - Environmental volunteers working on public open space

Moree Plains Shire recorded 188 volunteer hours in 2015/16 for activities including botanical gardens, National Tree Day, Graffiti Removal Day and Clean Up Australia Day. Narrabri Shire Council does not capture this information. However there have been volunteers from the community that help during public events and clean up public spaces.

Indicator - Number of growers markets/local food retailers specialising in local food operating within LGA

A retail fruit and vegetable store opened in Wee Waa in late 2014 mainly selling and concentrating on locally grown organic fruit and vegetables. Gypsy Willow Markets is Narrabri's monthly river-side markets at Cameron Park. The market was opened in 2007 and has been growing since then.

Paradise Fresh is another fresh food business that opened in 2012. It also provides a delivery service in the Narrabri area.

Indicator - Number of indigenous sites on AHIMS register

In 2015-16, there were 1,524 sites across the region listed on the Aboriginal Heritage Information Management System (AHIMS) register, split roughly 30/70 between the Moree and Narrabri LGAs.

Indicator - Inclusion in Development Control Plans (DCPs) & rural strategies

Moree Plains Shire Council has included indigenous heritage considerations in its Growth Management Strategy. Narrabri Shire Council is aiming to include a section on the consideration and management of indigenous heritage into the new DCP currently being drafted.

Indicator - Extent of liaison with indigenous communities (self-assessed from 0 = none to 3 = High)

Narrabri Shire Council has a moderate level of liaison with the Local Aboriginal Lands Council, contacting them if any applications are submitted on land housing items of Aboriginal significance. Moree Plains Shire Council has reported it has currently has no significant liaison with indigenous communities.

Indicator - Development on listed indigenous sites

There were no developments in either LGA on listed indigenous sites during 2015-16.

Indicator - Actions to protect indigenous heritage (including management plans)

Narrabri Shire Council adopted a Reconciliation Action Plan in July 2016. Council is aiming to include a section on the consideration and management of Aboriginal Heritage Sites in their new Development Control Plan which is currently in the drafting stage. Council is also including the Management of Aboriginal Heritage in the development process in the new DCP.

Moree Plains Shire Council considers indigenous heritage through procedural practice.

Indicator - NSW Heritage Inventory items

The only two sites listed under the *NSW Heritage Act* are Alloway in Moree LGA and Narrabri Gaol and Residence.

Indicator - Locally listed heritage items

The Moree and Narrabri LEPs list 29 and 40 heritage items respectively.

Indicator - Actions to protect non-indigenous heritage (including management plans)

There were no actions in the last financial year but Narrabri Shire Council has proposed that a heritage section be included in the new Development Control Plan for the LGA which is currently being drafted.

Indicator - Heritage buildings on statutory heritage lists demolished/degraded in past year

The Narrabri Public School building was demolished earlier this year (2016) as it was beyond repair and is currently being rebuilt. This building was locally heritage listed on the previous Local Environmental Plan (LEP) for Narrabri LGA, however it was not identified on the new LEP that commenced in 2012.

Indicator - Heritage buildings on statutory heritage lists renovated/improved in past year

The Wee Waa Courthouse building (in the Narrabri LGA) was repainted as part of routine maintenance earlier this year (2016) in heritage significant colours.



CASE STUDY: National Tree Day (Moree Plains LGA)

National Tree Day is Australia's biggest community tree-planting and nature care event. Co-ordinated by Planet Ark and proudly sponsored by Toyota, these are special days for all Australians to help out by planting and caring for native trees and shrubs to improve the environment in which they live. National Tree Day started in 1996 and since then more than 3 million people have planted 21 million seedlings!

Moree Plains Shire Council proudly supports this annual event along with the Friends of the Botanical Gardens Committee and Tait Toyota Moree.

A different tree planting location is chosen each year and focus is on various green space areas along the Mehi River Corridor as part of the Mehi River Beautification project.

During the 2016 event which was held in July, 36 volunteers reconnected with nature over the weekend to plant 52 trees along Greenbah Road Moree (opposite Boonery Road) as part of National Tree Day.

"The community-focus morning was tree-mendous," said Mrs Olsen, one of the volunteers. She added "Each and every person helped address important environmental issues like the loss of habitat for native wildlife, soil salinity and erosion and the activity was also good for individual and community health."

