



# A Strategy for the Management of Roadside Environments in the Hunter, Central and Lower North Coast Region of NSW

A project completed by the Hunter  
and Central Coast Regional Environmental  
Management Strategy (HCCREMS) - a Program of the  
Environment Division of Hunter Councils on behalf of  
the Hunter-Central Rivers Catchment Management Authority.



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# A Strategy for the Management of Roadside Environments in the Hunter, Central and Lower North Coast Region of NSW





*Roadside vegetation can play a significant role in protecting water quality in rivers and streams.*

## Executive Summary

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The Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS) team, its 14 member councils, and the Hunter-Central Rivers Catchment Management Authority (HCRCMA) are collaborating on the implementation of a Regional Roadside Environmental Management Program. This Program provides the opportunity for councils to participate and collaborate in the development and implementation of measures and initiatives that will better protect and manage the ecosystem services and functions that are provided by roadside environments in the region.

Central to implementation of the Program is development of this Regional Roadside Environmental Management Strategy. The Strategy has been developed to provide the strategic framework, direction and priorities for implementation of the Regional Roadside Environment Program.

The Strategy incorporates a suite of recommendations that have been formulated to meet and address the needs and management issues that have been identified by councils, and incorporate and build upon existing roadside management initiatives, programs and systems identified during literature reviews and consultation processes. The recommendations aim to:

- Build a consistent and comprehensive understanding, suite of skills, and information resources within councils to facilitate improved environmental assessment, protection, management and rehabilitation of council managed roadside environments.
- Recognise the considerable potential that exists for collaboration and resource sharing between councils in this regard to achieve multiple benefits including cost savings and efficiencies, avoidance of duplication of effort, and consistency in policy and practises.
- Contribute to the achievement of key management targets and investment priorities included in the Hunter-Central Rivers Catchment Action Plan.

The proposed Strategy also includes a recommended 12 month implementation plan for the 2007/08 period. The actions included in this implementation plan have been selected because they reflect a number of the investment priorities of the HCRCMA's Catchment Action Plan, and because they establish the foundation upon which ongoing development of a strategic regional program can be based. The focus of these recommendations includes developing the tools and resources that are required to enhance the capacity of councils in regard to the assessment, management and protection of the environmental and NRM values that are found within roadside environments, and to promote a culture of information and resource sharing between councils in this regard.

While it is acknowledged that there are numerous stakeholders in addition to councils with an interest in the management of roadside environments, in light of the resources and funding that are presently available, the short term priorities for the regional program will focus primarily on engaging and influencing the activities of councils.



*Roadside environments provide habitat for native fauna species*

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*Roadside environments may contain significant remnants of native vegetation*



## 1. Background to HCCREMS

The Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS) is a regional scale collaborative model that provides an integrated approach to regional scale planning and environmental management by local government. The program is co-ordinated by the Environment Division of Hunter Councils. The 14 councils participating in HCCREMS can be seen in Figure One. The role of HCCREMS and the nature of initiatives that it is responsible for include:

- Design and delivery of collaborative, council-led, environmental management projects on a regional basis;
- Innovative research programs, education and capacity building initiatives;
- Design and development of model regional planning instruments and policy tools that support improved natural resource and environmental management initiatives by councils;
- Coordination of local government representation and input to key regional planning and catchment management processes;
- Identification of cost efficiencies and shared resources in environmental management practices and programs
- Design and dissemination of tailored regional data and mapping products.
- Facilitation of a range of professional networks

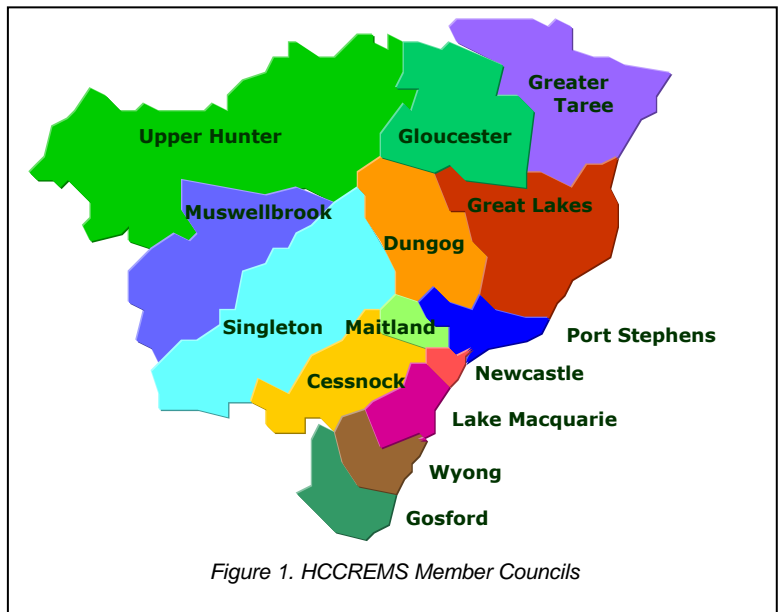


Figure 1. HCCREMS Member Councils

## 2. Developing a Regional Roadside Environment Strategy

HCCREMS and its member councils are working collaboratively with the Hunter Central Rivers Catchment Management Authority (CMA) to implement a Regional Roadside Environmental Management Program. This Program incorporates:

1. Development of a Regional Roadside Environmental Management Strategy;
2. Systematic vegetation surveys of significant roadside environments;
3. Implementation of a program of rapid roadside environmental assessments to identify, assess and document broader NRM and environmental values and issues;
4. Development of regional roadside environment mapping layers and products, and an Environmental Assessment Tool to identify key Natural Resource Management (NRM) and environmental issues and values that exist within the regional road network;
5. Development of management tools, guidelines and policies to assist councils in improving the management of roadside environments; and
6. Development of a roadside management training package for council staff.

Improved management of roadside environments has previously been identified as a priority in all three of the Catchment Management Blueprints developed for the Hunter, Central Coast and Lower North Coast regions. It is now also reflected within the Hunter-Central Rivers Catchment Action Plan (CAP); the primary document through which State and Commonwealth investment in NRM and environmental management initiatives is prioritised for the region.

A number of HCCREMS councils have also identified the need to improve roadside environmental management within their Local Government Areas. They have either prepared or resolved to prepare Roadside Environmental Management Strategies, or implemented a variety of training, planning and on ground management initiatives aimed at improving the management of roadside environments to protect the environmental values and ecosystem services they provide. To date however, there has been limited communication and collaboration between councils in regard to the implementation of roadside environmental management initiatives on a regional scale. The current Regional Roadside Environment Program provides the opportunity for councils to collaborate in the development and implementation of measures and initiatives that will better protect and manage the ecosystem services and functions that are provided by roadside environments in the region.

Central to the implementation of this program is the development of this Regional Roadside Environmental Management Strategy. The purpose of this Strategy is to provide the framework and direction through which a consistent regional

approach to the environmental assessment, protection, management and rehabilitation of roadside environments by councils can be facilitated throughout the region.

## **2.1 Aims of the Regional Strategy**

The key aim of the Strategy is to contribute to the improved protection and management of council managed roadside environments in order to sustain the ecosystem services and environmental, social and economic values they provide; whilst continuing to provide safe and efficient transport, communication and utility networks within the region.

To meet this aim, the Strategy provides a series of strategic management recommendations designed to support councils in the effective ecosystem management of roadside environments, whilst meeting their primary timing, budgetary, legislative, and policy obligations in regard to roadside construction and maintenance.

Additionally, this document incorporates considerations for a 12 month implementation plan for the 2007/08 period for which additional grant funding is committed from the HCRCMA and the NSW Roadside Environment Committee.

## **2.2. What is a Roadside Environment?**

The definition of a roadside environment, as determined by the NSW Roadside Environment Committee is: *"that area adjacent to the road and extending to a maximum distance of 20m from the edge of the road surface but specifically excluding areas of private land within this proximity"*.

For the purposes of the Regional Program however, the definition of a roadside environment has been extended to include the entire width of the road reserve between the edge of the road and the adjacent property boundary (ie no restriction of 20 metres). This is because Councils / road managers need to consider the whole context of the roadside environment within which they are working, or on which their activities will have an impact.

## **2.3. Importance of Roadside Environments**

Roadside environments comprise a diverse range of environmental, economic, social and heritage values and provide a range of beneficial environmental and ecosystem services. In total they comprise around 5% of the total land area of New South Wales which, when combined with travelling stock routes and reserves, is almost equivalent to the total area of National Parks in New South Wales (NSW Roadside Environment Committee).

Some of the key values and services provided by well managed roadside environments include:

### **Biodiversity conservation**

In many areas roadside environments may contain the primary source of remnant native vegetation, seed and wildlife habitat due to previous logging and clearing practices in the surrounding landscape. Even in less heavily cleared landscapes, remnant roadside vegetation often provides important links between larger patches of habitat that enable the movement of fauna species between these areas, thus contributing greatly to their ongoing survival.

### **Conservation of items of cultural & historical significance**

Items of cultural, historical or Aboriginal significance can often be located in roadside reserves. The appropriate management of these environments can therefore play an important role in the protection of these historically and culturally significant items. Examples of Aboriginal Cultural Heritage items that may be found within the roadside environment include middens, scarred trees, rock engravings and artwork, while items of European Heritage may include heritage roads, culverts and bridges (eg The Old Great North Road), historic road markers or signage and significant trees.

### **Waterway and catchment health**

The quality and quantity of water runoff from roads can have a significant impact on the quality of downstream waterways. Well vegetated roadside environments and appropriate road construction, maintenance and drainage practices and systems can play a significant role in reducing the extent of sediments and other pollutants that are discharged into local waterways from both sealed and unsealed road surfaces.

## **Aesthetic, and amenity values**

Roadside vegetation contributes considerably to the natural and rural amenity of the landscape. In addition to breaking the monotony of overly cleared landscapes, well vegetated roadsides soften the harshness of the road environment and provide points of interest for motorists. For many rural areas, roadside vegetation effectively creates the character for which it is known, while in areas that possess significant amounts of remnant vegetation, the presence of roadside vegetation reinforces the natural character and attributes of these locations.

## **Conservation of adjacent ecosystems (eg littoral rainforest & wetlands)**

The presence of well vegetated roadside environments and the implementation of appropriate road construction and maintenance practices can play an important role in protecting significant or sensitive environments or ecosystems that occur in proximity to the road network. In these circumstances, roadside vegetation can provide an effective buffer against edge effects and disturbance factors including weeds and sediment runoff that would otherwise degrade these environments. Similarly, road design and management practices that avoid the dispersal of weed species and sediment runoff for example, are integral to the ongoing conservation of these environments.

