

BENALLA RURAL CITY COUNCIL

ROADSIDE VEGETATION MANAGEMENT PLAN

ROADSIDE ENVIRONMENTAL CODE OF PRACTICE HANDBOOK



ROAD CONSTRUCTION AND MAINTENANCE CONTRACTORS AND WORKERS

November 2014



www.benalla.vic.gov.au

Background

This handbook forms part of the Benalla Rural City Council Roadside Vegetation Management Plan. It is designed for use by road construction and maintenance staff or contractors working directly or indirectly for the Benalla Rural City Council.

The original document was prepared by Benalla Rural City Council in 2006 with significant input from the Benalla Rural City Roadside Vegetation Management Plan Steering Committee.

The development of this 2014 update of the current Roadside Management Plan and accompanying documents has been undertaken by the Benalla Rural City Council. The scope of this plan is the management of rural roadsides under the control of the Benalla Rural City Council, specifically excluding roads controlled by VicRoads.

Acknowledgements

This plan builds on work by members of the community, representatives of organisations and a number of consultants. The work by Carol Kunert (2006), Pat Connor (2006) and Natasha Baldyga (2013) is appreciated. This plan draws on initiatives from other Councils including the Rural City of Wangaratta, the City of Greater Shepparton and Shire of Campaspe. The joint project by local government and the Goulburn-Broken Catchment Management Authority developing protocols for Roadside Biodiversity Risk Management provided a solid foundation for work related to staff and contractors.

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This publication is intended to be of assistance to all people involved in the management of roadsides, but the Benalla Rural City Council, its employees and consultants, do no guarantee that the publication is without flaw of any kind or that it is wholly appropriate for the particular purposes of individuals, and therefore disclaim any liability for any error, loss or other consequences which may arise from reliance on any information in this publication.

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1.0 INTRODUCTION

The Roadside Vegetation Management Plan consists of three documents for different audiences:

Document 1 – The Roadside Vegetation Management Plan Documents how the Council will protect biodiversity assets in the performance of its duties and it also provides some background information.

Document 2 - The Community Roadside Management Handbook has been produced for use by the general community including land holders, Landcare groups and fire prevention agencies.

Document 3 –The Roadside Environmental Code of Practice Handbook is tailored to the needs of road construction and maintenance contractors and Council staff working in the field.

This handbook seeks to encourage best practice which:

- Avoids damage to remnant vegetation through adherence to improved road maintenance and construction works practices.
- Protects and enhances the environmental, amenity and cultural values of roadsides, while maintaining road safety in accordance with the Benalla Rural City Council Road Management Plan.
- Accommodates functional values of road safety, fire management and utility provision.
- Enhances awareness and knowledge of roadside issues.
- Promotes minimum disturbance techniques.
- Minimises pest plant and animal invasion spread.
- Minimises land degradation and enhances water quality.
- Adopts and applies the no net loss principle.

There are maps which accompany the above documents.

The above documents and supplementary fact sheets are available from the Council or on the Council website.

2.0 LEGAL OBLIGATIONS

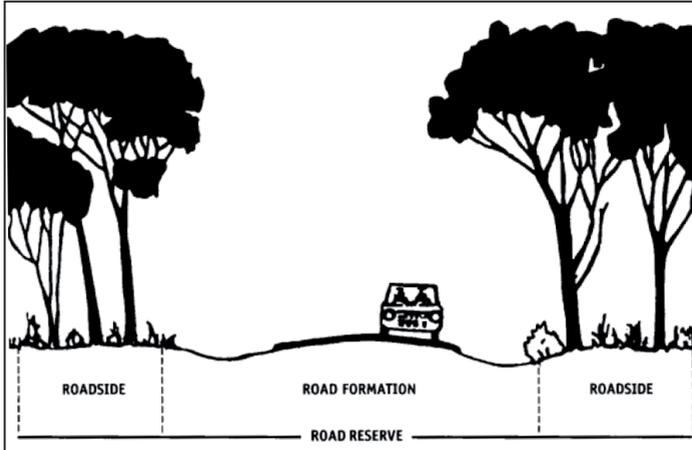
Council staff and the contractors engaged by Council work within a framework of different types of legislation. Roads have specific legislation. Under the *Road Management Act 2004*, Council is the responsible authority for all local roads within the municipality. Council is also responsible for the management of third party activities on those roads.

In addition to maintaining roads, the Council also has responsibility under Section 43 of the *CFA Act 1958* to 'take all practicable steps to prevent the occurrence of fires on, and minimise the danger of the spread of fires on, any road under its care and management'.

Contractors and staff also have responsibilities under Federal and State legislation to protect vegetation, and rare and endangered species. This document assists Council staff and contractors to reduce their risk in working on roads.

3.0 ROAD RESERVES

Road reserves were established to provide a safe and effective network for vehicle movement. The diagram below defines the various sections of the road reserve.



Roads form a pattern across the landscape and have a number of values:

- They form the basis of the road transport network;
- They are critical for the safe movement of people and goods;
- They have important remnants of native vegetation and support the refuge and movement of fauna;
- They are corridors for infrastructure, including property access, power lines, storm water management and at times flood mitigation;
- They may act as important tools in fire management and suppression;
- They may be used as sources of fuel including firewood.

Road reserves can also be a source of weeds for adjacent landholders.

Roadsides also provide amenity for both the local community and tourists who visit the area, and may contain sites of cultural heritage significance.

These stands of remnant vegetation by nature of their narrow, linear character, are also susceptible to many threats: clearing and fragmentation of native vegetation, harbouring/supporting pest plants and animals, inappropriate firewood collection, fire prevention activities, agricultural activities and roadworks.

4.0 GENERAL PRINCIPLES

4.1 THE VALUE OF NATIVE VEGETATION ON ROADSIDES

Native vegetation that occurs on roadsides is valuable and important to protect because:

- It contains some of the last remnants of the indigenous vegetation that was originally widespread throughout the Benalla Rural City Council.
- It provides food and shelter for native wildlife.
- It provides important wildlife corridors, linking other areas.
- It is often easier to maintain than introduced vegetation.
- It reduces the impacts of erosion and salinity.
- It provides a seed source for revegetation.
- It can link otherwise isolated stands of native vegetation, often forming the most continuous strip of remnant vegetation within a landscape.
- It often contains endangered native plants and animals.
- Native grasses have lower fuel loads and fire risk than introduced species.

4.2 CONSERVATION VALUE OF ROADSIDE NATIVE VEGETATION

All roadsides in the Rural City have been assessed to determine the quality of native vegetation present and rated as outlined in the table below.

A copy of the *Roadside Conservation Values Mapping* is available from the Council's Environment Team. These assessments and associated maps will be updated on an ongoing basis.

High Conservation Value

Fairly undisturbed native vegetation with most expected layers present and low levels of weed invasion. Few introduced species (0 -20%) present.



Medium Conservation Value

Moderately disturbed vegetation with one or more vegetation layers absent or modified. Moderate levels of weed invasion.



Low Conservation Value

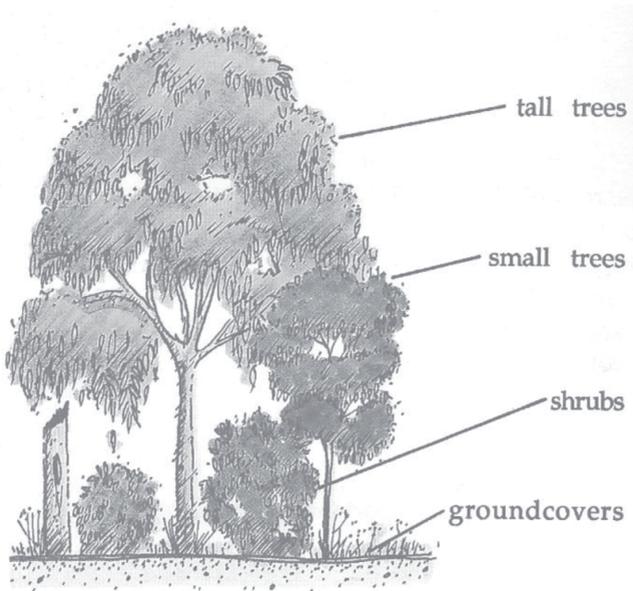
Highly disturbed native vegetation. High levels of weed invasion. Also includes scattered or clumps of trees and shrubs over an exotic (introduced) understorey.