The volunteers were provided with shirts, gloves and gardening tools, along with a sausage sizzle at the conclusion of the planting.

It was fabulous that there were so many young children involved at this year's event which is extremely important as we need to encourage the youth of the community and educate them about looking after the environment in which they live.

Moree Plains Shire Council will continue to support this annual event as it recognises the importance of planting native species to protect and enhance the environment. It is also a positive way of involving and educating the wider community and increasing public participation.



*Volunteers at the
National Tree Planting
Day in Moree*



Towards Sustainability



Wetlands, Moree LGA



Environmental sustainability involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment to support human life.

Local councils, which play a key role in managing the natural environment and leading by example, need a sound understanding of sustainability so they are able to reduce environmental impacts and associated costs and improve the quality of life for their local communities.

Moree and Narrabri councils are committed to environmental sustainability. In the Moree Community Strategic Plan there are three environmental objectives that relate to this chapter:

- E2.1 Reduce resource consumption, recycle and minimise waste
- E2.2 Encourage sustainable production and technologies
- E2.4 Minimise our contribution and exposure to the changing climate

In the Narrabri Community Strategic Plan, there are four measures of success related to this chapter:

- Environmentally sound operation of assets
- Climate change impacts and initiatives are considered
- Alternative energy sources are considered
- More recycling of waste by residents and Council

Indicator - Total waste entombed at primary landfill

Indicator – Total waste entombed at other landfills (excluding recyclables)

Indicator – Average total waste generated per person per annum

Total waste to landfill reported by the two Councils in 2015-16 was 19,949 tonnes. Narrabri LGA's total waste to landfill declined from 11,803 tonnes in 2014-15 to 11,764 in 2015-16. In 2015-16, Narrabri LGA's average total waste generated was 0.85 tonnes per person, compared with Moree LGA's 0.6 tonnes per person.

Indicator - Average cost of waste service per residential household

The cost of waste services is \$422 per household in the Moree LGA and \$440 in Narrabri towns. Narrabri waste management fee is \$135 for rural areas. The cost in Narrabri LGA has been steadily rising over the last three years (historical data is not available for Moree LGA). It should be noted that in Narrabri LGA from 2014-15 residents also paid waste management fees. This management fee allowed residents to use waste management facilities across the LGA at no extra cost.

Indicator - Garden organics collected (diverted from landfill)

Both Moree and Narrabri Shire Councils have kerbside collections of garden organics, which totalled 1,266 tonnes in 2015-16.

Indicator - E-Waste collected (diverted from landfill)

The 1.6 tonnes reported is not accurate because Moree Plains Council could only provide an item count rather than weight for its e-waste. It is anticipated that this waste stream will grow in coming years because Narrabri Shire Council has only started its program and international trends show increasing volumes of e-waste due to growth in per capita sales and shorter product life cycles.

Indicator - % Effluent reuse & location of reuse

Moree Plains Shire Council reported 100% reuse of effluent on cemetery grounds, golf course and sporting fields.

Indicator - Volume of material recycled

Indicator- Quantity of material recycled per person

A total of 122.4 kg per person was recycled across the two LGAs in 2015-16, with 74% of the 3,409 tonnes recycled in the Narrabri LGA. A breakdown of this by material (e.g. glass, paper) is only available for Narrabri LGA as Moree Shire Council does not currently itemise its kerbside recycling collection.

Challenge Narrabri offers a number of recycling services to the Narrabri region.

It collects glass, cardboard and paper from businesses in Narrabri, Wee Waa and Boggabri. It provides a drop-off area located at our recycling centre in Arnold Street, Narrabri and also offers a recycling service to local schools.

The Narrabri Community Recycling Centre opened during the last financial year and it is supported by the EPA. Community Recycling Centres are drop-off centres for common 'household problem wastes' that cannot be collected via council kerbside waste and recycling collection services.

New and enhanced Community Recycling Centres are being established across NSW. At these centres, NSW householders can drop off their problem wastes free of charge. Centres are open year round.

