The Rural City of
MURRAY
BRIDGE

Bridge to Opportunity

The Rural City of Murray Bridge

Roadside Vegetation Management Plan

2014-2019

FORWARD

Welcome to the Rural City of Murray Bridge which is on traditional Ngarrindjeri land. Murray Bridge is the regional centre of the Murraylands with a diverse range of vegetation.

The progressive degradation of native vegetation and increase in exotic plants and animals continue to have a devastating impact on our natural biodiversity within the Rural City of Murray Bridge.

The aim of this Roadside Vegetation Management Plan is to enhance a sustainable natural and built environment that meets current and future community needs and to maintain and enhance the species of genetic diversity, vegetation associations and habitat types currently occurring within existing roadside vegetation.

One of the roles of the Rural City of Murray Bridge is that of manager of the land under its ownership or control. As a local government body, it has a responsibility, in partnership with the local and wider community, to prepare and implement strategies to achieve a sustainable future for this land.

Roadside vegetation varies considerably throughout the Council with several vegetation associations from the Eastern Mt Lofty Ranges, River Murray and Mallee areas. The range of original vegetation types is well represented within the road reserve system of the Council.

The Rural City of Murray Bridge has a total of 1,363 km of road network, 425 km of sealed roads, 567 km of un-sealed roads, and 371 km of undeveloped road reserves. Council is responsible for the roadside vegetation along all of these roads.

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Bridge to Opportunity

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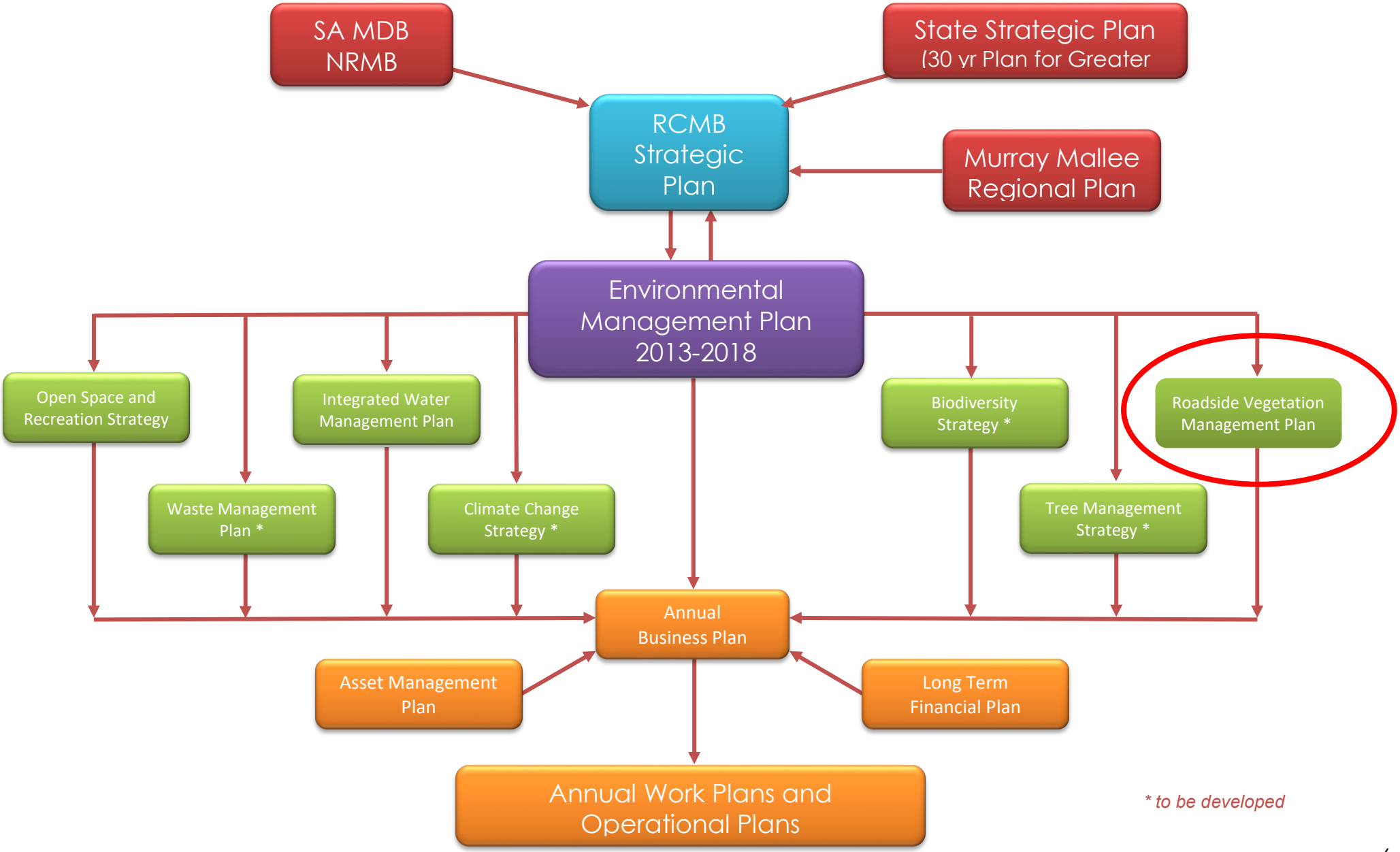
1 INTRODUCTION

The Rural City of Murray Bridge recognises the value of our Council road reserves. Roadside reserves are often the only remaining areas of remnant native vegetation, some of which have become highly fragmented and isolated. These remnants are highly valued for their biological diversity serving as important wildlife corridors, a seed source for revegetation and areas of species habitat.

The Rural City of Murray Bridge is committed to the protection and enhancement of our natural resources. This Roadside Vegetation Management Plan has been developed to guide Council in the management of its roadside reserves in a sustainable manner.

The implementation of this Roadside Vegetation Management Plan, the Environmental Management Plan and the Integrated Water Management Plan; and the future development of a Biodiversity Strategy, the Climate Change Adaptation Strategy and a Tree Management Strategy will provide Council with the tools required to move forward in an environmentally sustainable manner. The following Table illustrates the linkages between these plans and the Rural City of Murray Bridge's Strategic Plan.

A complete review of the Roadside Vegetation Management plan will be undertaken every five years. The development of this Roadside Vegetation Management Plan is a key step toward implementation of a range of environmental initiatives which will help to achieve continuous improvement towards environmental sustainable development within the Rural City of Murray Bridge.


SA MDB NRMB
State Strategic Plan (30 yr Plan for Greater
RCMB Strategic Plan
Murray Mallee Regional Plan
Environmental Management Plan 2013-2018
Open Space and Recreation Strategy
Integrated Water Management Plan
Biodiversity Strategy *
Roadside Vegetation Management Plan
Waste Management Plan *
Climate Change Strategy *
Tree Management Strategy *
Annual Business Plan
Asset Management Plan
Long Term Financial Plan
Annual Work Plans and Operational Plans
* to be developed

2 BACKGROUND

2.1 What is Roadside Vegetation?

Local councils in South Australia are responsible, under the *Local Government Act 1991*, for approximately 75,000 kilometres of roads.

The definition of a **Road** from *Roads Opening and Closing Act 1991* is

(a) a public road within the meaning of section 4 of the *Local Government Act 1999*; or

(b) an alley, laneway, walkway or other similar thoroughfare vested in a council; or

(c) in relation to a part of the State not within a council area:

(i) a road or street delineated and shown on a public map or plan of the State as laid out for public purposes by the Crown; or

(ii) a road or street opened under this Act or any other Act relating to the opening of new roads and streets; or

(iii) a road or street transferred or surrendered to the Minister of Local Government or the Crown by the owner or lessee for use as a public road or street; or

(iv) a road or street declared or dedicated under any other Act to be a public road or street,

(d) and includes part of a road.

For the purposes of this plan:

Roadside - Is defined as the strip of land between the road formation and the boundary of the road reserve. Where the road formation is the surface of the finished earthworks, excluding cut or fill batters (Austroads, 2003).

Roadside vegetation - Is any vegetation growing on a road reserve, and includes vegetation on a roadside (the area adjacent to a formed road), and vegetation growing on an unmade or undeveloped road reserve; this includes native vegetation of conservation value and vegetation dominated by introduced species.

Figure1: Road reserve showing road formation and roadside

2.2 Why is Roadside Vegetation Important?

Native roadside vegetation is important for a variety of reasons. From a conservation perspective, it often has significant value, as much of the native vegetation within the agricultural region of the State has been removed or highly disturbed. In some areas roadsides support virtually the only remaining example of the original vegetation. Roadside vegetation also provides functional and social benefits.

Survey work in 1978 revealed, "*South Australia's native roadside vegetation has been severely depleted through clearance and through several forms of ongoing disturbance. Despite this, many important areas remain, some of which are in very good condition and need to be kept free of disturbance as much as possible, while others require active management to ensure that their features are not gradually degraded*"[1].

The benefits of preserving native vegetation on roadsides can be summarised as follows (Breckwoldt and others (1990)[2], and Saunders and Hobbs (1991)[3], provide further background information):

1. Functional benefits

- Native vegetation on roadsides helps to lower local water tables that may affect the road formation and pavement.
- Intact native vegetation also acts as an effective, low cost form of weed control by preventing the establishment of weeds in the roadside.
- Native vegetation on roadsides can provide valuable shelter for livestock and crops in adjacent agricultural land.
- Native vegetation can also help to define curves, creating a safer driving environment.
- Retention of native vegetation reduces the velocity of water runoff, thus reducing scour and erosion of batters and embankments.
- Shade from native vegetation keeps the road cool for road users, particularly pedestrians and cyclists, and provides shade at rest stops for travellers.
- Predatory insects ('farmers helpers') are commonly found on native vegetation.

Figure 2: Biodiverse roadsides increases wildlife

[1] Palmer, D., and Lewis, S. (1987). *Mapping of Roadside Vegetation in South Australia*. Department of Environment and Planning, South Australia.
[2] Breckwoldt, R. and others (1990). Living Corridors – Conservation and Management of Roadside Vegetation. Greening Australia, Canberra, Australia.
[3] Saunders, D.A., and Hobbs, R.J. (1991). Nature Conservation 2: The Role of Corridors. Surrey Beatty & Sons, Chipping Norton, NSW, Australia.

2. Conservation benefits

- Substantial areas of native vegetation can still be found along roadsides even in highly modified areas of the State. In some areas, native vegetation in road reserves is virtually the only remnant of the original vegetation.
- For the most part, roadsides are areas that have never been grazed or cultivated, and therefore may contain plant species – often threatened - that aren't in the surrounding scrub areas.
- Along with other remnant vegetation and scattered paddock trees, roadside vegetation can facilitate movements of wildlife, particularly birds, through the landscape and in turn assisting pollination of plants that may otherwise become isolated.
- Roadside trees can be very old and contain resources (e.g. hollows) less common in younger surrounding vegetation[4].
- Roadside vegetation can also provide an important seed source for revegetation projects

3. Social benefits

- In agricultural areas that have been extensively cleared, remnant vegetation on roadsides provides important aesthetic visual interest to the general landscape once referred to as the "Front Garden of the Nation" by Edna Walling in 1952[5].
- Scenic quality is important to motorists: roadside vegetation can contribute to driver alertness by offering relief from boredom.
- Remnant vegetation in road reserves often contains attractive wildflower species contributing to the natural character and tourist appeal of a district.
- In cleared areas, road reserves often represent an historical reminder of the variety of vegetation types that occurred across the landscape prior to settlement.
- Volunteers have sense of ownership towards roadsides reserves.
- Roadside vegetation can be used as an educational tool to highlight to the general public the varieties of habitats that used to belong in the area.
- It could also be said that "*we, the community, have a duty to exercise foresight in our treatment of the environment which we will hand on to our successors*"[6].

[4] Clarke et al (2010). *Aging mallee eucalypt vegetation after fire: insights for successional trajectories in semi-arid mallee ecosystems.* Australian Journal of Botany 58: 363 – 372.

[5] Walling, E. (1952). Country Roads – The Australian Roadside. Reprinted in 1985, by Pioneer Design Studio, 31 North Road, Lilydale, Victoria, Australia.

[6] Roadside Vegetation Committee (1978). *The role and objectives of the Roadside Vegetation Committee*. Unpublished Document. Adelaide.

Figure 3: Biodiverse Roadside Vegetation on Browns Road.

2.3 How is Roadside Vegetation Protected?

Native roadside vegetation in South Australia is protected or regulated under State and Commonwealth legislation.

2.3.1 Native Vegetation Act 1991 and Native Vegetation Regulations 2003

In South Australia, the clearance of native vegetation, including that along roadsides, is controlled under the *Native Vegetation Act, 1991* and the *Native Vegetation Regulations 2003.* This means that any clearance of native vegetation on roadsides requires the permission of the Native Vegetation Council (NVC) unless a specific Regulation applies.

Regulation 5(1)(y) – Roadside Vegetation, allows for clearance by a local council, or someone acting on behalf of the local council, if the vegetation is growing on a road reserve in the area of the council and the person undertaking the clearance complies with either:

- a management plan prepared by the local council and approved by the NVC; or
- with NVC guidelines for the Management of Roadside Vegetation.

Some roadside activities such as clearance for new road works, fire prevention, public safety and service provision are dealt with under other Regulations (Figure 4). Some require the clearance to be compensated for through either on-ground native vegetation restoration or revegetation works, or payment into a fund that supports those works elsewhere in the region.

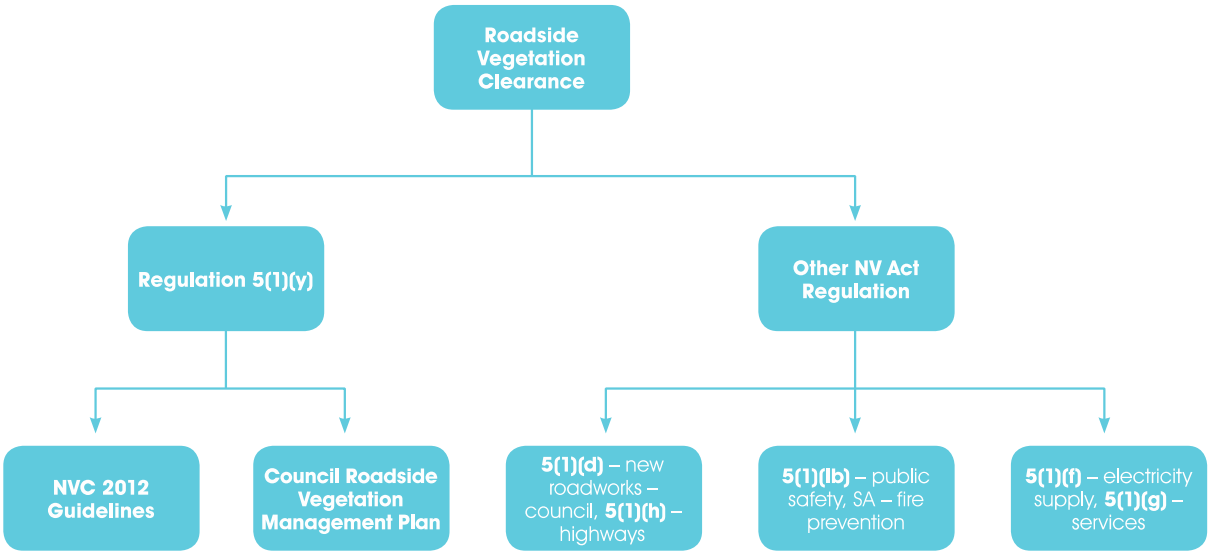


Figure 4: Roadside Vegetation Clearance mechanisms under the Native Vegetation Act 1991

See "A Guide to the Regulations under the *Native Vegetation Act 1991*" for further information
http://www.environment.sa.gov.au/Conservation/NativeVegetation/Managing_native_vegetation

2.3.2 Other statutes relevant to the protection and management of native fauna and flora on roadsides

- The *Local Government Act 1999* (Section 221) where any works on road reserves requires permission of the local council.
- The *National Parks and Wildlife Act 1972*, which prohibits the removal of native vegetation without a permit from reserves, wilderness protection zones, Crown land, public land or forest reserves in South Australia.
- *The Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, which promotes the conservation of biodiversity by providing strong protection for nationally listed species of threatened indigenous plants and animals and important habitats. Any action that will have a significant effect on these species or habitats requires assessment and Commonwealth approval.
- The *Natural Resources Management Act 2004* which promotes sustainable and integrated management of the State's natural resources and makes provision for the protection of the State's natural resources.
- Numerous other Acts of parliament include, but are not limited to the *Fences Act 1975, Electricity Corporations Act 1994, Development Act 1993, Fire and Emergency Services Act 2005, Occupational Health, Safety and Welfare Act 1986* and *Road Traffic Act 1961*.

2.4 Threats to Roadside Native Vegetation

Purely because of its linear nature, roadside vegetation is susceptible to gradual degradation through a range of activities. This degradation can be compounded if soils are disturbed or compacted by machinery or if low native shrubs or native grasses are unintentionally driven over or cleared. Not only can native plants be unnecessarily destroyed, but conditions can also be made unsuitable for natural regeneration and management problems can also be created for adjoining landholders.

Examples of the types of threats to native vegetation on roadsides include:

- inappropriate fire prevention methods (e.g. boom spraying, ploughing);
- pesticide drift from neighbouring property;
- clearing for fence replacement (excessive or inappropriate method);
- clearing for new driveways (excessive or poorly located;
- weed invasion from neighbouring property;
- excessive seed harvesting;
- firewood collecting;
- disposal of rubbish and waste materials;
- inappropriate or insensitive weed control methods;
- inappropriate or insensitive vermin control methods;
- poorly designed new road construction (realignments, widening);
- poorly managed roadwork activity (e.g. stockpiles, turning areas);
- incremental clearance along road edge when grading unsealed roads;
- inappropriate vegetation control methods for sight distance;
- poor management of grading spoil (placement in roadside or table drain);
- excessive drain clearing or inappropriate disposal of drain spoil;
- installation of services where cleared land exists elsewhere;
- insensitive methods used to maintain services;
- inappropriate planting within intact native vegetation (e.g. trees in native grassland, or sedgeland);
- grazing by stock or rabbits
- off-road vehicles;
- plant disease (e.g. Phytophthora, Mundulla Yellows);
- inappropriate fire regimes;
- changes to hydrology;
- dryland salinity ;
- lack of active management; and
- senescence (old age).
- Dust from unsealed roads.

These activities can occur for a number of reasons, but can be grouped into four categories, each which may require a different approach to minimise or eliminate the risk. Threats to roadside native vegetation can occur due to:

- **ignorance** of the law – e.g. clearance for fencelines by adjacent landholders, or inappropriate seed collection;
- **accidental** clearance – e.g. vehicles parking on roadside, grading a little wider each time, or inappropriate weed control methods;
- **illegal** use – e.g. domestic waste and weed dumping, or sheep and cattle grazing; and
- **inaction** – e.g. weeds and pests spread over time if not actively controlled.

Figure 5: Left to right - Spoil heaps; garden escapees; sour sobs and grassy weeds

2.5 How can Roadside Vegetation be Managed?

Native bushland is an efficient, self-sustaining system and, after any ground disturbance, it may take a number of years to return to a stable state. Major disturbance can unbalance the system (e.g. through serious weed infestation) and cause long-term and sometimes irreversible damage. In many instances inappropriate management activities can set up the next round of maintenance problems.

Native vegetation along roadsides needs careful management if it is to be conserved for future generations. Good roadside management practices can also generate potential savings in local council road maintenance budgets.

Low-impact management of roadside vegetation is an integral part of efficient and effective maintenance of roads.

The most important step to manage roadside native vegetation is to identify where and what it is, through roadside vegetation surveys or opportunistic observations.

Preventative measures such as the Roadside Marker system, protocols for road workers, and information to landowners should then be implemented to prevent direct clearance and physical damage to identified vegetation.

Ideally, management measures should also extend to improving the quality and quantity of the vegetation on roadsides, through weed and pest control works, rehabilitation and revegetation.

Figure 6: Observation and training in plant identification can help road workers and contractors avoid accidental damage to native plants.

2.6 What is a Roadside Vegetation Management Plan?

A Roadside Vegetation Management Plan (RVMP) is a reference document encompassing a range of actions that occur on roadsides that is prepared and owned by a local council for the purpose of promoting good management of roadside vegetation.

Implementation of the RVMP objectives and guidelines, combined with local council commitment and support, can result in good management outcomes for roadside vegetation, and usually with little impact on council and other user's activities on roadsides.

RVMPs need to be endorsed by the Native Vegetation Council (NVC) under the *Native Vegetation Act 1991* in order to fulfil a legal requirement under *Regulation 5(1)(y)*. This Regulation allows for clearance of native vegetation by a local council, or someone acting on behalf of the local council, where the clearance complies with a Roadside Management Plan that has been approved by the NVC.