Table 1: Roadside Conservation Values

4.3 TREES ARE GOOD - BUSH IS BETTER

Native vegetation includes trees, shrubs, grasses and groundcovers. In some cases, not all of these types of plants are present. For example, native grasslands that contain no shrubs, or trees, are still very important as habitat. Dead trees, timber lying on the ground and hollow logs are very important habitat as well.



4.4 ROAD CONSTRUCTION WORK RISK TO ROADSIDE VEGETATION

Road construction and maintenance is a **high risk** activity with potential impact on native vegetation, loss or damage to habitats; accidental pest spread and weed spread. Work on roads also has a **moderate risk** due to potential run-off contamination, sediments, dust and altering water regimes and drainage.

4.5 PROTECT NATIVE VEGETATION AND FAUNA

Roadsides contain habitat for a range of native fauna. In particular, scattered large old remnant trees contain hollows that are vital habitat for many species including gliders, possums, birds and bats.

Other elements such as fallen timber, coarse woody debris, leaf litter and native under-storey form equally important habitat for other species including lizards, insects, and mammals.

Minimise or, where possible, avoid any impacts on native fauna and habitat for native fauna.

Protection of native vegetation and fauna is a key goal of roadside management. It is also a legislative and planning requirement for which heavy fines may apply if Council staff or contractors do not meet their obligations.

If in doubt ASK either the Environmental Sustainability Coordinator or General Manager Development and Environment.

The *Flora and Fauna Guarantee (FFG) Act, 1988* gives special protection to rare species. Roadsides within Victoria contain 25 per cent of all rare or threatened flora species and communities listed under the *FFG Act*. The Department of Environment, Land, Water and Planning (DELWP) should be consulted to provide management advice if a rare species is known to be on a site. It is an offence to disturb or destroy species listed under the *State FFG Act* and *Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act, 1999*. Heavy financial penalties apply for breaches of the *EPBC Act*.

A full list of threatened species identified in the Benalla Rural City during the roadside desktop assessment can be found in **Appendix 1**.

It is important to remember that whilst all endeavours will be made to highlight potential environmental risks and damage by project managers, both Council staff and contractors must ensure that they meet their legal obligations.

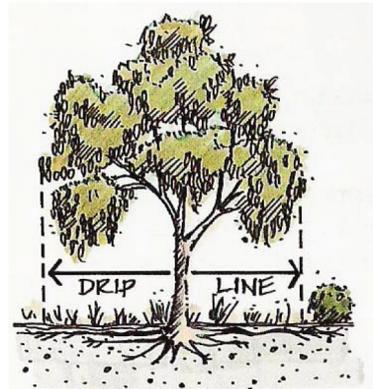
Generally, less maintenance is required if good quality native vegetation is left undisturbed. The best way to protect native vegetation is to minimise disturbance.

This includes minimising soil disturbance and damage to all native plants, including native grasses and groundcover plants, which are particularly easy to damage. Native vegetation reduces weed infestation. Weeds will invade a site following ground or soil disturbance. Weeds compete with native plants, increase maintenance costs and can lead to higher fire risk. Disturbance can also significantly increase the risk of soil erosion.

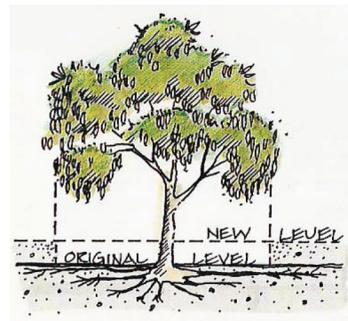
The majority of damage to vegetation occurs by inappropriately locating material stockpiles, windrows, machinery turning or parking areas or inadequately defining the limit of works. Trenching can also be very damaging to tree roots. Advice from the Environment Team at Council must be sought before works commence to assist in appropriate location and marking of these areas.

Avoid or Minimise Impacts on existing trees

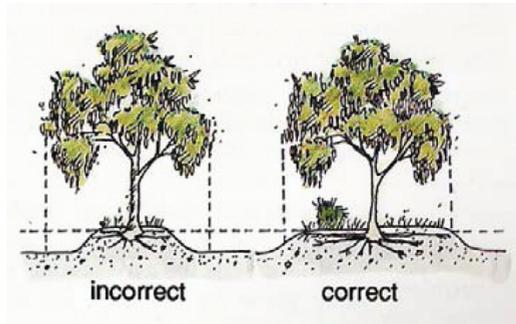
Avoid working within dripline of trees. In many cases the tree roots extend well beyond the drip line and, if possible, excavations should be well outside the drip zone.



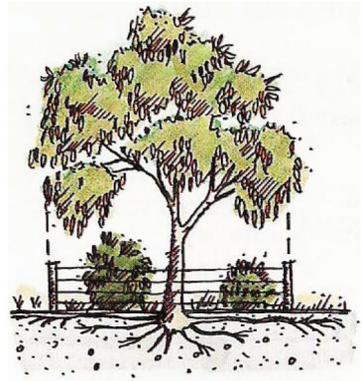
Keep fill material clear of drip line and prevent soil from accumulating against tree trunks.



Avoid undercutting (soil removal) within the drip line of a tree.



Fence trees and avoid soil compaction, storing of materials or equipment under trees.



4.6 SPECIAL ENVIRONMENTAL AREAS

Roadside vegetation can contain significant vegetation. Only some areas may have signage that is used to highlight significant vegetation and prevent unnecessary damage. Before working on a roadside area, contact Council for advice on appropriate management before commencing any works.

Guidelines:

- Leave native vegetation undisturbed, except for regrowth that must be removed within the road shoulder, verge or table drain.
- When signage indicates significant flora species are present on a roadside, contact the Council Environment Team for appropriate management advice before undertaking any activities or works.
- Check for nests or other fauna habitat, and avoid disturbance to those areas. Photograph any items of interest you see.
- Retain all habitat such as rocks, dead standing trees, fallen timber and leaf litter unless they pose an identifiable risk in terms of road safety.
- Do not slash or disturb regeneration.
- Do not 'tidy up' areas of native vegetation on roadsides.

4.7 AVOID THE SPREAD OF WEEDS

The *Catchment and Land Protection Act 1994 (CaLP Act 1994)* provides a legislative framework and defines general duties of landholders in relation to management of noxious weeds and pest animals¹.

Noxious weeds are plants that are legally declared to cause environmental or economic harm or have the potential to cause such harm. They can also present risks to human health. Noxious weeds are classified as State prohibited (SP), Regionally Prohibited (P), Regionally Controlled (C) or Restricted (R) weeds.

1 GBCMA, Invasive Pests and Animals Strategy Executive Strategy

Weeds of National Significance

Under the National Weed Strategy, 32 introduced plants have been identified as Weeds of National Significance (WONS). These weeds are regarded as the worst weeds in Australia because of their invasiveness, potential for spread and economic and environmental impacts.

Environmental weeds

An Environmental Weed is a plant that colonises natural vegetation and threatens conservation values. It can be an exotic or native plant that is not indigenous to the area. The presence of these weeds harms the natural environment.

Council responsibilities

Changes made to the *Catchment and Land Protection Act* in 2013 place the responsibility on local councils for the ongoing management of regionally prohibited and regionally controlled weeds on council managed roadways. The Council will treat weeds and pests in accordance with the Roadside Weed and Rabbit Control Plan which has been approved by the Department of Environment, Land, Water and Planning.

Council also has a key responsibility in avoiding contributing to the spread of weeds. During road construction and maintenance works, weeds can be easily spread within a site and between different sites.

A weed quick reference guide has been developed for use by Council staff and contractors and is available from the Council website www.benalla.vic.gov.au.