Narrabri LGA's recycling total has been significantly more in the last two years when compared to the previous two years. In 2014-15, this was due to an unusually high paper and cardboard collection. This year there was a threefold increase in scrap metal, largely from repaired/replaced corrugated iron roofs, due to a big storm in March 2015 which caused severe roof damage for some properties.

Indicator - Application of design measures in response to climate change in new infrastructure

A good example of changing new infrastructure designs in response to climate change is from Moree LGA where causeway designs are being upgraded to allow for improved road access during flood events which are increasing due to climate change. These indicators have been included to try and gauge how proactive Councils are in response to sustainability and climate change challenges. Moree Plains Shire Council's Sustainable Purchasing Policy ensures it uses the most appropriate materials for the surrounding environment e.g. road base that is suitable for the alluvial soil of Moree LGA.

Indicator - New road construction

Indicator – Road upgrades

Narrabri Shire Council constructs new roads with due priority for its adopted hierarchical system ensuring the most efficient use of local resources and providing transport movement across the LGA that is safe and cost effective. This is compatible with climate change by the minimization of pollutants in air caused by inefficient transport vehicles.

Narrabri Shire Council recognises the need to implement "best practice" road planning and design processes, standards and techniques. The use of the risk management concept is particularly important since it recognises that potential environmental harm in an area depends not only on the type of activities undertaken, but also the environmental sensitivity and the severity of any adverse consequences associated with these activities. Special care is taken for known sensitive areas within the planned works to ensure that all interested parties are aware of their type and location. Measures are taken where necessary to protect the objects physically (e.g. fencing the affected area). There was no new road construction in either LGA in 2015-16, whilst road upgrades to 54 kms of roads were reported, mostly resealing and rehabilitation of regional and local roads.

Whilst increases in road construction/upgrades can be reported as a negative environmental impact, there was one undoubtedly positive upgrade with 4.2 km of road widening to facilitate construction of the new solar farm about 10 km south of Moree.

Narrabri Shire Council is committed to improve roads and bridges to ensure sustainability of the road network. This provides a safer and more efficient road network. Upgrading road surfaces and bridges also makes transport movements more efficient and therefore has the effect of minimizing pollutants in the atmosphere.

Indicator - Increase in area covered by flood management plans/ flood mapping

Although no new plans or mapping were completed in 2015-16, the flood study completed for Wee Waa in 2015 increased the area covered by flood plans/mapping in the Narrabri LGA to 18,265 hectares. A revised flood study for Narrabri is still in progress with completion expected by year ending 2016. In the Moree Plains LGA there has been no change since 1995.

Indicator – Natural disaster declarations

There were no major bushfire or drought events in either LGA during 2015-16.