3 Context of Roadside Vegetation Management Plan

3.1 Area Covered by the Plan

The Rural City of Murray Bridge covers an area of 1,832 square kilometres and supports a population of 20,374 people. The main townships include Murray Bridge centrally located, Mypolonga in the North, Wellington in the South, Monteith in the East and Callington in the West (Figure 7).

The Rural City of Murray Bridge has a total of 1,363 km of roads, 425 km of sealed roads, 567 km of un-sealed roads, 371 km of undeveloped road reserves and is responsible for the roadside vegetation along all of these roads.

Under the *Local Government Act 1999*, the Rural City of Murray Bridge has a responsibility to ensure that roads not only provide for the safe movement of traffic, but also is required to facilitate sustainable development and the protection of the environment and to ensure a proper balance within its community between economic, social, environmental and cultural considerations.

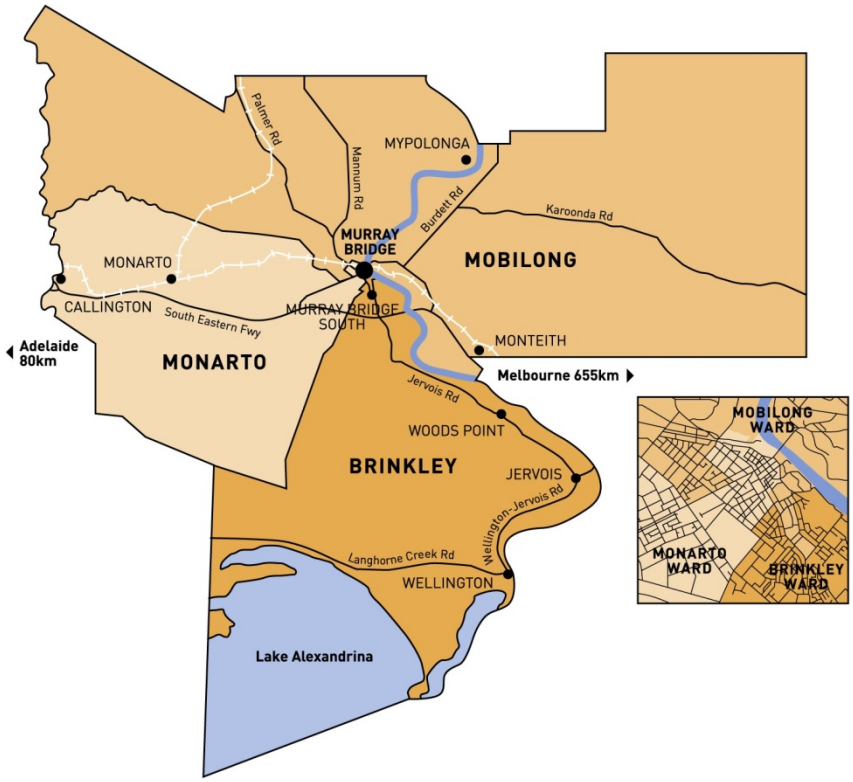


Figure 7: Rural City of Murray Bridge

There is currently 654 ha of roadside native vegetation remaining. Native vegetation cover is greatest in the East of the council area where land parcels are larger with lower rainfall, preventing many land activities that lead to significant vegetation removal/disturbance. Undulating lands to the West have been extensively cleared due mainly to higher value land, proximity to Adelaide and smaller acreage. The range of original vegetation types is well represented within the road reserve system of the council district however the quality varies from degraded vegetation with little conservation value (446 linear kms) through to vegetation associations of high biodiversity value (479 linear kms) based on the vegetation categories described.

The original range of vegetation types are still represented within the council boundaries, but have largely been reduced to scattered remnant stands. The dominant vegetation communities in the district are :

- River Red-gums – *Eucalyptus camaldulensis, / Phragmites australis/ Typha dominginensis Woodland.*
- River Box – *Eucalyptus largiflorens/ Muehlenbeckia florentula/ Atriplex semibaccata Woodland.*
- Samphire – *Halosarcia pergranulata/ Haloscarcia indica Shrubland.*
- Nitre Bush – *Nitaria billardieri Shrubland.*
- Cotton Bush – *Maireana aphylla Shrubland.*
- False Sandalwood – *Geijera linearifolia/ Myoporum platycarpum Woodland.*
- Kangaroo Grass Eastern Mount Lofty Ranges Grasslands - *Spear grass Grasslands – Lomandra multiflora/ Austrotipa spp. Grasslands.*
- Spear Grass Community on Mallee Limestone Soils – *Austrostipa spp. Austrodanthonia caespitosa/ Dianella revoluta Grasslands.*
- Iron-Grass Natural Temperate Grasslands – *Lomandra effusa Tussock Grassland.*
- Peppermint Box Grassy Woodlands– *Eucalyptus odorata/ Open Woodland.*
- Mallee Box – *Eucalyptus porosa Low Open Woodland.*
- Blue Gum and Sheoak Woodlands – *Eucalyptus leucoxylon/ Eucalyptus fasciculosa/ Eucalyptus odorata/Allocasuarina verticillata Woodland (Monarto District).*
- Sheoak/ Blue gum Woodland – *Allocasuarina verticillata/ Eucalyptus leucoxylon Low Open Woodland.*
- Native Pine Woodland – *Callitris gracillis Woodland.*
- *Eucalyptus incrassate – Very Low Mallee Woodland*
- *Eucalyptus socialis – Very Low Mallee Woodland*
- *Eucalyptus calycogona ssp. - Low Mallee*

(List of vegetation communities compiled with the assistance of the Goolwa to Wellington Local Action Planning Association).

3.2 Council Roadside Vegetation Policy Statement

The philosophy of the Rural City of Murray Bridge RVMP is in accordance with best practices. This includes identifying the risks and opportunities for the effective management of roadside native vegetation from possible damaging activities without compromising other essential functions of roadsides through integrating appropriate planning procedures.

3.3 Key Objectives for Roadside Vegetation

The Rural City of Murray Bridge key objectives for roadside vegetation are to:

- meet legal requirements for both the provision and maintenance of a safe road network and the protection of roadside vegetation;
- maintain and enhance the species diversity, genetic diversity, vegetation associations and habitat types currently occurring within existing roadside vegetation;
- maintain and enhance the habitat and corridor value for indigenous flora and fauna;
- minimise the adverse impacts of activities occurring within the roadside vegetation corridor;
- clearly identify unauthorised activity in road reserves;
- improve the awareness of roadside vegetation management issues for Council the community and other authorities; and
- to achieve appropriate pest plant and vermin control.

3.4 What This Roadside Vegetation Management Plan Does

This RVMP has been developed to provide the Rural City of Murray Bridge with a consistent, integrated approach to managing roadside vegetation along all municipal controlled roads.

This RVMP satisfies the following:

- it outlines what can be legally cleared on road reserves without NVC approval;
- it outlines the ecological value of roadside native vegetation in the region – e.g. what plant associations are present, their conservation significance and quality, the location of any threatened species, and the distribution of weed species of significance;
- it identifies the threats to roadside native vegetation in the region;
- it promotes protection of roadside native vegetation from direct damage (e.g. Weed control), by either;
    - processes and procedures (codes of practice, guidelines, fact sheets); and/or
    - plant identification by vegetation survey, mapping, database, Geographic Information System(GIS) and roadside markers for the entire region or on a case-by-case basis by council staff, local experts, or Department of Environment Water and Natural Resources staff.

- it promotes the protection of roadside native vegetation from indirect damage (e.g. weeds, pests, old age/senescence) and present opportunities for environmental enhancement of the road network such as guidelines and programs for weed control, weed hygiene procedures, Bushcare work and principles and other restoration works;
- Provides guidance to partner organisations on council priorities for Biodiversity Management.
- it sets clear policies and guidelines for activities affecting roadsides - this applies not only to road works but also to other uses of roadsides such as service provision, pest animal and plant control, property access and bushfire prevention;
- it encourages forward planning to minimise potential damage to roadside vegetation (combined with vegetation surveys, planning of roadworks programs well in advance can avoid areas of conservation significance and allow options that have the least impact on roadside vegetation);
- it enables Council to coordinate work programs affecting roadside vegetation and avoid ad-hoc decisions that may be detrimental to roadside vegetation;
- it enables greater efficiencies through planning - from road network planning, management of maintenance contracts and construction project planning, to development of environmental programs and strategies;
- it enhances Council and community awareness of issues affecting roadside vegetation;
- it provides a means for Council to demonstrate due diligence in our responsibility to protect and maintain native vegetation on roadsides; and
- if sufficient detail is included, can remove the need for case-by-case consultation associated with some activities (e.g. by setting out how a particular pest will be tackled in a way which minimises the impact on native vegetation, and showing how any damage will be offset through replanting or natural regeneration at the completion of the work, Council may be able to avoid the requirement to obtain individual clearance approval for each case of that pest).

However, this RVMP is not:

- a means of avoiding liability if native vegetation clearance offences do occur;
- an appropriate mechanism to obtain environmental approval for large road construction works;
- an approval for all roadside vegetation clearing; or
- a stand-alone document in isolation to other management structures and controls over activities that occur in road reserves for which the Rural City of Murray Bridge has jurisdiction.

3.5 How this Roadside Vegetation Management Plan was Prepared

This RVMP was developed by the Rural City of Murray Bridge to ensure it complies with the *Native Vegetation Act 1991*, other relevant legislative requirements and Council's Strategic Management Plans.

As part of the consultative process, issues and activities affecting roadside vegetation within the district has been identified and management actions established to ensure compatibility with existing Council policies and objectives. This includes development of standard operating procedures for managing roadside activities where those activities are likely to affect roadside native vegetation.

This RVMP was formally endorsed by the Rural City of Murray Bridge on 14 April 2014 and endorsed by the Native Vegetation Council on 2 July 2014.

3.6 What this Roadside Vegetation Management Plan Contains

This RVMP contains:

- details of the Rural City of Murray Bridge's roadside vegetation survey and roadside marker scheme (Section 4);
- a discussion of management issues (activities) that may affect roadside vegetation, including procedures for approval prior to implementation of activities, and guidelines for undertaking these activities (Section 4);
- a section on Management Actions outlining a series of actions with a program for implementation that will promote forward planning and improved co-operation between all roadside users in the management of road reserves (e.g. Council, local emergency services, adjacent private property owners, the NVC, and the general public)(Section 4); and
- Fact Sheets for council staff field use and / or landholders and / or the general public.

3.7 How to use this Roadside Vegetation Management Plan

This RVMP will be used as a working reference document within The Rural City of Murray Bridge. The implementation of the RVMP is linked to Council's Strategic and Development Plans and associated performance measures.

Council staff and contractors will be trained to ensure they can interpret the plan and implement the roadwork practices required to minimise damaging impacts on roadside vegetation and improve the protection of remnant vegetation.

3.8 How this Plan will be Reviewed

To ensure that compliance with the objectives of this RVMP have been met, this RVMP will be internally reviewed by the Rural City of Murray Bridge every five years.

This will help ensure that the RVMP stays current with respect to legislation and terminology, and also to improve usability and relevance.

Council's Environmental Management Plan (2013-18) Strategy 3.2 'Develop and Implement a RVMP or the Rural City of Murray Bridge' refers to the SAMDBNRMB as being a partner in its key strategies. The SAMDBNRMB will be consulted in the review of the RVMP in 2019.

4 ROADSIDE VEGETATION SURVEY

4.1 Why Roadside Vegetation has been Surveyed

The Rural City of Murray Bridge has surveyed its roadsides to provide important information about the location, composition and conservation value of native plant communities and species along roadsides, and the extent of weed invasion and other disturbances.

A survey of remnant roadside vegetation was conducted by Michael Hyde in 1996. The survey was undertaken using the standard drive-by roadside methodology, "Roadside Vegetation Survey Methodology in South Australia". A map of remnant roadside vegetation communities is shown in figure 8.

This method enables the rapid, systematic collection of data describing the ecological value and conservation significance of vegetation in road reserves, and provides information necessary for making appropriate roadside management decisions (Stokes et al, 2006).

Data collected in the field was entered into and maintained in the Roadside Vegetation Database (RVD) which is a database linked to the Geographical Information System (GIS). The standard methodology allows the data collected to be incorporated into a state-wide layer of roadside vegetation mapping. The RVD is part of the Environmental Database of South Australia (EDBSA) and is therefore linked to the bulk of the biological survey data in South Australia.

The recognised advantages of using this survey methodology are many, including:

- contractors undertaking different regional surveys need not spend time developing their own methodology;

- local councils that instigate a roadside survey do not have to develop their own database or mapping system;
- plant names are automatically updated if the taxonomy of a species is changed in the future; and
- data can be efficiently accessed to search for and spatially display segments of roadside that match certain characteristics (such as threatened species records, pre-European mapping, etc.).

4.2 What Were The End Products of The Roadside Vegetation Survey?

The survey has provided Council with an inventory of the condition and quality of roadside vegetation, and has been used to assist Council in the development of strategies for the protection and management of roadside vegetation.

The outputs of the Rural City of Murray Bridge vegetation survey are:

- Maps displaying the information collected during the "drive-by" assessment – in particular, data collected from the roadside vegetation survey have been analysed and mapped according to the five vegetation categories;
- Data has been imported into the Rural City of Murray Bridge GIS; and
- Computer generated reports that summarise the data collected such as vegetation association statistics (distance, condition), lists of species recorded on the survey, and roadside marker report required to determine locations for placing roadside markers under the Roadside Marker Scheme.

Outcomes stemming from the survey results include:

- implementation of the roadside marker signs identifying areas of significant and endangered roadside vegetation;
- informing Council's planning programs for road construction and road maintenance activities of the location of high value vegetation so that alternative routes can be considered at the planning stage;
- educational and promotional material regarding conserving important areas;
- identifying potential Significant Environmental Benefit (SEB) areas should any proposed clearance of native vegetation for road work activities be required; and
- identifying suitable sites for intensive management to protect and enhance biodiversity (e.g. Trees for Life "Bushcare" sites).

Such measures to minimise the impact of activities on roadside vegetation are likely to contribute to lower, long-term roadside and road verge maintenance costs.

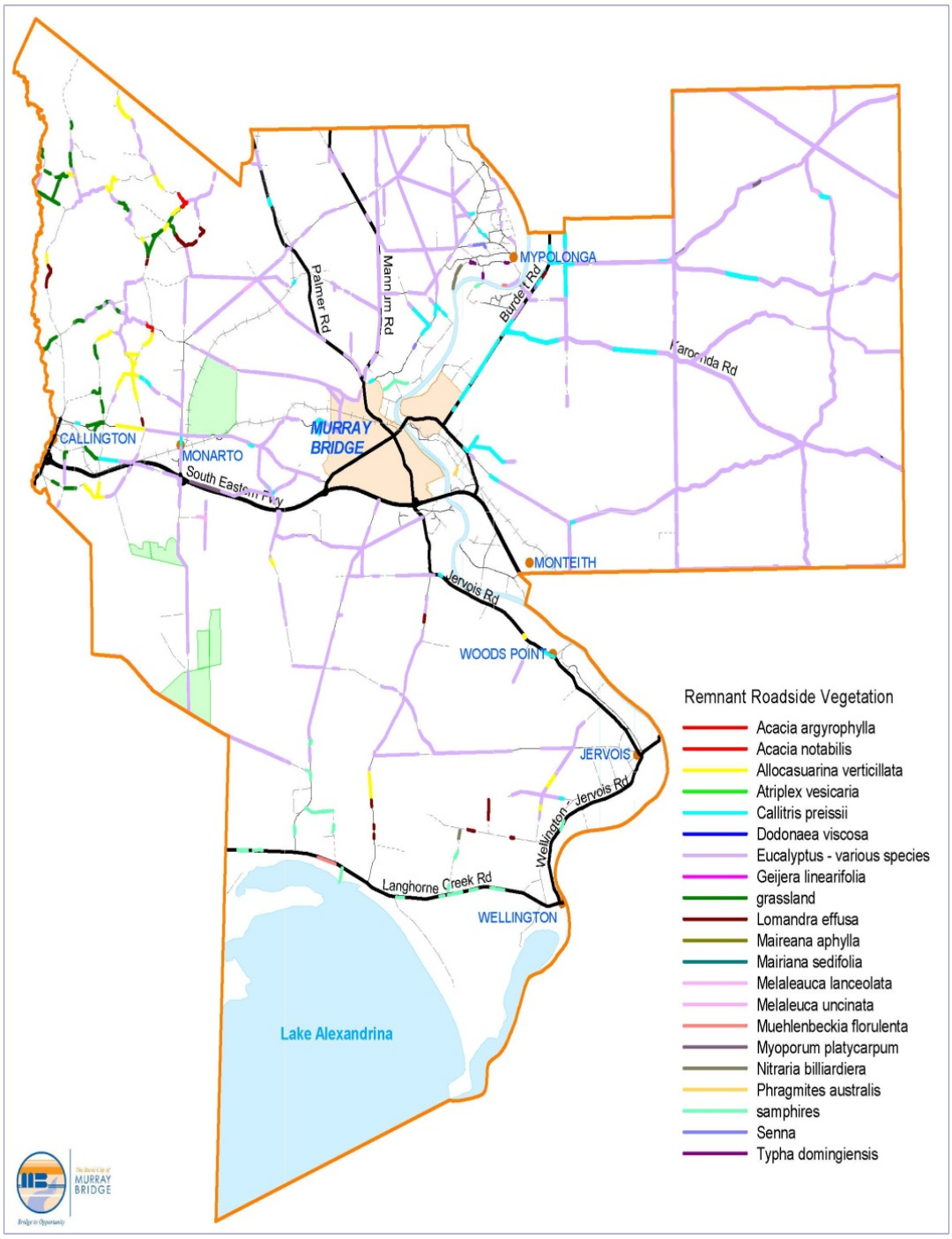


Figure 8: Remnant roadside vegetation associations.

4.3 Roadside Reserve Classifications

Roadside reserves have been classified based on the ecological value of the existing remnant vegetation.

The *overall significance* rating provides a simple summary of the relative ecological value of the vegetation in each segment. This is based on a combination of two attributes: the conservation priority rating for the vegetation association, and the overview condition (extent of weed invasion) rating for the segment.

There are five categories of roadside vegetation based on its *overall significance* (Table 1). These range from Category A with high priority vegetation association in excellent or good condition to Category E with little or no native vegetation present.

A map of the vegetation classifications for the road network within the Rural City of Murray Bridge can be found in Figure 9.

Table 1 Description of the categories of overall vegetation significance

Category	Description
A	Should not be disturbed; contains a high priority vegetation association in excellent or good condition
B	Should not be disturbed; contains a high priority vegetation association in moderate condition or a lower priority association in excellent condition
C	Disturbance should be avoided wherever possible; contains a high priority vegetation association in poor condition or a lower priority association in moderate condition
D	May be disturbed, subject to further assessment and planning; contains limited native vegetation in poor condition
E	May be disturbed; very little or no native vegetation present.

Note: Even though some categories "may be disturbed", this only means that disturbance of areas *without* native vegetation can occur, e.g. soil disturbance, and compaction by machinery or other means. Native vegetation in ALL categories (even D and E) must not be cleared, unless specifically outlined in this plan.