Further information including identifying pictures and treatment options is available from the Goulburn-Broken Catchment Management Authority at www.gbcma.vic.gov.au

Guidelines:

- Ensure weed management is included in the works program.
- Minimise disturbance.
- Learn to identify weeds of the region.
- Schedule works to move from the least weed infested areas to the most weed infested areas. If the works program permits, schedule weed removal prior to seed setting.
- Practice vehicle hygiene to avoid spread of weeds especially following works in weed contaminated areas. Under The *CaLP Act* (Sect. 71) a person needs to ensure they maintain vehicle hygiene when moving any equipment or machinery onto or along a roadway. Transport of weeds or weed seeds is an offence. .

- Clean vehicles and machinery of all material capable of spreading weeds before undertaking activities on or near high or medium conservation sites or weed free sites.
- Spoil from table drains is generally rich in weed seeds, and should be removed offsite in areas of significant vegetation.
- Approval from DELWP is required to dispose of noxious weeds capable of germinating, or to deposit on land noxious weeds or weed seeds, other than in landfill. If it can not be removed, advise Council's Environmental Team to ensure follow up inspections of these areas are scheduled.
- Obtain soil and gravel from weed free sites. A DELWP permit is required to use soil, sand or gravel which could result in the transfer of noxious weeds.
- Dispose of any weeds likely to set seed or re-shoot by burning on-site (subject to fire prevention) or at a designated dump site (cover during transport).
- Report any weed infestations to Council's Environmental Team.

4.8 PROTECT WETLANDS AND WATERWAYS

- Do not affect levels and flood flows to permanent or seasonal wetlands
- Avoid planting trees in wetlands if the wetland community type is unknown (e.g. no trees in grassy wetland)
- Design roadside drainage systems to ensure the road formation is protected and the water level of the wetland is not altered
- Take measures to prevent erosion, siltation and sedimentation of wetlands from drainage from roads and rail embankments.
- The Goulburn Broken Catchment Management Authority (GBCMA) should be contacted and a Works on Waterways permit obtained before undertaking any works within the bed and banks of designated waterways.

Guidelines:

- Wetlands and waterways should be protected by appropriate works practices, including minimising the use of herbicides.
- Roadside drainage systems should ensure that water levels of wetlands are not altered.
- Ensure that runoff is not directed into wetlands.
- Road discharge should be filtered through native vegetation or temporary installations to reduce erosion and potential pollution problems.

4.9 NATIVE VEGETATION REMOVAL

The objective for permitted clearing of native vegetation in Victoria is:

No net loss in the contribution made by native vegetation to Victoria's biodiversity.

The key strategies to ensure no net loss at the permit level is:

1. **Avoid** the removal of native vegetation that makes a significant contribution to Victoria's biodiversity
2. **Minimise** the impacts where clearing of native vegetation cannot be avoided.
3. **Offset** any clearing of native vegetation (either through planning permit requirements or voluntarily).

The Benalla Planning Scheme requires that a planning permit be obtained to remove, lop or destroy any native vegetation in most instances.

The Benalla Rural City Council must comply with the laws and regulations when working on roadsides.

One exemption in the Planning Scheme is: "To maintain the safe and efficient function of an existing road managed by a public authority or municipal council in accordance with the written agreement of the Secretary of the Department of Environment and Primary Industries (as constituted under Part 2 of the Conservation, Forest and Lands Act 1987)".

Council has signed a Local Government Agreement for managing native vegetation on roadsides.

The agreement allows Council to undertake certain road maintenance and safety works without the need for a planning permit. However the works must fall within specific categories and thresholds and accurate records of removal must be kept. Before planning any works on roads contact the Planning Department and Environment Team for advice and assistance. This should be done in the early stages of project planning to ensure the project is not delayed if a planning permit is required and to include the associated costs within the project budget.

One requirement of the Agreement is to record any removal of native vegetation (other than lopping of one third of the foliage of a tree). The Environment Team must be notified before works commence to allow accurate monitoring and recording of vegetation changes.

A flowchart to assist in decision making have been included in **Appendix 2**.

A guide to routine maintenance tree lopping can be found in **Appendix 3**.

Guidelines:

- Before planning any works on roads contact the Planning Department and Environment Team for advice and assistance.

4.10 PROTECT CULTURAL HERITAGE

Indigenous and non-indigenous cultural heritage provides a sense of community identity. Victoria's heritage includes archaeological sites, buildings and structures, created landscapes and community values and beliefs.

As activities on roadsides have the potential to impact on heritage sites (either known or unknown), it is important to identify heritage issues to enable impacts to be avoided, minimised or mitigated.

All registered and unregistered Victorian Aboriginal archaeological sites are protected by the *State Aboriginal Heritage Act 2006* and the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*. All Victorian historical sites are protected by the *State Heritage Act 1995*. These Acts prohibit the wilful destruction or disturbance of any cultural heritage site, place or object, whether on private or public land and place large financial penalties on those found guilty of breaching this legislation.

The *Aboriginal Heritage Act 2006* establishes cultural heritage management plans, cultural heritage permit processes and cultural heritage agreements to manage activities on land that may harm Aboriginal cultural heritage.

If significant activities are to occur, including certain road works, the Aboriginal heritage planning tool should be used. The tool is available through the web. The tool contains a series of questions that will clarify if a cultural heritage management plan is required² and significant time will need to be factored into a project if this plan is required.

Areas of cultural heritage sensitivity

Under the *Aboriginal Heritage Act* the following may be relevant to the Benalla Municipality and are deemed to be areas of cultural heritage sensitivity unless they have been subject to significant ground disturbance:

- A registered cultural heritage place or land within 50 metres of a registered cultural heritage place
- A waterway or prior waterway, or land within 200 metres of a waterway or prior waterway
- An ancient lake or land within 200 metres of an ancient lake
- A declared Ramsar wetland or land within 200 metres of a declared Ramsar wetland
- A national park, State park, wilderness park, marine national park or marine sanctuary
- A greenstone outcrop
- A cave, rock shelter or cave entrance
- Areas specified in Schedule 1 to the Aboriginal Heritage Regulations

2 Available at <http://www.dpc.vic.gov.au/index.php/aboriginal-affairs/heritage-tools/25-aboriginal-affairs/452-aboriginal-heritage-planning-tool>

High impact activities

Under the *Aboriginal Heritage Act*, an activity is deemed to be high impact if it would result in significant ground disturbance.

Significant ground disturbance is defined as disturbance of the topsoil or surface rock layer of the ground, or disturbance of a waterway, by machinery in the course of grading, excavating, digging, dredging or deep ripping, but does not include ploughing other than deep ripping. Deep ripping is deemed as meaning the ploughing of soil using a ripper or subsoil cultivation tool to a depth of 60 centimetres or more.

Exempt activities

The following are exempt activities relevant to Council listed under the Aboriginal Heritage Regulations:

- The construction or carrying out of minor works
- Works reasonably necessary, in an emergency, to protect the health or safety of a person, to protect property or to protect the environment.
- Minor works are defined as:
 - Works on, over or under an existing roadway or existing rail infrastructure
 - Maintenance or repair works, or the removal of works, associated with an existing high impact activity
- Other minor works associated with an existing high impact activity

Guidelines:

- During project planning check the register of known cultural heritage sites and areas of cultural heritage sensitivity.
- If high impact activities will occur, use the Aboriginal Heritage Planning Tool to determine whether a cultural management plan is required.
- Refer to the VicRoads Cultural Heritage Guidelines prior to commencing work.

5.0 ENVIRONMENTAL ISSUES

5.1 MINIMISE DISTURBANCE TO SOIL AND VEGETATION

The best way to protect native vegetation is to minimise disturbance. Soil disturbance results in:

- Weeds invading a site, which compete with native plants, increase maintenance costs and lead to a higher potential fire risk.
- Damage and death of native plants.
- Reduced natural regeneration of native plants.
- Increased risk of soil erosion.
- Changing drainage in roadways, which might be detrimental to some plants.