Total office paper used for the Region by Type

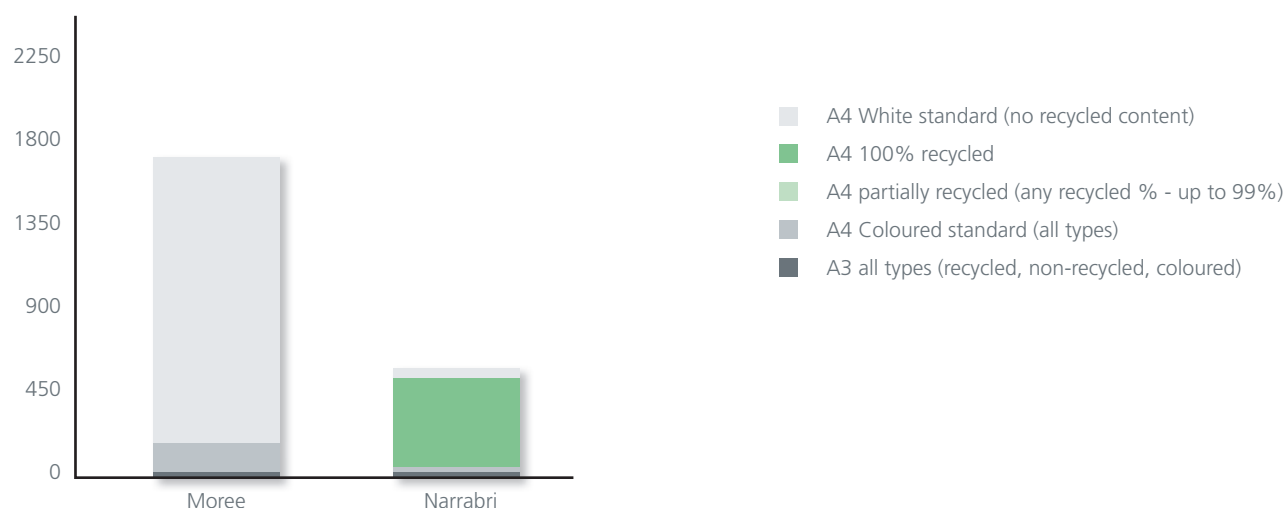


Figure 2: Amount of office paper used across the region

Indicator - Office paper used by Council

There is a significant disparity in office paper use between Moree Plains and Narrabri Shire Councils, not just in total consumption, but also in the use of recycled paper, as shown in Figure 2. The overall paper use by Narrabri Shire Council has reduced by almost 25% over the last five years. This is due to various departments going fully electronic, the increased use of emails and also the introduction of an electronic records system.

Indicator - Council sustainability initiatives

Initiatives in the Moree LGA include recycling of Council ink cartridges through Planet Ark and work in conjunction with Gwydir Industries to take Council's paper waste to recycle. In the Narrabri LGA, 2015-16 initiatives include installation of LED external light fittings at the Narrabri Aquatic Centre to reduce energy consumption, and preparation of proposals for solar installations along with implementing numerous air-conditioning upgrades to reduce power consumption/emissions.

Indicator - Council mitigation initiatives

Mitigation initiatives in 2015-16 by Moree Plains Shire Council include installation of solar panels at the Aquatic Centre and heat blankets over the public pool.

Narrabri Shire Council implemented changes to its times for the irrigation of sporting fields to reduce evaporation, for example irrigating in early morning and late afternoon rather than in the hotter parts of the day.

Indicator - Annual electricity consumption for Council controlled facilities

Despite the Council sustainability initiatives described above, the last five years of electricity consumption data from Narrabri Shire Council shows no discernible trend, with the 2015-16 figure almost exactly the same as for 2011-12. Only the current year data was available for Moree LGA but its consumption is currently substantially higher, so both Councils have a challenge to make a significant impact on their energy use.

Indicator - Total fuel consumption

Council owned vehicle fleet and plant currently only consume diesel and regular unleaded petrol. There is no consumption reported of E10, biodiesel or LPG which are all fuels with significantly lower lifecycle CO² emissions.

Indicator - Council facilities consuming Greenpower

No Greenpower is currently used by Council in either the Moree or Narrabri LGAs.

Indicator - Proportion of Council's electrical energy demand met from council-owned renewable energy infrastructure

Narrabri Shire Council has installed renewable energy infrastructure at some Council facilities but as yet it is not measuring the actual output. Therefore no data is available on the effectiveness of this investment or its impact on reducing Council greenhouse gas emissions.

Indicator - Council total operational greenhouse gas emissions

Total emissions for the two Councils (as shown in Figure 3) takes into account energy consumption from council facilities (electricity, gas, bottled gas), fuel consumption by council vehicle fleet and emissions from landfill.

Total operational greenhouse gas emissions for the two Councils in 2015-16 were 23,884 tCO₂-e/year.

Indicator - Small scale renewable energy uptake

The Small-scale Renewable Energy Scheme creates a financial incentive for owners to install eligible small-scale installations such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small-scale hydro systems. This indicator tracks the total kilowatts installed for solar panels and small-scale wind and hydro systems.

As shown in Figure 4, there has been strong growth in installations of small-scale renewable energy systems across the two LGAs, with this year's 18.2% growth above the four year average rate of 13.1%. The 2,449 kilowatts installed in 2015-16 was the largest annual total yet and is more than four times the level in 2011-12.

Indicator - Number of solar water heaters and heat pumps installed

A total of 47 solar water heaters and air sourced heat pumps were installed across the two LGAs in 2015-16. This is almost double last year's figure and is the highest total since 2011-12.