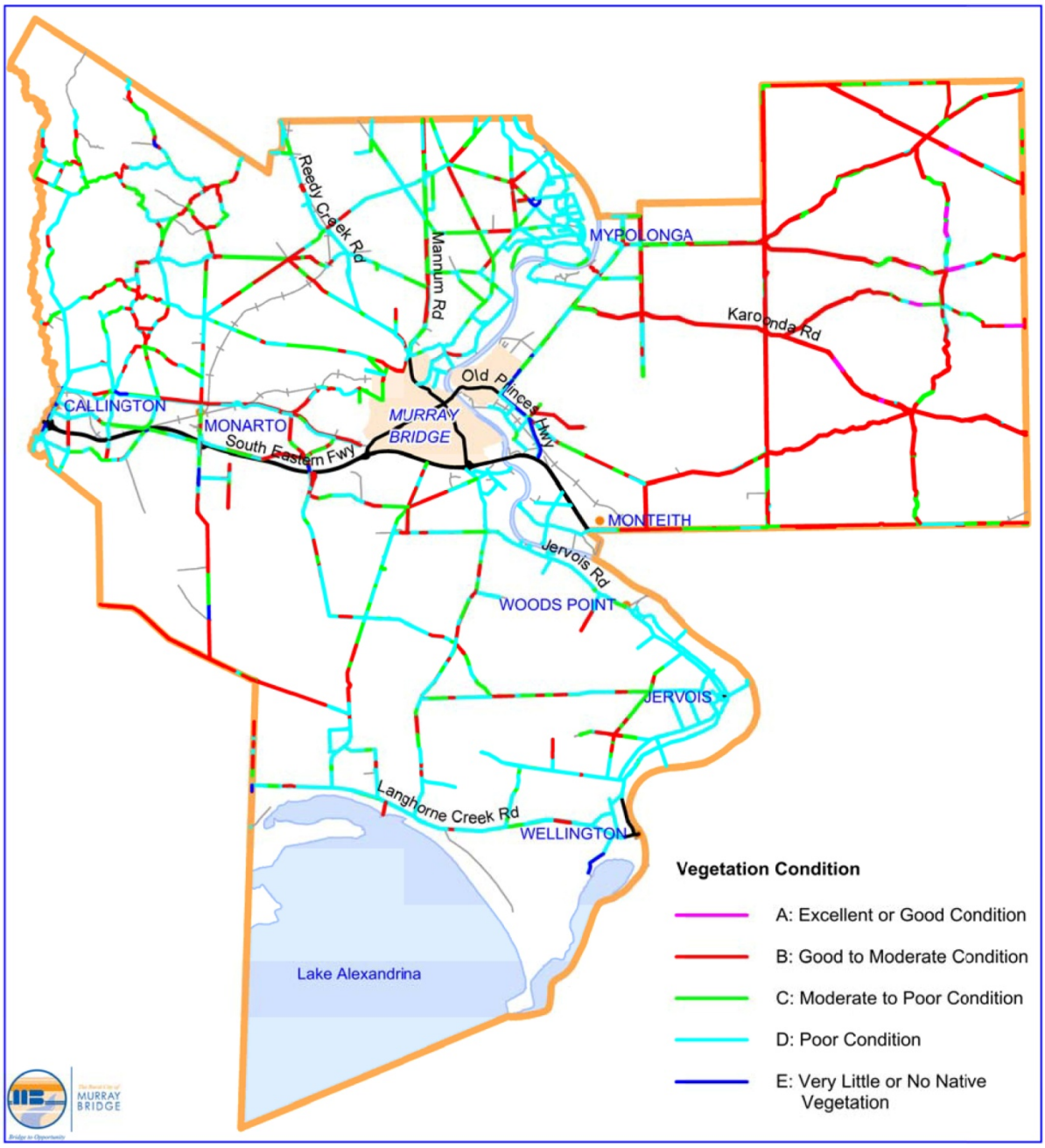


Figure 9: Map of remnant roadside vegetation classifications.

4.4 Hierarchical Road Classification System

The hierarchical road classification system (combined with roadside reserve classifications (refer Section 3.3) is a useful tool to identify and recognise roads within the network containing high quality roadside vegetation to avoid the loss of vegetation that may occur through the reclassification of a road and application of a higher clearance envelope standard (i.e. increase of clearance width). The width of roadsides supporting good quality native vegetation should be maintained by recognising the roads where this occurs. A system of road classification based on functional use, including the roadside environment, allows for a consistent treatment of all roads in a network (Table 2).

An important factor to consider for route location, and therefore road classification, is the quality of roadside vegetation. This may require the examination of several alternative routes and a detailed evaluation based on environmental and social, as well as traffic considerations. A road classification system based on routes designated for specific traffic needs and providing for protection of roadside vegetation will ensure that ad hoc management decisions at the expense of roadside vegetation can be avoided. For example, isolated requests to clear roadside vegetation for movement of over-dimension farm machinery can be dealt with strategically and more efficiently.

The roadside environment should therefore be recognised as an important functional element of roads and road reserves. The vegetation, for example, cannot be considered independently of the soil and water that support it, and these in turn cannot be considered in isolation of the pavement.

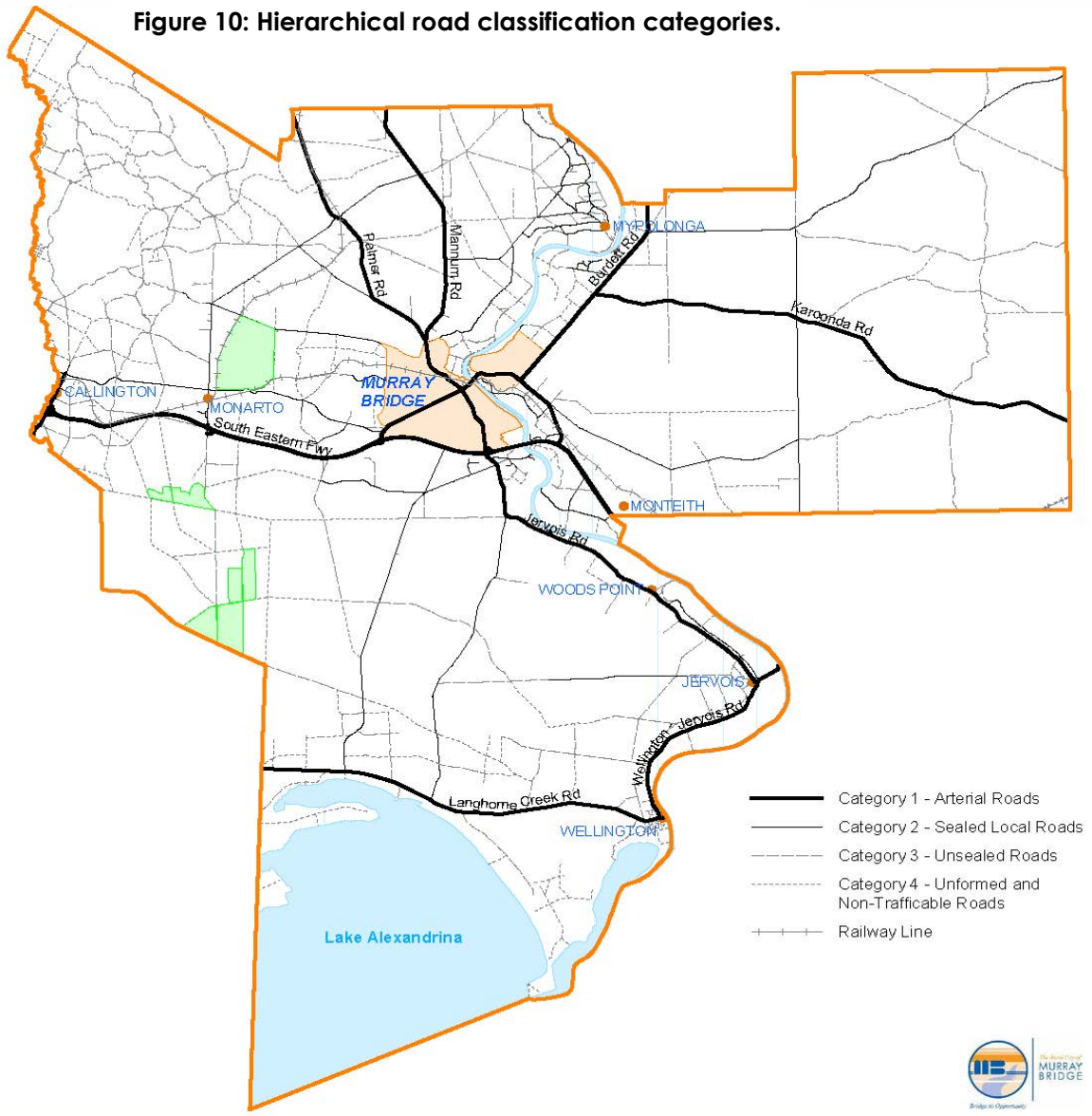
A map of the road hierarchy for the Rural City of Murray Bridge can be found in Figure 10.

The four hierarchical road classification categories within the Rural City of Murray Bridge are shown in Table 2.

Table 2 Hierarchical road classification categories.

Category	Description
1	These sealed roads are main roads that link South Australia or National road networks or links between regional centres.
2	These are sealed roads used by residents to connect between local roads and arterial roads.
3	These roads often allow a direct route for traffic between smaller towns and may allow a passage for vehicles to access the main sealed roads.
4	These are predominantly undeveloped tracks used by adjoining property owners.

Figure 10: Hierarchical road classification categories.



5 MANAGEMENT ISSUES

The following sections outline the management issues relevant to the Rural City of Murray Bridge that may impact on native vegetation on roadsides and provides guidelines to reduce likely impacts, as well as any consultation or assessment procedures that are required. The purpose of a risk assessment is to identify the key threats to roadside vegetation and their likelihood of occurring in order to develop appropriate control measures to minimise or eliminate the risk.

The guidelines that follow include a standard section entitled Consultation and Approval Procedures. Within this section there is reference to the need for clearance approval. This should be interpreted as follows:

- Native vegetation clearance approval is needed under the *Native Vegetation Act 1991;*
- The Native Vegetation and Biodiversity Management Unit should be the first point of contact regarding such clearance, as the Unit may be able to approve clearance of a small amount of vegetation known to be common to an area and that would not impact on the biodiversity of the area.
- The Unit will determine whether the proposed clearance requires formal clearance approval from the NVC in the form of a Clearance or Regulation Application.
- The South Australian Murray-Darling basin Natural Resource Management Board SAMDBRNRB) can be contacted for advice regarding native vegetation on roadsides.

Both the Native Vegetation and Biodiversity Management Unit and the NVC can be contacted at:

GPO Box 1047 ADELAIDE 5001
Telephone (08) 8303 9777
Facsimile (08) 8303 9780
Email; NVC@sa.gov.au
Web; www.environment.sa.gov.au/nativevegetation

Local contact is the SA MDB NRM Board (DRWNR) 8532 9100

Quick reference guide to the legal requirements under the Native Vegetation Act 1991

Table 3 is a quick reference guide to the legal requirements of clearing native roadside vegetation, as detailed more fully in the "Guidelines for the Management of Roadside Vegetation" (NVC, 2012).

Table 3

ACTIVITY	CLEARANCE APPROVAL	
	NOT REQUIRED **(Does not require approval under the *Native Vegetation Act 1991*)**	**REQUIRED** **(Under Native Vegetation Regulation or clearance application to the NVC)**
Maintenance	Maintenance of **existing clearance** with **low impact** methods	**Increased** clearance or **high impact** methods to be used
New Roadworks	Very minor clearance e.g. pruning of branches or removal of one or two saplings or shrubs known to be common in the area.	**All** but very minor clearance
Pest Plant and Animal Control	Very. minor clearance e.g. pruning for access	**All** but very minor clearance
Bushfire Prevention	Maintenance of legally established existing breaks.	**Any** other clearance for fire prevention Unless in accordance with a District Bushfire Management Plan under the *Fire and Emergency Services Act 2005*, or through an application to the CFS Regional Prevention Officer
Fencelines	Trees on boundary; branches over/through fence; bushes within 1m if they are growing through fence	**Any** clearance exceeding standards
Access to Adjoining Land	Maximum 5m wide – normal access. Maximum 10m wide – machinery. (Careful site selection to minimise clearance)	**Any** clearance exceeding standards
Grazing (Leased Rds.)	Long-standing grazing practices.	**Any direct** clearance or increased pressure on native vegetation through changed grazing
Grazing (general)	No native vegetation or only trees & exotic grasses present	Where understorey or regenerating veg. present

Removal of Plant Material	Dead vegetation other than that defined in the Native Vegetation Regulations	Live timber, flowers or other veg. removed e.g. brush-cutting Clearance of dead plants of a class declared by Regulation to be included in the definition of native vegetation.
Maintaining Diversity		Any measures involving burning, lopping or other disturbance of native vegetation.

NOTE: As well as the above requirements under *Native Vegetation Act 1991*, any removal of roadside native vegetation needs Council approval and may require approval under other legislation, e.g. *Environment Protection and Biodiversity Conservation Act 1999.*

If in doubt about any of these requirements, consultation with the relevant authority is strongly recommended.

5.1 New Roadworks

Objectives

1. To ensure road construction activities meet road safety standards whilst ensuring minimum disturbance to roadside native vegetation.
2. Where significant vegetation is present Rural City of Murray Bridge will consider modifying the road construction to reduce or avoid impact on native vegetation.

Information

The Rural City of Murray Bridge sometimes needs to undertake new roadworks that involve clearance of mature or relatively undisturbed native vegetation. Such new roadworks include:

- construction of new roads along previously undeveloped road reserves;
- widening or realignment of existing roads;
- construction of new drains, borrow-pits, and stockpile sites; and
- any other new works incidental to road construction or roadworks as defined in the *Local Government Act 1999.*
- These activities could have significant environmental impact as it is important that the

Figure 11: Native roadside vegetation is vulnerable to roadworks

vegetation be assessed prior to the works. If significant vegetation is present it may be possible to modify the roadworks to reduce or avoid critical impact.

Particular attention needs to be given to shrub and groundcover plants, as these types of plants include many of the State's threatened species.

CONSULTATION AND APPROVAL PROCEDURES FOR NEW ROADWORKS

Clearance approval under Regulation 5(1)(d)# is required for new roadworks (such as construction, widening, realignment, new drains, borrow pits or stockpile sites) that involve clearance of native vegetation. Where clearance is required for public safety, Regulation 5(1)(lb) may apply.

NOTE: (1) This requirement does not apply to very minor and localised clearance, such as pruning of branches or removal of one or two tree saplings or shrubs that are known to be common in the area. If in doubt as to what constitutes minor clearance, consultation with the Native Vegetation and Biodiversity Management Unit is recommended.

(2) Prior to any work being undertaken, it is recommended that the Native Vegetation and Biodiversity Management Unit or a suitably qualified person with good plant identification skills be consulted. It is possible that the site may contain small, visually insignificant plant species, such as orchids or native grasses that are of particular conservation significance.

Local councils are asked to contact the Native Vegetation and Biodiversity Management Unit early in the planning and design stages of new roadworks, in order to obtain information about potential native vegetation issues and any associated clearance approval requirements under the Native Vegetation Act 1991, therefore minimising delays.

Under the Native Vegetation Regulations 2003, Regulation 5(1)(d) permits clearance of native vegetation for new road works provided that it is located such that it avoids or minimises the impact on significant areas of native vegetation. In particular, new road works or widening activities should seek to avoid areas containing an intact stratum of native vegetation. These types of activities require specific NVC approval and require an SEB to offset the clearance.

Guidelines

Road Design

The Rural City of Murray Bridge will consider the following design principles when planning new roadworks (prior to obtaining Native Vegetation Council approval):

- Avoid vegetation communities of high conservation significance.
- One wide roadside is preferable to two narrow roadsides.
- If widening is necessary where native vegetation is present on both sides, widening on the narrow roadside is preferred.
- The value of roadside vegetation is greater where there is native vegetation adjacent (outside the road reserve).

- Drainage systems and batters will be designed to minimise sedimentation of water courses, minimise discharge into disease-susceptible plant communities, and control erosion.
- To minimise potential environment impacts of new roadworks, SEB requirements and the necessary clearance approvals, the Rural City of Murray Bridge will consult with DEWNR during the planning phase. If significant vegetation is present Council will investigate possible options to modify the roadworks to reduce or avoid critical impacts.

Road Construction

Once approval has been obtained from the Native Vegetation Council, the Rural City of Murray Bridge will minimise the impact of construction on vegetation by abiding by the following guidelines:

- Clearly identify and mark with stakes or tape any significant or protected vegetation, habitat areas and sensitive areas prior to the commencement of works;
- Always stay within the construction zone;
- Keep machinery and stockpiles on previously cleared land;
- Limit soil disturbances on roadside;
- Only remove vegetation approved by the Native Vegetation Council;
- Identify the exact location of proposed stockpiles, plant compounds, access roads and turning areas to avoid any incidental vegetation damage;
- Borrow pits must be located where native vegetation will not be disturbed;
- Materials for construction works to be taken from disease and weed free sites;
- Equipment should be cleaned on site before moving on to other sites: this particularly applies where machinery is operating in weed-infested areas;
- Only use the appropriate type and minimum size of machinery for the job;
- Chip light material from tree removal and use as mulch to spread local seed; dispose of other waste materials at an appropriate site or leave as habitat for wildlife (hollow logs, and other woody material may be left on site if they are spread widely and not left in a pile);
- If there is no alternative to burning of prunings, do not burn close to native vegetation
- Strip and stock-pile topsoil from areas of good vegetation, and re-use as soon as possible;
- Avoid "cleaning-up" vegetation after construction: retain stumps, and dead wood;
- If unsure about any environmental controls, contact the site supervisor or Council Environment Officer; and
- Identify any plant rescue options for translocation opportunities with NRM and community groups.

Road Standards

The following standards for new road construction *(ARRB and Australian Road Standards)* have been adopted by the Rural City of Murray Bridge, and are to be carried out subject to approval from the NVC under Regulation 5(1)(d).

To minimise potential environment impacts of new roadworks, SEB requirements and the necessary clearance approvals, the Rural City of Murray Bridge will consult with DEWNR during the planning phase. If significant vegetation is present the Rural City of Murray Bridge will investigate possible options to modify the roadworks to reduce or avoid critical impacts.

New Sealed Roads

- Road Carriageway Widths - New Category 1 or Category 2 (sealed) roads are to have a maximum road carriageway width of 7m, a shoulder width of up to 2m and a verge width of up to 1m on either side of the edge of the sealed carriageway, see Figure 12 as an example.
- Vertical Height Clearance - The vertical height clearance envelope of new sealed roads is to be up to a maximum of 5m from the edge of the sealed carriageway.

New Unsealed Roads

- Road Carriageway Widths
- New Category 1 or Category 2 (unsealed) roads are to have a maximum carriageway width of 7m and a verge width of up to 3m on either side of the carriageway, see Figure 13 as an example;
- New Category 3 roads are to have a maximum carriageway width of up to 7m and a verge width of up to 2m on either side of the carriageway;
- New Category 4 roads are to have a maximum carriageway width of 6m and a verge width of up to 2m on either side of the carriageway;
- Vertical Height Clearance - The vertical height clearance envelope of all new unsealed roads is to be up to a maximum of 5m from the edge of the grader line.
- If unsure about any environmental controls, contact the site supervisor or Council Environment Officer.
- Identify any plant rescue options for translocation opportunities with NRM and community groups.

Figure 12: View of Schenscher Road.

Figure 13: View of Browns Road.

5.2 Roadside Maintenance

Objectives

1. To ensure a safe and efficient road system whilst ensuring minimum disturbance to roadside native vegetation.
2. To ensure best management practices for vegetation maintenance works on roadsides are understood and adhered to.

Information

Roadside Maintenance refers to the clearance of regrowth vegetation (native and introduced) in order to maintain a road corridor or other established cleared or disturbed areas on road reserves.

Adequate vertical and lateral clearance of roadside vegetation is needed for the safe movement of legal height vehicles across the full width of the traffic lanes and additional clearance is usually needed at intersections, crests and the inside of curves. The degree of clearance needed will vary according to the standard of the road, the type and amount of traffic and the characteristics of the vegetation.

Figure 14: 'Living verge' maintained along Browns Road

Along most rural roads, clearance to the necessary safety standard has already taken place, but regrowth may be encroaching back into the clearance space, often referred to as the clearance envelope (across the full width of the carriageway) or secondary clearance envelope (adjacent to the carriageway). Regrowth may also be occurring on cleared or disturbed sites such as borrow-pit sites and designated spoil heap sites.

This regrowth may be removed without clearance approval, provided that low-impact methods are used (e.g. slashing, rolling, chainsaws) and the regrowth vegetation is less than 7 years old.

Low shrubs, native grasses and groundcovers generally do not affect road safety and, where possible, should be retained in the clearance areas. These species help prevent weed invasion and erosion and can reduce roadside management costs.

CONSULTATION AND APPROVAL PROCEDURES FOR ROADSIDE MAINTENANCE

(a) Clearance approval is not generally needed for maintenance of existing roadside vegetation clearances by low-impact methods if the vegetation is less than 7 years old.

(b) Clearance approval is needed where:

- clearance *exceeding previously established* safety standards is proposed, such as construction of new open drains; new stockpiles or work areas outside approved clearance envelope; or other maintenance requiring increased clearance, in which case:
  - regrowth vegetation between 5 and 10 years old requires consultation with, and approval from, the Native Vegetation and Biodiversity Management Unit - In situations where a longer clearance cycle can be justified it is likely to be approved and noted on file; and
  - regrowth vegetation older than 10 years usually requires assessment and Native Vegetation Council approval either under Regulation 5(1)(d) or 5(1)(lb) ;
- regrowth has reached the stage where high-impact methods (e.g. bulldozing) are proposed; OR
- new works are proposed (see section 4.1).

If in doubt, check with the Native Vegetation and Biodiversity Management Unit for advice.

Guidelines

Any clearance proposed here is not meant to imply or establish safety standards. Usually, clearance to the necessary safety standards has already taken place, and regrowth encroaching back into these clearance spaces can be cleared without approval from the NVC (see consultation and approval procedures – above). If in doubt, check with the Council Environment Officer, or contact the NVC for advice.