The majority of damage to vegetation occurs through the inappropriate locations of materials stockpiles, windrows, turning and parking areas for machinery or inadequate definition of the limit of works.

These areas need to be located where minimal disturbance will occur and need to be clearly defined before works commence.

5.2 RESTRICT MACHINERY TO CLEARED AREAS AT ALL TIMES

Machinery can cause significant damage to native vegetation in a very short period of time. When undertaking maintenance works operate machinery from the road surface or other cleared areas wherever possible.

Once the locations of material stockpiles, windrows, turning and parking areas for machinery and the limit of works have been nominated, ensure that operators are aware of site limitations through a job site induction program and toolbox meetings.

For contracts, ensure rectification of any environmental damage is undertaken at the contractor's expense within the defect liability period.

5.3 USE THE MOST SUITABLE MACHINERY FOR THE JOB

Choose the appropriate type and minimum size of machinery to do the job.

- Smaller machinery is more maneuverable, thereby minimising potential disturbance to native vegetation. It also causes less compaction and damage to roots of trees.
- A backhoe operating from the shoulder of the road will cause far less disturbance to vegetation than a machine operating within the roadside vegetation.

5.4 MAINTAIN MACHINERY AND EQUIPMENT

Ensure all machinery and equipment used is well maintained to prevent damage caused by problems such as oil or fuel leaks.

5.5 CLEAN DOWN MACHINERY BEFORE MOVING TO ANOTHER SITE

Dirty machinery can spread weeds and soil borne diseases. Before transporting any machinery and vehicles to a new site remove all soil and seed from machinery.

This is best achieved with high-pressure water hoses. However, where these hoses are unavailable, blowing off with compressed air, scraping and brushing off soil will suffice as a short-term measure.

Wash machinery away from creeks and native vegetation, preferable on non-native grassy areas.

5.6 LOCATE STOCKPILES IN AREAS WITH NO NATIVE VEGETATION

Stockpiles can damage native vegetation if placed inappropriately and act as a source of weeds.

Guidelines:

- Only place stockpiles at Council designated locations. These should have safe traffic access, but not affect visual amenity.
- Where it is not reasonable to use designated sites, consult the Environment Team to determine a suitable alternative.
- Only locate stockpiles on areas of low conservation value, not on roadsides adjacent to public land or in areas with weed infestations.
- No materials should be stored within the drip line of existing trees, or within drainage lines.
- Stockpiles are to be regularly monitored for weeds.
- Weeds are to be controlled before they flower and set seed.
- The limits of each site are to be defined by stakes, coloured tape or fencing to avoid encroachment.
- A list of Council designated sites should be made available to staff and contractors.
- The use of stockpiles should be minimised by utilising best works practices and avoiding double-handling of materials.

5.7 WATER QUALITY, SILTATION AND EROSION

Roadworks can result in erosion and increased siltation of local waterways. High water velocities and bare ground are the principal causes of erosion, especially in combination with dispersive soils.

Design of projects should aim to minimise water velocities by dissipating flows; minimising areas of disturbed ground and retaining vegetation cover where possible.

Guidelines:

- Drains should follow natural drainage lines where possible.
- Table drains, culverts and mitre/cutoff drains should retain some vegetation cover to maximise filtering of runoff water.
- Concentrated and high velocity flows onto adjacent areas should be avoided as this increases the likelihood of erosion and poor filtration.

Guidelines:

- Minimise soil disturbance.
- Avoid scalping of the ground during slashing operations.
- Herbicides should not be used to maintain drain lines, as this bares soil and increases the erosion risk.
- Cleaning of drains should expose the least soil necessary to maintain effective water flow.
- When forming drains disturb and expose the minimum area of soil necessary to maintain effective water flow.
- Minimise areas of disturbed ground, retain vegetative cover where possible.
- Plant disturbed/exposed areas with temporary cover crops such as sterile rye grass to provide interim vegetation cover or rehabilitate disturbed areas with native plants as works proceed.
- Contain water flows using pipe or kerb/channel structures.
- Use energy dissipating devices at outfalls.
- Capture silt by use of silt traps, silt fencing, barriers, sedimentation ponds or retarding basins.
- Bund stockpile sites near waterways and wetlands.
- Avoid steep batters where possible.
- Avoid steep drainage lines where possible.
- Use rip-rap (i.e. rock) lining of drainage lines where necessary.
- Ensure there is adequate mitre drains.
- Broaden drain profiles to reduce water velocities.
- Create artificial wetland areas to dissipate flow where practicable.
- Divert stormwater away from loose or exposed soil.
- Avoid blocking drainage lines with soil or vegetation stockpiles or windrows.
- Prepare contingency plans for large storms (e.g. retention basins) to minimise effects on waterways.
- Best practice includes anticipating potential risk and being proactive.

6.0 CONSTRUCTION SPECIFIC ISSUES

6.1 WALK THE ROUTE BEFORE CONSTRUCTION COMMENCES

'Walking the route' involves assessing the construction alignment before construction begins in order to:

- Clearly mark the construction zone.
- Avoid unnecessary removal of vegetation and disturbance.
- Assess vegetation and protect significant vegetation or other sensitive areas from disturbance - tape off areas to be protected.
- Plan vegetation removal and clearly mark any vegetation to be removed.
- Identify any weed infestations and manage site to avoid weed spread, include clean down areas where appropriate.
- Locate stockpiles, access roads, machinery parking and turning areas.

The roadside Biodiversity Checklist attached to this document assists in this activity. This should be undertaken by Council staff and suitable induction given to construction workers. An appropriate Department of Environment and Primary Industries officer and Council's Environment Team may also need to be involved.

6.2 MINIMISE VEGETATION REMOVAL

Where native vegetation has been approved for removal, mark and only remove to the minimum extent necessary. Consider alternatives to vegetation removal, such as barriers and road re-alignment. Avoid areas of natural regeneration.

When vegetation needs to be removed the following techniques will minimise damage:

Guidelines:

- Obtain appropriate planning permits prior to vegetation removal.
- Choose appropriate equipment to perform the work.
- Fell trees onto the road surface, or in the direction that minimises damage to surrounding vegetation.

Guidelines:

- Dispose of felled material by leaving for habitat. Larger quantities can be mulched or made available for firewood.
- Practice correct arboreal tree pruning techniques to minimise damage and regrowth towards road.
- Collect seed from any vegetation being removed where possible.
- Any tree stumps that are left should be cut flush to ground.
- Canopy clearance activities shall comply with roadside flowcharts.
- Canopy clearance activities should be scheduled to coincide with Councils grading, resheet and reseal program.
- Trimming to the clearance template prior to road grading prevents unnecessary damage to vegetation.

6.3 STAY WITHIN THE CONSTRUCTION ZONE

The construction zone is the area marked out with pegs and coloured tape where all construction activities take place, including stockpiles, turning and parking areas. The limit of works should be clearly defined.

Stay within the marked construction zone during construction and confine machinery to well-defined tracks. Attempt to minimise machinery movement and restrict to cleared areas at all times.

6.4 STRIP AND STOCKPILE TOP SOIL

Topsoil from areas of native vegetation contains seeds of local native plants and organic matter. Stockpiling of this topsoil for later use can enhance natural regeneration of a site.

Where weeds are present or close to a site, weed seed will also exist in topsoil. Only spread topsoil that is likely to contain little or no weed seed.

Guidelines:

- Before starting works strip the top 150-200mm of topsoil.
- Locate soil stockpiles on cleared areas, away from existing drainage lines and native vegetation. Remove weeds where the stockpile is to be placed by scalping or spraying.
- Replace the topsoil as soon as possible. Ideally topsoil should be stockpiled for less than six months to ensure seed in the soil remains viable.
- Do not mix weed free and weedy topsoil.