Council total operational greenhouse gas emissions

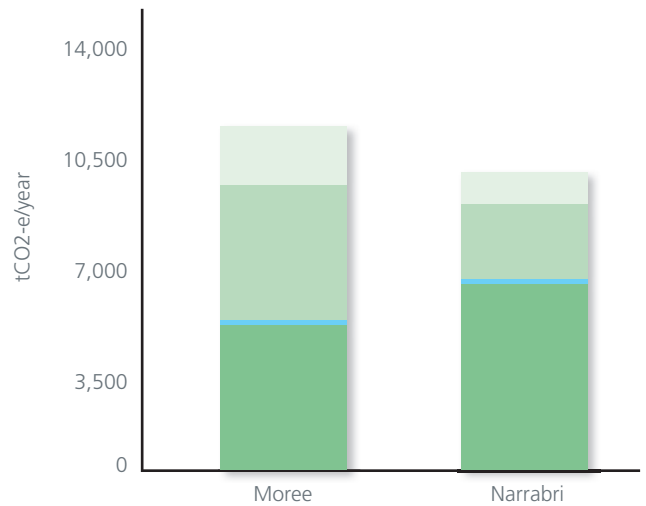


Figure 3: Council total operational greenhouse gas emissions 2015-16

- Waste
- Wastewater treatment
- Electricity use
- Fleet vehicles
- Natural gas use

Uptake of small-scale renewable energy systems

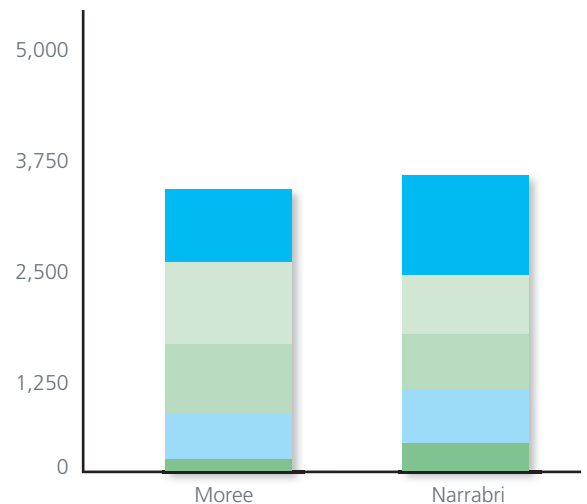


Figure 4: Uptake of small-scale renewable energy systems across the region (kW)

- 2012
- 2013
- 2014
- 2015
- 2016

CASE STUDY:

Narrabri Waste Management: Working towards a more sustainable system (Narrabri LGA)

The Narrabri Landfill commenced operations in about 1984 and provides for the waste disposal needs of approximately 14,000 residents of the Narrabri LGA. The site is approximately 25 hectares in size and has an estimated residual life of between 30 to 40 years.

Council's waste disposal facilities include eight satellite sites located at Edgeroi, Bellata, Baan Baa, Maules Creek, Boggabri, Wee Waa, Pilliga and Gwabegar. These sites provide waste disposal for the villages or areas in which they are located. Originally, the satellite stations operated as small unmanaged landfills and the Narrabri Landfill did not have appropriate infrastructure for an adequate management of the solid waste.

Narrabri Shire Council's solid waste management service has over the past five years experienced a rapid upgrading and evolution so it now provides efficient, effective and compliant waste collection and disposal services to Narrabri Shire residents. Council is three years into a ten year contract for the collection of kerbside waste, comingled recycling and organics. This contract includes the processing of the comingled recycling and organics collected.

Council has recently completed revision of its waste disposal facility at Narrabri and its transfer station network. This has resulted in all the transfer stations now being fenced and manned with advertised and community accepted opening hours. The Narrabri Landfill has also undergone considerable redevelopment and is now fully compliant with its EPA licence conditions. The site now has lined landfill cells, a leachate collection system, proper recycling facilities, adequate plant for waste collection and compaction, surface water and sediment collection and disposal systems, a tip shop, a new operational weighbridge and gate office, as well as more modern up-to-date compliant staff facilities.

The Narrabri Landfill also operates a Community Recycling Centre financed by the EPA. This is a drop-off centre for common household problem wastes free of charge. The Centre accepts waste items such as paint, gas bottles, fire extinguishers, motor oils, car batteries, smoke detectors, and fluoro globes and tubes.

