ENVIRONMENTAL CODE OF PRACTICE

FOR

ROAD CONSTRUCTION AND MAINTENANCE WORKS

GOVERNMENT OF WESTERN AUSTRALIA

MAIN ROADS Western Australia

Roadside Conservation Committee

WESTERN AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION

ENVIRONMENTAL CODE OF PRACTICE

FOR

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Photo MRWA

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Preface

Western Australia has a unique and varied environment, valued by its people and by visitors from interstate and overseas. Increased protection of our environmental asset is necessary to meet the challenges presented by increasing population, industry and public expectation.

Transport is one of the many pressures on the environment, and the State-wide task of managing road infrastructure has its particular environmental challenges. Road construction and maintenance involves environmental considerations that range from the socially oriented aspects such as preserving heritage sites and maintaining amenity for residents living alongside roads, to biodiversity aspects such as protecting conservation areas and preserving valuable roadside vegetation.

In a joint initiative, representatives from the Roadside Conservation Committee, Main Roads Western Australia and the Western Australian Local Government Association have prepared this Environmental Code of Practice which provides guidance on the key issues and actions necessary to protect the environment during road construction and maintenance activities.

We endorse this code and recommend it be adopted and implemented by road managers for the benefit of the environment and the community.

Mr Menno Henneveld
Commissioner of
Main Roads

Ms Ricky Burges
Chief Executive Officer
Western Australian Local
Government Association

Dr Ken Atkins
Chairman
Roadside Conservation
Committee

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Introduction

Roads and the Environment

Roads are a key part of Western Australia's integrated transport system, ranging from freeways and interstate highways to local streets and remote unsealed roads. Provision of this road infrastructure and its upkeep have the potential to have an impact on the environment and must be managed accordingly. Whether infrastructure activity involves a new road through uncleared land or upgrading or maintenance of an existing road, great care is needed to avoid and minimise various environmental impacts.

In this Code, "environment" is a broad term encompassing natural elements of vegetation, fauna, wetlands and rivers, as well as our human environment or amenity and our heritage. Successful protection of this varied environment requires commitment and action by road management organisations and those acting on their behalf.

The roadside environment is synonymous with wildflowers. Photos by David Lamont (top right) and P. Hussey (above)

Purpose of the Code

The Code has been prepared with the intention that it be an important and integral part of a management system that will protect the environment during road construction and maintenance activities. Related parts of such a system include environmental policy and procedures. A series of practical guidelines on roadside management is available from the Roadside Conservation Committee.

The purpose of this Code of Practice is to:

- Ensure that road construction and maintenance site activities are carried out in a manner that minimises environmental impact.
- Promote the awareness and use of best practice in environmental management of roads.

Guiding Principles

The Code is based on the following principles:

- Best practice environmental management should be incorporated into the planning and undertaking of road management activities.
- People involved in road management should be trained to protect the environment.
- Communication and consultation should be undertaken with stakeholders.
- Road management actions should comply with relevant laws that relate to the environment.

Applying the Code

The Code has been prepared for use by road management organisations, who are encouraged to adopt it for application in roadworks and road reserve management undertaken directly by their staff or their contractors. The Code may also be promoted as being appropriate for use by other organisations undertaking activities within road reserves. It should be applied to construction and maintenance activity.

Road Construction

Development of a proposal for either a new road or a major road-upgrade must include consideration of potential environmental impact. A preliminary screening of the proposal will indicate whether there is likely to be a low impact that can be managed by applying the standard practices contained in the Code, or whether more detailed environmental impact assessment and management is required.

Most proposals requiring an environmental impact assessment also involve liaising with stakeholders, preparing a plan to manage impacts and obtaining approvals where required, and implementing the plan during construction.

Road Maintenance

Maintenance of roads involves activities that could cause environmental damage unless suitable precautionary actions are taken. The Code indicates the key actions necessary to adequately protect the environment, and provides a basis for preparation of subsidiary documents such as detailed maintenance procedures.