6.5 REHABILITATION AND REVEGETATION

Where sites require rehabilitation following works:

- Larger quantities of felled vegetation can be mulched for later use and stockpiled in an area with no native vegetation.
- Do not dump mulch on roadsides.
- Do not chip any weeds that are going to seed.
- Natural regeneration should be encouraged where possible through guarding, weed control and using stockpiled topsoil that contains an indigenous plant seedbank.
- Where topsoil is to be removed from weed free areas, stockpile for spreading back over the site at the completion of works.
- Do not re-spread topsoil that contains weeds and weed seed.
- Do not mix weed free and weedy topsoil.
- Where sub-soil is heavily compacted, rip to a minimum depth of 300mm prior to spreading topsoil, except under trees or where underground services are present.
- Weed contaminated soil should be deep buried on site as part of the project.
- Do not build up any soil around tree trunks or under tree driplines.
- Following spreading, water topsoil if wind erosion is likely.
- Try to follow original contours.

Guidelines for revegetation along roadsides:

- Use locally indigenous species grown from local seed.
- Undertake suitable site preparation and ongoing maintenance.
- Depending on the site, this may include ripping, weed control, tree guards, fencing, rabbit control and watering.
- Plantings must take account of road safety and sight distances.
- Plantings should consider the requirements of the Municipal Fire Prevention Plan in relation to Fuel Reduced Corridors.
- Plantings should aim for a natural appearance (avoid rows) and should not be continuous (to provide fuse breaks for fire).
- Plant shrubs and understorey species in dense clumps.
- Species planted under powerlines should be low growing (not higher than 3m) and not interfere with services.
- Planting should be set back 1 metres from fences and 1 metre from the back of the drain.
- Trees and shrubs should not be planted in native grasslands.
- Batter slopes should be seeded with a mix of sterile rye grass to provide immediate cover. This mix should also include native grass seeds for long term establishment.

7.0 MAINTENANCE SPECIFIC ISSUES

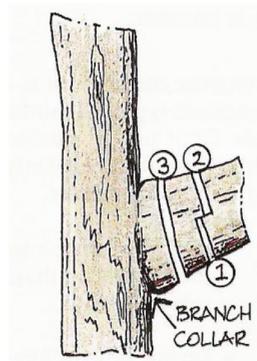
7.1 REMOVE AND PRUNE VEGETATION CAREFULLY

Native vegetation should be protected and removal minimised wherever possible. Careful pruning of over-hanging branches may reduce the need for tree removal. Consider the following before any pruning or removal of vegetation is undertaken:

- The safety of staff and road users.
- Legislative requirements.
- The effect of removal on the appearance of the roadside.
- Any historical significance of the tree or vegetation.

When removing larger branches use the three-cut method outlined below to avoid bark injury.

1. The under cut
2. The upper cut to remove the branch
3. The final trim cut (always cut on the outside of the branch collar close to, but not flush with the main trunk or limb, to assist with wound healing).



The three-cut-method.

If one side of a forked tree is to be removed, ensure cut is angled to shed water. Pruning should be conducted in a way that minimises ongoing maintenance.

7.2 AVOID TIDYING UP VEGETATION

Leave native vegetation undisturbed where possible during maintenance. Do not 'tidy up' areas of native vegetation after works by grading the roadside.

Avoid smothering native vegetation with spoil from grading works, especially windrows at tops of batter slopes and parallel to roadworks.

Logs, rocks and leaf litter provide habitat for native fauna and should be left undisturbed.

7.3 REMOVE DRAIN SPOIL AND DISPOSE IN SUITABLE LOCATION

Remove excess grading spoil off site wherever possible.

Exposed earth and drain spoil usually contains weed seed, so do not place the spoil on roadside native vegetation. Direct spoil from drains towards the road pavement for collection. Remove spoil and dispose in an area that will not cause a weed problem.

7.4 MINIMISE HERBICIDE USE

Council's key responsibility in weed control is to avoid contributing to the spread of weeds. The spread of weeds must be avoided as outlined in Section 4.7. When necessary, the use of herbicides should be minimised by using the guidelines outlined below.

Guidelines for revegetation along roadsides:

- Herbicides should only be used to control weeds when other alternatives are not suitable.
- Ensure appropriate Chemcert / Agricultural Chemical User permit qualifications are held by operators.
- Ensure weed control is undertaken in accordance with manufacturer's instructions.
- Only non-residual herbicides such as 'glyphosate' should be used to control weeds along roadsides, unless advice from DELWP is given.
- Reduce the use of broad-scale application of herbicides, to decrease the potential of herbicide resistance.
- Rotation of herbicides may reduce the risk of resistance.
- Minimise any off-target damage to native vegetation and ensure drift is minimised when spraying road verges adjacent to grasslands.

Guidelines for revegetation along roadsides:

- Use herbicides sparingly to spot spray targeted, isolated or localised aggressive infestations, especially in native grasslands. Application of herbicides using a rope-wick applicator or back-pack spot spraying is preferred.
- Alternative application methods such as stem injection or cut and paint, reduce chemical usage and off-target damage.
- Do not use herbicides near wetlands or waterways, or if unavoidable, use frog friendly products.
- Record all herbicide use and regularly monitor effects on target weed species and native vegetation.

7.5 TAKE PRECAUTIONS WHEN GRASS SLASHING AND SPRAYING

Care should be taken when grass slashing and spraying to protect native vegetation and prevent weed spread.

Machinery used for slashing is often a primary source of weed spread, with seeds catching on or in the machinery (such as slasher decks) and being transported to a new area.

Guidelines:

- Slash roadsides from native vegetation areas towards weed infested areas to minimise spread of weed seed.
- Move from high conservation areas to low conservation areas.
- Clean contaminated machinery after working in known weed areas, by broom, air blast, washing, or steam cleaning. Select appropriate site for washdown to avoid further spread of weeds.
- Native grass areas shall not be slashed lower than 150-200mm.
- If slashing of native grasses is necessary, it should not occur between November and January to allow native seed set
- Avoid scalping the ground during slashing as it encourages weeds.
- Slash weeds before they set seed.

Guidelines:

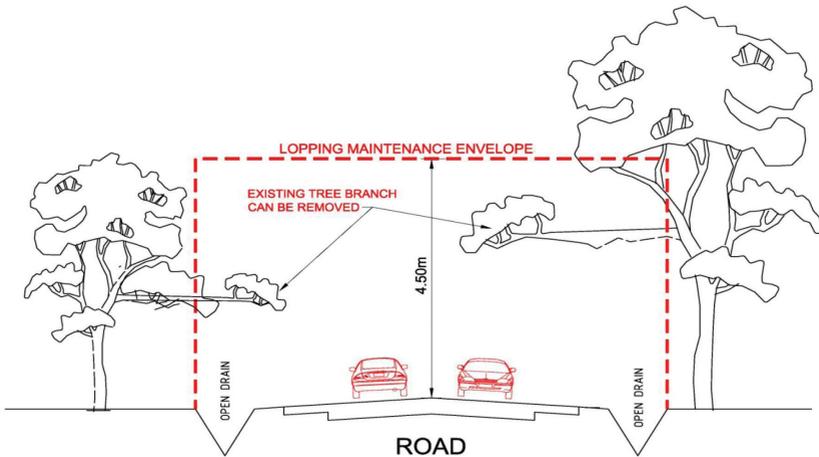
- Consider the use of slasher covers and fans or dome style slashers, especially in weed infested areas.
- Mow around regenerating trees and shrubs unless these are in unsuitable locations.
- Spraying may be used around guideposts and roadside furniture.
- Minimise fire risk from roadside ignition sources.