## **Weed Management**

Road corridors provide ideal vectors for the dispersal of weed propagules via vehicles, machinery and the movement of livestock. While the presence and spread of environmental and noxious weeds within roadside environments is a common management issue, its extent and significance can actually be reduced by protecting, restoring and maintaining the health of native roadside vegetation. This is because healthy vegetation communities are better able to resist and out compete invasion by weed species, whereas disturbed and degraded environments are less resilient in this regard. Combined with the implementation of appropriate livestock and road construction and maintenance practices, healthy roadside vegetation can therefore play a significant role in reducing the presence and spread of weeds not only within the road corridor itself, but within the council area and broader region.

## **Shelter, shade and privacy**

The shelter provided by roadside vegetation plays a role in improving the amenity and productivity of adjoining land by improving privacy, providing shade and shelter for livestock, reducing the impacts of strong winds, and reducing the impact of road noise and dust (from unsealed roads) on adjoining land owners and residents.

## **Recreational**

In many locations roadside reserves provide opportunities for motorist rest stops, community recreation and enjoyment. These activities may include picnicking and walking, and in areas adjacent to waterways, the launching of boats and recreational fishing.

## **Prevention of land degradation**

Well vegetated roadside environments can contribute to the prevention of land degradation issues including wind and water erosion of soil by reducing wind strength and providing well vegetated surfaces to bind the soil. They can also play a role in reducing the impacts of soil salinity by assisting in the maintenance of ground water levels.

## **Potential to reduce roadside maintenance costs**

In the increasingly cost constrained environments being experienced by state and local government authorities that are involved in the management of roads and roadside environments, the protection and restoration of roadside vegetation within the road reserve has the potential to reduce ongoing maintenance costs. Roadside mowing is a significant maintenance cost that is typically incurred by councils. This activity and its associated costs can be reduced by promoting the regeneration and rehabilitation of native vegetation in the road reserve.

## **Natural Pest Control**

Retaining and managing native vegetation within the road reserve to provide habitat for native animals including bird and bat species has the added benefit of providing a natural form of pest control for adjacent landowners. Native bird and bat species consume significant amounts of insect species including grasshoppers, scarab beetles, caterpillars, crickets and locusts, all of which can reduce the productivity of agricultural enterprises.

## **Native seed source**

In many parts of the region roadside vegetation is the only or most significant example of the vegetation communities that once existed prior to their widespread clearing. These communities are therefore very important in providing information as to the kinds of

species and their distribution that previously occurred, and provide the only source of local provenance seed that can be used for propagating plants for use in local land rehabilitation projects.

### 3. Process for Developing the Regional Strategy

A number of research activities have been undertaken to inform the development of this Strategy. These have been completed to ensure that the direction and recommendations it provides are cognisant of, and encompass the expertise and best practice management initiatives that already exist in regard to roadside environmental management, both within and beyond the region. Considerable consultation with councils has also been undertaken to ensure that the recommendations and implementation plan included in the strategy are relevant and appropriate to their needs and requirements in regard to better protecting and managing the ecosystem functions provided by roadside environments. A more detailed description of the research and consultation activities that have been undertaken is provided below.

#### 3.1 Research

##### Desktop and Literature Review

An audit and review of existing roadside management strategies, plans, guidelines, management tools and resources has been completed over a 12 month period. This has identified a wide range of existing roadside management strategies and resources that have been developed around Australia and within the region and provide important case studies and reference points to assist with the development of regionally specific management and training resources for councils in the region. A list of the resources that have been identified and reviewed is included in Attachment 1.

It is clear from the initial research that the existing roadside environmental management strategies typically focus on the identification, classification and protection of high, medium and low conservation vegetation within the road reserve. The strategy for this region however, recommends a more holistic approach encompassing a diverse range of NRM and environmental issues that occur within roadside environments, or which have the potential to be affected by management of the regional road network.

##### Preliminary Roadside Environment Mapping

Preliminary work was undertaken to identify and map the scale of the regional road network and the potential nature and extent of environmental / NRM issues occurring within it. The GIS layers that were produced are being stored and managed in the Environment Division of Hunter Councils. They represent the foundation of a major regional mapping resource to be developed for this project, and the Councils in the region

##### Data collection

A systematic process for identifying and procuring appropriate road management and NRM / environmental datasets upon which to base development of a Regional Roadside Environmental Mapping and Environmental Assessment Tool has been commenced. The nature of this data and the sources from which it has been obtained is provided in Table 1 below. When completed, the Regional Roadside Environment Map and Assessment Tool will inform the environmental assessment processes of councils in regard to road maintenance and construction works; inform the development and prioritisation of the rapid roadside assessment program; and provide an ongoing tool for monitoring and review of implementation of the Regional Program.

**Table 1. Road Management and Environmental / NRM datasets**

Data Source	Nature of Data Provided
<p>Gosford, Wyong, Lake Macquarie, Newcastle, Port Stephens, Taree, Great Lakes, Upper Hunter, Gloucester, Dungog, Muswellbrook, Singleton, Cessnock, and Maitland Councils</p> <p><i>(NB. The extent and type of datasets possessed by individual councils and provided to the project varies throughout the region.)</i></p>	<ul style="list-style-type: none"> <li>• Road networks (local, regional, state)</li> <li>• Segmented roads data</li> <li>• Road Hierarchy Layers</li> <li>• Vegetation Mapping – local and regional</li> <li>• Bridges / Culverts</li> <li>• Roadside Conservation Mapping</li> <li>• Heritage layers</li> <li>• Drainage Networks</li> <li>• Significant Trees</li> <li>• Noxious Weeds</li> <li>• Coastal Lagoons</li> </ul>

Data Source	Nature of Data Provided
Hunter-Central Rivers Catchment Management Authority	<ul style="list-style-type: none"> <li>• Wetlands</li> </ul>
Department of Environment & Climate Change	<ul style="list-style-type: none"> <li>• Acid Sulfate Soils</li> <li>• Highly Erodible Soils</li> <li>• Ordered Streams</li> <li>• Salinity</li> </ul>
Department of Lands	<ul style="list-style-type: none"> <li>• Regional Road Network</li> </ul>

### **Systematic Vegetation Surveys of Icon Roadside Reserves**

During 2006/07 detailed systematic vegetation surveys were conducted at twenty eight icon roadside sites within the Hunter, Central and Lower North Coast Region for the NSW Roadside Environment Committee. Two sites were identified and surveyed within each local government area. Icon sites are defined as:

*'Sites of regionally significant remnant vegetation in locations that provide opportunities for development of broad community awareness and furthering the engagement of key stakeholders in the development of regional & local roadside vegetation management activities.'*

These surveys provided a depth of information in regard to the condition, habitat value and management issues facing high quality remnants of roadside vegetation within the region. The detailed findings of this survey work can be found in the report titled 'An Evaluation of Icon Roadside Environments in the Hunter and Central Coast Region'. The information obtained from this process provides an important benchmark against which future survey and monitoring can evaluate the effectiveness of roadside management strategies. In highlighting the significant environmental values of these remnants, this work has also provided important context and background that has influenced the nature of the recommendations included in this Regional Strategy, particularly in regard to monitoring, reporting and education and capacity building.

### **Development and trial of the Rapid Roadside Assessment Methodology.**

A key component of the Regional Roadside Environment Program includes implementation of a Rapid Roadside Assessment Program. This will assess and document priority roadside NRM and environmental values and management issues that are present within the regional road network. Development of the rapid roadside assessment methodology has been completed and a trial of its application undertaken. In light of the successful findings of this trial, the use of rapid roadside assessments is incorporated as a key management recommendation in this Strategy. Rapid assessments will be used to identify and document NRM and environmental value and issues within the road network, to engage council staff in assessing the significance of and issues affecting roadside environments, to verify the accuracy of the Regional Roadside Environment Mapping and Assessment Tool, and to provide a means through which to evaluate the effectiveness of ongoing implementation of the Regional Program over time.

## **3.2 Consultation with Councils**

### **Development of a Roadside Environmental Management Strategy Background Paper.**

To provide context and background to the development and implementation of a Regional Roadside Environmental Management Strategy and Program, a Background Discussion Paper was completed in November 2005. This identified the values and benefits arising from roadside environments and their improved management, provided an analysis of potential management issues, established objectives for the Regional Roadside Environment Program and articulated the steps required for its implementation. These steps formed the basis upon which Year 1 of the Roadside Program was implemented during 2006/07, including development of this Strategy. The Background Paper was also used as the basis for consultation with each of the 14 HCCREMS councils involved in the project.

### **Consultation Meetings**

An extensive 2 stage consultation process was undertaken with councils and included:

Stage 1: Individual consultation meetings conducted with each of the 14 HCCREMS councils:

- To engage councils and to inform them of the background, objectives and implementation strategy for Year 1 of the Program.
- To identify the corporate priorities of councils in regard to roadside environmental management
- To identify the issues being experienced by councils in the management of roadside environments
- To identify existing roadside environment management initiatives being implemented by councils

- To identify existing road management and Natural Resource Management / NRM information and data that may be available and relevant to the project.

Stage 2: Sub regional workshops with councils. The purpose of these workshops included:

- Provide councils with the overall findings of the Stage 1 consultation process
- Provide councils with the overall results of the systematic vegetation survey work conducted at 'icon' roadside sites throughout the region, and in particular, the specific results for the survey work conducted within their particular LGA's; and
- Seek input from councils on the nature of management recommendations to be included in the Regional Roadside Environmental Management Strategy.

## 4. Outcomes of Consultation with Councils

In total, seventy six council staff representing a diversity of roles and council management hierarchies participated in the consultation process. This diversity of roles included road planning, construction and maintenance, road and traffic engineering, land use planning, environmental and natural resource management, GIS management, vegetation and asset management, community support, weed management, environmental health and environmental assessment. A summary of the outcomes of this process are provided below (a more detailed description of the findings can be found in the project report titled 'Regional Roadside Environment Strategy - Outcomes of Consultation with Councils: HCCREMS 2007).

### 4.1 Identification of Management Issues

#### 4.1.1 Natural Resource / Environmental Management Issues

The NRM / environmental management issues identified by councils during the consultation process correlated strongly with those identified during the review of roadside environmental literature that has been mentioned previously in this report. The nature of these management issues are summarised in the table below, where they have been broadly grouped into two categories; Impacts on Vegetation, and Waterways and Catchment Health.

<b>Category</b>	<b>Management Issue</b>
Impacts on Vegetation	<ul style="list-style-type: none"> <li>● Loss of vegetation associated with the creation of 'clear zones' when constructing or upgrading roads.</li> <li>● Infestation and dispersal of noxious and environmental weeds along roadsides</li> <li>● Livestock grazing causing physical damage to vegetation and contributing to the spread of noxious and environmental weeds.</li> <li>● Roadside mowing causing damage to native vegetation</li> <li>● Impacts on vegetation and habitat of bush fire hazard reduction works</li> <li>● Physical damage caused to native vegetation by drain and road verge maintenance procedures</li> <li>● Illegal clearing &amp; burning activities within the roadside environment</li> <li>● Impacts of utility companies – clearing, disturbance and inadequate ongoing maintenance</li> <li>● Stockpiling of materials causing damage to native vegetation and potentially introducing weed species</li> <li>● Lack of guidelines for roadside rehabilitation and offsetting the loss of vegetation and habitat arising from roadside clearing practices.</li> <li>● Conflict between retaining hollow bearing trees in the road reserve to provide fauna habitat and the increased potential for these trees to pose a safety risk from limb drop.</li> </ul>
Waterways and Catchment Health	<ul style="list-style-type: none"> <li>● Sediments and pollutants from road surfaces draining into local waterways</li> <li>● Road structures (eg culverts, causeways and bridges) creating barriers to fish passage</li> <li>● Littering and illegal dumping along roadsides</li> </ul>

#### 4.1.2 Organisational Management Issues

A range of organisational management issues that can restrict the adoption and implementation of improved roadside environmental management practices by councils were also identified and are included in Table 3.