Maintenance of roads involves activities that could cause environmental damage. (Photo by David Lamont)

Structure of the Code

The Code addresses key issues in the environmental management of roadwork activities. Issues listed in the code are presented in three parts:

- Issue: explains the issue and why it is important
- Aim: the intended outcome for each issue
- Practice: list of best practice actions necessary to achieve the aim

Legal Obligations

There are numerous State and Commonwealth laws concerning environmental protection, and government agencies administering these laws often issue associated policies and guidelines. While the Code does not endeavour to list these laws and associated documents, it is assumed that organisations involved with road construction and maintenance activities or other works within the road reserve will comply with them.

For each environmental topic contained in the Code there is reference to some relevant agencies and other organisations that can provide advice on legal obligations, policies and guidelines.

Stakeholder Communication

The issue

Road management authorities have a public responsibility to inform and consult with all parties that might be affected by their proposals and actions. Adequate consideration of stakeholder views and expectations will result in a good reputation and stakeholder satisfaction. Stakeholders can include government agencies, environmental specialist groups, business and community groups, the general public, and road and roadside users.

The aim

Inform stakeholders about activities that may affect them, consult with appropriate parties and respond to complaints and requests for information.

The practice

- Identify organisations and communities that have a stake in a proposed road construction project or maintenance activities.
- Inform stakeholders about proposed activities and consult on issues affecting them.
- Establish a protocol for managing enquiries and complaints.

Organisations for advice:

Roadside Conservation Committee

WA Local Government Association

Department of Premier and Cabinet, Citizens & Civics Unit

Department of Local Government and Regional Development

Main Roads WA

Identify organisations and communities that have a stake in a proposed road construction project or maintenance activities. (Photo by L Trinder)

Training

The issue

People involved in road management need to be aware of relevant environmental considerations, and be trained in how to undertake works in an environmentally sensitive manner. Failure to provide adequate training can result in environmental damage and breach of the law.

Ensure that all people involved in road management have appropriate environmental training. (Photo by MRWA)

The aim

Ensure that all people involved in road management have appropriate environmental training.

The practice

- Identify the training needs of people involved in the various stages of road planning, design, construction and maintenance.
- Undertake suitable environmental training.
- Undertake project specific environmental induction for site workers, identifying particular aspects of a construction site.
- Train maintenance people in techniques that protect the environment.
- Monitor ongoing training needs.

Organisations for advice:

Roadside Conservation Committee

WA Local Government Association

Main Roads WA

Conservation of Native Vegetation and Fauna

The issue

Roadside vegetation is often a significant part of the remaining native vegetation in a locality, and so provides valuable habitat and linkage between vegetation blocks. There are also numerous occurrences of rare plants within road reserves, and many roadsides throughout the State are known for their wildflower displays and play an important role in tourism. Good roadside management will preserve and enhance these values.

Roadsides provide important habitats for fauna. Photos by L Trinder (top right) and P. Hussey (above).

The aim

- Minimise clearing and degradation of native vegetation.
- Protect rare plants and plant communities, native fauna and their habitats.
- Maintain aesthetic values of roadsides.

The practice

- Mark the limit of any proposed clearing, and any trees within this area that are to be retained.
- Identify any special locations to be protected, eg rare flora, threatened communities.
- Consider environmental impact when selecting areas suitable for stockpiling materials, eg already cleared, degraded, away from drainage lines.
- Leave logs and dead trees for habitat, provided safety requirements are met.
- Remove and relocate fauna that have been identified for rescue before clearing, especially in urban bushland areas.
- Select sites for obtaining road building materials outside the road reserve, and on already cleared land where possible.
- Revegetate areas that are cleared as part of road construction and maintenance activity, including sites used for obtaining road building materials.
- Endeavour to revegetate bare or badly degraded areas of native vegetation along existing roads, and sites used for obtaining road building materials.
- Minimise other disturbance to the roadside to reduce vegetation loss.

Organisations for advice:

Roadside Conservation Committee

Department of Conservation and Land Management, local office

Main Roads WA

Special Environmental Areas

The issue

Roadsides contain environmental and heritage sites that are either protected by law or in their own right are worthy of special protection measures. These sites are termed Special Environmental Areas (SEA's) and mainly comprise locations of threatened flora, and Aboriginal or other heritage sites. SEA's are often delineated by markers to assist in their protection.

The aim

Preserve the values of Special Environmental Areas.