8.0 ROUTINE MAINTENANCE TREE LOPPING GUIDE

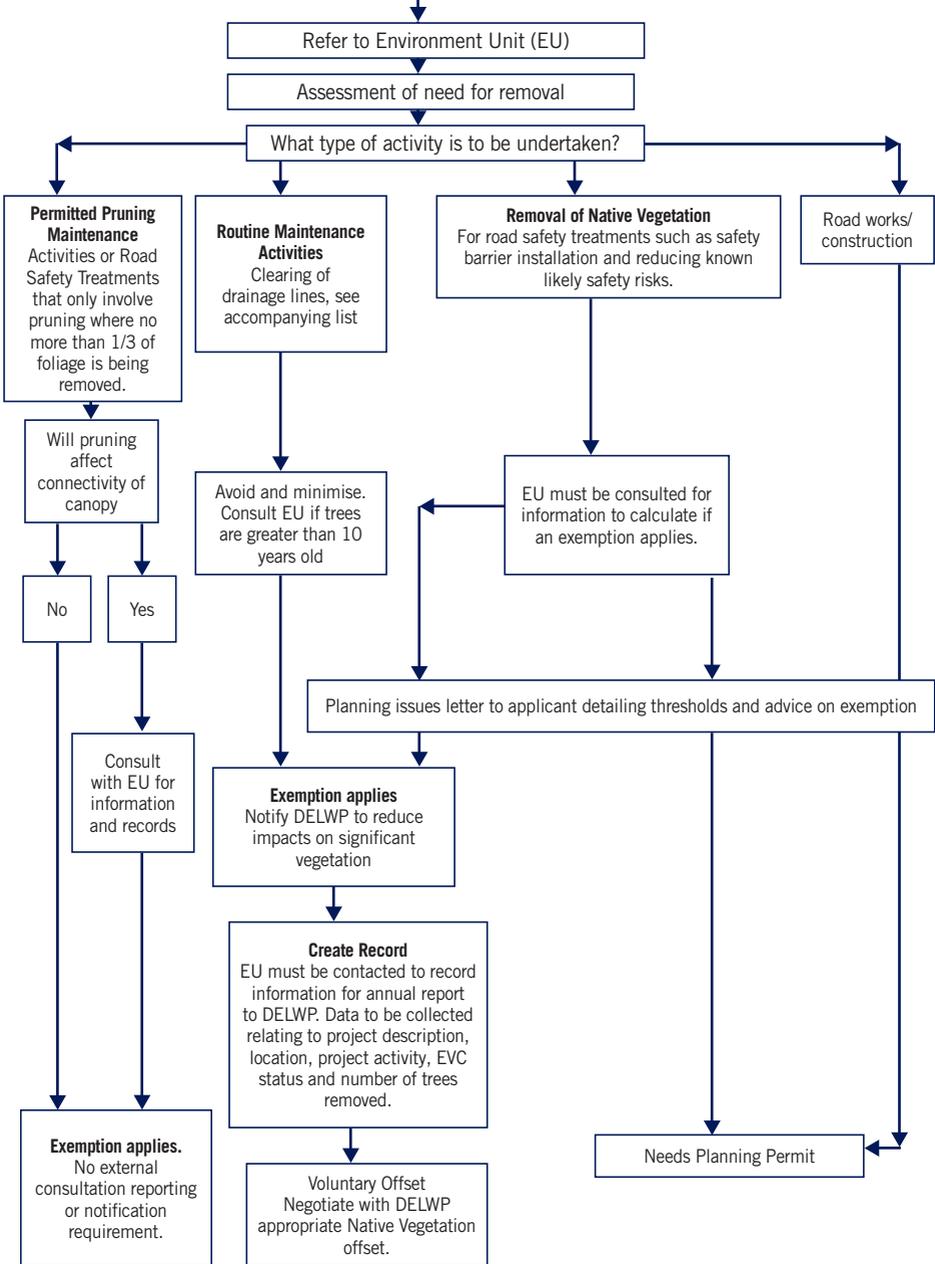
This chart applies to tree branches that have been deemed to be an issue to road safety.

Only tree branches within the specified lopping maintenance envelope can be considered for removal.

Branches must be pruned with minimum disturbance.



Removal of Vegetation for Road Safety or Maintenance



9.0 GUIDELINE SUMMARY

LOW CONSERVATION VALUE	MEDIUM CONSERVATION VALUE	HIGH CONSERVATION VALUE
<p>Confine machinery operations to the existing road formation or a designated construction zone.</p> <p>Spoil from grading and drain clearing must not be placed or spread on the roadside. If suitable, the spoil may be graded onto, and confined to, the road verges, otherwise it is to be removed to a recognised dump site.</p>	<p>Confine machinery operations to the existing road formation or a designated construction zone.</p> <p>Spoil from grading and drain cleaning must not be placed or spread on the roadside. If suitable, the spoil may be graded onto, and confined to, the road verges, otherwise it is to be removed to a recognised dump site or tip. Do not spread spoil into native vegetation on roadsides.</p>	<p>Confine machinery operations to the existing road formation or a designated construction zone.</p> <p>Spoil from grading and drain clearing must not be placed or spread on the roadside. If suitable, the spoil may be graded onto the road for re-use with new gravel in resurfacing works or if not, it is to be removed to a recognised dump site or tip. Do not spread spoil into native vegetation areas on roadsides.</p>
<p>Remove all stripping from widening and reconstruction works to a recognised dump site or tip. On very weedy sites, stripping may be extended to the fenceline but a permit is required from DELWP under the <i>CaLP</i> Act.</p>	<p>Remove all stripping from widening and reconstruction works to a recognised dump site or tip.</p>	<p>Remove any topsoil (where approved in the contract) prior to works and store in a designated area free from weeds. Re-use as soon as practical.</p>

LOW CONSERVATION VALUE	MEDIUM CONSERVATION VALUE	HIGH CONSERVATION VALUE
Clean table drains regularly so they do not become clogged with silt or vegetation.	Clean table drains regularly so they do not become clogged with silt or vegetation. Avoid native vegetation when locating or maintaining drain cut off points.	Clean table drains regularly so they do not become clogged with silt or vegetation. Avoid native vegetation when locating or maintaining drain cut off points.
Avoid regenerating native vegetation during slashing and spraying operations except within the road shoulder, verge or table drain.	Avoid regenerating native vegetation during slashing and spraying operations except within the road shoulder, verge or table drain. Time before seed set of exotic grasses and after seed set of indigenous understorey species – generally Autumn	If slashing is required for fire prevention or to retain sight lines, carry out work to occur before seed set of exotic grasses and after seed set of indigenous understorey species. If possible, avoid native grasses between September and late December. Slash only up to the back of the table drain or a maximum of two metres from the edge of the pavement. Maintain 150 - 200mm. slashing height.
Remove weeds before stockpiling materials on a new stockpile site.	Existing stockpile sites are to be kept tidy and free of weeds.	Relocate existing stockpiles as soon as possible. No new stockpiles are to be located on these roadsides.

<p>LOW CONSERVATION VALUE</p>	<p>MEDIUM CONSERVATION VALUE</p>	<p>HIGH CONSERVATION VALUE</p>
	<p>Clearly mark the construction zone prior to the commencement of works. The construction zone is to be approved in contract documents [Refer VicRoads Handbook]. Plant and equipment must not be parked on the roadside in this zone.</p>	<p>Clearly mark the construction zone prior to the commencement of works. The construction zone is the area where all construction activities take place [Refer VicRoads Handbook]. Plant and equipment must not be parked on the roadside in this zone.</p>
<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weeds or part thereof are removed. Incorporate stringent hygiene procedures.</p>	<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weeds or part thereof are removed. Incorporate stringent hygiene procedures.</p>	<p>Clean all machinery and equipment before moving onto or off a roadside to ensure all noxious weeds or part thereof are removed. Incorporate stringent hygiene procedures.</p>

10.0 ROADSIDE BIODIVERSITY RISK MANAGEMENT CHECKLISTS

The following checklists were developed as part of a joint local government and Goulburn-Broken Catchment Management Authority project managed by Moira Shire Council.

The protocols provide general guidelines and simple measures and processes that can be easily adapted and implemented by local government and others to mitigate potential impacts to biodiversity as a result of works and other activities in road reserves³.