The next step in the development of Council's solid waste management services will be working in conjunction with other local councils from the Northern Inland Regional Waste to meet the objectives of the Regional Waste Strategy. Moreover, Narrabri Council is working on delivering environmental education campaigns for the community, keep improving the infrastructure of the landfill, including the acquisition of new machinery and a waste management software and finding better and more cost efficient ways for waste recycling and reuse.



*Narrabri landfill facility today
(Peter Cotterill)*

CASE STUDY: Waste Management Facility (Moree Plains LGA)

Moree Plains Shire Council's kerbside waste collection services including Municipal Solid Waste, Recycling and Organics are managed under a service contract with Cleanaway. The contract commenced in 2013 and is due to expire in 2023. This arrangement is part of a regional agreement with Narrabri Shire and Gwydir Shire Councils.

In considering strategic actions and entering into a Memorandum of Understanding to participate in a regional waste tender process, Council benefits from strengthening ties with Narrabri and Gwydir Shire Councils which allowed for economies of scale for all parties.

By working together the three councils successfully let contracts for waste collection and processing of recyclables and organics. This has enabled a new kerbside three bin system to be introduced on a very competitive basis. If Council had acted alone, it is likely that the Level of Service would have been reduced from a two bin (waste and recycling) service to a waste service only.

All recyclable material collected from the kerbside collection in the three LGAs is processed via a service contract.

Material collected is delivered to a social enterprise (Challenge Disability Services) established in Narrabri. The updated and modern material recovery facility receives household recyclables where they are sorted and baled into groups including paper, cardboard, plastics, glass, steel and aluminium. The materials are on-sold for reprocessing into new products.

At the commencement of the collection contract an Organic Processing facility was constructed in Moree at the Moree Waste Management Facility.

The facility is managed and operated by Cleanaway via the service contract. All material collected in the fortnightly kerbside food and garden organics collection service in the three LGAs are delivered and processed at the facility in Moree and a compost material is produced as the final product which is available to the local community.

The regional arrangement for the three Councils includes the provision of ongoing community education, which should act to further improve recovery rates and decrease contamination rates.




*Cleanaway Recycling
Shed and the Organics
Waste Depot*



Wetland, Moree LGA

Moree Summary Report

Land

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Contamination	Contaminated land sites - Contaminated Land Register	3	5	5	5	
	Contaminated land sites - potentially contaminated sites				51	
	Contaminated sites rehabilitated				1	
Erosion	Erosion affected land rehabilitated (ha)				0	
Land use planning and management	Number of development consents and building approvals				189	
	Landuse conflict complaints				6	
	Loss of primary agricultural land through rezoning				0	
Minerals & Petroleum	Number of mining and exploration titles				34	
	Area covered by mining and exploration titles (ha)				1.15M	



improvement






no or little change



worsening trend

Note - the trend is based on comparing the average of the previous years of reporting with 2015-16

Biodiversity

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Habitat Loss	Total area in the National Parks Estate (ha)			42,804	42,693	
	Area of State Forests (ha)			0	0	
	Area Protected in Wildlife Refuges (ha)				10,391	
	Area protected in conservation reserves & under voluntary conservation agreements (ha)				3,956	
	Proportion of Council reserves that is bushland/remnant vegetation	17%	17%	17%	17%	
	Habitat areas revegetated (ha)				0	
	Roadside vegetation management plan				1	
Threatened Species	Roadside vegetation rehabilitated (ha)				0	
	Threatened species actions implemented (e.g. PAS, recovery plans)				0	
	Fish restocking activities: native species				15,909	
Noxious weeds and feral animals	Fish restocking activities: non-native species				0	
	Number of declared noxious weeds				117	
	Invasive species (listed noxious or WONS) under active management				8	