The practice

- Maintain a system for managing SEA's.
- Delineate SEA's by site markers, unless confidentiality is required.
- Ensure workers know the location of SEA's and the need to protect them.
- Do not undertake any activity within an SEA, unless under the direction and supervision of an environmental specialist.

Organisations for advice:

Roadside Conservation Committee

Department of Conservation and Land Management

Main Roads WA

Grevillea dryandroides a declared rare species found on roadsides. (Photo by L Trinder)

Dieback

The issue

Dieback is a disease that results in the slow death of vegetation and is caused by the introduced Phytophthora fungus. This fungus is spread by the movement of spores in water, and by human activity that moves infected soil. Phytophthora is restricted to the south-western part of the State where approximately a third of native flora is susceptible to attack. Phytophthora cannot be eradicated once an area is infested, therefore it is imperative that road management activities avoid introducing and spreading it.

The aim

Control the spread of Phytophthora.

The practice

For the south-western part of the State:

- Identify dieback-free and dieback-infested roadsides and sources of road building materials.

A sign-posted dieback site in roadside. (Photo by L Trinder)

- Plan site activity for drier months where possible.
- Apply hygiene methods where there is a risk of spreading dieback.
- Use dieback-free road building materials where required.
- Train relevant people in dieback management.

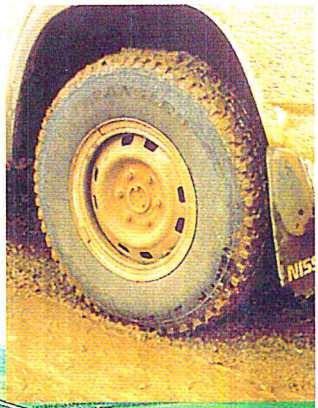
Organisations for advice:

Roadside Conservation Committee

Department of Conservation and Land Management, local office

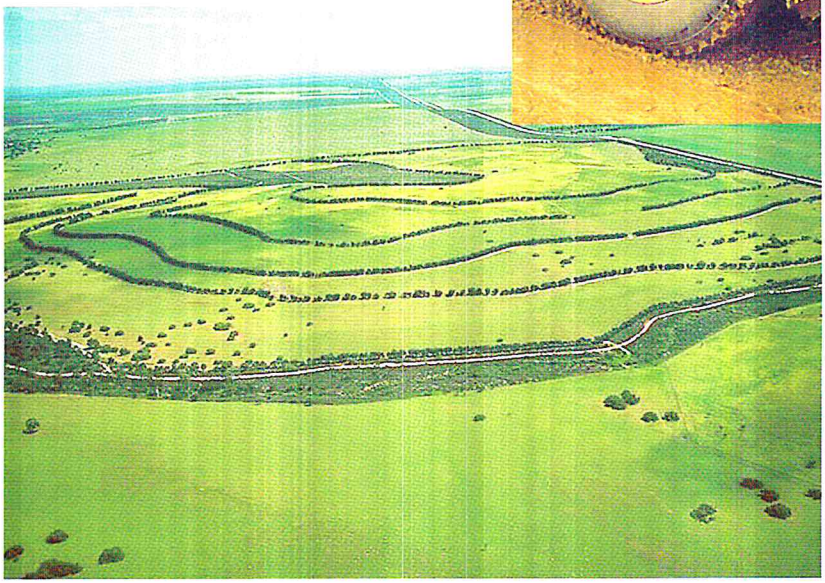
Main Roads WA

Dieback Working Group



Right: Mud on wheels of plant and equipment can spread dieback. (Photo DCLM)

Below: Poor dieback management puts roadside vegetation at risk. (Photo Department of Ag)



Vegetation Control

Vegetation control is addressed in this code in three parts:

- Removal, pruning, slashing and mowing of vegetation
- Weeds
- Herbicides

Control needs to be undertaken in a way that avoids unnecessary damage to vegetation. (Photo by B Moyle)

Removal, pruning, slashing, and mowing of vegetation

The issue

Trees and other vegetation on roadsides can affect road safety by restricting vision of road users, and encroach on the road asset in such a way as to contribute to its degradation. Vegetation type and growth vary across the State, so control techniques and timing of their application vary accordingly. Control needs to be undertaken in a way that avoids unnecessary damage to vegetation.