Code of Practice

The following code of practice will be implemented by the Rural City of Murray Bridge with the delegated responsible officer being the Council Environment Officer

1. Minimise Weed and Disease Spread

- clean down machinery in appropriate areas before entering and leaving work site
- program works to begin with clean machinery in high conservation areas and work toward degraded sites
- only use soil or fill from a weed or disease free site

2. Turn-around Points

- on narrow roads of high or medium conservation value, identify machinery turn-around points where native vegetation will not be damaged
- locate stockpiles, turn-out or lay-down areas on existing cleared land

3. Grading and Drain Cleaning Operations

- avoid damage to roots, bark and limbs
- avoid working inside the drip line of trees, and where root damage and soil compaction may occur
- remove drain spoil and dispose of appropriately
- the grader must not intrude beyond the existing carriageway width (grading a little further each time can have significant impact over a number of years)

4. Herbicides

- only use herbicides where vegetation control by mechanical methods is inappropriate
- avoid over-spray by not spraying in windy conditions

5. Vegetation Removal

- avoid "cleaning up" vegetation and retain stumps, and dead wood where possible
- carefully prune trees using low impact methods in accordance with recognised arboriculture standards
- avoid damaging undergrowth when removing trees
- dispose of waste materials at an appropriate site or leave as habitat for wildlife (hollow logs, and other woody material may be left on site if they are spread widely and not left in a pile)
- low shrubs, native grasses and groundcovers generally do not affect road safety and, where possible, will be retained to help prevent weed invasion and erosion
- particular care to be taken at sites with Significant Roadside Marker signs

6. Machinery Use

- only use the appropriate type and minimum size of machinery for the job

7. Erosion Control

- remove as little vegetation as possible and encourage the growth of native vegetation on batters, maintain drainage systems, and minimise soil disturbance

Clearance Envelopes

A clearance envelope is an area where vegetation clearance is required to allow for the passage of legal height (4.6 m) vehicles across the full width of the carriageway.

To allow for regrowth between pruning and sagging of branches caused by wet or windy conditions, a minimum[7] clearance height of 5.0 m will be maintained.

Sealed Roads

A clearance envelope is to be maintained up to a vertical height of 5m from the edge of the sealed carriageway (Figure 15). Clearance beyond this height will require NVC approval.

Unsealed Roads

A clearance envelope is to be maintained to a vertical height up to 5m from the edge of the grader line. Clearance beyond this height will require NVC approval. Every effort must be made to limit grading to the pre-existing width, and where possible this width should be documented for future maintenance works.

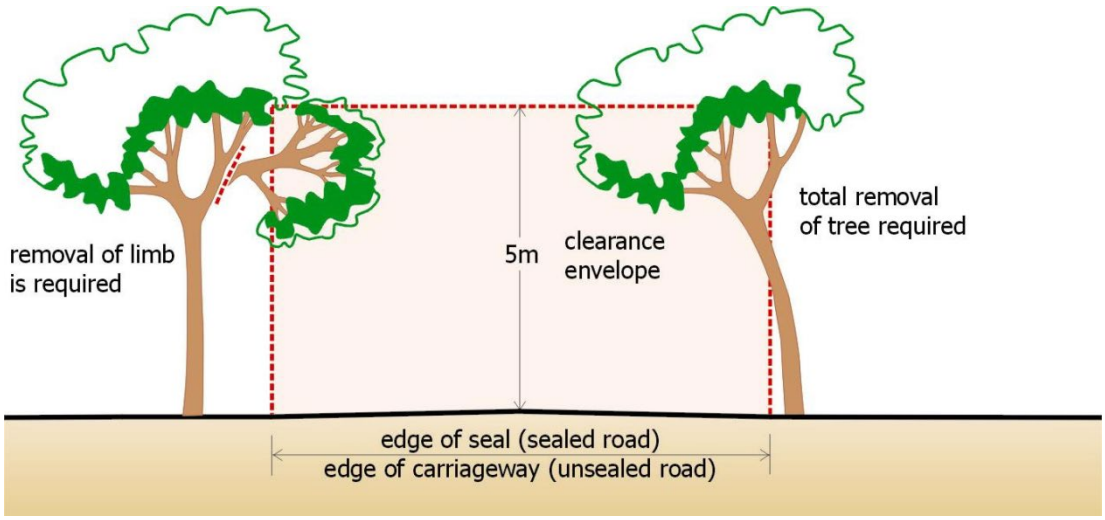


Figure 15: Maintenance of clearance envelope.

[7] Reference to maintaining a minimum, does not suggest that an increased level of clearance can automatically occur. In some cases roads may have historically been maintained with a higher vertical clearance, and can continue to do.

Secondary Clearance Envelopes

Secondary clearance envelopes are further areas to be kept clear of vegetation adjacent to the carriageway for adequate visibility of other traffic, signs and other roadside furniture.

- A secondary clearance envelope extending up to 500 mm around roadside furniture may occur (Figure 16).
- Additional vegetation control may be undertaken on the approach side of signs and delineation devices to ensure that the sign is clearly visible from a distance equivalent to the stopping sight distance for the speed environment of the road (Figure 17).
- At road intersections where corners are created, existing verge clearance can be maintained for safe sight distance according to Austroads standards.

Any new clearance for safe sight distance (i.e. clearance exceeding previously established safety standards) requires written approval under Regulation 5(1)(lb)(see Section 5.3).

Low growing native plant species within the road verge that will not impair sight distance or pose a significant risk to vehicle safety is to be retained and promoted. The presence of these species can help prevent weed invasion and soil erosion, maintain a level of biodiversity in the area and can reduce roadside management costs.

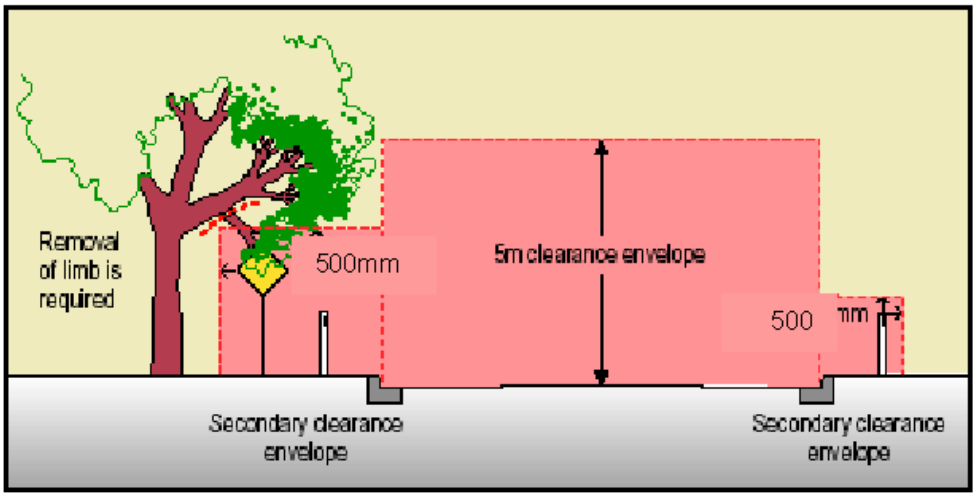
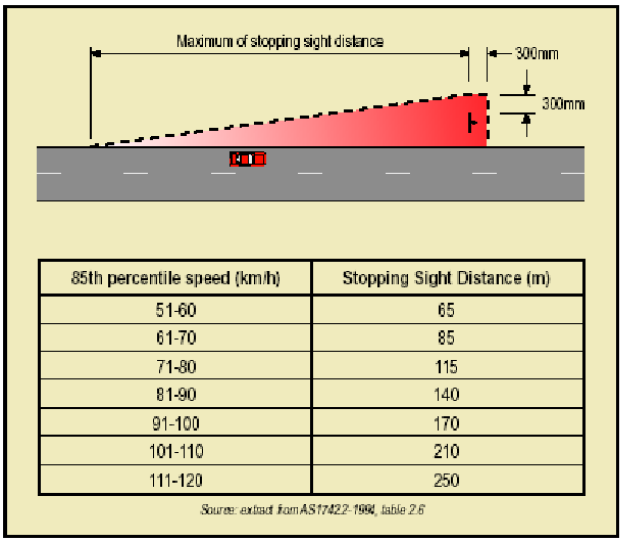


Figure 16: Secondary Clearance Envelope around existing roadside furniture.



85th percentile speed (km/h)	Stopping Sight Distance (m)
51-60	65
61-70	85
71-80	115
81-90	140
91-100	170
101-110	210
111-120	250

Source: extract from AS1742.2-1994, table 2.6

Figure 17: Secondary Clearance Envelope along Road is required here.

Figure 18: Secondary Clearance Envelope around a sign.

Figure 19: Vegetation clearance envelope on Schenscher Rd.

Table 3.2: Safe intersection sight distance (SISD) and corresponding minimum crest vertical curve size for sealed roads (S<L)

Design speed (km/h)	Based on safe intersection sight distance for cars1 h1 = 1.1; h2 = 1.25, d = 0.362; Observation time = 3 s					
	R_T = 1.5s[3]		R_T = 2.0s		R_T = 2.5s	
	SISD (m)	K	SISD (m)	K	SISD (m)	K
40	67	4.9	73	6	-	-
50	90	8.6	97	10	-	-
60	114	14	123	16	-	-
70	141	22	151	25	-	-
80	170	31	181	35	-	-
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	-	-	285	87	300	97
120	-	-	324	112	341	124
130	-	-	365	143	383	157

5.3 Public Safety

Objectives

To balance roadside protection of native vegetation and public safety.

To address any issues of public safety over and above those currently addressed (see Roadside Maintenance section) in accordance with the NVC 'Managing Native Vegetation - A Framework for the Application of Regulation 5(1) (lb.), for Clearance Along Roads, Intersections and at Rail Crossings for Public Safety Purposes'.

Information

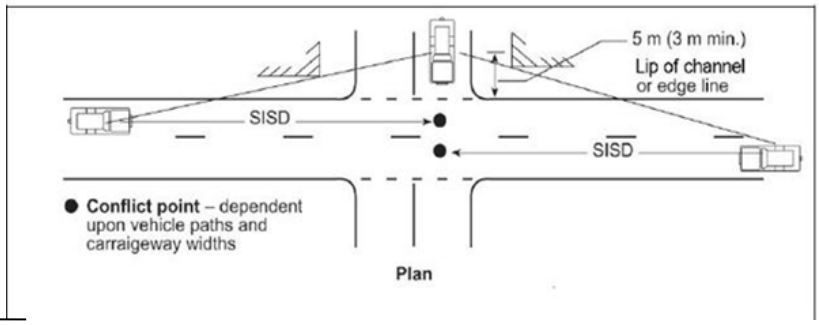
Maintenance of existing clearances for road safety, can occur under Regulation 5 (1)(y) (see section on Road maintenance), but any clearance greater than this needs approval either under 5(1)(lb) where clearance is necessary to protect public safety, or under 5(1)(d) for infrastructure clearance (new road construction, widening or re-alignment).

Once any additional areas are authorised under Regulation 5(1)(lb), then these will be incorporated into the maintenance section of this RVMP (either as an erratum, or added when the plan is next due for review).

This section of the RVMP summarises the requirements for Council when considering new clearance for the purpose of increasing levels of road safety under Regulation 5(1)(lb) In accordance with the NVC Vegetation – Managing Native Vegetation.

Figure 21: Intersections may require vegetation clearance to allow for safe sight distance

A Framework for the Application of Regulation 5(1)(lb), for Clearance along Roads, Intersections and at Rail Crossings for Public Safety Purposes'. However, contact should be made with the NVBMU for advice.



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Guidelines – Public Safety Clearance

CONSULTATION AND APPROVAL PROCEDURES FOR CLEARANCE FOR PUBLIC SAFETY

Maintenance of existing roadside vegetation clearances (clearance envelopes) by low impact methods can generally proceed without clearance approval.
New vegetation clearance for sight distance at intersections, or any other clearance for public safety, needs to occur according to Austroad Standards and requires written approval under Regulation 5(1)(lb).
See 'Managing Native Vegetation - A Framework for the Application of Regulation 5(1)(lb), for Clearance Along Roads, Intersections and at Rail Crossings for Public Safety Purposes'.

If clearance greater than that considered exempt in Section 3.2 - Roadside Maintenance, is proposed -

- Firstly contact the NVBMU.
- Acting on their advice, provide the necessary data for the NVBMU to make an assessment of whether 5(1)(lb) is applicable or whether clearance falls under Regulation 5(1)(d).

5.4 Installation and Maintenance of Services

Objectives

1. To minimise the impact of installation and maintenance of services to native vegetation within road reserves.
2. To maintain a safe operating environment for services.

Information

Traditionally, services such as powerlines, water supplies, gas and telecommunications have often been established along road reserves. Construction of these services can involve clearance of native vegetation, as can ongoing maintenance of those services.

Some service providers have their own external codes of practice for installation and maintenance of their service, for example the "Telecommunications Code of Practice 1997".

The Rural City of Murray Bridge has adopted some general procedures to further protect native vegetation within road reserves. This section describes how the use of road reserves for installation and maintenance of power, water, telecommunication and gas services is controlled.

Figure 24: The pruning may be required to maintain clearance near power lines.

Consultation and Approval Procedures for Clearance Associated with installation and Maintenance of Services
Clearance approval is required for clearance associated with any new services or maintenance clearance in excess of existing standards (excluding carriers authorised under the Telecommunications Act 1997 to install a low impact facility); Refer to Regulation 5(1)(d). Approval is not required for maintenance of existing clearances – refer to Regulations 5(1)(f) and 5(1)(g).

Guidelines – Installation and Maintenance of Services

New Services

Any new services require a submission to the NVC under Native Vegetation Regulation 5(1)(d) – Building or provision of infrastructure. This regulation permits clearance of native vegetation for the construction or expansion of a building or infrastructure that the Minister for Environment and Conservation considers to be in the public interest, provided that it is located such that it avoids or minimises the impact on significant areas of native vegetation.

Note: For Telecommunications, a carrier authorised by the Australian Communications Authority under the *Telecommunications Act 1997* to install a low impact facility (e.g. underground cable) is immune from some State and Territory laws, and environmental laws, including the *Native Vegetation Act 1991*. However, the carrier must comply with the requirements of the Telecommunications Act and the Telecommunications Code of Practice 1997.

Maintenance of services

Maintenance works associated with electricity supply and other infrastructure, such as water and gas, are permitted under Native Vegetation Regulations 5(1)(f) – Maintenance works associated with electricity supply and 5(1)(g) – Repair or Maintenance of Infrastructure. See: A Guide to the Regulations under the *Native Vegetation Act 1991* for more information, http://www.environment.sa.gov.au/Conservation/Native_vegetation/Managing_native_vegetation.

The Rural City of Murray Bridge requirements are to inform the NVC of any works that are to occur on roadsides.

5.5 Pest Plant and Animal Control

Objectives

1. Reduce the establishment of new pest plants and animals in road reserves.
2. Reduce the spread of existing pest plants and animals and their range and numbers.
3. Reduce the impacts of pest plants and animals on roadside native vegetation.
4. Minimise disturbance and damage to native vegetation.

Figure 25: Rabbit warrens on a roadside.

Information

Pest plants and pest animals are also commonly known as 'weeds' and 'feral animals'. They can invade rural land or natural habitats and because of their characteristics and/or location, they can cause economic, ecological, physical or aesthetic problems, often with significant potential impacts on local and regional biodiversity.

Figure 26: Gazania infestation.

The linear and semi-disturbed nature of many roadsides means that they are susceptible to invasion by plant and animal pests. Without appropriate control and preventative measures in place, weeds in particular can invade and degrade native vegetation areas both on and adjacent to the roadside, as well as more distant areas via the road network.

Pest plants and animals can be categorised as those that require control under legislation ("declared" species) and those that, whilst still damaging, are not considered significant enough to warrant legislative control at this stage.

The Natural Resources Management Act, 2004 (the NRM Act) states that SA MBD NRM Board (8532 9100) has the responsibility to control on road reserves of any declared pest plant or animal that the Minister has empowered them to require landowners to control elsewhere on private and public land. In other words, landholders are not required by the Board to undertake control of declared pest plants or animals on the road reserves outside their properties. However, landholders should also be aware that NRM Boards can charge costs associated with roadside control to the adjacent landholders for those pest plants and animals declared under Section 185 of the NRM Act. Landholders and other persons such as bushcare volunteers can elect to undertake roadside weed control measures of their own accord, this requires written permission from the Rural City of Murray Bridge and do so with an appropriate duty of care.

There is a legal requirement under the NRM Act; (Chapter 8 – Control of plants and animals, Section 192 – Protection of certain vegetation and habitats) that a person must, in taking measures for the control of animals or plants, take all reasonable steps to ensure:

> (a) that native vegetation is not cleared except in accordance with guidelines prepared by the NVC under section 25 of the *Native Vegetation Act 1991*; and
> (b) that damage to or destruction of other vegetation is kept to a minimum (unless the vegetation is subject to destruction or control under this Chapter).

A wide range of low-impact methods has been developed. For example, for rabbit control, using a combination of poisoning, ripping accessible warrens and fumigation of inaccessible

warrens makes it possible to control rabbits economically and provide adjacent crop protection without causing undue damage to roadside vegetation. [8]

It is also important to note that plants other than declared pest plants can create management problems on roadsides. These include pasture grasses and non-local Australian natives. While there is no requirement that these plants be controlled, it is important that they be controlled to reduce competition with the local native plants. Advice on pest control methods is freely available from the local NRM Board.

In the Rural City of Murray Bridge, the most common pest plant and animal species are Boxthorn, Bridal Creeper, Agave, Gazania, fox and rabbit. Of particular concern is the invasion of Agave and Bridal creeper species into Category A-C areas. Given the limited resources and scale of the problem, the Rural City of Murray Bridge will investigate partnering with the SA MDB NRM and NVC to target its pest control programs in these Category A-C areas.

Weeds of National Significance (WoNS)

Thirty two Weeds of National Significance (WoNS) have been identified by Australian governments based on their invasiveness, potential for spread and environmental, social and economic impacts. A list of 20 WoNS was endorsed in 1999 and a further 12 were added in 2012. Ten of these are listed below and most apart from Bridal Creeper and Boxthorn are low in numbers with the Rural City of Murray Bridge.

Bridal Creeper (Asparagus asparagoides) although this is a WONS rust fungus has significantly reduced the threat within the Rural City of Murray Bridge. The current thoughts are watch and see as control can have detrimemental affect on native vegetation if not treated correctly.

Prickly Pear (Austrocylindropuntia spp., Cylindropuntia spp., Opuntia spp., Vachellia nilotica), **Boneseed** (Chrysanthemoides monilifera subsp. monilifera), **African Boxthorn** (Lycium ferocissimum), **Blackberry** (Rubus fruticosus aggregate), **Silver Nightshade** (Solanum elaeagnifolium), Athel Pine (Tamarix aphylla), **Gorse** (Ulex europaeus).

[8] Cooke, B.D. (1981). *Rabbit control and the conservation of native mallee vegetation on roadsides in South Australia*. Aust. Wildl. Res, 8, 627 – 36.

The Rural City of Murray Bridge recognises its responsibility to help prevent the further spread of pest plant and animal species and will assist landholders through a partnership approach to prevent the spread into private landholdings and roadsides through abatement programs and through the provision of information on control methods.

Consultation and Approval Procedures For Pest Plant and Animal Control

(a) Clearance approval is required where a proposed animal or plant control program is likely to cause significant damage to native roadside vegetation.

"*Significant*" in this context includes:

- ripping of warrens where native vegetation will be affected;
- non-selective spraying in mixed weeds/native vegetation; and
- burning of native vegetation to assist pest control.

It does *not* include minor damage, such as removal of branches to gain access to pests.

The NVMB Unit is able to determine whether the proposed clearance is of a sufficiently significant nature to warrant referral on to the NVC for decision.

(b) In districts where there are serious problems with roadside pest control, local Boards are encouraged to develop overall management strategies in consultation with the Native Vegetation and Biodiversity Management Unit. This can avoid the need for consultation with the Unit on a case-by-case basis. This approach has been adopted in several local council areas.

(c) Where pest control works are planned that could affect roadside native vegetation, the local authorised Natural Resources Management Officer should be the first point of contact. The need for consultation with the Native Vegetation and Biodiversity Management Unit can then be determined.

Guidelines – Pest Plant and Animal Control

Some important basic principles are:

- small infestations of weeds may be best dealt with using minimum disturbance techniques such as hand-pulling (while still minimising soil disturbance) and 'cut-and-swab' with herbicide;
- it is usually best to work from the best areas of bush or areas of low weed infestation towards denser infestations;
- spot-spray and selective herbicides should be used carefully to avoid off-target damage of native plants;
- where natural regeneration of native species is not occurring, revegetation with local native species can be an effective long-term means of weed control;
- pest-control methods usually require an integrated approach using several methods to both control the pests, and minimise impacts on native vegetation.