<b>Table 3. Organisational Management Issues Identified by Councils.</b>	
<b>Category</b>	<b>Management Issues</b>
Corporate Management	<ul style="list-style-type: none"> <li>● Lack of clear, corporate wide objectives for the management of roadside environments, leading to inconsistent management practices by different sections of councils.</li> <li>● Inconsistency between environmental management standards expected for council road works and those completed by private companies in accordance with development approvals (ie perception is that standard of private works is less than that required for council works).</li> <li>● Budgetary constraints limiting the opportunity for councils to implement roadside environmental planning and management initiatives.</li> </ul>
Safety / Liability	<ul style="list-style-type: none"> <li>● Councils feel obligated to clear roadside vegetation to the extent recommended by the Roads and Traffic Authority's Clear Zone Construction Guidelines. Perception is that failure to comply with these Guidelines will increase council liability in future were an accident to occur.</li> <li>● Some councils expressed concern regarding the potential safety risk posed to community volunteers working in the road reserve on programs such as Bushcare / Landcare and Adopt a Road. As such, some councils are reluctant to support these kinds of activities within the road reserve.</li> <li>● Difficulty in balancing the safety risk (ie potential for falling limbs) posed by retaining senescing trees with hollows in the road reserve with the habitat benefits for wildlife that these trees provide.</li> </ul>
Other Issues	<ul style="list-style-type: none"> <li>● A number of councils identified the clarity of road reserve tenure as a management issue. This arises where roads have historically been constructed along a path of least resistance, not necessarily within the gazetted road reserve. Increasing demand by landowners to relocate roads to their correct locations is contributing to the loss of vegetation as these roads are realigned through remnant vegetation.</li> <li>● The sale of unmade crown roads to adjoining landowners was identified as contributing to the degradation of vegetation and other environmental attributes that these parcels of land may possess. This arises from the new owners of these parcels undertaking activities such as grazing, clearing and burning.</li> </ul>

## 4.2 Existing Roadside Management Initiatives

Another component of the consultation process involved the identification by councils of existing roadside environmental management initiatives and practices that they have previously, or are currently, implementing within their organisations. These are listed below.

- Staff training (erosion & sediment control, risk management, flora and fauna)
- On ground works to progress implementation of threatened species recovery plans
- Adapting road designs to minimize impacts on threatened species and their habitat
- Development of LGA wide or individual roadside environmental management plans
- Installation of Significant Roadside Environment Signage
- Developing management strategies and protocols for reducing the spread of weeds
- Adopt a Road litter control programs
- Development and implementation of roadside mowing guidelines
- Constructing water management demonstration sites
- Removing barriers to fish passage caused by road infrastructure

While this list demonstrates that there has been a diversity of initiatives implemented by councils, staff training emerged as the only program that has been commonly and consistently undertaken across the region.

### **4.3 Roadside Environmental Assessment and Management Processes**

This component of the consultation process sought to identify the environmental assessment and management frameworks, tools and processes presently being utilised by councils during road planning, construction and maintenance activities. The purpose of seeking this information was to identify potential avenues through which roadside planning, policy, management and assessment guidelines and tools could most effectively be integrated within existing council processes, and to determine which resources should be developed to encourage minimum standards and consistent approaches across the region.

The study found that the organisational processes and resource allocations that influence the level and nature of environmental assessment and planning undertaken, varies substantially between councils. The most common tools included Reviews of Environmental Factors, Management Policies, Management Guidelines, Environmental and Integrated Management Systems, and Service Level Agreements.

### **4.4 Community Activity**

The consultation process also canvassed councils as to the nature and level of community involvement in roadside environmental management activities. This found that around three quarters of councils have some form of active community involvement. These primarily included Landcare / Bushcare activities, Wildlife Rescue Groups and Adopt a Road litter control programs. Concerns were raised by some councils as to the potential safety and liability risks posed by volunteers working in the road reserve, which in some cases had led to the cessation of programs such as Adopt A Road.

### **4.5 Input to Strategy Development**

The second stage of consultation with councils aimed to generate input to the nature and content of the management recommendations to be included in this Roadside Environmental Management Strategy. This involved holding sub regional workshops throughout the region, each of which were attended by two or more councils. Some of the key outcomes arising from these workshops included:

- Products, tools and materials developed for councils under the Regional program are more likely to be endorsed and implemented by councils if they can be integrated within existing council systems and processes and aligned with corporate management objectives.
- Training and capacity building of council staff in the application of the products and materials to be developed under the Program will facilitate their enhanced implementation within councils. Active consideration should be given to cross-jurisdictional and management participation in training programs.
- GIS is an integral tool in the planning and assessment of road construction and maintenance works. Development of a GIS based mapping resource that can assist councils identify potential management issues early in the planning process will contribute significantly to ensuring that these issues are better addressed during the design and implementation of road construction and maintenance works.
- Assessment process within council operations frequently utilise checklists, particularly for routine road maintenance works. Integrating roadside management issues and processes within such checklists is one way of ensuring they are considered during the planning and implementation of maintenance works.
- Councils will continue to implement the recommended clear zone widths included in the Roads and Traffic Authority Guidelines due to the liability risks associated with not doing so. However, councils would welcome guidelines that provide direction as to how the impact of such works on vegetation, wildlife and habitat can be offset, either on or off site.
- Support was expressed by councils for consistent Roadside Environment Signage to inform council staff of the presence of significant roadside environments or the presence of particular management issues. Signage of this nature would also contribute to raising awareness within the broader community.
- Raising community awareness of the values of roadside environments and encouraging participation in their management and protection will be important to the long term success of the Regional Roadside Environment Program.
- The development of management guidelines / practice notes in formats suitable for application at different management and operational levels within councils was supported. Examples of topics for which councils are seeking information of this nature include water sensitive approaches to road drainage, roadside mowing, weed management, roadside revegetation and offsetting vegetation and habitat loss.

## 5. Strategy Recommendations

This section of the Strategy includes a broad suite of management recommendations to guide both the short and long term implementation of the Regional Roadside Environment Program. These recommendations have been formulated to:

- Meet and address the needs and management issues that have been identified by councils
- Reflect and build upon existing roadside management initiatives, programs and systems identified during the literature review and consultation processes that have been undertaken.
- Provide a framework for contributing to effective ecosystems management and objectives of the HCRCMA's Catchment Action Plan

The recommendations aim to build consistent and comprehensive capacity, skills, tools and resources within councils to facilitate improved environmental assessment, protection, management and rehabilitation of roadside environments for which they are responsible. They recognise the considerable potential that exists for collaboration and resource sharing between councils to achieve this.

In light of the present availability of funding for continued implementation of the Program during 2007/08, a number of these recommendations have been prioritised for implementation in the short term, and include:

1. Establishment of a Regional Roadside Environment Network
2. Development of a Regional Roadside Environmental Management Policy
3. Consider development of a standard Review of Environmental Factors template
4. Implementation of a rapid roadside assessment program throughout the region
5. Development of an enhanced, regionally specific roadside training and capacity building package for council staff
6. Commence development of a GIS based mapping and environmental assessment tool tailored specifically to the regional road network
7. Consider development of a Model Development Control Plan to provide for the protection and management of roadside environmental values during the design and construction of new developments.
8. Commence development of a series of management guidelines / practice notes to assist councils in improving the management and protection of roadside environments.
9. Consider regional or sub-regional collaboration of grant proposals to undertake strategic on-ground works such as erosion & sediment control, remnant vegetation rehabilitation, restoration of fish passages etc

These recommendations seek to provide the foundation upon which ongoing implementation of the Regional Program can be based. The focus of these recommendations includes developing the tools and resources that are required to enhance the capacity of councils on an ongoing basis to understand, assess, manage and protect the environmental and NRM values that are found within roadside environments, and to promote a culture of information and resource sharing between councils. They represent critical first steps in building sustained understanding, commitment and engagement from councils to implementation of the Regional Roadside Environment Program.

It is also acknowledged that there are numerous stakeholders in addition to councils with an interest in the management of roadside environments. Examples of these stakeholders include utility/service providers, Roads and Traffic Authority, construction companies, neighbouring land owners, the local community and others. While the following recommendations do discuss the potential for engaging stakeholders of this nature, in light of the resources and funding that are presently available, the short term priorities for the program will focus on engaging and influencing the activities of councils only. Effective engagement of a broader range of stakeholders will remain a longer term objective of the Program.

In considering and implementing the following recommendations, it is important to recognise that the management of roadside environments transcends departmental, management and organisational hierarchies of councils. As such, training, information and other resources developed for councils need to be tailored to the particular needs and practices of each of these target groups (eg Managers, Council Planners, Asset Managers, Environment Officers, Works Supervisors or Operational Works Staff).

Additionally, the systems and processes via which the environmental assessment and management of roadside environments occurs within councils varies significantly. As such, the products, tools and resources to be developed for councils under the Regional Roadside Environment Program need to be provided in an appropriate "model" format that will enable them to be adapted and incorporated within the existing management systems and processes of individual councils. Examples of some of these different management systems and processes include Environmental Management Systems, Council Policies, Service Level Agreements and Management Guidelines.

The strategy recommendations that follow have been categorised into 11 themes that include:

- 1 Policy
- 2 Planning and Assessment
- 3 Mapping
- 4 Management Guidelines / Practice Notes
- 5 Training and Capacity Building
- 6 Stakeholder Communication & Consultation
- 7 Community Involvement
- 8 Roadside Environment Signage
- 9 Regional Communication and Resource Sharing
- 10 Strategic on-ground works
- 11 Monitoring and Reporting

## 5.1 Policy

Development of a Roadside Environmental Management Policy for endorsement by councils would assist in providing clear corporate objectives both within individual councils and throughout the region in regard to the management, protection and rehabilitation of roadside environments.

The consultation process completed with councils has identified inconsistent corporate objectives as a relatively common management issue, often resulting in conflicting management priorities and actions between different departments and sections of councils in regard to the assessment and management of roadside environments. Endorsement by councils of a Roadside Environmental Management Policy would assist in providing corporate direction and clarity to the diverse range of staff within councils that are involved in managing roadsides, thus contributing to enhanced levels of organisational awareness and commitment in this regard.

