

Technical Note 110

Wildlife signage guidelines

April 2015

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1 Purpose

This Technical Note provides guidance on:

- the provision of wildlife warning signs
- the provision of wildlife information signs, and
- the evaluation process undertaken for approval to install such signs on state controlled roads,

with an aim of establishing a uniform state-wide application of signage and pavement marking for wildlife treatments.

Wildlife warning and information signs include signs for animals such as kangaroos, camels, wild horses, deer, emus, cassowaries, wombats, koalas, tree kangaroos, ducks, possums, lizards, echidnas, birds, other small marsupials and reptiles.

Signage details and requirements for domestic stock on road, both of a temporary and permanent nature, is included in the *Traffic and Road Use Management Manual*, Technical Note 1.19.

This Technical Note also provides guidance for the use of:

- green retroreflective raised pavement markers (RRPMs) in conjunction with wildlife conservation area signs
- supplementary signs for the RSPCA's injured animal phone number 1300ANIMAL
- fauna aerial bridge signs
- high impact wildlife signs
- threshold pavement marking for wildlife conservation areas, and
- signs for significant wildlife conservation areas.

For easy reference, a wildlife sign library is included at the end of this note.

This guideline defines the sign and pavement marking treatment options for wildlife that are approved for use within Queensland. All other sign and pavement marking treatment options for wildlife (not detailed in this guideline, or in the *Manual of Uniform Traffic Control Devices* (MUTCD), or approved under Section 20 of this guideline) are not approved official traffic control devices for use within Queensland. All signs in this guideline (refer the sign library in Section 24) are approved for use on all roads within Queensland.

Through the use of this guideline and the MUTCD, a consistent and standardised approach to the treatment of wildlife issues throughout Queensland should be achieved. A uniform approach to the treatment of wildlife issues is considered critical to enhancing the modification of driver behaviour and achieving the desired results for both road users and wildlife.

2 Background

Traditionally, signs indicating animals on roads have been installed to warn road users of a potential hazard to themselves, not for the protection of the animals. This is in accordance with well-accepted practices. More recently, warning signs are being installed in response to concerns about the safety of wildlife. The community may naturally be concerned about the safety of animals, in particular smaller species, when they see them on the road. As a result, members of the public are approaching Transport and Main Roads or local governments asking for signs to be installed in the belief that these

warning signs will alter driver behaviour by indicating the presence of animals on the road and, thereby, reducing the animal fatality rate.

Wildlife warning and information signs are not specifically intended to perform an animal preservation role and research to date indicates that they are not particularly effective for this purpose. If the preservation of animals is considered to be critical for the survival of the local animal population, other traffic management and animal management treatments will be required (signs alone are not adequate).

3 Warning signs (generally)

Warning signs are usually used to alert road users in advance of a dangerous situation (that may or may not be expected or visible), so that road users may use caution, reduce speed or make a manoeuvre in the interest of their safety, the safety of passengers and/or the safety of other road users.

Warning signs are typically used to indicate the geometric conditions of the road or hazard ahead, such as changes in alignment or on the approach to an intersection, etc. Warning signs are located in advance of unusual or hazardous situations on the road and drivers may assess the situation and judge by their own standards if there is a need to alter their driving behaviour.

Warning signs tend to lose their effectiveness if used unnecessarily or too frequently and their use should be restricted to the minimum required for the safety of all road users.

- A road user may see a particular warning sign, but determine, from their own judgement, that the hazard is insignificant and there is no need to slow down or alter their driving behaviour. In this situation, there is a possibility that the warning sign's credibility is reduced and future responses to this sign will be similar or diminish further over time.
- If the warning sign indicates a situation that does not currently exist, there is a chance the road user is likely to ignore this warning sign in the future, not only at this location, but also at other installations of this sign.

Hence, misuse of warning signs may lead to a failure of drivers to acknowledge and respond to the warning message as necessary. Consequently, warning signs should only be installed where there is a valid reason and every individual situation should be assessed to determine the need for the warning sign.