Water and waterways

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Riparian	Riparian vegetation recovery actions				0	
	Riparian vegetation recovery area (ha)				0	
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)				3,174	
	Erosion & Sediment Control complaints received by Council				0	
Stormwater Pollution	Number of gross pollutant traps installed				5	
	Total catchment area of GPTs (ha)				171	
	Water pollution complaints				0	
Water extraction	Number of Water Supply Work Approvals from surface water sources				288	
	Volume of surface water permissible for extraction under licences (GL)				922	
	Actual volume extracted through surface water licences (GL)				148	
	Number of Water Supply Work Approvals from ground-water resources				1,783	
	Volume of groundwater permissible for extraction under licences (GL)				38	
	Actual volume extracted through groundwater licences (GL)				36	
Council water consumption	Area of irrigated Council managed parks, sports-grounds, public open space (ha)				13	
	Water used by council for irrigation (including treated and untreated) (ML)				223	
Town water consumption	Annual metered supply (ML)				60	
	Annual consumption (Total from WTP) (ML)				2,676	
	Average annual household mains potable water usage (kL)				501.7	
	Average level of water restrictions implemented				0.0	
	Water conservation programs				1	
Town Water Quality	Number of instances drinking water guidelines not met				1	
	Number of drinking water complaints				5	

People and Communities






Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)				188	
	Number of environmental community engagement programs				3	
	Number of growers markets/local food retailers specialising in local food				0	
Aboriginal Heritage	Number of Indigenous sites on AHIMS register				471	
	Inclusion in DCPs & rural strategies				1	
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)				0.0	
	Development approvals on listed Indigenous sites				0	
	Number of Indigenous heritage management actions/responses				0	
Non-Aboriginal Heritage	NSW Heritage Items				1	
	Locally listed heritage items				29	
	Actions to protect non-Indigenous heritage (including management plans)				0	
	Heritage buildings on statutory heritage lists demolished/degraded in past year				0	
	Heritage buildings on statutory heritage lists renovated/improved in past year				0	

Towards Sustainability

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)				8,185	
	Total waste entombed at other landfills (ex recyclables) (tonnes)				350	
	Average total waste generated per person (tonnes)				0.61	
	Average cost of waste service per residential household				\$422	
Reduce	Garden organics collected (diverted from landfill) (tonnes)				704	
	E-Waste collected (diverted from landfill) (tonnes)				0.6	
Recycle	Volume of material recycled (tonnes)				883	
	Volume of material recycled per person (kg)				63	
Littering and illegal dumping	Number of illegal waste disposal complaints to Council				14	
Engineering, Infrastructure and Civil Works	New road construction (km)				0	
	Road upgrades (km)				11	
Risk Management	Flood management plans/ flood mapping - increase in area covered (ha)				0	
Climate Change Mitigation	Office paper used by Council (A4 reams)				1,755	
	Council sustainability initiatives				7	
	Council mitigation initiatives				3	
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)				5,600	
	Annual natural gas consumption for Council controlled facilities (Gj)				0	
	Annual bottled gas consumption for Council controlled facilities (L)				356	
	Total fuel consumption (KL)				808	
	Council total operational greenhouse gas emissions (tCO ₂ -e/year)				12,799	
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed) (kw)	664	978	1,198	1,014	
	Number of solar water heaters and heat pumps installed	17	8	7	10	

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Land

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Contamination	Contaminated land sites - Contaminated Land Register	0	0	0	0	
	Contaminated land sites - potentially contaminated sites			0	0	
	Contaminated sites rehabilitated				0	
Erosion	Erosion affected land rehabilitated (ha)		0	0	269	
Land use planning and management	Number of development consents and building approvals	255	298	668	453	
	Landuse conflict complaints				0	
	Loss of primary agricultural land through rezoning	0	196	0	0	
Minerals & Petroleum	Number of mining and exploration titles				46	
	Area covered by mining and exploration titles (ha)				1.14M	



improvement





no or little change














worsening trend

Note - the trend is based on comparing the average of the previous years of reporting with 2015-16









Biodiversity

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Habitat Loss	Total area in the National Parks Estate (ha)			228,082	231,182	
	Area of State Forests (ha)			184,296	184,273	
	Area Protected in Wildlife Refuges (ha)				1,220	
	Area protected in conservation reserves & under voluntary conservation agreements (ha)				33	
	Proportion of Council reserves that is bushland/remnant vegetation				0	
	Habitat areas revegetated (ha)				0	
	Roadside vegetation management plan				0	
Threatened Species	Roadside vegetation rehabilitated (ha)				0	
	Threatened species actions implemented (e.g. PAS, recovery plans)				0	
	Fish restocking activities: native species				62,794	
Noxious weeds and feral animals	Fish restocking activities: non-native species				0	
	Number of declared noxious weeds				108	
	Invasive species (listed noxious or WONS) under active management				15	

