### Recommendation

1. Prepare a model Regional Roadside Environmental Management Policy for endorsement by councils throughout the region.

## 5.2 Planning and Assessment

Councils have a statutory responsibility under the *NSW Environmental Planning and Assessment Act 1979* to consider the impacts of their activities, including road construction and maintenance works, on the environment. In accordance with the Act, these environmental assessment processes can include a Review of Environmental Factors (REF), Environmental Impact Assessments (EIA) and Species Impact Statements (SIS).

The preparation of REF's is the key mechanism through which councils can generally fulfil their responsibilities under the Act. REF's provide a means through which councils can identify, understand and assess the likely impacts of their activities, and make decisions about the kinds of strategies that need to be implemented to avoid or mitigate impacts on the environment.

Consultation with councils has confirmed that REF's are the primary means through which councils generally assess the impact of proposed works on the environment for road construction and upgrade works. The impacts of routine maintenance activities tend to be determined via assessment checklists, while EIA's are prepared where the potential impacts on the environment are generally considered to be significant. The majority of councils however, do not have access to a policy framework or management guidelines that inform them of the level of environmental assessment that is considered appropriate for different types of activities or environments. This can lead to confusion and inconsistency within and between councils in regard to the level of environmental assessment that is undertaken and the quality and extent of ameliorative actions that are implemented to reduce impacts on the environment.

The extent of use and quality of REF's produced by councils in the region varies significantly, both within and between councils. It is considered that development of an REF template for councils will provide a consistent standard across the region through which the impact of road maintenance and construction activities on the environment can be assessed and appropriate ameliorative measures identified and implemented. The development of a standard REF template for councils will also provide a direct mechanism through which use of the Regional Roadside Environment Map and Assessment Tool and other management guidelines and products to be delivered under the Program can be formally triggered.

Rezoning and development approval processes managed by councils also have the potential to impact on roadside environmental values. For example, the construction of approved developments can require clearing or disturbance of roadside environments for the provision of new water, gas, electricity and stormwater infrastructure, as well as for the widening of existing roads or the creation

of new access roads. Edge effects (eg weed invasion and wind damage) can also arise from the clearing of vegetation immediately adjacent to roadside vegetation and from the new facilities and activities that are located there. These impacts can be greatly reduced however if considered during rezoning and development approval processes so that they can be considered early in the design of the development.

As such, it is recommended that a Model Development Control Plan be developed to assist councils in this regard. In addition to providing for the appropriate consideration and assessment of roadside environmental values during rezoning and development application processes, this DCP would contain guidelines and specifications consistent with the management guidelines and practice notes being developed under the Roadside Program. The need for developers to meet these requirements would ensure greater consistency between the environmental road construction standards being implemented by both council and private development contractors.

#### Recommendations

2. Prepare management guidelines for councils on their responsibilities for environmental assessment under the Environmental Planning and Assessment Act 1979, as they relate to road construction and maintenance activities.

3. Prepare a Review of Environmental Factors (REF) template for councils for road maintenance and construction activities. This template to trigger use of the Regional Roadside Environment Map and Assessment Tool and other management products and guidelines produced under the Program.

4. Prepare a Model Development Control Plan for councils detailing the appropriate environmental assessment and management practices to be implemented during the construction of new developments to provide for the protection and management of roadside environmental values.

### 5.3 Mapping

Mapping of the regional road network and its interaction with key NRM / environmental parameters has been completed for the region. The NRM / environmental and road management parameters that are incorporated in this mapping include:

1. Highly Erodible Soils
2. Acid Sulfate Soils
3. Soil Salinity
4. Wetlands
5. Icon Vegetation
6. Ordered Streams
7. Sealed and unsealed roads
8. Local, Regional and State Roads

Examples of this regional roadside environment mapping (extracted for the Maitland LGA) are included in Attachment 2.

The use of Geographical Information Systems (GIS) is an integral component of the operational and strategic planning processes of most councils, particularly the management and maintenance of road assets. Councils are increasingly using and developing more sophisticated GIS based asset management systems to inform the management and maintenance of their road network. In many cases however, there exists little effective integration between these asset management systems and the range of NRM and environmental GIS datasets that are available.

To improve integration between the two, it is therefore recommended that a GIS based Regional Roadside Environment Mapping Tool be developed for the Hunter, Central and Lower North Coast region. This mapping tool would directly integrate regional road network data with the environmental / NRM datasets included in the Regional Roadside Environment Mapping. This would provide a 'one stop shop' for determining the presence of environmental and NRM issues at any particular location within the regional road network. An example of how this Assessment Tool would work is included in Attachment 3, which shows the identification (via a pop up menu) of the road management and NRM / environmental parameters affecting a particular road segment.

This product could be developed in a manner that provides for its ongoing attribution with road management and environmental / NRM datasets, both at regional and local government area wide scales over time. This would enable individual councils to incorporate locally specific information that they may wish to have considered during road planning, construction and maintenance works, and enable new environmental / NRM datasets at both local and regional scales to continue to be added as they become increasingly available.

Because of the central role that is envisaged for this mapping product within council assessment processes, it is recommended that it be updated on an annual basis to ensure that it reflects the most up to date NRM and environmental information that is available. This process needs to be undertaken at both regional and local government area scales, and could be managed and maintained by the HCCREMS team at Hunter Councils, with the assistance of councils on an annual basis.

Implementation of a program of rapid roadside assessments throughout the region is also recommended to assess and document priority roadside NRM and environmental values and management issues that are present within the road network. In light of the significant geographic scale of the region and extent of the road network, the Regional Roadside Environment Map would provide the basis for prioritising the extent and location of rapid roadside assessments to be undertaken. The results of this rapid assessment process would in turn provide the primary basis for evaluating the predictive accuracy of the Regional Map and Assessment Tool. Because the map will provide an integral tool for councils to improve the identification and assessment of environmental / NRM issues when planning and undertaking road construction and maintenance works, assessing its level of predictive accuracy is necessary to ensure its effectiveness and reliability for this purpose.

The involvement of staff from councils in the rapid assessment process is also recommended as a means by which to enhance understanding of the NRM and environmental issues that occur in roadside environments.

#### Recommendations

5. Develop a GIS based Regional Roadside Environment Map and Assessment Tool that is specifically tailored to the Regional Road Network

6. Continue to attribute the Regional Roadside Environment Map on an annual basis with additional environmental and Natural Resource Management (NRM) datasets that are produced at both regional and Local Government Area wide scales.

7. Implement a program of rapid roadside environmental assessments including council staff to provide an evaluation of the accuracy of the Regional Roadside Environment Map and to document the condition of a representative sample of roadside environmental values and NRM / environmental issues that occur within the regional road network.

## 5.4 Management Guidelines / Practice Notes

Consultation with councils has identified a number of areas in which the development of a model suite of technical guidelines or practice notes has the potential to achieve multiple objectives. These include:

- Supporting adoption of best practice approaches to roadside management;
- Underpinning training and capacity building initiatives;
- Applying a consistent standard across the region; and
- Improving roadside environmental management.

Because of the diversity amongst councils in regard to their individual planning, management and operational systems, it is recommended that these management guidelines / practice notes be provided in the form of "model provisions" to enable them to be readily adapted to the various systems, processes and formats that are used by councils.

For example, while planning staff may require quite detailed specifications for inclusion in Reviews of Environmental Factors or Project Environmental Management Plans, operational staff directly involved in road construction and maintenance will require resources that are accessible and practical for use in the field (eg Vic Roads have prepared Roadside Handbooks of an A5 size that enable them to be stored in the glove compartment of trucks and other vehicles).

#### Recommendation

8. Prepare a series of regional management guidelines / practice notes within a 'model provision toolkit' format for each of the following topic areas. These are each to be provided in formats suitable for their application within the different planning, management and operational levels and activities of councils. Those topics for which management guidelines are recommended to be prepared include:

- Environmental Assessment Guidelines
- Reducing and offsetting impacts on vegetation and biodiversity
- Roadside Revegetation Guidelines
- A water sensitive approach to road design, construction and maintenance
- Mowing and Slashing Guidelines

- *Best practice soil management*
- *Reducing the spread of weeds*
- *Identifying and protecting Aboriginal Cultural and European Heritage*
- *Managing for bushfire and the environment in the road reserve*
- *Managing livestock grazing*
- *Communicating and consulting with the community*
- *Reducing and managing waste during road works.*
- *Occupational Health and Safety and Risk Management Guidelines for Community Roadside Activities*
- *Monitoring and Reporting Guidelines*

## 5.5 Training and Capacity Building

Traditional roadside environment training programs undertaken by councils have tended to target operational staff involved in the construction, maintenance and management of roads, and focus on erosion and sediment control practices.

This strategy recommends the development of modules which can be incorporated into the standard roadside training packages that:

- Are tailored to suit a broader range of disciplines and roles within Councils
- Address a variety of responsible, cost efficient practises which maximise a range of ecosystem management outcomes

While the training of operational level staff is essential to facilitating ongoing improvements in roadside environmental management practices within councils, of particular importance is the need to also improve the capacity, commitment and understanding of council management involved in the funding, planning and co-ordination of road design, construction and maintenance activities and programs.

In addition, modules will need to be developed which complement the current erosion and sediment control and basic vegetation management focus, and embrace a more integrated approach to environmental and social/cultural values.

It is further recommended that:

- The technical guidelines and practise notes referred to in the previous section, form the technical basis of any training package to be developed.
- The delivery of a training package across councils is based on a suite of common management foundations and materials - which is likely to significantly improve the consistency with which roadside environments are managed throughout the region.
- The opportunity for cross council information sharing and cross fertilisation of ideas be encouraged, along with opportunities for field based activities that actively engage council staff in experiencing and understanding the value of roadside environments and the practices that can be implemented to improve their management and protection. 'Learning by doing' approaches such as these have been demonstrated to greatly improve the level of understanding, awareness and commitment of training participants.

Due to the relatively high level of staff interchange that also occurs within councils in the region, a consistent regional training package also has the potential to reduce the collective training costs of councils. This is because staff would not need to be retrained in roadside environmental management as they move between councils.

### Recommendations

9. *Develop a regionally focused roadside environment training package that effectively targets the various planning, management and operational levels and needs of council staff involved in road construction, maintenance and management activities.*

10. *The package should be integrated into current Learning & Development initiatives/accredited courses of Councils and RTOs*

11. *The training modules to be included in the regional training package should encompass the management guidelines / practice note themes being developed under the program*

12. *Development and delivery of capacity building initiatives to incorporate opportunities for cross council information sharing (eg case studies) and experience based learning opportunities (eg demonstration sites).*

## 5.6 Stakeholder Communication and Consultation

As has been outlined previously in this Strategy, there exists a diverse range of stakeholders that have an active interest in the management and maintenance of roadside environments. In addition to councils, these groups include energy, water and telecommunications providers, Roads and Traffic Authority, community groups (eg Landcare, Wildlife Rescue Groups), adjoining neighbours, Rural Lands Protection Board and the Rural Fire Service.

