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An innovative Regional Roadside Environment Toolkit

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The Hunter and Central Coast Regional Environmental Strategy (the Strategy) is a framework under which councils have worked collaboratively on environmental and sustainability issues at a regional scale since 1996.

Over the last four years the Strategy team has designed and developed an innovative Regional Roadside Environmental Management Toolkit which aims to improve the protection and management of roadside environments in order to sustain and enhance the ecosystem services and environmental values they provide. This is to be achieved whilst continuing to provide safe, efficient and well maintained transport, communication and utility corridors for the community.

Unlike most other roadside projects around Australia, this initiative goes well beyond focussing on the signage and protection of remnant vegetation in linear reserves. It effectively addresses the whole range of key natural resource/cultural/economic issues commonly affected by roads and their management.

Issues that shaped the Toolkit

A wide range of ecological values in roadside environments need better protection. Research showed that roads in the region interact with a diverse range of environments including those recognised as ecologically significant under the national *Environment Protection and Biodiversity Conservation Act 1999* and the *Threatened Species Act 1995* (NSW). Roadside environments in the region directly adjoin 480 km^2 of Ramsar listed wetlands, and are home to at least 28 threatened flora species. At a local level, roadside environments often contain the last remaining remnant vegetation in areas where substantial clearing has been undertaken for agricultural, industrial or residential purposes. Roadside vegetation can often provide important linkages for wildlife corridors, protection for waterways and act as essential buffer zones for strong wind, soil erosion/dust and noise. Despite this, roadside environments and values are typically vulnerable to degradation due to their inherent exposure to high levels of disturbance.

Other issues were the range of social/cultural values inherent in roadside environments, such as Aboriginal and non-Aboriginal heritage, points of visual amenity and community recreation zones, and economic values including the provision of refuge for livestock in times of drought, and reducing wind and the evaporation of crops and pastures.

Councils and other authorities responsible for roadside environments face common management challenges. These include lack of clarity of road reserve tenure, lack of clear corporate-wide objectives and frameworks for a coordinated consideration of roadsides, and a lack of guidelines for roadside maintenance and rehabilitation for a variety of issues. There is often conflict between ecological management objectives and the need to provide adequate road safety standards. Degradation due to weed invasion, livestock grazing, inappropriate roadside mowing practices, bush fire hazard reduction, illegal clearing and burning, and illegal dumping are also a challenge, as are the broader impacts of drainage and runoff on waterway and catchment health. It is also extremely difficult for road maintenance workers to be aware of the environmental values or issues pertaining to many sites without a field guide or other information.

Project activities

In order to meet the aims of the project, and to address many of the challenges facing road managers, the Strategy team set about developing a comprehensive toolkit of policy, planning and technical tools and decision support mechanisms. They did this by:

- mapping the region's roads and categorising them in relation to tenure, management responsibility, type and status (sealed, unsealed);
- auditing, collating, data-basing and mapping all existing information to assist in the identification of roadside environment values and management issues;
- surveying (both rapid and systematic), assessing and mapping high quality/priority areas for biodiversity conservation, environmental protection and improved management;
- designing and developing technical management guidelines for each key roadside management issue;
- designing and developing training programs for outdoor staff and managers responsible for roadside maintenance that will include key result areas for staff as part of their regular training updates;
- designing a roadside marker system and field guides linked to mapping and management guidelines; and
- designing and developing a regional monitoring and reporting program centrally managed and annually reported on by Hunter councils.

What was delivered?

A key product of the project was a Model Regional Roadside Environment Policy developed to establish a formal commitment by councils to adopting a coordinated framework for the protection, management and remediation of roadsides. Other products related to accessing and managing data and providing guidelines to minimise adverse environmental impacts.

GIS mapping tool

A comprehensive Roadside Environment Geographic Information System (GIS) mapping tool assists councils in better accessing and utilising GIS data when planning roadside maintenance and construction activities. The tool was developed by first constructing a detailed map that identifies all roads under the care and control of council, and classifies them according to tenure, management responsibility, status and type.

In addition, through desktop research the Strategy team collated all available data relating to environmental, social and cultural issues relevant to roadsides. These included known threatened ecological communities, threatened species, significant vegetation and habitat locations, and where roads intersect or are directly adjacent to world heritage areas, national parks, areas of ecological or cultural significance, wildlife corridors or water bodies. Acid sulphate soils, salinity and erodible soils were identified, as were sites of Aboriginal and European heritage.

This body of knowledge was added to by the records of local roadside environmental factors obtained from the rapid roadside assessment program undertaken across 2500 km of road. These factors included hydrology and drainage, erosion and sedimentation, salinity and acid-sulfate soil indicators, vegetation condition and structure, fauna habitat attributes, anthropogenic disturbance, and social and cultural heritage.

The GIS tool also incorporates data from systematic site surveys undertaken on behalf of the NSW Roadside Environment Committee, and several Rural Lands Protection Board offices at a range of known, iconic sites throughout the region. These now also form the basis of a long-term roadside monitoring program.

The completed GIS tool allows each segment of a road to be queried as to the environmental, legislative, safety and operational issues that have been identified within it.

Review of Environmental Factors template

The body of information collected is being incorporated into a comprehensive PC-based *Review of Environmental Factors* template. This will make it easier (and automated) for council staff to accurately and comprehensively complete these assessments for common road maintenance activities, and ensure their rigour, comprehensiveness, accuracy and legislative compliance. Importantly, linking the template to the GIS tool also helps ensure that sites containing significant values are appropriately identified and managed, and not inadvertently damaged, by roadside activities.

A range of environmental, social and cultural factors are contained in the GIS-mapping tool for 2500 km of roads in the Hunter region. Photo: HCCREMS 2009.

Technical guidelines

Detailed technical guidelines were produced addressing 17 different natural resource management issues and the protection and mitigation of the potential impacts of road management practices on the landscape. The guides assist road managers with the protection and enhancement of roadside environment values as part of their day-to-day road management activities. Councils now have guidelines for reducing impacts on waterways, threatened flora, wetlands, protected areas, and native fauna. Other guidelines relate to managing salinity hazards, acid-sulphate soil hazards, roadside grazing, and erosion and sedimentation during construction and maintenance. Protecting and re-establishing roadside vegetation during construction and maintenance, and environmental law and roadsides also have specific guidelines.

Roadside markers

The regional roadside marker system, approved by the Roads and Traffic Authority, has complemented the regional toolkit in the last 12 months. When fully implemented along the region's roadways, the marker system will indicate the location of all the mapped issues and values, and which of the 17 guidelines need to be applied when maintaining that section of the road. A laminated pocket Field Guide for roadside operational crews based on each of the technical guidelines and linked (colour coded) to the roadside marker system is currently being developed.

Training manual

A comprehensive Training Resource Manual has been developed for staff on the key environmental issues relevant to roadside environments and the use and application of the toolkit.

Conclusion

The Regional Roadside Environment Toolkit is able to be used by any council in New South Wales, and with some legislative adaptation, any council in Australia.