10.1 COMMUNICATIONS

COMMUNICATIONS CHECK LIST		RESPONSIBILITY
Initial Communication required with:	<input type="checkbox"/> Coordinating authority – undeclared roads <input type="checkbox"/> VicRoads – declared roads <input type="checkbox"/> Environmental officer <input type="checkbox"/> Supervisor <input type="checkbox"/> Team leader <input type="checkbox"/> Engineer <input type="checkbox"/> Planner <input type="checkbox"/> Referral agencies <input type="checkbox"/> Contractor <input type="checkbox"/> Third parties (landholders) <input type="checkbox"/> Other	
Environmental assessment	<input type="checkbox"/> Environmental officer <input type="checkbox"/> Supervisor <input type="checkbox"/> Referral agencies <input type="checkbox"/> Other	

3 Roadside Biodiversity Risk Management protocols, p1

COMMUNICATIONS CHECK LIST <small>continued</small>		RESPONSIBILITY
Mitigation plan development	<input type="checkbox"/> Environmental officer <input type="checkbox"/> Supervisor <input type="checkbox"/> Referral agencies <input type="checkbox"/> Other	
Permits required from	<input type="checkbox"/> Council (Planning, Consent for works) <input type="checkbox"/> Catchment Management Authority (Works on Waterways) <input type="checkbox"/> Other (Local Laws)	
Mitigation measures implementation Internal communication	<input type="checkbox"/> Appropriate works personnel/ management notified <input type="checkbox"/> Works plans and issues discussed <input type="checkbox"/> Plans documented <input type="checkbox"/> Appropriate delegations communicated in writing to responsible persons <input type="checkbox"/> Other	
Mitigation measures implementation External communication: Referral agencies, Contractors	<input type="checkbox"/> Appropriate external agencies notified <input type="checkbox"/> Works plans and issues discussed <input type="checkbox"/> Plans documented <input type="checkbox"/> Appropriate delegations communicated in writing to responsible persons <input type="checkbox"/> Other	
Mitigation plan implementation	<input type="checkbox"/> Supervisor <input type="checkbox"/> Contractor <input type="checkbox"/> Other	

COMMUNICATIONS CHECK LIST <i>continued</i>		RESPONSIBILITY
Monitoring Evaluation and Reporting (MER)	<input type="checkbox"/> Who undertakes MER <input type="checkbox"/> When is MER undertaken <input type="checkbox"/> What is reported <input type="checkbox"/> How are works reported <input type="checkbox"/> Appropriate reports communicated in writing <input type="checkbox"/> Other	

Source: Roadside Biodiversity Risk Management Protocols, p 31

10.2 ROAD CONSTRUCTION AND MAINTENANCE

The activities associated with this program could occur in road reserves that may contain native vegetation and habitats for threatened species. Road reserves where the activities take place may also occur in close proximity to waterways and or temporary or permanent wetlands.

The following steps provide a guide to evaluating and mitigating impacts on biodiversity assets from works activities⁴.

Step 1: Identify program (works) and typical activities

The activities associated with this program occur in road reserves that may contain native vegetation and habitats for threatened species. Road reserves where the activities take place may also occur in close proximity to waterways and or temporary or permanent wetlands.

PROGRAM ACTIVITY CHECK LIST
<input type="checkbox"/> Grading and re-forming the road surface, shoulders and drains <input type="checkbox"/> Importation and compaction of road filling material <input type="checkbox"/> Operation of vehicles and machinery including turning and parking <input type="checkbox"/> Ground disturbance <input type="checkbox"/> Management of spoil <input type="checkbox"/> Removal of native vegetation <input type="checkbox"/> Other:

4 Roadside Biodiversity Risk Management protocol pp33 - 37

Step 2: Identify biodiversity assets

Identify biodiversity assets within the road reserve (on-site) or nearby (off-site) that may be affected by road construction and maintenance activities. This should be achieved by accessing a range of readily available information and a site inspection by someone who is able to identify biodiversity assets.

1. Refer to roadside conservation value maps, Roadside Management Plan, aerial photographs, Ecological Vegetation Class maps
2. Conduct an on-site inspection, seek assistance if necessary eg Council Environment Department and or Department of Environment and Primary Industries Native Vegetation Officer, Catchment Management Authority..
3. Seek advice if unsure (as above)
4. Complete the biodiversity check list

BIODIVERSITY ASSET CHECK LIST	ONSITE YES/NO	OFFSITE YES/NO	ROADSIDE CONSERVATION VALUE H M L	EVC OR THREATENED SPECIES STATUS
<p>Native vegetation and habitats-Check list</p> <ul style="list-style-type: none"> <input type="checkbox"/> Individual trees <input type="checkbox"/> Stands of trees <input type="checkbox"/> Treeless grasslands <input type="checkbox"/> Shrubs <input type="checkbox"/> Groundcover, grasses, mosses <input type="checkbox"/> Habitat features such as logs, dead trees, logs, rocks 				

BIODIVERSITY ASSET CHECK LIST continued	ONSITE YES/NO	OFFSITE YES/NO	ROADSIDE CONSERVATION VALUE H M L	EVC OR THREATENED SPECIES STATUS
Threatened Species-Check list <i>Any species and habitats of local, regional, state or national importance</i> <input type="checkbox"/> Plants <input type="checkbox"/> Animals <input type="checkbox"/> Habitats				
Wetlands-Check list <i>Any type of permanent or temporary wetland including areas subject to periodic flooding or connected to a floodplain</i> <input type="checkbox"/> Wetland				
Waterways <i>Any river, stream, creek including the bed, banks and adjacent areas</i> <input type="checkbox"/> Waterway				

Step 3: Identify potential impacts

This step identifies potential impacts (that could occur as part of the planned works or unintentionally) on biodiversity assets (see step 2) that could result from road construction and maintenance activities if no action is implemented to avoid impacts.

POTENTIAL IMPACTS CHECK LIST	INCLUDING
Native vegetation removed or damaged	<input type="checkbox"/> Shrubs <input type="checkbox"/> Saplings <input type="checkbox"/> Trees <input type="checkbox"/> Ground cover such as mosses and grasses <input type="checkbox"/> Dumping or stockpiling spoil or other materials onto areas with native vegetation <input type="checkbox"/> Removal of soil within the drip line area of trees <input type="checkbox"/> Dumping spoil around trees <input type="checkbox"/> Damage to trunks, branches and roots <input type="checkbox"/> Parking, turning or other operation of machinery in areas of native vegetation <input type="checkbox"/> Other
Loss or damage to habitats	<input type="checkbox"/> Reduction of roadside width <input type="checkbox"/> Removal of dead standing trees <input type="checkbox"/> Removal of logs, branches, rocks, leaf litter <input type="checkbox"/> General 'tidying up' by grading roadside edge, piling up fallen logs and branches <input type="checkbox"/> Soil compaction due to operation of machinery off road <input type="checkbox"/> Disturbance of wildlife corridors
Weed spread	<input type="checkbox"/> Soil disturbance and baring the ground <input type="checkbox"/> Dumping spoil on roadsides <input type="checkbox"/> Importation of materials containing weed seed <input type="checkbox"/> Transportation of weed seed on vehicles <input type="checkbox"/> Spreading of soil and other materials which may contain weed seed
Contamination from runoff and sediments	<input type="checkbox"/> Sediment and or nutrient run off into wetlands and waterways <input type="checkbox"/> Dust <input type="checkbox"/> Other

POTENTIAL IMPACTS CHECK LIST <small>continued</small>	INCLUDING
Altered drainage	<input type="checkbox"/> Artificial changes to water levels in wetlands <input type="checkbox"/> Water ponding in roadside 'drains' <input type="checkbox"/> Blockage of natural drainage lines <input type="checkbox"/> Water logging <input type="checkbox"/> Other

Step 4: Evaluating likelihood of impacts

This involves consideration of the likelihood of potential biodiversity impacts (see step 3) occurring if measures are not implemented to avoid them. Likelihood of impact should be considered for all stages of the works including on-going maintenance. A key influence on the likelihood of impact is the proximity of biodiversity assets to the activities. In the case of works in road reserves biodiversity assets are often in close proximity to works activities (on-site).