Due to the diverse nature and management objectives of these stakeholders, effectively consulting with them regarding the implementation of roadside management policies, guidelines and other tools and resources is very important. This is particularly so in light of the fact that councils generally have no statutory control over many of these stakeholder groups and the activities that they undertake in the road reserve. Consulting stakeholders of this nature and encouraging them to implement appropriate roadside management practices is therefore considered the most effective way of changing behaviour.

This approach also has the potential to foster improved relationships between councils and stakeholders including water, energy and telecommunications providers. The results of the consultation undertaken with HCCREMS councils identified that in those Local Government Areas where effective communication and consultation systems are in place between councils and these utility providers, the impacts of utility companies on roadside environments is less of a management issue.

Communication and consultation between councils, adjacent landowners and local communities affected by road works and changes to roadside management practices is also essential to the effective and ongoing implementation of improved roadside environmental management practices by councils. It is direct local scale communication of this nature over the long term that will provide the continuing basis through which the community can be directly engaged in regard to roadside management issues and improved practices, unlike broader scale education or awareness campaigns that are less likely to generate effective dialogue with and understanding by the community.

Essential to this approach however is the need to ensure that council staff that are engaged in such dialogue have the information and capacity to communicate directly with the community in an informed and consistent manner. Additionally, it is imperative that communication and consultation of this nature is undertaken on a proactive basis, not a reactive one. Attempting to gain community support for an initiative after it has been implemented (eg reduced roadside mowing) is typically far more difficult to achieve after its implementation than beforehand, particularly where discontent has been generated. For this reason it is recommended that community consultation and communication guidelines be developed for councils. The range of other management guidelines that are recommended in Recommendation 5.4 above will also provide the supporting resources to council staff to ensure that their communication and consultation processes are accurately informed and consistent.

### Recommendations

13. *Consult with key stakeholder groups to encourage implementation of the regional roadside environment management guidelines / practice notes and other tools and resources developed under the program when they are working in the region.*
14. *Develop communication and consultation guidelines or resources for councils to encourage effective communication and consultation with stakeholders when undertaking works affecting the roadside environment.*

## 5.7 Community Involvement

The interface between roadside environments and the community, and the benefits provided to the community are considerable. Well vegetated roadside environments contribute directly to community wellbeing through providing visual amenity, shade, shelter, and privacy. They also accommodate access to a range of recreational activities including walking, riding, fishing, boat launching, picnic areas and driver rest stops. The broader range of environmental services provided by well managed roadside environments also benefit the wider community and include the potential for improved waterway health and amenity, vegetation buffers for dust and noise, reduced degradation of environmental values through weed infestations, erosion, soil acidification and pollution.

The potential to involve the community in improving roadside environmental management is considerable. Firstly, by discouraging practices that are currently degrading roadside environments (eg illegal clearing, weed dispersal, burning and littering) and secondly, by encouraging active involvement in the restoration and ongoing sustainable management of roadside environments adjacent to their properties or, in the case of Landcare groups and others, areas of interest.

### Recommendations

15. *Councils and HRCMA to support and promote community activities in roadside environments that contribute to enhanced environmental outcomes and appreciation of roadside environmental values by the broader community.*



16. *Prepare Risk Management and Occupational Health and Safety Guidelines / Templates to assist councils in addressing concerns regarding the safety risks to community volunteers of working in the road reserve.*

## 5.8 Roadside Environment Signage

The installation of Significant Roadside Environment Signage is a strategy that has often been utilised in conjunction with the development and implementation of roadside environmental management strategies around Australia. The purpose of such signage is generally to raise community awareness of the presence and value of sections of high conservation roadside environments, and to provide a trigger to promote improved practices by both the community and road construction and maintenance crews. For example, such signage may deter the collection of firewood, wildflowers or bush rock by the community, or trigger the implementation of certain work practices by council staff.

In general, it is considered that the implementation of a consistent roadside environment signage program throughout the region would complement the general objectives of this strategy. For example, signage would assist council operational staff in identifying the physical location of significant roadside environments or environmental issues in the field that have been identified and mapped during earlier planning processes. This would provide a field-based trigger for operational staff to undertake the appropriate management strategies identified in the toolkit produced by the proposed Regional Program.

In addition, targeted roadside environment signage programs can contribute to raising community awareness and appreciation of the location and values of special roadside environments. A consistent regional approach to such a program would substantially increase its potential for impact.

### Recommendation:

17. *Investigate the design and implementation of a consistent roadside environment signage program throughout all local government areas within the region.*

## 5.9 Regional Communication and Resource Sharing

Considerable potential exists for the sharing of information, resources and expertise during the implementation of roadside environmental management initiatives and practices by councils in the region. While consultation completed with councils has identified some roadside management tools, resources and initiatives presently being implemented; cross council information sharing and communication has tended to be minimal.

For effective implementation of the Regional Roadside Environment Program, it is important that communication and information sharing between councils be facilitated in the longer term. This could occur through the establishment of a Regional Roadside Environment Network. This network would comprise representatives from across councils, as well as from across the different management hierarchies and roles involved in the management of roadside environments. This network would provide overall guidance and support to implementation of the regional program. This could include technical input to the development of products and materials being developed, facilitating the adoption of these within individual councils, and encouraging the participation of council staff in training and capacity building initiatives.

Additionally, this network would provide an appropriate forum to explore potential opportunities for joint procurement of materials, equipment and specialist services needed for implementation of the program. Examples include the design or purchase of roadside environment signage, technical guidelines, planning tools or training opportunities for council staff. Collaboration of this kind has the potential to provide increased incentive for council participation in the regional program.

### Recommendations

18. *Establish a Regional Roadside Environment Network to:*

- *Provide strategic and technical input to the preparation and content of the materials, resources and other initiatives to be developed under the Regional Roadside Environment Program*
- *Assist in co-ordinating and promoting within councils the implementation of regional roadside environment initiatives.*
- *Explore and promote opportunities for cross council information and resource sharing, training, capacity building, resource procurement and on-ground works.*

19. Convene meetings of the Roadside Environmental Network on a quarterly basis in the first year, and on a six monthly basis beyond this time to provide input to the program and to facilitate ongoing communication and resource sharing in its implementation.

## 5.10 Collaborative On Ground Works

Considerable potential exists for collaboration between councils to implement on ground works on a strategic, regional basis to improve the management, rehabilitation and protection of roadside environments, and to reduce the impacts of existing road design and management practices on NRM / environmental values. Because councils have identified a suite of relatively common management issues, there is considerable opportunity for them to cooperate in the planning design and construction of on ground works to address them. The benefits arising from such co-operation include:

- financial efficiencies (eg shared design costs & bulk purchasing discounts for materials),
- sharing of expertise and knowledge between councils to improve capacity and performance
- strategic and coordinated implementation of best practice approaches to address high priority roadside environmental issues within the region.
- enhanced potential to attract external funding for on ground works that arises from taking a consistent and co-operative regional scale approach to NRM and environmental management.
- coordinated approach to achieving progress towards CAP targets

The program of rapid roadside environmental assessments to be implemented during Stage 2 of the Roadside Environment Program will provide the opportunity to identify and document the location, condition and nature of works that may be required to address some of these common management issues on a collaborative basis. Some examples of on ground works that could potentially be implemented co-operatively by councils include:

- Removing fish barriers caused by road structures within key rivers and streams that flow through a number of LGA's;
- Implementing a regional scale roadside environment signage program;
- Designing and constructing water sensitive road drainage at key sites (eg adjacent to estuarine or wetland environments); and
- Protecting and revegetating roadside environments that contribute to the maintenance of regional or sub regional wildlife corridors.

### Recommendations

20. The Regional Roadside Environment Network to identify and explore opportunities for on ground roadside environmental management initiatives to be implemented on a collaborative regional or sub regional basis by councils and other stakeholders.

21. Utilise the rapid roadside assessment process to identify and document the nature, condition and location of NRM / environmental issues occurring within roadside environments that have the potential to be addressed through collaborative on ground works at a regional or sub regional scale.

## 5.11 Monitoring and Reporting

Regular review of the progress of implementation of the Regional Roadside Environment Program is integral to maintaining stakeholder involvement and commitment, identifying and resolving potential implementation issues that may arise, and ensuring that progress is achieved.

Aside from regular reviews of progress according to the reporting schedules of grant bodies supporting the program - a formal review of implementation is recommended on a four yearly basis to co-coincide with the preparation of Council Comprehensive State of the Environment Reports. It is proposed that this formal review be co-ordinated by the Regional Roadside Environment Network and that it should focus on the progress of implementation of the key recommendations included in the Strategy. These include

1. Level of endorsement of the Regional Roadside Environment Policy by councils
2. Extent of integration within council systems and processes, and implementation of the management guidelines, practice notes and other tools developed under the Program.
3. Degree and nature of data updates to the Regional Roadside Environment mapping program & its analysis in terms of NRM outcomes, CAP targets etc
4. The nature and extent of participation in roadside training and capacity building programs by councils
5. Progress in development and implementation of a regional roadside environment signage program

In addition to reviewing the status of progress to date, this formal review should incorporate recommendations for the ongoing implementation of the Roadside Environment Program.

The on-going regional collection, collation, and analysis of roadside data, mapping and project information will be required to achieve Point 3 above. Likely data sources will include:

- Icon site data already collected, and any future systematic survey site work undertaken in roadside environments
- Local and regional road layers and NRM information already collected (Table 1)
- Rapid Roadside Assessment data completed during 2007/08, and any follow up assessments that are undertaken
- Any new and relevant NRM data and mapping collected by councils or state agencies
- Relevant roadside rehabilitation projects and works program reports

In addition, the implementation of improved roadside environmental management practices can potentially be evaluated through auditing the performance of road construction and maintenance activities. This would provide a direct tool through which to evaluate the extent of implementation and compliance with endorsed roadside environment policies and guidelines, and identify any staff capacity building needs. Resource sharing opportunities may also exist that would facilitate the implementation of regional or sub regional scale auditing processes. Regional scale auditing of this nature could be completed in conjunction with the 4 year review of the Roadside Environment Program, and possibly be integrated with the rapid roadside assessment review process.