General Guidelines

- Under Section 221 of the *Local Government Act, 1999*, it is illegal for landholders to undertake pest plant and animal control work on the road reserve adjoining their property without authority from the Rural City of Murray Bridge.
- Where adjoining landholders are planning roadside pest control that could affect native vegetation, the SA MBD NRM Board should be the first point of contact. The need for consultation with the Native Vegetation Conservation Section can then be determined.
- The Rural City of Murray Bridge in collaboration with land holders controls pest plants other than declared species.
- In districts where there are serious problems with roadside pest control, local NRM Boards are encouraged to develop overall management strategies in consultation with the Native Vegetation and Biodiversity Management Unit. This can avoid the need for consultation with the Unit on a case-by-case basis.
- Suitably qualified contractors or Council staff trained in the identification of native vegetation and weeds will be used to implement control procedures that minimise disturbance and damage to native vegetation.
- Impacts to native vegetation during control works must be minimised in accordance with the requirements of the *Natural Resources Management Act 2004,* and also comply with NVC guidelines 'Clearance of Native Vegetation associated with the Control of Plant and Animal Pests' (excerpt below) – see the NVC website for full details.
- The clearance of native vegetation during programs for control of declared animals and plants must be kept to the minimum needed for effective pest control (in accordance with advice from the local NRM Authorised Officer and must be in accordance with these guidelines.

1) Pruning of Native Vegetation

The pruning of native vegetation, if essential to provide access for pest animal and plant control, is acceptable provided that it is kept to a minimum and does not affect the overall viability of the plant(s) involved.

2) Spraying of Herbicides in Native Vegetation

Spraying of declared plants in native vegetation is acceptable provided that a careful and selective approach is used (e.g. spot-spraying) and damage to nearby native vegetation is avoided or minimised. The use of herbicides must be in strict accordance with NRM advice and with instructions for use provided by the manufacturer.

Any broader spraying program in native vegetation (e.g. boom-spraying) requires the endorsement of the Native Vegetation and Biodiversity Management Unit (NVBMU), DEWNR, and may require the consent of the NVC through a clearance application.

3) Removal of Entire Native Plants

The removal of entire native plants (if considered essential to facilitate animal and plant control) must be discussed with and endorsed by the NVBMU.
This consultation can take one of two main forms:

a) Case-by-case consultation

Minor clearance of native species known to be common in a district may be resolved through verbal or electronic communication without the need for site assessment by NVBMU staff (8204 1910). For larger scale clearance, or for cases where the identity of the native plants is unclear, a site inspection will usually be undertaken.
NOTES:
i) In this situation, either the landholder undertaking the work or the State authorised officer, the authorised officer should initiate the consultation by contacting the NVBMU.
ii) Whether a proposed clearance is "minor" (and therefore not warranting a site inspection) will be determined through discussion between the NVBMU and the landholder / authorised officer. As a guide, the clearance of up to 10 Kangaroo Thorn *(Acacia ligulata)* for rabbit control, or up to 10 Nitre Bush *(Nitraria billardierei)* for rabbit or boxthorn control could be regarded as "minor".
iii) Where minor clearance is agreed without a NVBMU inspection, it will be recorded by notation on the appropriate file. By notifying the NVBMU, any reports of illegal clearance can be managed or dispelled rapidly. Where a NVBMU inspection is undertaken, any endorsement is to be advised in writing.
iv) If as a result of the above consultation, the NVBMU determines that a clearance proposal is of particular environmental significance or sensitivity, the proposal is to be referred as a clearance application to the NVC. This may occur, for example, where a substantial area of native vegetation is involved, or where the clearance involves plant species of particular conservation significance.

b) Consultation based upon a broader planning approach

- Broader planning arrangements may be developed between NRM Boards and the NVC.
- For example, it may be agreed that certain methods will be applied within a Board district for control of pests often associated with particular native species - such as boxthorn or rabbits associated with Nitre Bush, or rabbits associated with Banksia-heath vegetation. This would be in the form of a management plan initiated by the local board and prepared in consultation with the NVBMU. Once endorsed by the NVC, the plan could be put into effect and the need for consultation with the NVBMU about each program would be avoided.
- It is envisaged that plans of this type would normally be prepared on a Board basis. However, there may be issues and management approaches of State-wide relevance, in which a State-wide management plan could be prepared, presumably at the initiation of the NRM Board.

4. The control of declared animals and plants in native vegetation should also take the following factors into account:

- the removal of tree saplings or more mature trees is not normally necessary for pest control;
- very localised pest control issues might be manageable with hand-held equipment rather than heavier machinery which could have greater environmental impact;
- there is an increasing range of pest control equipment available, some of which has less environmental impact than the equipment used more traditionally;
- any control method involving soil disturbance has the potential to promote further establishment of declared plants or other introduced plants which may disrupt the ecology of the native vegetation: Soil disturbance should be minimised and control works should be followed with site monitoring and selective eradication of any introduced plants which re-establish; and
  fire has some potential for inclusion in pest control programs in native vegetation to improve access, reduce the bulk of declared plants, and possibly to promote the regeneration of native species: however, the issues associated with fire can be complex and any such burning in native vegetation should be discussed with the NVBMU to avoid the possibility of a breach of the Act.

5.6 Plant Diseases

Objectives

1. To minimise the spread of Broomrape and other soil-borne diseases in the local council area.
2. To manage infected areas in such a way as to minimise the effect on the environment and on recreational activities.
3. To protect uninfected areas and minimise the risk of them becoming infected.
4. To promote a "whole of Community" approach to the management of Broomrape (and /or other diseases) in the local council area.

Information

Diseases of native plants such as Phytophthora and Mundulla Yellows (MY) can occur along road reserves. Currently there is no *Phytophthora cinnamomi* or Mundulla Yellows within the Rural City of Murray Bridge.

For further information on Phytophthora and Mundulla Yellows contact the DEWNR's Biosecurity Ecologist, Nature Conservation Unit or contact the Native Vegetation and Biodiversity Management Unit for advice.

Broomrape

Australian native broomrape (*Orobanche cernua Loefl. var. australiana*) is widely distributed but rare, parasitises native daisy bushes and has been found growing on native plants along the Murray River.

Exotic Broomrape is a parasitic plant that can be found on many broad leaved plants; known hosts are canola, carrot, lettuce, tomato, capeweed and vetch. Broomrape was first discovered in 2000 when it was reported as scattered across a 70 x 70 km area near Murray Bridge, South Australia.

Any movement of soil, water and or plant material has the potential to spread Broomrape to new areas.

Figure 27: Broomrape.

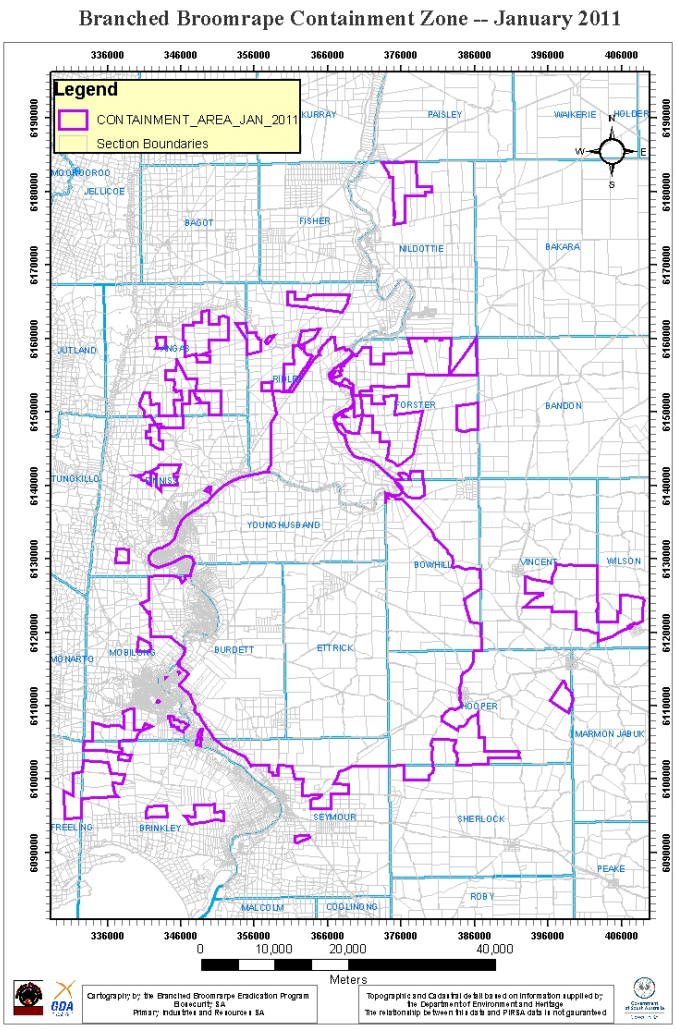


Figure 28: Area showing infestation of *Broomrape* in South Australia.

Guidelines – Plant diseases Permission

- Any activity occurring within a road reserve infested with a soil-borne plant disease such as Broomrape requires consent of the DEWNR (SA MDM NRM Board 8532 9100).
- Consent will only be granted if work is conducted according to appropriate guidelines of best practice.
-

Management Guidelines

Broomrape

- The Rural City of Murray Bridge has been identified in a vulnerable area for Broomrape, and will adhere to the 'Branched Broomrape Management Guidelines'.
- This provides a framework for the management of Broomrape by all Government and non-government organisations, landholders, community groups and individuals.

Some general principles include:

- avoid driving, riding or walking in areas when soils are wet and sticky;
- stay on designated roads and track because vehicles, bikes and people moving off roads into infested areas may pick up infested soil and transfer it to uninfected areas;
- contact the Broomrape centre to be disinfected before leaving an infested area; and
- obey road signs because roads and tracks may be closed, sometimes permanently, to help stop the spread of Broomrape.

For further information on Broomrape contact the DEWNR's Biosecurity Ecologist, Nature Conservation Unit or contact the Native Vegetation and Biodiversity Management Unit for advice.

5.7 Clearance for Fencelines

Objectives

1. To enable landholders to gain appropriate access to fencelines for maintenance and construction purposes.
2. To minimise the impact and disturbance of native vegetation by clearance for fenceline construction and maintenance.
3. To encourage alternative approaches for erecting fences that minimises clearance of roadside native vegetation.

Information

A landholder who wishes to clear native vegetation on a road reserve, to enable construction or maintenance of a boundary fence, requires written permission from the Rural City of Murray Bridge under the *Local Government Act 1999* (Section 221), and may, depending on the amount of vegetation involved, also require NVC approval.

In granting any consent, the Rural City of Murray Bridge must comply with the standards outlined below.

Consultation and Approval Procedures
Clearance approval from the NVC is required for any vegetation clearance along fencelines that exceeds the following standards:

- Where the roadside vegetation consists largely of trees, only branches protruding through or overhanging the fence, or trees growing on the actual fence alignment, can be removed.
- Where shrubs or bushes are growing through the fenceline, those plants growing within one metre of the fence alignment can be removed.

Consultation with the Native Vegetation Council and Native Vegetation Biodiversity Management Unit should occur through the local council.
If rare or threatened plant species[1] are present, reasonable care should be taken to protect them. If necessary, contact the Native Vegetation and Biodiversity Management Unit for advice.

Note: These standards take into account that the adjoining landholder can usually clear up to five metres width on the private land abutting the road, thus allowing for vehicular access to the fence (see Regulation 5(1)(s) – NOTE that is does not provide an automatic right to clear a five-metre strip along a fence. If vegetation on an adjacent property is located within five metres but does not impede reasonable access to the fence, the regulation cannot be used to clear that vegetation).

Guidelines – Fenceline clearance

Permission

- Removal of native vegetation on a road reserve for the purpose of construction or maintenance of a boundary fence requires consent of the Rural City of Murray Bridge.
- In granting any consent, Council will comply with the following standards:
  - Where the roadside vegetation consists mainly of trees, only branches protruding through or overhanging the fence, or trees growing on the actual fence alignment, should be removed.
  - Where shrubs or bushes are growing through the fence line, those plants growing within one (1) metre of the fence alignment can be removed.
- Clearance approval from the NVC is required for any native vegetation clearance along fencelines which exceeds the above standards.
- If rare or threatened plant species are present, reasonable care should be taken to protect them. If necessary, contact the Native Vegetation and Biodiversity Management Unit for advice.
- Any unauthorised clearance will be referred by Rural City of Murray Bridge to the Native Vegetation and Biodiversity Management Unit.

Clearance methods

- Low impact methods of clearance (e.g. minimal ground disturbance, cutting cleanly rather than breaking branches, slashing, trimming, mowing, or rolling) should only be used when clearing vegetation to reduce potential weed invasion and erosion problems.
- Cleared vegetation should not be deposited on or amongst other native vegetation but should be disposed of in a manner that does not affect native vegetation, unless it is useful as habitat for wildlife, or is scattered sparsely amongst the remaining vegetation.

Re-locating fences

- Landholders wanting to replace boundary fences may consider re-locating the new fencing a few metres into their properties to minimise potential impacts on roadside vegetation. This can also potentially reduce construction and maintenance costs. The narrow strip between the old and the new fence can be maintained clear of any regrowth to minimise impacts on the new fence, and also act as a firebreak between the roadside and the property.
- An alternative to the removal of trees in line with the property boundary may include constructing a simple strut arrangement that allows a fence to deviate a short distance around a tree. Wires are not attached directly to the tree, thus minimising potential damage to the tree (Figure 29).

Note: the below approach may not be appropriate for smaller trees, and an effort should be made to avoid structural roots when placing the post hole for the strut next to the tree.

Figure 29: Fenceline strut arrangement
Left and middle: A simple strut arrangement that allows a fence to deviate a short distance around a tree. Wires are not attached directly to the tree, thus minimising potential damage to the tree.
Right: The same strut arrangement seen from the side. The strut holding the wires away from the tree is directly behind the trunk.



Fenceline strut arrangement;
Left and middle: A simple strut arrangement that allows a fence to deviate a short distance around a tree. Wires are not attached directly to the tree, thus minimising potential damage to the tree.
Right: The same strut arrangement seen from the side. The strut holding the wires away from the tree is directly behind the trunk.


Poor relocation of a fenceline;
Left: Soil disturbance increases the presence of weed infestation and dumping vegetation onto road reserve smothers understory plants. This is illegal works.
Right; Unclean cutting causes infection and disease.


5.8 Clearance for Access to Adjoining Land

Objectives

1. To minimise the loss of native vegetation through the construction of property access points.
2. To provide safe and appropriate access to properties adjacent to road reserves.

Information

From time to time a new access point will be needed from the road to adjoining land. For rural areas, a primary producer may need new access to a paddock, possibly to cater for wide farm machinery. In other situations (e.g. semi-urban) it may be normal vehicular access to a residential allotment.

In these situations, the safety of the access-user needs to be the primary consideration, but the conservation of native vegetation is also a high consideration. If there is more than one option which will provide safe access, the option which involves least disturbance of native vegetation or vegetation of lower conservation significance should be selected, In addition to obligations under the *Native Vegetation Act 1991*, clearance for this purpose requires written permission from the Rural City of Murray Bridge.

Figure 32: Poor driveway sight clearance

Figure 33: Good driveway sight clearance.

Consultation and Approval Procedures for Access to Adjoining Land
Clearance of roadside vegetation to provide access to adjoining land requires the consent of the Rural City of Murray Bridge.
If there is more than one option which will provide safe access, the option which involves least disturbance of native vegetation or vegetation of lower conservation significance, should be selected.
Where some clearance of native vegetation is unavoidable, this should not exceed the following standards:

- For normal vehicle access: five metres wide plus minimum clearance along the road reserve needed to provide adequate sight distance;
- For wider farm vehicles: ten metres wide plus minimum clearance along the road reserve needed to provide adequate sight distance.

If rare or threatened plant species are present, reasonable care should be taken to protect them. If necessary, contact the Native Vegetation and Biodiversity Management Unit for advice.
Approval is needed through the Native Vegetation and Biodiversity Management Unit for any proposed clearance of native vegetation for access that exceeds the above standards.

Guidelines – Clearance for access to adjoining land

Permission

- Removal of native vegetation on a road reserve to provide access to adjoining land requires consent of the Rural City of Murray Bridge.
- Clearance approval from the NVC is required for any native vegetation clearance along fencelines that exceeds the above standards.
- Any unauthorised clearance will be referred by the Rural City of Murray Bridge to the Native Vegetation and Biodiversity Management Unit.

Clearance methods

- Low impact methods of clearance (e.g. minimal ground disturbance, cutting cleanly rather than breaking branches, slashing, trimming, mowing, or rolling) should only be used when clearing vegetation according to these standards, to reduce potential weed invasion and erosion problems.
- Cleared vegetation should not be deposited on or amongst other native vegetation but should be disposed of in a manner that does not affect native vegetation, unless it is useful as habitat for wildlife, or is scattered sparsely amongst the remaining vegetation.

Avoiding unnecessary clearance

- Care must be taken to avoid plant communities of conservation significance and naturally open areas such as native grassland, sedgeland and wetland.
- Where possible, access points will not be permitted on Category "A" (i.e. best quality) road reserves.
- A suitably qualified person will conduct an inspection to assess options for access points, and negotiate an access point that is safe and minimises disturbance to native vegetation.

5.9 Bushfire Protection

Objectives

1. To take reasonable steps to inhibit the outbreak of fire on roadsides and the spread of fire through roadsides.
2. To minimise the adverse effects of fire management on roadside native vegetation.
3. To outline the process for undertaking bushfire protection works within roadside vegetation to protect life and assets.

Figure 34: Grassy weeds in particular, can create a fire hazard on roadsides

Information

The Rural City of Murray Bridge is required to adhere to the *Fire and Emergency Service Act 2005*. This Act places the responsibility on the Rural City of Murray Bridge to take reasonable steps to prevent or inhibit the outbreak and spread of fire on Council owned land, including roadsides, i.e. Part 4A of the *Fire and Emergency Service Act 2005*, Division 3 105G, states:

1. A council that has the care, control or management of land—
   (a) in the country; or
   (b) in a designated urban bushfire risk area, must take reasonable steps—
   (c) to prevent or inhibit the outbreak of fire on the land; and
   (d) to prevent or inhibit the spread of fire through the land; and
   (e) to protect property on the land from fire; and
   (f) to minimise the threat to human life from a fire on the land.

In accordance with the *Native Vegetation Regulations 2003*, there are provisions to enable clearance and management of native vegetation for Bushfire Protection works. This applies to road reserves.

A Bushfire Management Plan (BMP) or a Bushfire Management Area Plan (BMAP) (or equivalent) under *the Fire and Emergency Services Act 2005* that has been endorsed by the Regional Bushfire Management Committee is the best mechanism for strategic planning of bushfire protection works across the district and landscape.

Consultation and Approval Procedures For Bushfire Protection
Native Vegetation Regulations 2003 provide provisions to enable clearance and management of native vegetation for Bushfire Protection works, i.e. under -
Regulation 5A Part 1(b)—Fire Prevention and Control, native vegetation can be cleared if—
(i) the purpose of the clearance is to reduce combustible material on land; and
(ii) the clearance:
(A) is required or authorised by, and undertaken in accordance with, a bushfire prevention plan (equivalent to a Bushfire Management Plan under the *Fire and Emergency Service Act 2005);* or
(B) is undertaken in accordance with the written approval of the Chief Officer of SACFS**;**

NOTE:
(1) Reference to a Bushfire Prevention Plan is deemed to be that referred to under the *Fire and Emergency Service Act 2005*, as a Bushfire Management Plan.
(2) For the purpose of part B above, approval is from the Chief Officer of SACFS or authorised delegate – i.e. the CFS Regional Prevention Officer.
(3) There may be constraints under other legislation that need to be complied with, such as the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*.
Environmental Protection and Biodiversity Conservation Act 1999.

Guidelines – Bushfire Hazard Reduction

All bushfire protection works on roadsides should link in with the Council's Bushfire Management Plan for the district that has been endorsed by the Regional Bushfire Management Committee.

Bushfire Management planning is focused on risk assessment of life, property and environmental values threatened by bushfire, followed by planning and implementation of strategies to mitigate those risks.

Planning includes: strategic placement of fuel breaks and fire access tracks in accordance with GAFLC Guidelines[9]; adoption of Zoning Principles in response to risk assessment; and

[9] GAFLC (2008). *South Australian Firebreaks, Fire Access Tracks and Sign Standards Guidelines.* Government Agencies Fire Liaison Committee, Government of South Australia, Adelaide.

consultation with the SA CFS to plan and evaluate fire prevention works that provide the best practices for the conservation and fire prevention on roadsides.

Permission

- Removal of native vegetation on a Council managed road reserve to reduce bushfire hazard requires written permission from the Rural City of Murray Bridge.
- In granting any consent, Council will comply with Regulation 5A part (b)(ii) where the clearance:
    - is required or authorised by, and undertaken in accordance with, a bushfire prevention plan (or equivalent); or
    - is undertaken in accordance with the written approval of the Chief Officer of SA CFS.

- Clearance approval from the NVC is required for any native vegetation clearance which exceeds that allowable under Regulation 5A of the *Native Vegetation Act 1991*.
- Any unauthorised clearance will be referred by Council staff to the Native Vegetation and Biodiversity Management Unit.