LIKELIHOOD OF IMPACT	CHECKLIST
<p>Unlikely</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Conservation value and native vegetation/species status information and mapping (see step 2) shows the works area is designated low conservation value and there no records of threatened species or vegetation types in the vicinity of the works area <input type="checkbox"/> On-site inspection shows that there is no native vegetation/habitats with the exception of few widely scattered trees and grasses which are not close to the road <input type="checkbox"/> There are no wetlands or waterways in the vicinity of the works area <input type="checkbox"/> Drainage works are planned (including maintenance of existing drains) <input type="checkbox"/> Works and soil disturbance are only planned for the existing cleared area of the road formation <input type="checkbox"/> Cleared areas are available for vehicle use including turning and parking <input type="checkbox"/> The work area is relatively flat and no alteration to drainage is planned <input type="checkbox"/> Imported materials are from a known weed free source

LIKELIHOOD OF IMPACT	CHECKLIST
Likely	<ul style="list-style-type: none"> <input type="checkbox"/> Check of conservation value and vegetation status information and mapping shows the works area is designated moderate conservation value and or there are no records of threatened species or vegetation types in the vicinity of the works area <input type="checkbox"/> On-site inspection shows patches of native vegetation and habitat features that are not close to the road but works may occur within the drip line of trees <input type="checkbox"/> The work area is in close proximity to a wetland, waterway or floodway <input type="checkbox"/> Drainage works are planned (including maintenance of existing drains) but there will be no run-off directly to a wetland, waterway or floodplain <input type="checkbox"/> Works and soil disturbance are planned for the existing cleared area of the road formation only <input type="checkbox"/> Cleared areas are available for vehicle use including turning and parking <input type="checkbox"/> The work area is relatively flat and no alteration to drainage is planned <input type="checkbox"/> Imported materials are from a known weed free source

LIKELIHOOD OF IMPACT	CHECKLIST
<p>Almost certain</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Check of conservation value and vegetation status information and mapping shows the works area is designated moderate or high conservation value and or there are records of threatened species or vegetation types in close proximity to the works area <input type="checkbox"/> On-site inspection shows native vegetation and or habitat features occur across much of the area including close to the road edge <input type="checkbox"/> Works and soil disturbance may be necessary outside the existing cleared area of the road formation <input type="checkbox"/> Cleared areas for vehicle use including turning and parking are limited <input type="checkbox"/> The work area could directly involve a wetland, waterway or floodway <input type="checkbox"/> Drainage works are planned (including maintenance of existing drains) which could direct run-off to a wetland, waterway or floodway <input type="checkbox"/> Imported materials are not from a known weed free source

Step 5: Risk mitigation

Mitigation involves the identification and implementation of appropriate minimal level measures to avoid potential impacts (step 3) or at least reduce the likelihood of impacts (step 4) to biodiversity assets (step 2) as a result of program activities (step 1). The following is only a guide, appropriate measures may be determined on a case by case basis.

LIKELIHOOD	MITIGATION MEASURES CHECKLIST
<p style="text-align: center;">Unlikely</p>	<ul style="list-style-type: none"> <input type="checkbox"/> All road construction and maintenance activities should be subject to an environmental assessment. The level and detail of assessment should be consistent with the type, location and extent of activities in relation to proximity of biodiversity assets <input type="checkbox"/> For routine tasks where activities are confined to the cleared area of the road formation the focus should be on avoiding adverse biodiversity impacts through implementation of approved procedures and work practices which are consistent with Codes of Practice, Roadside Management Plans and legislation <input type="checkbox"/> All staff and contractors should have or be required to attain skills and knowledge necessary to implement environment management practices
<p style="text-align: center;">Likely</p>	<ul style="list-style-type: none"> <input type="checkbox"/> In addition to the above. Where works are proposed and it is likely activities could potentially impact biodiversity assets the proposed works should be subject to an onsite assessment to determine mitigation measures to be implemented <input type="checkbox"/> If necessary an Environmental Management Plan (EMP) should be developed. Responsibility for implementation should be clearly defined, allocated and acknowledged by the appropriate parties. This should include monitoring and reporting. <input type="checkbox"/> All relevant stakeholders should be consulted and approvals given prior to commencement

LIKELIHOOD	MITIGATION MEASURES CHECKLIST
<p>Almost certain</p>	<ul style="list-style-type: none"> <input type="checkbox"/> If native vegetation removal is proposed and or the works are in threatened species habitat, alternative designs and other options should be considered and where possible adopted <input type="checkbox"/> Advice should be sought from DSE Native Vegetation Officer and Flora and Fauna Officers <input type="checkbox"/> If removal of native vegetation is considered necessary all permit requirements should be addressed and approvals given prior to commencement <input type="checkbox"/> All requirements other requirements for permits should be addressed eg Works on Waterways <input type="checkbox"/> Contracts for works in road reserves should include environmental conditions adequate to address the above and monitored for compliance

11.0 REFERENCES

Benalla Rural City Council, Roadside Vegetation Management Plan 2006 Draft

Benalla Rural City Council, Roadside Weed and Rabbit Control Plan 2012

Greater Shepparton City Council, Roadside Environmental Code of Practice Handbook Roadside Construction Maintenance Contractors and Workers, March 2008

Goulburn-Broken Catchment Roadside Biodiversity Risk management Protocol Project Report, Goulburn Broken Roadside Biodiversity Risk Management Protocols, December 2007

Goulburn Broken Catchment Management Authority
Weeds of the Goulburn Broken A field Guide to terrestrial and Aquatic Weeds 3rd edition, 2008.

Government of Victoria, Victoria Planning Provisions

VicRoads, Weed and Pest Management Strategy 2011-2015 North eastern Region, October 2011

VicRoads, Roadside Handbook An Environmental Guide

12.0 APPENDICES

APPENDIX 1: THREATENED SPECIES LIST

The following threatened species were identified in the roadside desktop assessments.

Common Name	Scientific Name	VROT	EPBC	FFG
Deane's Wattle	<i>Acacia deanii</i>	r		
Western Silver Wattle	<i>Acacia decora</i>	v		
Bent-leaf Wattle	<i>Acacia flexifolia</i>	r		
White Cypress Pine	<i>Callitris glauca</i>			
Umbrella Grass	<i>Digitaria divaricatissima</i>	v		
Bottle Washers	<i>Enneapogon nigricans</i>			
Lima Stringybark	<i>Eucalyptus alligatrix</i> ssp. <i>limaensis</i>	e	EN	
Mugga Ironbark	<i>Eucalyptus sideroxylon</i> ss	r		
Narrow-leaf Goodenia	<i>Goodenia macbarronii</i>	v	V	L
Western Golden Tip	<i>Goodia mediciginea</i>	r		
Flat-leaf Bush-pea	<i>Pultenaea platyphylla</i>	r		
Small Leaf Bush-pea	<i>Pultenaea foliolosa</i>	r		
Barking Owl	<i>Ninox connivens</i>	e		L
Grey-crowned Babbler	<i>Pomatostomus temporalis</i>	e		L
Regent Honeyeater	<i>Anthochaera phyrigia</i>	e	EN	L
Bush Stone Curlew	<i>Burhinus grallarius</i>	e		L
Squirrel Glider	<i>Petaurus norfolcensis</i>	e		L
Brush-tailed Phascogale (Tuan)	<i>Phascogale tapoatafa</i>	v		L

Key to abbreviations in table

VROT*	Victorian Rare or Threatened
X	extinct in Victoria
e	endangered in Victoria
v	vulnerable in Victoria
k	insufficiently known in Victoria
r	rare in Victoria
FFG L	species is Listed under Flora and Fauna Guarantee Act 1988
EPBC	Listed under Environment Protection and Biodiversity Conservation Act 1999
EN	Endangered: facing a very high risk of extinction in the wild in the near future.

VROT*: Plants that are on the threatened species advisory lists, maintained by DELWP. These are not the same as the Threatened List established under the Victorian *Flora and Fauna Guarantee Act 1988 (FFG)*. Further information is available at www.delwp.vic.gov.au

APPENDIX 2: Decision Making Flowchart for Removal of Native Vegetation

Removal of Native Vegetation Assessment process