Recommendations

22. *Undertake a formal review of the Roadside Environmental Management Program and Strategy on a four yearly basis, timed to coincide with the preparation of Council Comprehensive State of the Environment Reports.*
23. *Asses the status and condition of icon roadside sites on a 4 yearly basis*
24. *Establish and conduct 4 yearly reviews of a representative number of NRM monitoring sites using rapid roadside assessment techniques.*
25. *Encourage the implementation of regular internal audits by councils of their roadside management activities and practices to determine consistency with endorsed roadside management policies and management guidelines and identify any capacity building needs.*
26. *Investigate opportunities for regional collaboration and resource sharing to facilitate the implementation of regional or sub regional auditing of council roadside management practices.*

## 6. Draft Implementation Plan Considerations 2007/08

The following table identifies a range of potential actions to be considered for implementation during the 2007/08 period, the next funded stage of the Regional Roadside Environment Program. The identification of these priorities has been based on:

- The outcomes of research and consultation undertaken during 2006 and 2007
- Funding and resources available
- The establishment of key platforms for progressing the implementation of a regional approach to improved roadside environmental management, and meeting the relevant aims and objectives of the Hunter-Central Rivers Catchment Action Plan

<b>Proposed Actions</b>
Establish Regional Roadside Environment Network (Recommendation 18)
Commence development of a GIS based mapping and environmental assessment tool tailored specifically to the regional road network (Recommendation 5)
Complete development of Regional Roadside Environmental Management Policy (Recommendation 1)
Implementation of a rapid roadside assessment program throughout the region (Recommendation 7)
Consider development of a standard Review of Environmental Factors template for council road works (Recommendation 3)
Commence development of a series of management guidelines / practice notes to assist councils in improving the management and protection of roadside environments. (Recommendation 8)
Consider development of a Model Development Control Plan to provide for the protection and management of roadside environmental values during the design and construction of new developments (Recommendation 4)
Development of an enhanced, regionally specific roadside training and capacity building package for council staff (Recommendation 9)
Facilitate regional or sub-regional collaboration of grant proposals to undertake strategic on-ground works such as erosion & sediment control, remnant vegetation rehabilitation, restoration of fish passages etc (Recommendation 20)

## ATTACHMENT 1.

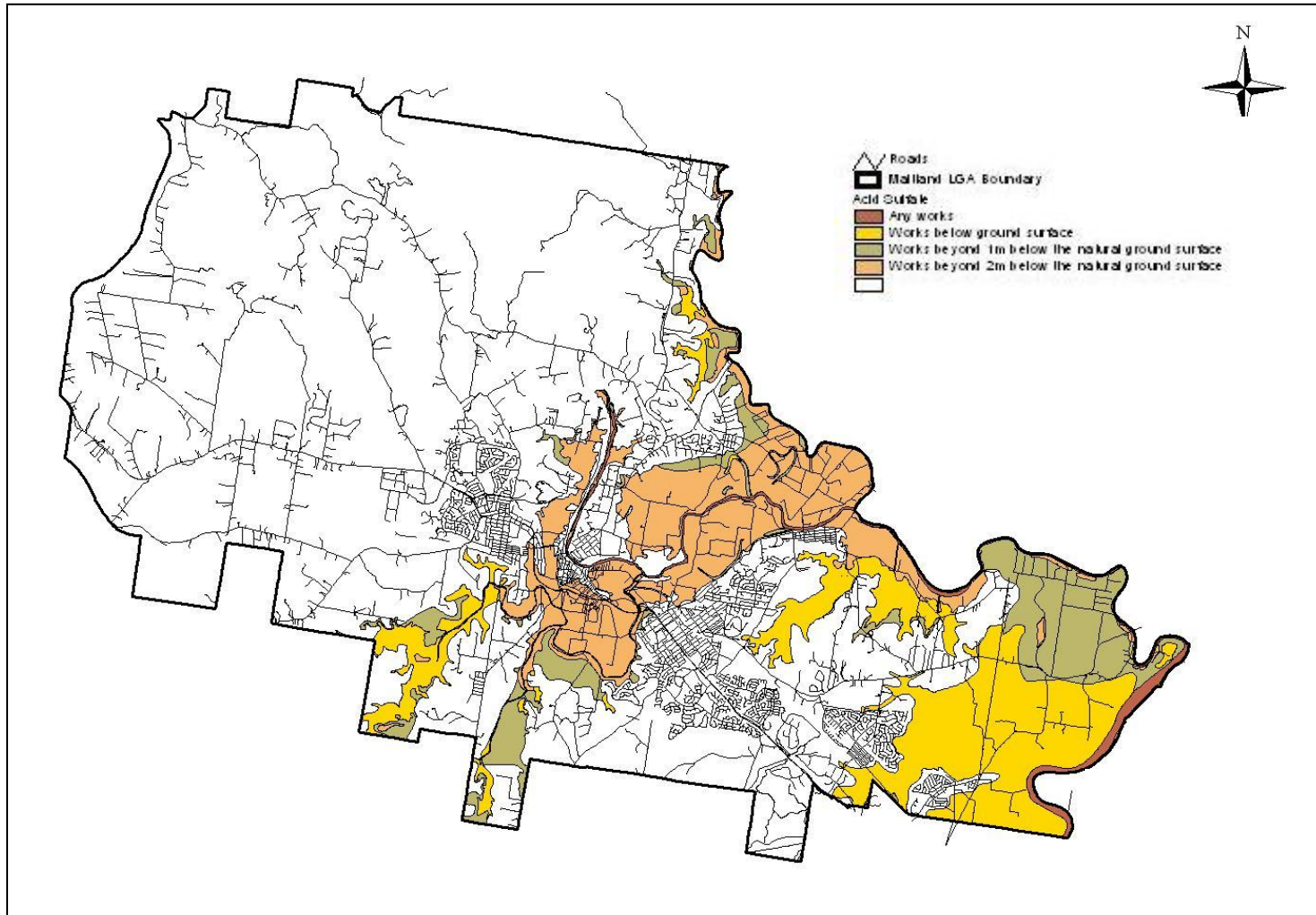
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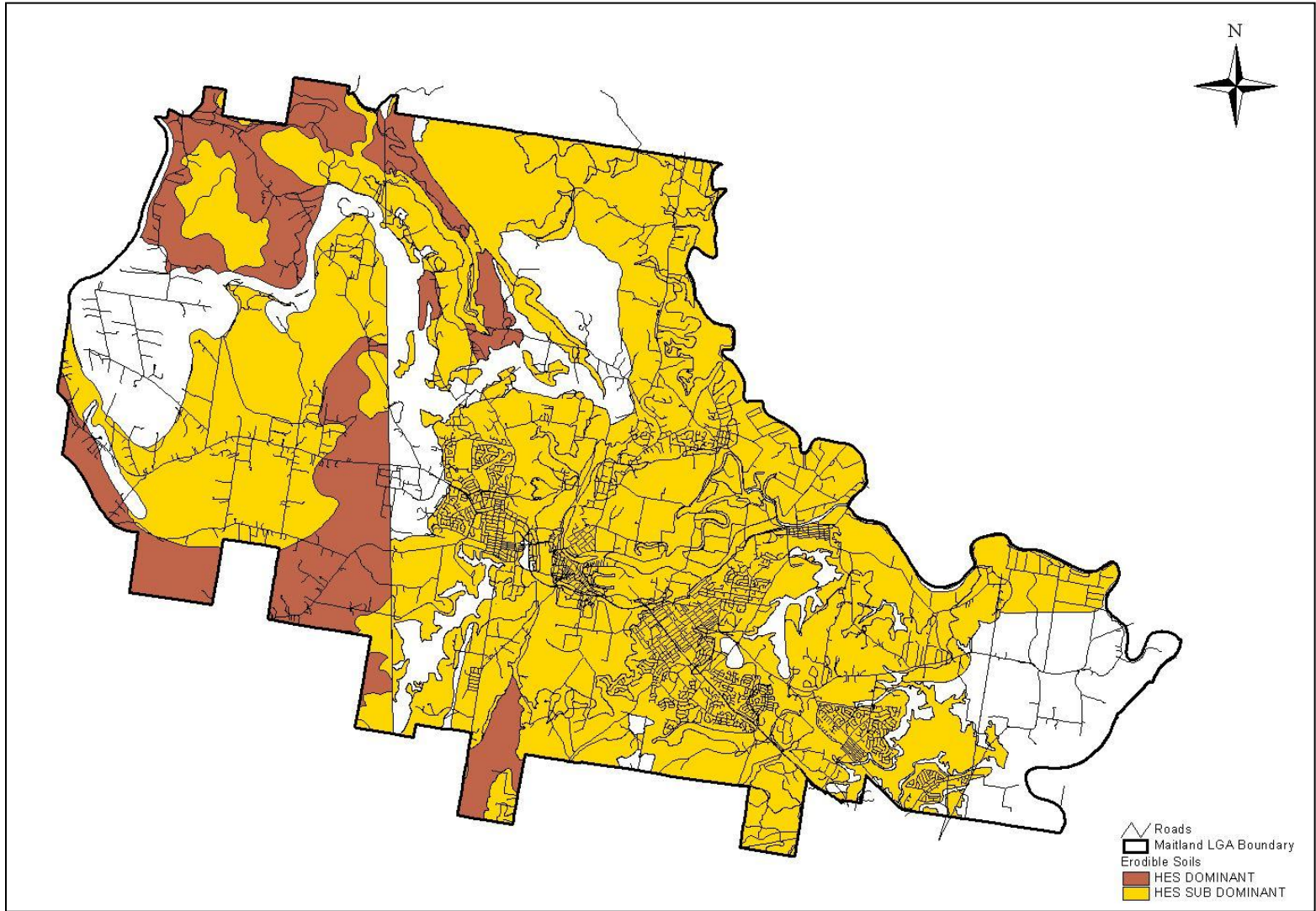
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## ATTACHMENT 2