Water and waterways

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Riparian	Riparian vegetation recovery actions	0	1	1	1	
	Riparian vegetation recovery area (ha)					
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)	41,957	64,952	106,065	43,530	
	Erosion & Sediment Control complaints received by Council		0	0	1	
Stormwater Pollution	Number of gross pollutant traps installed	0	0	0	0	
	Total catchment area of GPTs (ha)	0	0	0	0	
	Water pollution complaints	0	0	0	0	
Water extraction	Number of Water Supply Work Approvals from surface water sources				231	
	Volume of surface water permissible for extraction under licences (GL)				30	
	Actual volume extracted through surface water licences (GL)				18	
	Number of Water Supply Work Approvals from ground-water resources				3,164	
	Volume of groundwater permissible for extraction under licences (GL)				125	
	Actual volume extracted through groundwater licences (GL)				113	
Council water consumption	Area of irrigated Council managed parks, sports-grounds, public open space (ha)	51	51	51	51	
	Water used by council for irrigation (including treated and untreated) (ML)	18	16	19	13	
Town water consumption	Annual metered supply (ML)				2,158	
	Annual consumption (Total from WTP) (ML)			2,562	2,372	
	Average annual household mains potable water usage (kL)				518.9	
	Average level of water restrictions implemented		0.0	0.0	0.0	
	Water conservation programs		0	0	0	
Town Water Quality	Number of instances drinking water guidelines not met		2	3	0	
	Number of drinking water complaints		23	72	52	

People and Communities

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)				0	
	Number of environmental community engagement programs				0	
	Number of growers markets/local food retailers specialising in local food	0	1	1	1	
Aboriginal Heritage	Number of Indigenous sites on AHIMS register				1,053	
	Inclusion in DCPs & rural strategies	0	0	0	0	
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	1.0	1.0	1.0	1.0	
	Development approvals on listed Indigenous sites				0	
	Number of Indigenous heritage management actions/responses	0	0	0	0	
Non-Aboriginal Heritage	NSW Heritage Items				1	
	Locally listed heritage items	40	40	40	40	
	Actions to protect non-Indigenous heritage (including management plans)	0	0	0	0	
	Heritage buildings on statutory heritage lists demolished/degraded in past year	0	0	0	1	
	Heritage buildings on statutory heritage lists renovated/improved in past year	0	0	0	1	

Towards Sustainability

Issue	Indicator	2012-13	2013-14	2014-15	2015-16	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)			11,803	11,764	
	Total waste entombed at other landfills (ex recyclables) (tonnes)				0	
	Average total waste generated per person (tonnes)			0.86	0.85	
	Average cost of waste service per residential household		\$357	\$410	\$440	
Reduce	Garden organics collected (diverted from landfill) (tonnes)			557	562	
	E-Waste collected (diverted from landfill) (tonnes)			353	1,004	
Recycle	Volume of material recycled (tonnes)	1,205	1,987	2,898	2,526	
	Volume of material recycled per person (kg)	89	145	211	183	
Littering and illegal dumping	Number of illegal waste disposal complaints to Council		2	1	4	
Engineering, Infrastructure and Civil Works	New road construction (km)				0	
	Road upgrades (km)		26	41	43	
Risk Management	Flood management plans/ flood mapping - increase in area covered (ha)	2,417	2,417	18,265	18,265	
Climate Change Mitigation	Office paper used by Council (A4 reams)	671	660	643	598	
	Council sustainability initiatives	2	2	0	3	
	Council mitigation initiatives	0	0	1	0	
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	3,573	3,762	3,158	3,543	
	Annual natural gas consumption for Council controlled facilities (Gj)				0	
	Annual bottled gas consumption for Council controlled facilities (L)				0	
	Total fuel consumption (KL)			432	443	
	Council total operational greenhouse gas emissions (tCO ₂ -e/year)				11,085	
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed) (kw)	799	761	874	1,435	
	Number of solar water heaters and heat pumps installed	24	25	18	36	