The aim

Maintain vegetation clearances and sightlines in a way that preserves or enhances aesthetic and conservation values of roadsides.

The practice

- Ensure workers understand the aim of the particular type of vegetation control and operate only within the nominated areas.
- Prune and/or remove vegetation sufficient to meet safety requirements, avoiding damage to other vegetation.
- Avoid Special Environmental Areas.
- Identify any revegetation areas or individual plants that need to be avoided.
- Prune for a natural finish, eg prune entire branch, cut tree stumps close to the ground.
- Chip and mulch cleared material or replace whole where appropriate.
- Spread mulched material on bare areas for weed/erosion control, not on existing good quality native vegetation.
- Dispose of waste vegetative material to an appropriate site, and do not burn.

Organisations for advice:

Roadside Conservation Committee

Department of Conservation and Land Management, local office

Main Roads WA

Weeds

The issue

Weeds impede agricultural production, compete with and displace native vegetation, become a visual blight on the landscape and increase fire hazard. Weeds are classed as either "declared" or "pest plants" by regulations and require specific actions to be taken, or "environmental" that involve voluntary actions by individuals and organisations. Transport corridors such as roads are a means of spreading weeds, either by road construction and maintenance activity or by actions of road users.

The aim

Control the spread of weeds.

Weeds can pose a serious threat to habitat. (Photo MRWA)

The practice

- Identify declared and environmental weeds at construction sites and along the road network, and initiate weed management programs.
- Train relevant people in identification of priority weeds for the particular area.
- Apply effective weed control methods, considering site characteristics, types of weeds, weed life cycle and climatic season.
- Minimise disturbance of vegetation and soil to limit the opportunity for weed invasion.
- Manage topsoil movement to avoid spread of weeds.
- Clean equipment and vehicles before moving on/off a work site.
- Dispose of weeds at an approved disposal site.

Organisations for advice:

Roadside Conservation Committee

Department of Conservation and Land Management, local office

Department of Agriculture

Department of Environment

Main Roads WA

Herbicide use

The issue

Herbicides can be an effective means of controlling declared and environmental weeds, Application of herbicide can involve risk to non-target species of plants and sensitive fauna, crops and drinking water, so correct use is essential.

The aim

Minimise the use of herbicides and reduce associated risks through training and appropriate application techniques.

The practice

- Consider and implement alternatives to herbicides where appropriate.
- Use only approved products, and at the recommended application rates.
- Train herbicide operators, and apply safety and health precautions.
- Design and implement herbicide programs to be effective and minimise adverse effects.
- Maintain records of applications.
- Avoid herbicide runoff into watercourses, wetlands or drinking water catchment areas.
- Liaise with road neighbours on appropriate use of herbicides.

Organisations for advice:

Roadside Conservation Committee

Main Roads WA

Department of Agriculture

Health Department

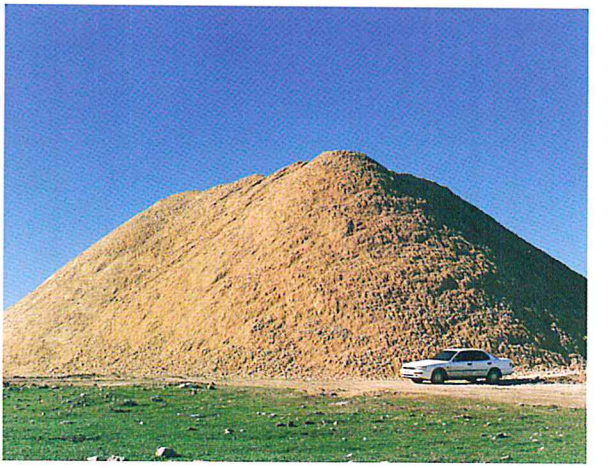
Department of Environment Water and Catchment Protection

Correct application of herbicides is essential. (Photo MRWA)

Stockpiling of Road Building Materials

The issue

Road building materials are often stockpiled in the vicinity of the road where they will be used. Poor siting of stockpiles causes damage to native vegetation, and if not managed correctly can be eroded and cause siltation of watercourses, or be a source of weed infestation.



Care should be taken in choosing sites to stockpile road building materials. (Photo by L Trinder)

The aim

Locate and manage stockpiles to minimise their impact on the environment.