### REGIONAL ROADSIDE ENVIRONMENT MAPPING (EXAMPLES ARE SHOWN FOR THE MAITLAND LOCAL GOVERNMENT AREA)

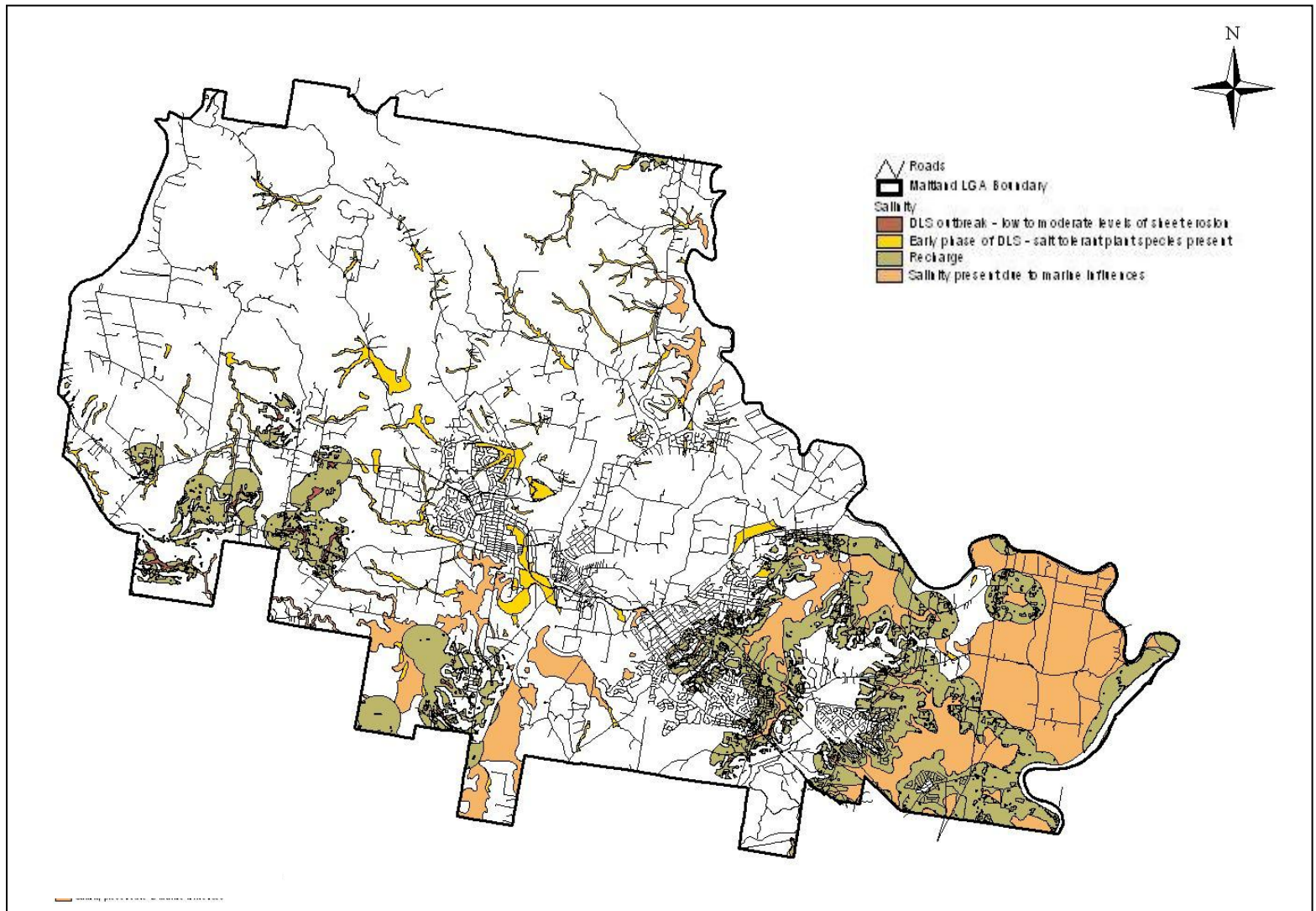


*Acid Sulfate Soils overlain with the Road Network*



*Highly Erodible Soils overlain with the road network*

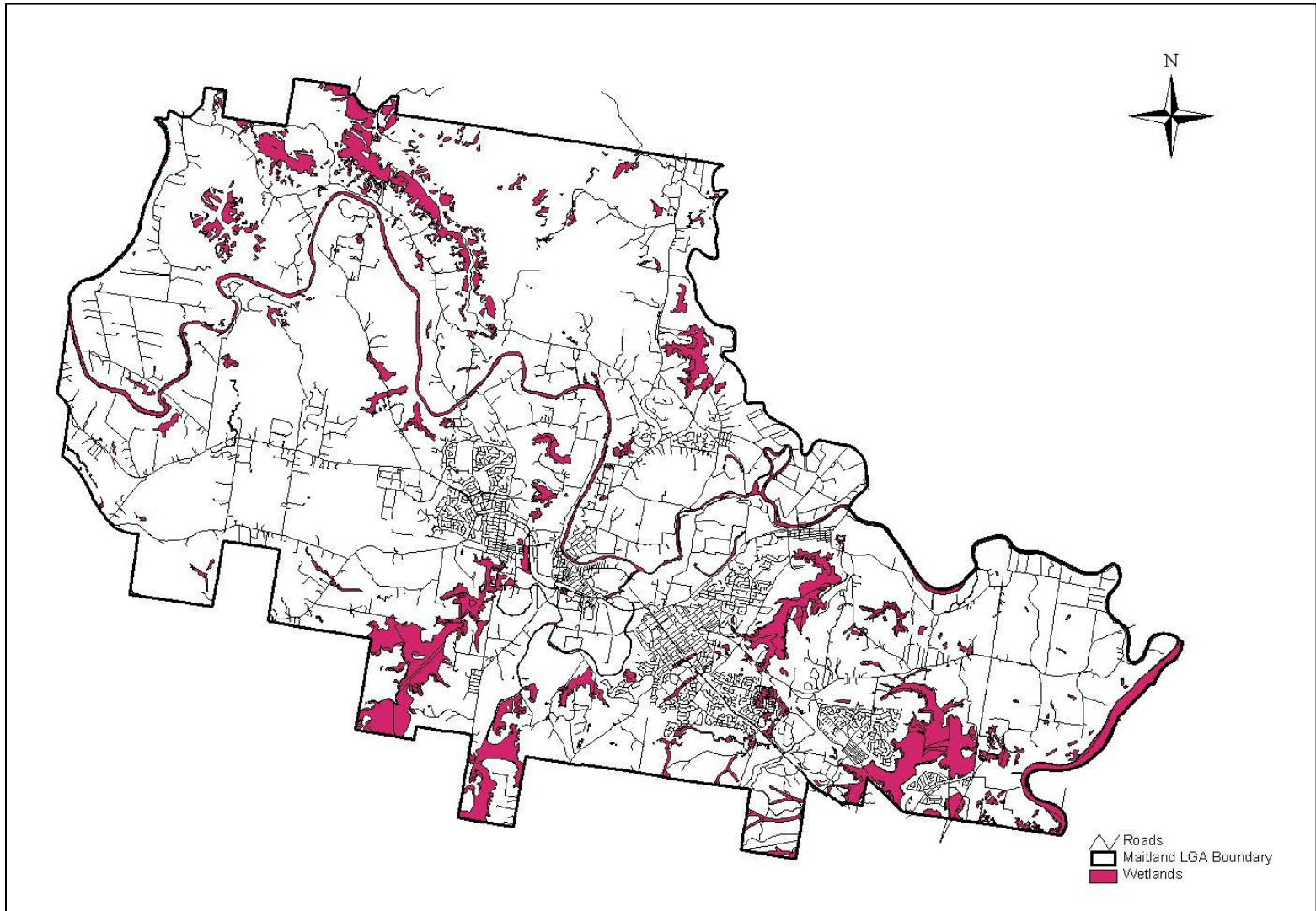




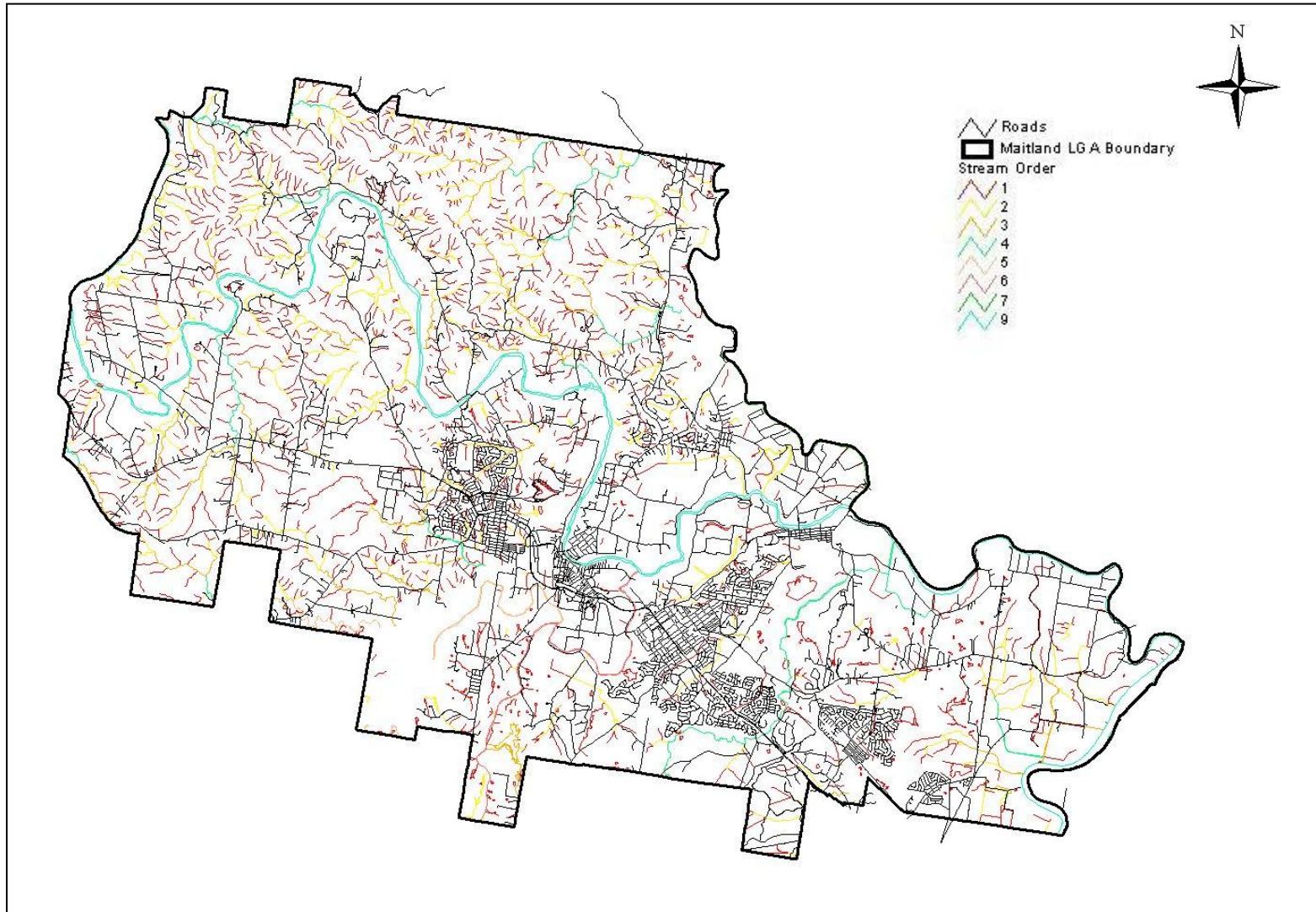
*Salinity overlain with the road network*