Clearance methods

- Low impact methods of clearance (e.g. minimal ground disturbance, cutting cleanly rather than breaking branches, slashing, trimming, mowing, or rolling) should be used wherever possible when clearing vegetation to reduce potential weed invasion and erosion problems.
- Grazing and herbicide use should only be contemplated where no or minimal impact upon native vegetation is likely (such as where there are mature trees over exotic grasses (i.e. no native understorey and no evidence of natural regeneration of the tree species).
- Limit the use of herbicides to spraying:
    - around roadside furniture;
    - for selective control of particular weeds where it is the most appropriate means of control;
    - to control growth of potentially serious weeds on firebreaks (subject to the approval of the SA CFS Regional Prevention Officer); or
    - when weather conditions will minimise the likelihood of spray drift affecting non-target plants

- Only remove vegetation that is referred to in the approved Bushfire Management Plan (e.g. strategic clearance, removal of fine fuel), and retain all other vegetation including dead timber.

- Such work should preferably be combined with a native vegetation re-establishment program.
- In the vast majority of cases, adequate fuel reduction on roadsides can be achieved by selective planning focusing on the removal of exotic vegetation. Particular care should be taken to avoid areas of native grasses, which can be difficult to distinguish from exotic grasses.

Prescribed burning for fuel reduction

- Prescribed burning of native vegetation if followed up with weed control methods such as selective spraying or hand weeding, can be a useful management tool for lowering fuel levels thereby minimising threat of a bushfire burning vast areas across the landscape.
- Careful planning and management is required before implementing a prescribed burn including preparation of a prescribed burn plan that is approved by the SA CFS Regional Prevention Officer. [Fire can also encourage weed invasion, thus increasing fire hazard within a short time, and if used too frequently or at the wrong time or intensity, can lead to loss of biodiversity over time].
- Advice can be sought from the CFS Regional Prevention Officer.

Other considerations

- Where a well-vegetated road reserve adjoins cleared farmland, any required fuel break should be established on the cleared land rather than through clearance of roadside vegetation.
- Any applications to revegetate roadsides must be assessed and approved by the Council Fire Prevention Officer to ensure bushfire risk is not increased for areas that are designated as strategic fuel reduced zones.
- Design weed slashing programs to begin with clean machinery in areas of good vegetation condition and work towards the more degraded sites. This will assist in the prevention of further spread of weeds.

5.10 Grazing

Objectives

To minimise any impact of grazing by stock on roadside reserves where native vegetation is present.

Information

Grazing of stock in areas of native vegetation can have severe impact: damaging plants, assisting weed invasion, preventing natural regeneration and compacting and polluting the soil. The *Native Vegetation Act 1991* controls the grazing of native vegetation. Roadside grazing can also be controlled by Council using by-laws under the *Local Government Act 1999*.

Figure 35: Stock grazing on roadside

Grazing of roadsides is not permitted by the Rural City of Murray Bridge.

Grazing of areas comprising native species (including native grasslands) requires clearance approval under the *Native Vegetation Act 1991*. Native grasslands in particular may be difficult to distinguish from introduced grasses, and care must also be taken to avoid small or visually insignificant species such as annuals, orchids and other small native ground cover species.

Many undeveloped road reserves are leased to adjoining landholders for grazing or cropping. Where grazing has historically occurred, then this may continue at the same frequency and duration without NVC approval, however, any change of stock, or increase in frequency or duration of grazing, or grazing of areas without any previous history of grazing, requires NVC approval.

Consultation and Approval Procedures for Grazing of Roadsides
Clearance approval is required for any grazing (other than associated with droving – see next section) likely to cause damage to native roadside vegetation. This includes roadsides where:

- native shrub and understorey species are present; or
- there is evidence of recent or periodic regeneration of native plant species.

Modification of native vegetation on leased roads, by changed grazing practice that increases the pressure on native vegetation, also needs clearance approval from the NVC.

Where important native vegetation is identified on leased roads, it will be protected through a management agreement or through removal of the area from the lease. Consultation with, and confirmation from, the Native Vegetation and Biodiversity Management Unit is recommended.

Guidelines – Grazing

- Council does not allow stock to graze on roadsides reserves.
- On undeveloped road reserves that are leased to adjoining landholders for grazing where grazing has historically occurred, then this may continue at the same frequency and duration without NVC approval, however, any change of stock, or increase in frequency or duration of grazing, or grazing of areas without any previous history of grazing, requires NVC approval.
- Any unauthorised clearance caused by grazing will be referred by Council staff to the Native Vegetation and Biodiversity Management Unit.

5.11 Droving stock

Objectives

1. To manage potential damage to roadside native vegetation from the droving of stock.
2. To protect roadside native vegetation of high conservation significance from the impacts of droving stock.

Information

The droving or movement of stock on roadsides requires written permission from the Rural City of Murray Bridge under the *Local Government Act 1999* (Section 221). It is recognised as a necessary practice within some areas of the region as part of normal farm management.

The droving or movement of stock does not require approval under the *Native Vegetation Act 1991*. However, routes that contain important stands of native vegetation should be avoided as much as possible so as to minimise damage to native roadside vegetation.

If there is no practical alternative, and stock are to travel though native vegetation, then stock must be kept moving at all times to minimise incidental grazing and subsequent damage to native vegetation (otherwise may constitute breach of *Native Vegetation 1991 Act* – see grazing section).

Figure 36: Droving stock on the road

Consultation and Approval Procedures for Droving Stock
No NVC approval is required if stock are to be kept moving at all times, and areas of native vegetation of particular conservation significance are avoided as much as possible. Movement of stock on roadsides does not require the consent of the Rural City of Murray Bridge, however the following guidelines apply.

Guidelines – Droving stock

Permission

- The movement of livestock that is part of normal farm management, from one property to another is permitted if there are no practical alternatives to avoiding the road reserve.
- Where the movement of livestock is over a long distance, consultation shall be held with the local Natural Resource Management Authorised Officer, and the Native Vegetation and Biodiversity Management Unit.
- Any unauthorised clearance caused by stock droving will be referred by the Rural City of Murray Bridge to the Native Vegetation and Biodiversity Management Unit.

Clearance methods

- Stock must be kept moving at all times.

- Stock must be free of pest plants and disease.

Avoiding unnecessary clearance

- Movement of stock along Category A and B roadsides, or roadsides containing known populations of threatened species, plant communities of conservation significance or naturally open areas such as native grassland and sedgeland, should instead be diverted where possible along roadsides containing vegetation of lesser value, i.e. Category E, D, and as last preference C.
- If the roadside vegetation has not yet been surveyed, a suitably qualified person(s) will conduct an inspection to identify vegetation along the proposed route.

Signage

- Appropriate signage must be placed an adequate distance from stock moving along roads warning vehicles of the potential hazard.

5.12 Recreational Trails on Road Reserves

Objectives

1. To minimise the impacts of recreational activities on native roadside vegetation.

Information

Road reserves (both developed and undeveloped) are subject to a range of recreational pressures. For example, there is an expanding network of walking trails on roadsides in many areas of the State. Horse and bike trails are being established on some roadsides.

All of these activities have the potential to significantly disturb native vegetation. Recreational vehicle activities on roadsides are not permitted, but walking trails may be acceptable provided that certain principles and practices

Figure 37: Recreational Trail

Consultation and Approval Procedures for Recreational Trails on Road Reserves
The development of any recreational trails along road reserves must include consultation with Council and with the Native Vegetation and Biodiversity Management Unit where the trail would pass through or immediately alongside native vegetation.

Under the *Native Vegetation Act 1991*, clearance approval is required for any trail development involving clearance of native vegetation. The Rural City of Murray Bridge does not permit recreational vehicle activities on roadsides containing native vegetation, but will allow lawfully established walking trails provided that certain principles and practices contained in this RVMP are adhered to.

are adhered to (see guidelines below), and NVC approval is sought.

Guidelines – Recreational use Permission

- Any planned recreational event within a road reserve requires written permission from the Rural City of Murray Bridge.
- Any unlawful off-road activities within road reserve areas will be reported to the Rural City of Murray Bridge, Police, and if damage to native vegetation occurs, the NVC.

Proposals for recreational trails may be acceptable if the following principles are adhered to:

- Any trails need to be part of an overall district or regional trails plan developed with the local council.
- Trails should not be established where clearance of native vegetation would result. Only if the trail is a vital part of a network and if there is no reasonable alternative should any clearance of native vegetation be contemplated. Should any proposed trail pass through or immediately adjacent to native vegetation, consultation with the Native Vegetation and Biodiversity Management Unit must occur, and clearance approval is required for any clearance of native vegetation.
- Trails must not be established where the soil type and/or slope could result in erosion, unless specific measures to prevent erosion are implemented.
- Trails must not be established where their use is likely to introduce weeds or assist the spread of weeds on the road reserve unless there is a clear commitment to a weed control program.
- Effective monitoring programs must be incorporated into any trail development.
- Existing or planned recreational trails along Category A and B roadsides, or roadsides containing known populations of threatened species, plant communities of conservation significance or naturally open areas such as native grassland and sedgeland, should instead be diverted where possible along roadsides containing vegetation of lesser value, i.e. Category E, D, and as last preference C.
- If the roadside vegetation has not yet been surveyed, a suitably qualified person(s) will conduct an inspection to identify vegetation along the proposed trail route.

Existing trails

- Maintenance of existing trails only requires the consent of the Rural City of Murray Bridge.
- The location of existing trails should be reviewed in light of the guidelines above, to ensure that where possible, important areas of native vegetation are protected and/ or enhanced.

5.13 Cultivation and Cropping

Objectives

To manage potential damage to roadside native vegetation from cultivation and growing of agricultural crops.

Information

Cultivation of roadsides (for fire prevention, weed control, or cropping) can have devastating impacts on any remaining remnant native vegetation through the physical removal of plant species, run-off from fertilisers and pesticides altering the nutrient status of the soil and exposing fallowed soil to weed invasion and erosion potential. Cultivation and growing crops on roadsides is only a technique for consideration on roadsides without, or adjacent to areas without, remnant vegetation.

Figure 38: Illegal cultivation of a roadside

Within the Rural City of Murray Bridge there are many surveyed road reserves which have never been developed as roads. Many of these undeveloped road reserves are leased to adjoining landholders for cropping purposes. Some are totally cleared and pass unmarked through farm paddocks. These areas may be suitable for cropping or for revegetation projects. Undeveloped road reserves have relatively undisturbed native vegetation and are of high conservation value. In these areas cropping practices will not be permitted.

Consultation and Approval Procedures for Cultivation and Cropping
Under the *Native Vegetation Act 1991*, approval is required for cultivation or cropping on roadsides where native understorey or regenerating native vegetation is present.

Cropping on roadsides or on undeveloped roads needs clearance approval from the Native Vegetation Council if native vegetation is present.

Guidelines – Cultivation and cropping

Permission

- Cultivation or cropping within a road reserve requires written permission from the Rural City of Murray Bridge.
- Any unauthorised clearance of road reserve native vegetation caused by cultivation or cropping will be referred by the Rural City of Murray Bridge to the Native Vegetation and Biodiversity Management Unit.

Existing cultivation and cropping

- Landholders currently cropping in road reserve areas require ongoing permission from the Rural City of Murray Bridge.

5.14 Removal of Plant Material

Objectives

- To promote the statutory requirements for retaining roadside native vegetation.
- To limit the extent of damage caused by removal of roadside native vegetation.
- To ensure that only a sustainable amount of native vegetation is removed from roadsides.

Figure 39: Harvesting Broom Bush.

Information

The removal of plant material from roadsides includes:

- cutting of live timber for safety purposes only;
- brush-cutting (*Melaleuca uncinata*);
- seed collection; and
- flower harvesting.

All such activities require written permission from the Rural City of Murray Bridge and other constraints may also apply – as set out below.

Consultation and approval Procedures for Removal of Plant Material
Removal of plant material from road reserves requires consent from the Rural City of Murray Bridge, and in the following instances, also requires clearance consent under the *Native Vegetation Act 1991*:

- removal of 'dead plants' as defined under the Native Vegetation Regulations 2003;
- cutting of live timber (outside the scope of the guidelines in this RVMP);
- the cutting of brush (*Melaleuca uncinata*) unless it is undertaken in accordance with other guidelines in this RVMP; and
- the harvesting of flowers.

In the case of seed collection, a permit is also needed from the Department for Water Environment and Natural Resources, Permit Unit, who can also provide guidance as to how collect seed.

The Rural City of Murray Bridge will ensure that removal of plant material from roadsides is undertaken in accordance with the guidelines in this plan and that appropriate permits have been issued.

Guidelines – Removal of plant material

Permission

- Removal of plant material within a road reserve as set out below requires written permission from the Rural City of Murray Bridge.
- Any unauthorised clearance of road reserve native vegetation caused by activities will be referred by the Rural City of Murray Bridge staff to the Native Vegetation and Biodiversity Management Unit.

Collection of dead timber

Figure 40: Illegal clearance when constructing new fencelines

- Dead timber should not be "tidied up" on roadsides, and is not permitted unless outlined as necessary for fuel reduction in the approved the Region 3 Bushfire Plan – see Bushfire Hazard Reduction section of this Plan), to assist rabbit control, or to remove timber which is hazardous to traffic or fencing.
- Dead timber on roadsides is not controlled under the *Native Vegetation Act 1991*, except in the case of dead plants in some parts of the state that provide habitat for nationally threatened species, which are defined as native vegetation under Section 3(1) of the *Native Vegetation Act 1991*[10]. Contact the Native Vegetation and Biodiversity Management Unit for further details, including a fact sheet "Dead trees as native vegetation".

  Despite this, the Rural City of Murray Bridge controls this activity under the *Local Government Act 1999*, as dead timber, both standing and fallen, provides cover and foraging places for native fauna, shelters young seedlings and small plants adapted to and protected by the sheltered conditions provided by fallen timber, i.e. protects from severe sunshine and drying winds, may protect small plants physically from grazing by rabbits, kangaroos etc, and also provide optimal conditions for survival – darker and moister micro-habitats, and is also important in the recycling of nutrients. The development of hollow timber takes many years and is a limited resource for wildlife, and therefore should not be collected for firewood. Retention of dead timber(and fallen leaves, bark and twigs) is also encouraged so that soil disturbance and the creation of open areas suitable for weed invasion is minimised.
- The removal of dead timber from all roadsides is prohibited.

[10] http://www.cfs.sa.gov.au/site/home.jsp

[12] Dead plants (under the definition of native vegetation in section 3(1) of the Act)
, means the class of plants, or parts of plants, comprising trees of a species indigenous to South Australia

(a) that have a trunk circumference (measured at a point 300 millimetres above the base of the tree) of –
- (i) in the case of a tree located on Kangaroo Island – 1 metre or more; or
- (ii) in any other case – 2 metres or more; and

(b) that provide or have the potential to provide, or are a [part of a group of trees or other plants (whether alive or dead) that provide, or have the potential to provide, a habitat for animals of a listed threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* of the Commonwealth, is declared to be included in that definition.

Cutting of live timber

- Any cutting of live timber outside of the scope of guidelines in this plan requires the consent of the Rural City of Murray Bridge and also clearance consent under the *Native Vegetation Act 1991*.

Figure 41: Overspray killing shrubs and native grasses

Brush-cutting

- The cutting of brush (*Melaleuca uncinata*) on roadsides requires clearance approval unless it is undertaken in accordance with other guidelines in this plan.

Seed collection (cuttings and specimens)

- Revegetation programs using local species are strongly supported and roadsides are often ideal sites for seed collection. However, care is needed to minimise damage to the parent plant and to avoid depleting the seed supply to such an extent that natural regeneration of plants on the roadside is affected.
- The collection of seeds, cuttings and specimens from native vegetation from roadsides, requires the consent of the local council. A permit is also needed under the *National Parks and Wildlife Act 1972* and can be requested from the Permit Unit, Department of Environment, Water and Natural Resources, at http://www.environment.sa.gov.au/Do_It_Online/Plant_permits. The Unit can also provide guidance on seed collection methods.

Figure 42: Plant seeding

- The collection of seeds, cuttings or other specimens from native plants does not require consent from the NVC provided that damage to the plant is not substantial. As a guide, cutting a substantial branch off a tree or bush to collect seed would not be regarded as exempt; nor would the removal of virtually all harvestable seed from a single plant.

  Nevertheless, the Rural City of Murray Bridge will give preference to seed collecting permits associated with

Figure 43: Flower Harvesting

local revegetation projects, and tree trimming programs (for verge maintenance) will be undertaken in consultation with local revegetation groups to facilitate the collection of seed from trimmed vegetation.

Flower harvesting

- The harvesting of flowers from roadsides requires the consent of the local council and clearance consent from the NVC. The local council should be the first point of contact.
- Harvesting of roadside flowers, particularly for commercial purposes, is not favoured because of its impact on the vegetation and on the landscape or amenity of the area.

5.15 Maintenance of Biodiversity

Objectives

- To promote community interest and involvement in maintaining and where possible, enhancing, roadside biodiversity (plants and animals).

Information

Along some roadsides there is evidence of a steady decline of native vegetation not associated with direct clearance. Several factors may be contributing to this, many of which are exacerbated by the long narrow shape of roadside vegetation. These include, but are not limited to:

- senescence (old age) and lack of natural regeneration;
- herbicides or other chemicals used on adjoining farmland, or used for weed control on roadsides;
- animal pests and methods used to control them;
- mistletoe infestation;
- lerp infestation;
- competition from exotic species (garden escapees, illegal dumping of garden waste, invasion from adjacent land;)
- Inappropriate fire regimes; and
- Broomrape (see section 5.6).

Figure 44: Biodiverse Roadside

In some cases a form of disturbance (such as burning or pollarding (pruning)) may be proposed as a means of enhancing vegetation health or diversity in the longer term. Such activities actually constitute clearance in terms of the *Native Vegetation Act 1991* and therefore require clearance approval under the Act or the Native Vegetation Regulations 2003. For example burning an area may be required to promote natural regeneration in an area where species are declining. Or, removal of mistletoe or lopping of limbs may be proposed as a short-term means of protecting unhealthy host trees heavily infested with mistletoe.

Such activities must be carefully planned and the results must be monitored.

There are Regulations that allow for the clearance of native vegetation to address some of these problems. Refer to 'A Guide to the Regulations under the *Native Vegetation Act 1991*' for more information, http://www.environment.sa.gov.au/Conservation/Native_vegetation/Managing_native_vegetation.

Ecological Prescribed Burning

Prescribed burning for ecological purposes requires careful planning and management. Proposed works are to be carried out under a management plan that has been approved by the NVC. The following is a list of information that should be included in the plan:

Figure 45: Thelymitra nuda

- a clear demonstrated focus on biodiversity outcomes, such as a tool for managing threatened species, enhancing ecological communities, managing pest species, maintaining a diversity of vegetation age classes or preventing large areas of habitat burning across the landscape in a single fire event;
- site survey information identifying flora and fauna species present;
- detailed aerial map(s) identifying vegetation communities, topography and areas identified for burning an environmental risk assessment table identifying impacts and mitigating actions;
- any EPBC Act matters also need to be addressed;
- a logistic prescribed burn plan to be approved by SA Country Fire Service; and
- a monitoring program that will assist in the evaluation of the effects of fire on vegetation communities and for planning future adaptive management strategies.

Advice can be sought from the Native Vegetation & Biodiversity Management Unit.

Mistletoe Infestation

Mistletoes are flowering plants that use other plants to obtain water and mineral nutrients; but provide their own photosynthetic products

The species of mistletoe along rural roadsides are native to South Australia and are protected under the *Native Vegetation Act 1991*. They provide important habitats for many fauna species, such as birds, butterflies, possums, ants and other insects. In particular, mistletoes are a summer food source for nectar feeding animals such as honeyeaters, and a food source for native butterflies like the rare Genoveva Azure whose larvae eat the leaves and flowers of the Box Mistletoe (*Amyema miquelii*) on Eucalyptus species, and Drooping Mistletoe (*Amyema pendula ssp. pendula*) on Stringybark Eucalypts and Blackwood.

In some areas of the State, mistletoe infestations appear to be contributing significantly to tree decline. The factors involved in these infestations are not well understood but appear to be

linked with the extent of general vegetation clearance and the accompanying loss of wildlife habitat. An imbalance has somehow been created. Often trees are in poor health due to degradation of surrounding vegetation, and are perhaps more susceptible to the impacts of mistletoe. Higher germination and establishment rates of mistletoe on trees with less canopy, and greater dispersal of seed by the Mistletoe bird in open woodlands, have also been suggested as possible explanations of the association of high levels of mistletoe on trees that are in poor health (Ward and Paton, 2004)[11].

In severe cases, the removal of mistletoe or lopping of affected limbs may be acceptable as a short-term means of protecting the host tree. These actions constitute clearance, and require clearance approval under the *Native Vegetation Act 1991* or the *Native Vegetation Regulations 2003* (photos may be emailed to the Native Vegetation and Biodiversity Management Unit who can then issue advice or grant clearance approval). Protection and/or enhancement of the health of affected trees, by fencing-off from livestock grazing and restoring the affected area through natural regeneration or revegetation with a range of indigenous plants, is seen to be the best overall approach.

Figure 46: Close-up of mistletoe

Lerp Infestations

Lerp insects are native leaf-sucking insects which frequently attack red gums (e.g. in the Mt Lofty Ranges) and pink gums (e.g. in the South East). The visual impact can be severe with entire trees being defoliated. In some cases, trees already stressed by other factors may die, but usually they will recover.