The practice

- Locate stockpiles, where possible, on land that has already been cleared of vegetation or is degraded, and away from drainage lines.
- Mark the extent of the proposed stockpile, so as to avoid damage to native vegetation.
- Establish sediment controls around stockpiles where there is risk of erosion to watercourses or wetlands.
- Treat stockpiles that have weed infestation.
- Implement measures to minimise dust generation from stockpiles where necessary.

Organisations for advice:

Roadside Conservation Committee

Main Roads WA

Water Quality, Erosion and Sediment Control

The issue

Runoff from road construction and maintenance sites can contain pollutants and affect the quality of receiving waters such as wetlands, watercourses, ground water, and drinking water supply. Pollutants can include hydrocarbons such as oils, zinc and other metals especially in urban areas, and sediment. Large volumes of runoff from cleared areas can cause significant erosion and general land degradation.

Control runoff from cleared areas to avoid erosion. (Photo by K Vaux)

The aim

Maintain water quality in wetlands, waterways and drinking water catchment areas that adjoin roads.

Control erosion from cleared areas to avoid erosion and siltation of watercourses.

The practice

- Limit disturbance and clearing of sites.
- Implement actions where necessary to control erosion and runoff from construction sites.
- Use and store any hazardous substances appropriately.
- Dispose of wastes appropriately.
- Control discharge flows and sedimentation caused by dewatering operations.
- Minimise surplus wastewater from activities such as brick and pavement cutting, and avoid runoff to environmentally sensitive areas.
- Locate wash down of vehicles and other equipment away from environmentally sensitive areas.
- Clean out sediment from detention basins as appropriate and dispose at approved disposal site.

Organisations for advice:

Department of Environment

Main Roads WA

Dust

The issue

Road construction and maintenance activities often generate some amount of dust, especially in very dry conditions. Dust is a nuisance in the environment and can decrease amenity values. It can also be a health hazard causing respiratory problems and can pose a risk to traffic safety by reducing visibility.

Road construction and maintenance activities often generate some amount of dust. (Photo MRWA)

The aim

Control dust emissions for the benefit of nearby residents and to limit the effect on native vegetation.

The practice

- Clear vegetation only when necessary.
- Control dust by spraying soil with water as required.
- Treat areas due for soil stabilisation as soon as practical.
- Use dust suppressants as appropriate, that are suitable to the environment and in accordance with the manufacturer's recommendations.
- Inform the adjoining community about planned activities that might cause significant dust.

Organisations for advice:

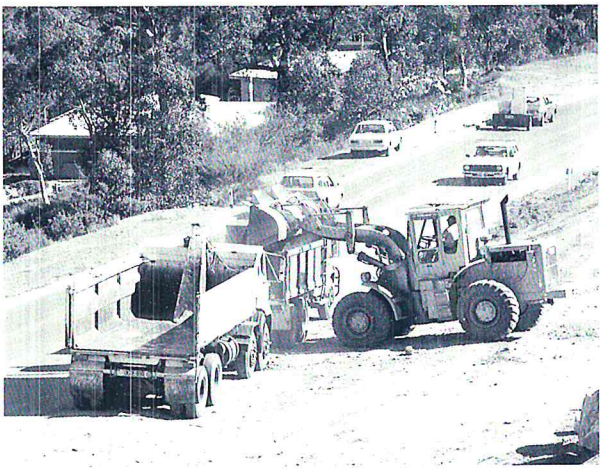
Department of Environment

Main Roads WA

Noise and Vibration

The issue

Noise and vibration from road construction and maintenance activity can cause a nuisance to people nearby. The degree of nuisance can depend on the time of occurrence, duration and intensities. In some instances vibration can cause damage to buildings. The common source of noise and vibration is equipment, and on occasion, blasting.



Noise and vibration from road construction and maintenance activity can be a nuisance and cause damage to buildings. (Photo MRWA)

The aim

Minimise noise and vibration to prevent damage to buildings and maintain amenity in sensitive adjoining areas.

The practice

- Notify the public that proposed works will create noise and/or vibrations especially if these works will occur outside normal working hours.
- Obtain any necessary approval to undertake work outside normal working hours.
- Implement special noise control where necessary, eg temporary barriers or enclosures.
- Plan site activity to minimise noise impacts.
- Use equipment with low noise levels, and maintain noise control devices on equipment.
- Take precautionary measures to avoid vibration damage to buildings near work sites.