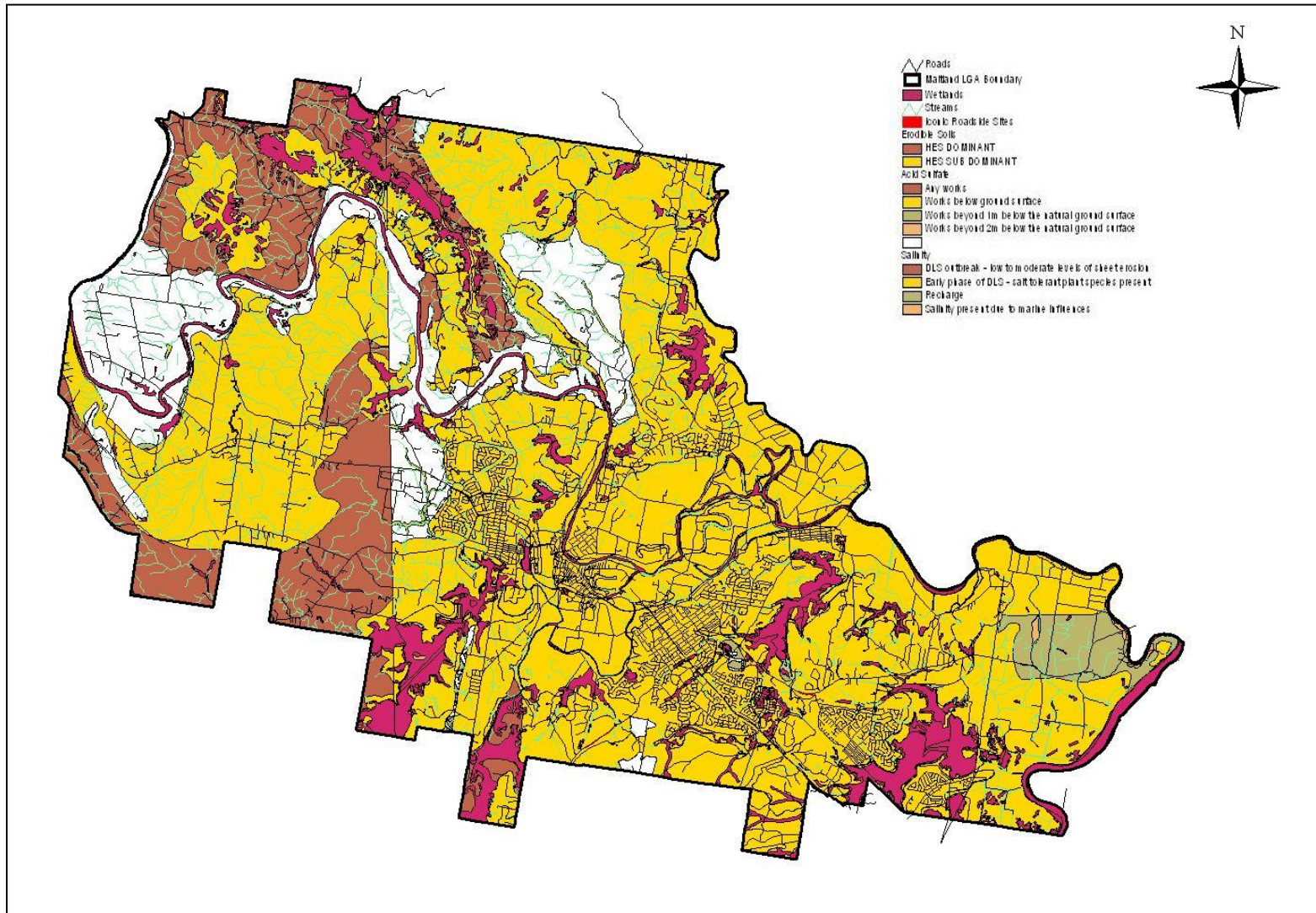
*Icon Roadside Sites overlain with the road network*



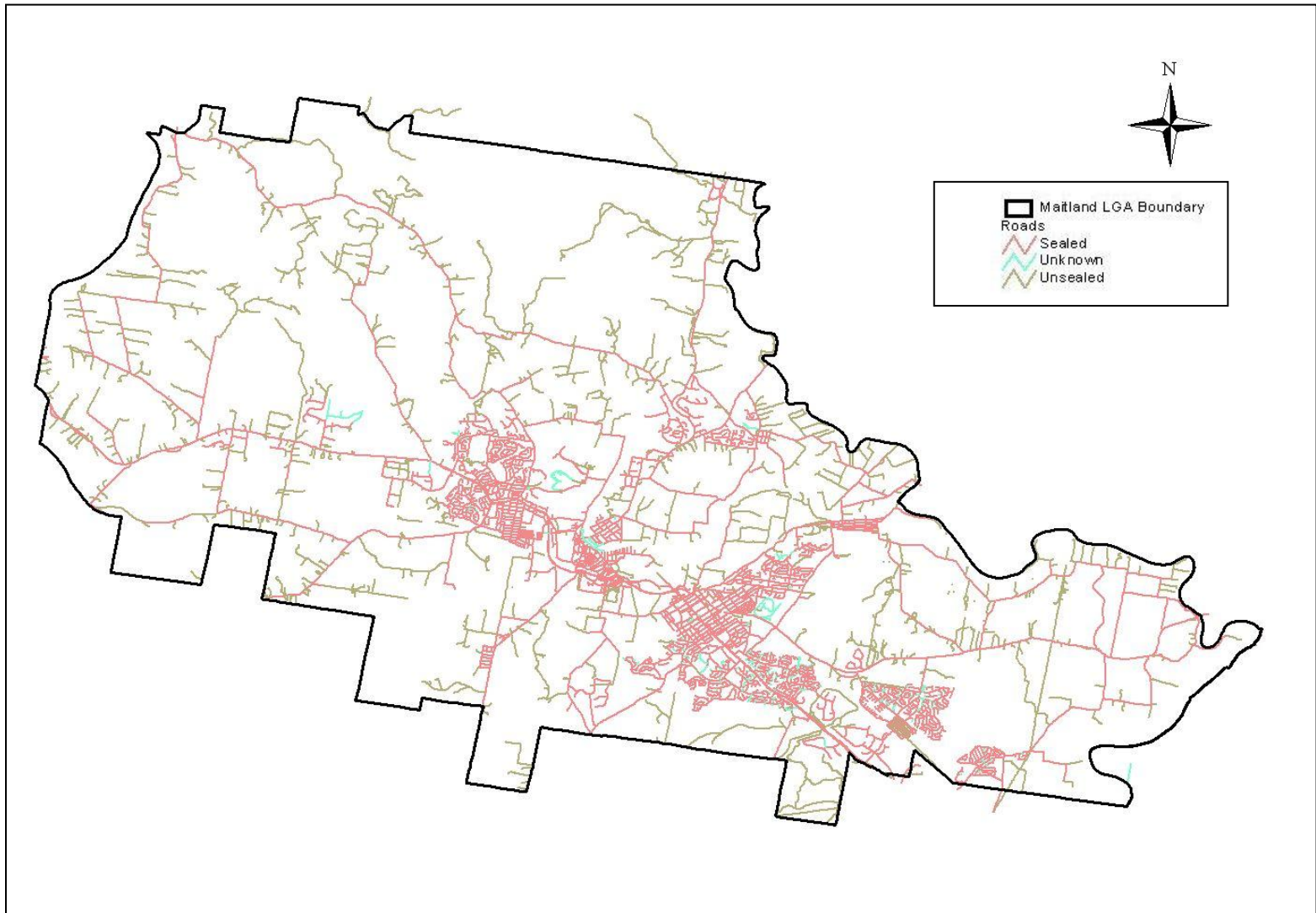
*Wetlands overlain with the road network*



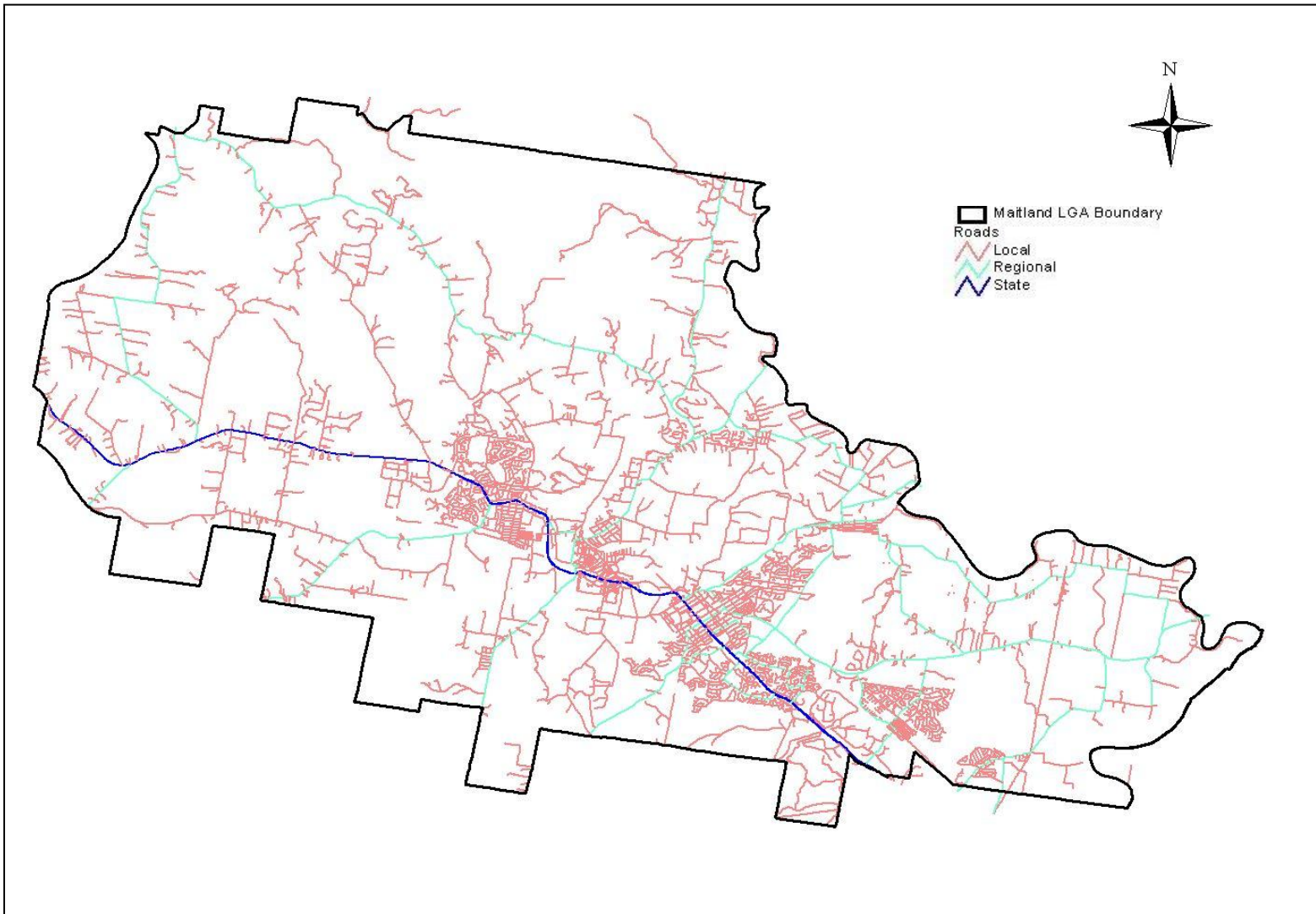
*Ordered Streams overlain with the road network*



Combined NRM issues overlain with the road network



*Road Status (sealed or unsealed)*



*Road Type (Local, Regional and State)*

# ATTACHMENT 3

## ROADSIDE ENVIRONMENT ASSESSMENT TOOL