In a natural bushland setting, lerps are generally kept in check by native birds such as pardalotes, which feed on the waxy scale like covering (the "lerp"), beneath which the immature stage of the insect, shelters and feeds. In disturbed environments such as roadsides – and particularly where understorey plants have been reduced – bird populations are depleted

[11] Ward, M. and Paton, D. (2004). *Box Mistletoe (Amyema miquelii) occurrence and host condition in Eucalypts woodlands of the Mount Lofty Ranges, South Australia*. Report for the Native vegetation Council, South Australia. School of Earth and Environmental Sciences, University of Adelaide.

and problems such as lerp infestations are more likely to occur. Restoration of roadside vegetation communities is therefore the recommended management approach.

Community Groups

Within the Rural City of Murray Bridge there are number of locations where roadside vegetation is being actively managed by volunteer groups using minimal disturbance techniques to maintain biological diversity, or to promote regeneration of native species. This involves weeding, fencing and rubbish collection. Active groups manage areas including Reedy Creek Road, Murray Park and Morphett Reserve Bush Care Sites. The Eastern Hills & Murray Plains Catchment Group, Goolwa to Wellington LAP, Murray Mallee LAP and Kanmantoo/Callington Landcare Group.

Garden Escapees

Intentional dumping of garden waste on roadsides can create new weed infestations.

Garden plants can also escape into bushland and onto roadsides adjacent to properties. Residents adjacent to good roadside vegetation should select garden plants with a low potential to spread, or consider using local native species instead.

Consultation and Approval Procedures for Maintaining Biodiversity on Roadsides

Maintaining roadside biodiversity (plants and associated fauna) can be a complex issue and close consultation with the Native Vegetation Biodiversity Management Unit is recommended.

Where modification of roadside vegetation using measures such as lopping, burning or other disturbance of native vegetation is proposed as a tool in maintaining diversity, clearance approval is required from the Native Vegetation Council.

Permission

- Modification of roadside vegetation (e.g. by burning or pollarding) within a road reserve for the purpose of maintenance of vegetation diversity requires written permission from the Rural City of Murray Bridge and the NVC.
- Any unauthorised clearance of road reserve native vegetation caused by activities will be referred by the Rural City of Murray Bridge staff to the Native Vegetation and Biodiversity Management Unit.

Proposals

- Any proposals involving disturbance of native vegetation to maintain vegetation diversity will be developed in close consultation with the Native Vegetation and Biodiversity Management Unit.
- Revegetation of the affected area with a range of indigenous plant species should be considered in combination with or instead of disturbance, for example, in the case of mistletoe and lerp attack.

Clearance Methods

- These activities will be carefully planned and the results must be monitored.
- Trimming or pruning of vegetation using appropriate, low impact cutting tools is required - consult with the NVBM Unit for advice for all proposals to help determine best practice.

Prevention

- Opportunities to promote interest in roadside vegetation biodiversity will be developed where possible, e.g. providing information to rate-payers - discouraging illegal dumping and explaining the consequences of weed spread, clear guidelines for activities such as weed control and firewood collection, and promote the importance of roadside vegetation in partnership with other organisations.

Figure 48: Biodiversity of plants on roadsides is important

5.16 Protection of Native Vegetation of High Conservation Significance

Objectives

- To identify, record and protect roadside native vegetation of high conservation significance.
- To reverse the deterioration of roadside native vegetation by improving management practices.

Information

Roadsides may contain plants or vegetation types of high conservation significance (i.e. threatened at a national, state, or local level, and / or vegetation classed as Category A and B). It is important that these locations are identified, recorded and protected.

While all native vegetation on roadsides is protected and must not be cleared unless clearance is considered exempt as defined in this plan, vegetation of high conservation significance requires:

- extra precautions (such as signage) to prevent accidental damage; and
- active management (such as Bushcare work) to prevent decline in quality (also see next section – Restoration).

Vegetation of high conservation significance is important to the region as it can:

- provide habitat for native animals and plants, including endangered species;
- assist the movement of native animals to move from one habitat area to another; and
- provide unique genetic reference areas for sourcing seed for revegetation projects.

Figure 49: Roadside Marker System

The Rural City of Murray Bridge has assessed its roadside vegetation through a roadside vegetation survey and has identified the conservation significance for roads throughout its region. The Rural City of Murray Bridge area contains 11 kms of roadways that are considered to support native plants or vegetation associations of high conservation significance.

There are nine nationally recognised threatened plant species recorded within the Rural City of Murray Bridge. Three of these species have been recorded along roadsides, 38 species threatened at a state level and 41 species threatened at a regional level have also been recorded. There are also two vegetation associations that are listed as threatened at the national/state/local level. **Iron-grass Natural Temperate Grassland** of South Australia rated Critically Endangered and **Peppermint Box (Eucalyptus odorata) Grassy Woodland** of South Australia rated Critically Endangered.

Consultation and Approval Procedures for activities in areas of Vegetation of High Conservation Significance
Any activity in areas of high conservation significance requires consent from the Rural City of Murray Bridge.
Any activity in areas of high conservation significance involving native vegetation clearance also requires clearance approval from the Native Vegetation Council.

Guidelines – Protection of Vegetation of High Conservation Significance

Permission

- Any activity occurring in areas of high conservation significance requires consent from the Rural City of Murray Bridge, and if native vegetation clearance is proposed, then consent is also required from the Native Vegetation Council.
- Any activity impacting on vegetation of National Significance needs to be referred to the The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).
- Any unauthorised clearance of road reserve native vegetation caused by activities will be referred by the Rural City of Murray Bridge to the Native Vegetation and Biodiversity Management Unit.

Roadside surveys

- Roadside vegetation surveys have been undertaken using the standard DEWNR roadside vegetation survey methodology to determine where significant vegetation occurs.
- The overall ecological significance of sections of roadside vegetation has been determined.

Database

- A site register or database for significant roadside flora has been developed, and will be used by the Rural City of Murray Bridge relating to all roadwork activities. The "Roadside Marker System (RMS)" has prioritised significant locations.

Roadside markers and Bushcare work

- A site marking system to identify significant sites "Roadside Marker System (RMS)", particularly for Council staff or contractors, has been implemented to ensure protection of significant sites.
- In consultation with Trees for Life, the Local Action Planning group and/or Regional Ecologist, Bushcare sites (see next section – Restoration) will also be encouraged wherever possible to help actively manage these important areas of native vegetation.

Roadside Activities

- Training programs for Council staff and others (e.g. contractors), and development of work procedures to ensure protection of significant sites, has been implemented by the Rural City of Murray Bridge Environment Officers with local contractors and SA Water.

- A map of the vegetation categories for the road network within the Rural City of Murray Bridge will be used to minimise or avoid any loss or disturbance of native vegetation of conservation significance by locating proposed development or roadside works away from these areas.
- If it is not possible to avoid loss of native vegetation when planning roadworks, the Rural City of Murray Bridge will use the data collected and associated maps to identify areas of roadside vegetation that can be managed better as a way of providing an SEB offset which would be a requirement for clearance of vegetation associated with any new works under Native Vegetation Regulation 5 (1)(d) of the Native Vegetation Act 1991.

5.17 Restoration of roadside vegetation

Objectives

- To encourage the re-establishment of native vegetation along roadsides in parts of the Local Council area where native vegetation has been identified as cleared or degraded.
- To prevent further degradation within road reserves giving high priority to rehabilitation works along roadsides containing native vegetation of high construction significance.

Information

Roadside vegetation within the Rural City of Murray Bridge varies from Category A vegetation with very high conservation value (pristine remnant vegetation) to Category E vegetation with low conservation value.

The Rural City of Murray Bridge is committed to roadside restoration. Council recognises the ecological and aesthetic importance of restoring, maintaining and enhancing roadside native vegetation as areas of habitat for wildlife, to increase the biological diversity and seed stock of the area, and to create linkages for wildlife movement. Other benefits include improving the amenity of an area, reducing the risk of soil erosion and soil salinity and possibly reducing the risk of fire through appropriate fire management practices.

The Rural City of Murray Bridge is located within the South Australian Murray Darling Basin (SA MDB) and intends to follow the SA MDB Regional NRM Plan 2009-14. The Council will also consider priorities and management actions as outlined in the Biodiversity Plan 2001, and the SA MDB Regional Revegetation Strategy 2004 when developing and implementing programs.

Council will consider allowing areas of degraded vegetation to rehabilitate through natural regeneration and carefully controlled management practices. Council will consider in previously cleared or degraded roadsides using local native species to establish linkages with remnant bushland areas in the district. If further information on revegetation strategies in the region becomes available (such as revegetation plans), this RVMP will incorporate the recommendations wherever possible.

Within the Rural City of Murray Bridge there are a number of locations where roadside vegetation is being actively managed by community groups using minimal disturbance techniques to maintain biological diversity, or to promote regeneration of native species.

General advice regarding restoration can be obtained from local NRM Boards and organisations such as Trees For Life (Bush Care Sites), and advice about local native species can be obtained from the Native Vegetation and Biodiversity Management Unit. Further information can also be found in 'Habitat Restoration Planning Guide for Natural Resource Managers'[12] on the State government website:

http://www.environment.sa.gov.au/Knowledge_Bank/Science_research/Seascapes_landscapes_and_communities/Landscape_restoration/Publications

Consultation and Approval Procedures for Restoration of Roadside Vegetation
It is essential (and a legal requirement) that the permission of the Rural City of Murray Bridge be obtained for roadside revegetation programs. Planned revegetation programs will be conducted under Council's authorisation and will incorporate other Council maintenance policies aimed at minimising soil disturbance and associated weed establishment, control introduced plants and animals, and restrict grazing or development along roadside areas in the district.
Proposals must also take into account the existing native vegetation present, and consultation with the Native Vegetation Council is required where revegetation is to occur within areas of existing vegetation, particularly open areas (i.e. areas possessing few if any trees or shrubs) as some areas of the State naturally had areas of open grassland, sedgeland and wetland.

Guidelines – Restoration of Roadside Vegetation

Permission

- Any activity occurring in rehabilitated and revegetated areas requires consent from the Rural City of Murray Bridge, and if native vegetation clearance is proposed, then consent is also required from the NVC.
- Any unauthorised clearance of road reserve native vegetation caused by activities will be referred by Council to the Native Vegetation and Biodiversity Management Unit.

Roadside rehabilitation and restoration

- Rehabilitation of existing roadside vegetation is usually seen as the priority for restoration work, however, depending on the desired goals, reconstruction of habitat from scratch may be implemented.

[12] Clarke, I., Stokes, Z. and Wallace, R., (2010). *Habitat Restoration Planning Guide for Natural Resource Managers.* Government of South Australia, through Department of Environment and Natural Resources, Adelaide.

- The Rural City of Murray Bridge will undertake the rehabilitation and revegetation of suitable, degraded areas of road reserve through natural regeneration of native plant species and through utilising local native species.
- Restoration and rehabilitation programs will only be undertaken after the overall ecological significance of sections of roadside vegetation has been determined in vegetation survey.
- Natural regeneration should be encouraged in High and Medium Conservation Value roadsides.
- Take care when planning planting of trees or shrubs in areas dominated by native grassland species. The area may be naturally occurring grassland and therefore disturbance may constitute clearance under the Native Vegetation Act. Consult with Council's Environment Officer.

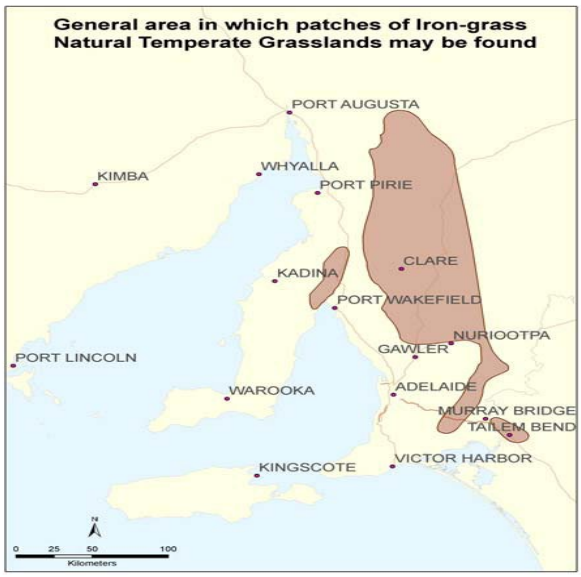
Database

- Rehabilitated sites will be recorded on the site register or database.
- Sites will be monitored with photo-point photos.

Roadside markers and bushcare work

- Roadside Revegetation Sites will be added to the "Roadside Marker System (RMS)" to ensure protection of significant sites.
- In consultation with Trees for Life, the Local Action Planning group and/or SA MDB NRM Board, Bushcare sites will also be encouraged wherever possible to help actively manage these important areas of native vegetation.
- The Rural City of Murray Bridge will continue to encourage and promote the maintenance and improvement of roadside vegetation diversity through the support of existing groups, and where appropriate the establishment of more local community groups to undertake restoration activities.

Figure 50: Map of Iron-grass Natural Temperate Grassland Nationally listed as Critically Endangered



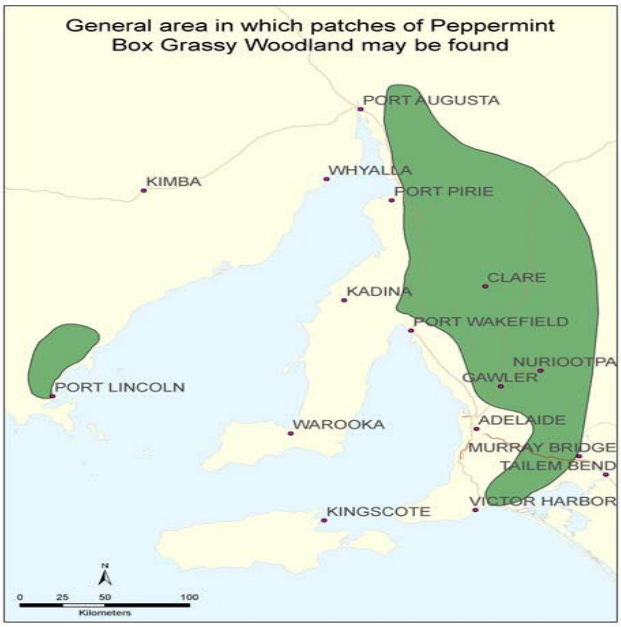


Figure 51: Map of Peppermint Box Grassy Woodland Nationally listed as Critically Endangered

Figure 52: Map of Peppermint Box Grassy Woodland Region

Figure 53: Good example of Peppermint Box Grassy Woodlands

Plants of National Significance

The plants listed below are protected by the Environment Protection & Biodiversity Conservation Act (EPBC Act 1991 on page 11). The species below are located on Council roads with Roadside Significant Markers (RSM). It is mandatory to contact Council's Environment Officer prior to any works where Roadside Significant Marker signs are located.

Plants of National Significance

Acacia menzelii	Menzel's Wattle
Acacia rhetinocarpa	Resin Wattle
Caladenia colorata	Coloured Spider-orchid
Olearia pannosa ssp. pannosa	Silver Daisy Bush
Prostanthera eurybioides	Monarto Mint bush
Pterostylis arenicola	Sandhill Greenhood
Senecio macrocarpus	Large-fruit Groundsel

Stackhousia annua	Annual Candles
Thelymitra epipactoides	Metallic Sun-orchid

Plants of State Significance

Acacia lineate	Streaked Wattle
Acacia montana	Mallee Wattle
Acacia rhigiophylla	Dagger-leaf Wattle
Acacia simmonsiana	Hall's Wattle
Acacia trineura	Three-nerve Wattle
Austrostipa densiflora	Fox-tail Spear-grass
Austrostipa echinata	Spiny Spear-grass
Austrostipa pilata	Prickly Spear-grass
Bothriochloa macra	Red-leg Grass
Brachyscome basaltica var. gracilis	Swamp Daisy
Caladenia flaccida	Drooping Spider-orchid
Calotis scapigera	Tufted Burr-daisy
Ceratophyllum demersum	Hornwort
Daviesia benthamii ssp. humilis	Mallee Bitter-pea
Dianella longifolia var. grandis	Pale Flax-lily
Diuris behrii	Behr's Cowslip Orchid
Eragrostis lacunaria	Purple Love-grass
Eremophila gibbifolia	Coccid Emubush
Eremophila subfloccosa ssp. Glandulosa	Green-flower Emubush
Eucalyptus fasciculosa	Pink Gum
Haloragis eichleri	Eichler's Raspwort
Juncus prismatocarpus	Branching Rush
Lawrencia berthae	Showy Lawrencia
Lepidium pseudoruderale	Peppercress
Lomandra multiflora ssp. multiflora	Many-flower Mat-rush
Lythrum salicaria	*Purple Loosestrife*
Myriophyllum papillosum	*Robust Milfoil*
Olearia passerinoides ssp. glutescens	Sticky Daisy-bush
Olearia picridifolia	Rasp Daisy-bush
Philotheca angustifolia ssp. Angustifolia	Narrow-leaf Wax-flower
Poa fax	Scaly Poa
Poa drummondiana	Knotted Poa
Podolepis jaceoides	Showy Copper-wire Daisy
Pratia concolor	Poison Pratia
Sclerolaena muricata var. villosa	Five-spine Bindyi
Veronica gracillis	Slender Speedwell
Veronica decorosa	Showy Speedwell

Plants of Regional Significance

Acacia myrtifolia	Narrow-leaf Myrtle Wattle
Acacia pycnantha	Golden Wattle
Acrotriche depressa	Native Currant
Adiantum aethiopicum	Common Maiden-hair
Allocasuarina luehmannii	Bull Oak
Brunonia australis	Blue Pincushion
Caladenia leptochila	Narrow-lip Spider-orchid
Caladenia toxochila	Bow-lip Spider-orchid
Calocephalus citreus	Lemon Beauty-heads
Calochilus robertsonii	Purplish Beard-orchid
Cheiranthera alternifolia	Hand-flower
Correa aemula	Hairy Correa
Cymbopogon obtectus	Silky-head Lemon-grass
Diuris orientis	Wallflower Donkey-orchid
Eleocharis sphacelata	Tall Spike-rush
Eremophila bignoniiflora	Bignonia Emubush
Eucalyptus viminalis ssp. cygnetensis	Rough-bark Manna Gum
Gahnia trifida	Cutting Grass
Glycine canescens	Silky Glycine
Goodenia albiflora	White Goodenia
Hakea rugosa	Dwarf Hakea
Helichrysum adenophorum var. adenophorum	Branched Everlasting
Juncus caespiticius	Grassy Rush
Juncus flavidus	Yellow Rush
Leptoceras menziesii	Hare Orchid
Leucopogon woodsii	Nodding Beard-heath
Melaleuca pauperiflora ssp. mutica	Boree
Olearia teretifolia	Cypress Daisy-bush
Orthoceras strictum	Horned Orchid
Phyllanthus saxosus	Rock Spurge
Pterostylis erythroconcha	Red Shell-orchid
Ranunculus pachycarpus	Thick-fruit Buttercup
Solanum capsiciforme	Capsicum Kangaroo-apple
Solanum lacunarium	Lagoon Nightshade
Stellaria filiformis	Thread Starwort
Styphelia exarrhena	Desert Heath
Teucrium corymbosum	Rock Germander
Thelymitra azurea	Azure Sun-orchid
Viola sieberiana	Tiny Violet
Wilsonia rotundifolia	Round-leaf Wilsonia

Menzel's Wattle - *(Acacia menzelii)*

n Pallamanna Road

Resin Wattle – *(Acacia rhetinocarpa)*

from Pope Road

Silver Daisy Bush - *(Olearia pannosa ssp. pannosa)*



Figure 56: Photos from Murray Park

6 MANAGEMENT ACTIONS

This section outlines actions with a program for implementation that will further enhance management of roadside vegetation in the Rural City of Murray Bridge area.

The Action Plan for the Rural City of Murray Bridge is presented below, with actions listed in the order that the Management Issues are addressed in Section 4.

The action plans and guidelines from this document will become a standard reference within Council. The Roadside Vegetation Management Plan should be read in conjunction with Councils Development Plans and Strategic Plan.

Action Plan for the Rural City of Murray Bridge – Actions are listed below each Management Issue addressed in Section 4.