Organisations for advice:

Department of Environment Water and Catchment Protection

Heritage Sites

The issue

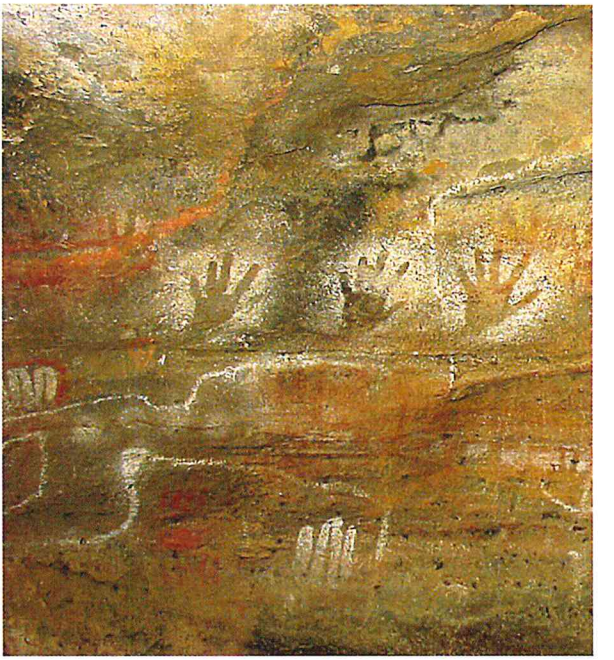
Heritage sites include Aboriginal and other cultural sites as well as areas of natural significance, and can comprise artefacts, trees, geological formations, buildings and other structures, and locations of historical significance. Road construction and maintenance activities can pose a risk of damaging these sites so activities must be planned and managed for heritage protection.

The aim

Protect heritage sites.

The practice

- Identify any heritage sites prior to undertaking construction and/or maintenance activities.
- Ensure workers are aware of sites and the need to protect them.
- Mark sites for protection where appropriate.
- Modify construction and maintenance actions to ensure protection of sites.



Aboriginal heritage site. (Photo by David Lamont)

Organisations for advice:

Heritage Council of WA

National Trust of Australia (WA)

Department of Indigenous Affairs

Waste Management

Waste materials require proper disposal to avoid pollution, hazards, and visual blight. (Photo MRWA)

The issue

Construction and maintenance activities generally produce various types of waste, including waste from work camps. Waste materials require proper disposal to avoid pollution, hazards, and visual blight.

The aim

Minimise environmental degradation by properly disposing of waste.

The practice

- Identify waste products from road activities and plan correct disposal.
- Identify suitable areas for disposal of spoil from roadworks.
- Dispose of waste that could cause environmental degradation in areas determined as suitable.
- Ensure workers are aware of proper disposal.

Organisations for advice:

Department of Environment
WA Local Government Association
Main Roads WA

Hazardous Materials

The issue

Materials that can pose an environmental risk are often used and stored on construction and maintenance sites. Materials include bitumen products, fuels and oils, pesticides, wetting agents and dust suppressants. At particular risk from these materials are water habitats and drinking water catchment areas. Proper management and use of hazardous materials is essential for protection of the environment and for the safety of workers and the public.

The aim

Ensure awareness of risks of hazardous materials, and the correct storage, transport, use and disposal to adequately protect the environment.

Water habitats are at particular risk from materials such as fuel, oil and bitumen products. (Photo Dept Agriculture)

The practice

- Train workers to ensure that hazardous materials are stored, transported and used in a way that protects the environment.
- Store hazardous materials in an area that will adequately contain spills, and avoid runoff washing materials into watercourses.
- Prepare for emergencies involving hazardous materials.
- Report any spills that occur.
- Clean up spills and dispose of materials at approved disposal sites.
- Take special precautions to avoid spills when working over or next to watercourses or wetlands.
- On discovery of pre-existing ground contamination at a worksite, cease activity at that location and obtain specialist advice on a course of action.

Organisations for advice:

Department of Mineral and Petroleum Resources

Department of Environment

Department of Health