Activity	Action Statement	Timeline	Page
New Road Works			**30**
Vegetation Survey	Refer to vegetation category mapping or, where vegetation has not been surveyed, conduct a vegetation survey, along proposed new road works to determine if works are likely to have significant impact on native vegetation. Consult with the NVBMU.	As required	
Stakeholder Consultation	Consult with relevant stakeholders prior to planning development and road infrastructure, to ensure that (in particular) damaging activities along Category A and B roadside vegetation can be avoided, and routes can be selected along areas without roadside vegetation.	As required	
Construction Works	Engineer design to minimise vegetation impacts.	As required	
Capacity Building	Train workers and contractors in erosion control, vegetation removal and vegetation protection measures prior to commencement of works.	Ongoing	
Roadside Maintenance			**34**
Road Classification	Maintenance of clearance envelopes to provide adequate sight distance will be based on previous clearance envelopes. However, upper limit should be bound by the nominal width of the road in accordance with the function or hierarchy of the road.	Approx. every 5 years	
Site Inspections	Conduct site inspections prior to commencement of maintenance activities to reduce potential impacts of maintenance works on native vegetation.	Ongoing	
Public Safety			**40**
Safety Audit	Conduct a road safety audit to identify roads with a high risk to public safety.	Ongoing	
Category A-C Site Assessments	Site assessments on roads with Category A-C vegetation will be conducted to ensure appropriate low impact clearance methods are used to minimise damage to vegetation of high conservation significance.	Ongoing	

nstallation and Maintenance of Services			**42**
ermit requirements	Council to provide service authorities with the appropriate information regarding permit requirements before any proposed new works on roadsides commence.	Ongoing	
Training	Ensure that contractors and staff from service authorities involved in the installation or maintenance of services (particularly on high conservation value roadsides) have the appropriate skills.	5 yearly or new contractor	
Mapping	Map potential routes for new or replacement services to identify cleared land or low conservation value roadside vegetation.	As required	
Notification	Notify adjacent landholders if proposed works are likely to have an impact on their land.	As required	
Pest Plant and Animal Control			**43**
Develop Management Plan	DEWNR have a pest plant and animal management action plan.	Ongoing	
Mapping	Map infestations of priority pest plant species.	As required	
Priorities	Prioritise pest plant and animal species for eradication or containment.	Ongoing	
Standard Operating Procedures	Develop and implement a Standard Operating Procedure for pest plant and animal control activities using standard minimal disturbance techniques (e.g. work from best to worst areas).	Ongoing	
Raising Community Awareness	Develop community awareness programs to ensure landholders understand their responsibilities regarding pest plants and animal control activities on roadsides.	Ongoing	
Monitoring	Monitor outbreaks of declared weeds.	As required	
Eradication	Produce a strategy to eradicate such outbreaks.	Ongoing	
Plant Diseases			**49**
Contain and minimise the spread of plant diseases	Map and monitor locations of pest plant (eg. Broomrape) in the Rural City of Murray Bridge.	Ongoing	

nimise effect on the environment and on recreational activities	Use appropriate hygiene procedures when undertaking roadworks to prevent spread from infected areas, erect signage on site to identify pest plant (eg. Broomrape) locations. Promote information on locations and methods to be used (web site/Council office/papers).	Ongoing	
Uninfected areas protected from infection	Hygiene procedures and stations to be advertised / provided as per Guidelines (wash down stations at entrances to reserves).	As required	
Raising community Awareness	Dissemination of information relating to pest plant (eg. Broomrape) in affected areas.	As required	
Fence line Clearance			**51**
Raising Community Awareness	Ensure landholders understand the requirements for clearing on roadsides. Encourage landholders to ensure that all litter and rubbish is removed from the roadside at completion of works and is properly disposed.	Ongoing	
Approval Process	Provide information to landholders notifying any removal of roadside vegetation for maintenance/ construction of fence lines requires Council approval.	Ongoing	
Clearance for access to adjoining land			**55**
Minimal Impacts to Vegetation	Provide property access to landholders through Council control road reserves that have minimal impact on native vegetation. Where possible locate access through less dense / poor native vegetation.	Ongoing	
Sight Triangles	Ensure safe sight distance triangles for the clearance of native vegetation meet the required standards.	Ongoing	
Bushfire Protection			**57**
Bushfire Management Strategy	In conjunction with the Council Fire Prevention Officer implement an approved BMS.	Revised annually (June)	
Reduce High Fuel Loads	Liaise with CFS, Council Fire Prevention Officer and landholders adjoining Council roadside reserves to develop and implement strategies to reduce areas of high fuel loads that have been identified in the BMP as Asset Protection or Bushfire Buffer Zones.	Revised annually (June)	

rotect Category A-C egetation Sites	In the BMP ensure Category A-C vegetation sites are identified and techniques are appropriate to protect these areas.	Revised annually (June)	
Map Strategic Fire Breaks	Record as part of the Council BMP, the conservation categories of roadsides designated as strategic fire breaks in conjunction with DEWNR.	Revised annually (June)	
Prioritise Strategic Fuel Breaks	Develop a priority list of Strategic fuel breaks and roadways for broad scale fire prevention purposes. Develop an annual maintenance program to establish standards for: • the identified roads; • dates to be achieved; • management plans for site specific conflict areas in conjunction with DEWNR.	Revised annually (June)	
Conduct Ecological Burns	Application under Regulation 5(1)(zi) and will require a Management Plan endorsed by the NVC.	As required	
Grazing			**61**
Grazing Licences	The issuing of grazing licenses will only be granted roadsides where there are no native shrub or understorey species present, and where there is no evidence of recent or periodic regeneration of native plant species.	Ongoing	
Undeveloped Road Reserves	Grazing of native vegetation in undeveloped road reserves requires clearance approval from the NVC if there is any change in grazing practice which increases the pressure on native vegetation. Important native vegetation to be protected through a management agreement, or through removal of the area from the lease.	Ongoing	
Droving Stock			**62**
Raising Community Awareness	Promote landholders understanding about the value of roadside vegetation and of the potential impact stock droving has on roadside vegetation.	Ongoing	
Monitoring Impacts	Monitor impacts of stock droving on roadside native vegetation.	Ongoing	
Category A and B Vegetation	Discourage the droving of stock along Category A - C vegetation except where no suitable alternative route is found.	Ongoing	
Recreational Use of Road Reserves (Including Undeveloped Roads)			**64**
Raising Community Awareness	Promote communities understanding of the value of roadside vegetation and of the potential impact recreational use of road reserves has on roadside vegetation. Discourage the recreational use of road reserves in Category A - C vegetation.	Ongoing	

Monitoring Impacts	Monitor impacts of recreational use of road reserves on roadside native Vegetation.	Ongoing	
Promotion	Promote the environmental and tourist benefits of lawfully established and recognised public recreational tracks.	Ongoing	
Cultivation and Cropping			**66**
Permit Requirements	Cropping works on roadsides is not permitted within the Rural City of Murray Bridge.	N/A	
Community Awareness	Ensure landholders are aware that cropping works on roadsides is not permitted within the Rural City of Murray Bridge.	N/A	
Removal of Plant Material			**67**
Permits	Permits for seed collection on roadsides will be given preference for local revegetation projects. DEWNR and Council permission is required for seed collection.	Ongoing	
Tree Trimming	Tree trimming programs (for verge maintenance) will be undertaken in consultation with local revegetation groups to facilitate the collection of seed from trimmed vegetation.	Ongoing	
Community Awareness	Distribute information to landholders on the guidelines for removal of plant material on road reserves.	Ongoing	
Maintenance of Biodiversity			**70**
Community Awareness	Promote community interest and involvement in roadside vegetation management.	Ongoing	
Community Involvement	Involve local people and appropriate tertiary, government or other institutions in roadside disturbance / vegetation maintenance projects.	Ongoing	
Expertise	Provide the local community with direct access to local expertise.	Ongoing	
Monitoring	Monitor the effectiveness of roadside management techniques and ascertain any changes in condition.	Ongoing	
Priority Setting	Identify high and medium conservation value roadsides to aid in maintenance of vegetation diversity.	Ongoing	

Protection of Native Vegetation of High Conservation Significance			76
Roadside Vegetation Surveys	Conduct roadside vegetation surveys to determine where significant species or vegetation occurs.	Ongoing	
Roadside Marker System	Establish and manage a Roadside Marker System to identify significant sites (vegetation of high ecological value), particularly for Council staff or contractors.	Ongoing	
Site Register	Develop a comprehensive Register of sites showing all threatened or significant vegetation and fauna areas, linked to standard Council databases.	Ongoing	
Training	Conduct training programs Council staff and others (e.g. contractors) Ensure all contractors and service providers are aware of the roadside quality and sites of significance before any works commence.	Ongoing	
Work Procedures	Develop work procedures to ensure the protection of significant sites.	Ongoing	
Monitoring	Monitor signed sites and review management (if necessary) in consultation with NRMB, NVC, the local community, field expert or the site nominator.	Ongoing	
Bush Care	In consultation with Trees For Life, Bush Care sites will be encouraged wherever possible to help actively manage important areas of native vegetation.	Ongoing	
Restoration of Roadside Vegetation			**78**
Priority Areas	Priority will be given to roadsides of high conservation significance, linking with the SAMDBNRMB on regional priorities for revegetation and possible funding.	Ongoing	
Seed Collection	Collection of local native seed for annual revegetation program.	Ongoing	
Pest Control	Conduct pre/post pest plant and animal control works to encourage regeneration and rehabilitation of roadside vegetation.	Ongoing	
Community Group Participation	Involve Landcare and Community groups in programs for the planting of indigenous vegetation on roadside corridors.	Ongoing	
Raising Community Awareness	Provide information such as indigenous species lists and potential growers to the community to encourage authorised planting of local indigenous species on roadsides.	Ongoing	

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7 REFERENCES

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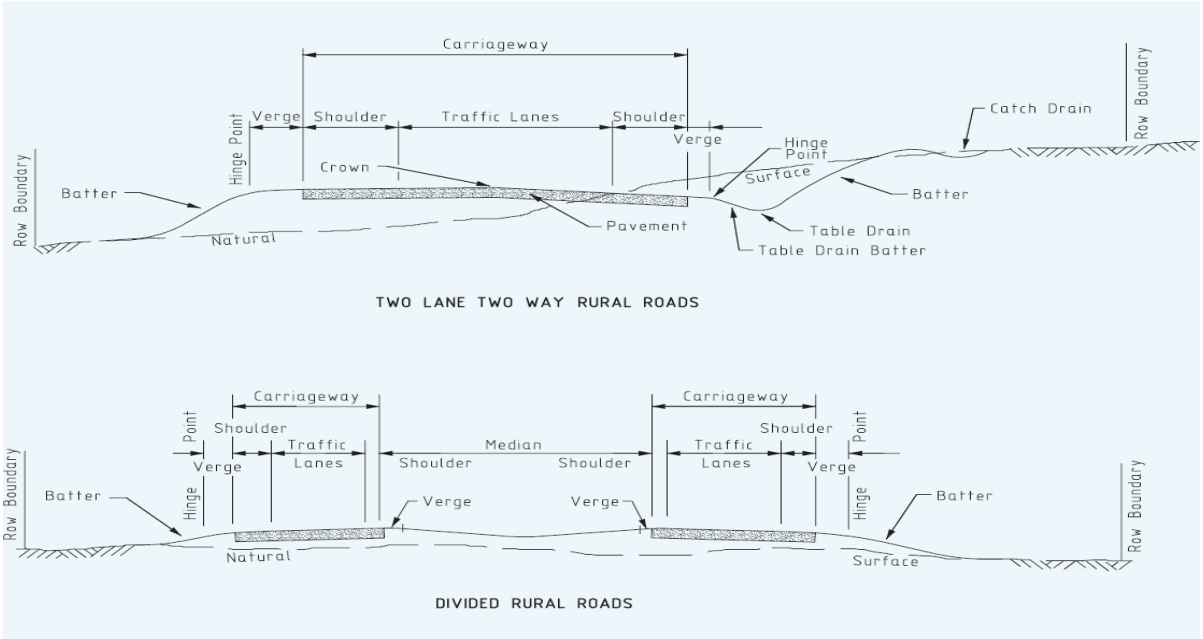
8 ABBREVIATIONS & DEFINITIONS

Abbreviations

DEWNR	Department of Environment, Water and Natural Resources
LGA	Local Government Association
NRM	Natural Resources Management
NVBMU	Native Vegetation and Biodiversity Management Unit
NVC	Native Vegetation Council
RVMP	Roadside Vegetation Management Plan

Definitions

Some of the terms commonly used in relation to roadside vegetation management in South Australia are listed below and, in the case of road construction, illustrated in the following diagram [except where specifically referenced, these terms are defined for the purpose of these guidelines]:



Typical Cross Sections of rural roads - Taken from *Rural Road Design: A Guide to the Geometric Design of Rural Roads* (Austroads, 2003) Update according to final design – see Guidelines.

Biological diversity or **biodiversity** - means the variety of life forms represented by plants, animals and other organisms and micro-organisms, the genes that they contain, and the ecosystems and ecosystem processes of which they form a part (*Native Vegetation Act 1991*).

Carriageway – That portion of a road or bridge devoted particularly to the use of vehicles, inclusive of the shoulders and auxiliary lanes (Austroads, 2003).

Catch drain - a surface channel constructed along the high side of a road or embankment, outside the batter to intercept surface water (Austroads, 2003).

Clearance (from the *Native Vegetation Act 1991*) means –

(a) the killing or destruction of native vegetation;
(b) the removal of native vegetation;
(c) the severing of branches, limbs, stems or trunks of native vegetation;
(d) the burning of native vegetation;
(e) any other substantial damage to native vegetation, and includes the draining or flooding of land, or any other act or activity, that causes the killing or destruction of native vegetation, the severing of branches, limbs, stems or trunks of native vegetation or any other substantial damage to native vegetation.

Clearance envelope – the area where vegetation clearance is required to allow for the passage of legal height vehicles across the full width of the carriageway.

Secondary clearance envelopes are further areas required to be kept clear of vegetation adjacent to the carriageway for adequate visibility of other traffic, signs and other roadside furniture.]

Dead plants (under the definition of native vegetation in section 3(1) of the *Native Vegetation Act 1991*), means the class of plants, or parts of plants, comprising trees of a species indigenous to South Australia –

(a) that have a trunk circumference (measured at a point 300 millimetres above the base of the tree) of –
  (i) in the case of a tree located on Kangaroo Island – 1 metre or more; or
  (ii) in any other case – 2 metres or more; and
(b) that provide or have the potential to provide, or are a [part of a group of trees or other plants (whether alive or dead) that provide, or have the potential to provide, a habitat for animals of a listed threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* of the Commonwealth, is declared to be included in that definition.

Dead timber (firewood) – in this plan generally refers to woody debris from standing or fallen dead trees or branches. It does not usually encompass fine fuels – which generally refer to grass, leaves, bark and twigs less than 6mm in diameter (SA CFS web-site).

Droving or Movement of Stock - Moving stock, usually cattle or sheep, from one place to another by driving them slowly on foot along roadways or stock routes.

Formation - The surface of the finished earthworks, excluding cut or fill batters (Austroads, 2003).
Grazing of Stock - Using a particular area for grazing rather than for movement of livestock.

Indigenous (or Native) Vegetation - Local (naturally established) native vegetation species of the type occurring prior to European settlement in this district.

Local council – *in these guidelines has the same meaning as* "council" under the *Local Government Act 1999*; i.e. a council constituted under that Act; the principal role being "…to provide for the government and management of its area at the local level and, in particular—

(a) to act as a representative, informed and responsible decision-maker in the interests of its community; and
(b) to provide and co-ordinate various public services and facilities and to develop its community and resources in a socially just and ecologically sustainable manner; and
(c) to encourage and develop initiatives within its community for improving the quality of life of the community; and
(d) to represent the interests of its community to the wider community; and
(e) to exercise, perform and discharge the powers, functions and duties of local government under this and other Acts in relation to the area for which it is constituted".

Native vegetation – under Section 3(1) of the *Native Vegetation Act 1991*, "native vegetation means a plant or plants of a species indigenous to South Australia including a plant or plants growing in or under waters of the sea but does not include—

(a) a plant or part of a plant that is dead unless the plant, or part of the plant, is of a class declared by regulation to be included in this definition; or
(b) a plant intentionally sown or planted by a person unless the person was acting—
  (i) in compliance with a condition imposed by the Council under this Act or by the Native Vegetation Authority under the repealed Act, or with the order of a court under this Act or the repealed Act; or
  (ii) in pursuance of a proposal approved by the Council under Part 4 Division 2; or
  (iii) in compliance with a condition imposed by a Minister, statutory authority or prescribed person or body under—
(A) the *River Murray Act 2003*; or
(B) the *Water Resources Act 1997*; or
(C) any other Act prescribed by the regulations for the purposes of this paragraph;"

Natural regeneration - New growth of indigenous native plants from seed or sucker growth.

Pavement – That portion of a road designed for the support of, and to form the running surface for, vehicular traffic (Austroads, 2003).

Public road (from section 4 of the *Local Government Act 1999*), is —

(a) any road or land that was, immediately before the commencement of this Act, a public street or road under the repealed Act; or
(b) any road—
  (i) that is vested in a council under this or another Act; or

(ii) that is placed under a council's care, control and management as a public road after the commencement of this Act, but not including an alley, laneway, walkway or other similar thoroughfare vested in a council; or

(c) any road or land owned by a council, or transferred or surrendered to a council, and which, subject to this Act, is declared by the council to be a public road; or

(d) any land shown as a street or road on a plan of division deposited in the Lands Titles Registration Office or the General Registry Office and which is declared by the council to be a public road; or

(e) any land transferred or surrendered to the Crown for use as a public road that was, immediately before the transfer, held by a person in fee simple or under a lease granted by the Crown, (and includes any such road that is within the boundaries of a public square);

Property Line - The boundary between a road reserve and the adjacent land (Austroads, 2003).

Remnant Vegetation - Surviving indigenous vegetation.

Road (from *Roads (Opening and Closing) Act 1991*) is —

(a) a public road within the meaning of section 4 of the *Local Government Act 1999*; or

(ab) an alley, laneway, walkway or other similar thoroughfare vested in a council; or

(b) in relation to a part of the State not within a council area—

(i) a road or street delineated and shown on a public map or plan of the State as laid out for public purposes by the Crown; or

(ii) a road or street opened under this Act or any other Act relating to the opening of new roads and streets; or

(iii) a road or street transferred or surrendered to the Minister of Local Government or the Crown by the owner or lessee for use as a public road or street; or

(iv) a road or street declared or dedicated under any other Act to be a public road or street, and includes part of a road.

Roadside - Is defined as the strip of land between the road formation and the boundary of the road reserve.

Roadwork (from the *Local Government Act 1999*) means—

(a) the construction of a road; or

(b) the maintenance or repair of a road; or

(c) the alteration of a road; or

(d) the construction of drains and other structures for the drainage of water from a road; or

(e) the installation of fences, railings, barriers or gates; or

(f) the installation of traffic control devices, traffic islands or parking bays; or

(g) the improvement of a road including (for example)—

(i) landscaping and beautification; or

(ii) installation of road lighting; or

(h) the installation of amenities or equipment on or adjacent to a road for the use, enjoyment or protection of the public; or
(i) the installation of signs on or adjacent to a road for the use or benefit of the public;

Road furniture - A general term covering all signs, streetlights and protective devices for the control, guidance and safety of traffic, and the convenience of road users.

Road reserve - Refers to land set aside for a road, whether constructed or not, and extends from property boundary on one side to property boundary on the other side.

Roadside vegetation - Is any vegetation growing on a road reserve, and includes vegetation on a roadside (the area adjacent to a formed road), and vegetation growing on an unmade or undeveloped road reserve; this includes native vegetation of conservation value and vegetation dominated by introduced species.

Secondary clearance envelopes - are areas required to be kept clear of vegetation adjacent to the carriageway for adequate visibility of other traffic, signs and other roadside furniture.

Shoulder – The portion of formed carriageway that is adjacent to the traffic lane and flush with the surface of the pavement (Austroads, 2003).

Sight Triangle The area of land between two intersecting roadways over which vehicles on both roadways are visible to each driver (Austroads, 2003).

Significant Environmental Benefit - The *Native Vegetation Act 1991* includes provisions requiring the clearance of native vegetation to be offset by an environmental gain, referred to by the legislation as a 'Significant Environmental Benefit' (SEB).

- The rationale for an SEB offset recognises that clearance of native vegetation will result in the loss (even temporary) of habitat, biodiversity and/or other environmental values, in a landscape that has already been significantly modified by human settlement.
- The SEB provides a mechanism to minimise that loss by managing, restoring or re-establishing areas of native vegetation that result in a better outcome for the environment. Check wording.
-

Table drain - The side drain of a road adjacent to the shoulder, having its invert lower than the pavement base and being part of the formation (Austroads, 2003).

Threatened Species - Threatened species are those plant and animal species considered to be at risk of extinction in the wild.

Travelled way - That portion of a carriageway ordinarily assigned to moving traffic, and exclusive of shoulders and parking lanes (Austroads, 2003).

Traffic Lane - A portion of the carriageway allocated for the use of a single line of vehicles.

Unmade road - Means a road that is not sealed with bitumen (or other surfacing material) for use by motor vehicles. (*Roads (opening and closing) Regulations 2006*).

Undeveloped road – A surveyed road reserve which has never been developed as a road. Some are totally cleared and pass unmarked through farm paddocks, and others retain native vegetation.

Verge – That portion of the formation not covered by the carriageway or footpath (Austroads, 2003).