4 Wildlife warning sign requirements

Wildlife warning signs should be provided in areas where the presence of animals along the road is well known or expected.

Wildlife warning signs should not be provided for animals that inhabit a region on a seasonal or short-term nature. Wildlife must frequently encroach onto the roadside in localised areas during time periods where there is a significant traffic volume or where drivers are unlikely to expect them to warrant the installation of signs. Wildlife warning signs should be continually assessed for their need and relevance, and signs that are no longer applicable should be removed. Refer to Section 19 of this guideline for advice on assessment criteria for wildlife warning signs.

Symbolic wildlife warning signs shall indicate a single type of animal that should be expected. If there are different types of animals encroaching on the roadside within a localised area and warning signs are required for two different animal types, the installation of two symbolic signs on the one post shall be provided, with the animal posing the greatest hazard to vehicles or occupants being installed above the other wildlife warning sign. If more than two wildlife warning signs are required at the one location, the following two options may be considered:

1. Install one warning sign 'WILDLIFE' (W5-49) in lieu of symbolic warning signs, or
2. Install two symbolic signs on the one post, indicating the two animals that pose the greatest hazard to vehicles or occupants.

No more than two wildlife warning signs may be installed on any one post. Wildlife warning signs may be duplicated (installed on each side of the road) where required (that is, on multi-lane divided roads).

Wildlife warning sign installation shall comply with this guideline and the MUTCD. Typically, wildlife warning signs shall be black symbolic animals on a Class 1 yellow reflective background. The background colour for wildlife warning signs should be changed from the standard retroreflective yellow to retroreflective fluorescent yellow for animals that are typically active at dusk and dawn due to the superior performance of fluorescent sheeting at these low light times of the day.

The sizes of wildlife warning signs shall be:

- Size A: 600 x 600 mm for roads with 85th percentile speed less than 60 km/h
- Size B: 750 x 750 mm for roads with 85th percentile speed between 60 km/h and 90 km/h
- Size C: 900 x 900 mm for roads with 85th percentile speed of more than 90 km/h.

The actual advance warning distance (or location) for wildlife warning signs cannot accurately be determined because of the random nature of animals along the road. The signs should be located prior to the area where the animals are likely to be encountered. If the presence of animals is expected over a distance exceeding 1 km, then the supplementary plate 'NEXT ... km' (W8-17-1) should be used. If the animals are present over a long distance, the wildlife warning signs may be repeated (if warranted) at intervals of not less than 5 km. In addition, wildlife warning signs should be placed so that they do not compete with other roadside signs for the driver's attention. Wildlife warning signs shall not take precedence over, or be permitted to obscure or detract from, other traffic control devices.

5 Types of wildlife and animals requiring wildlife warning signs

Traditionally, Transport and Main Roads has only installed wildlife warning signs to warn of animals that can cause significant damage or loss of control to passenger vehicles or personal injury to vehicle occupants resulting from a collision.

When large animals, such as camels, kangaroos, wild horses, deer, emus, cassowaries and wombats contact a vehicle, there is a high likelihood of both injury to the animal and damage to the vehicle. In addition, when trying to avoid these animals, motorists may run off the road and/or collide with other vehicle(s) or roadside objects causing injury to occupants and damage to vehicles, therefore the installation of wildlife warning signs for these large animals may be warranted.

Wildlife warning signs should not be installed for small animals that are unlikely to cause any damage or personal injury during a collision. Signs indicating their presence are also unlikely to alter driver behaviour. For example, animals such as tree kangaroos, ducks, possums, lizards, echidnas and

small birds would not warrant the installation of wildlife warning signs. To address community concern for smaller wildlife, Transport and Main Roads has developed a range of wildlife information signs. Wildlife information signs may be installed for these types of animals (refer to Section 7 for details of wildlife information signs).

Koalas are considered a special case and, if required, wildlife warning signs should be erected in lieu of wildlife information signs. When a vehicle hits a koala, it is more likely the koala will suffer the greater injury as the koala is relatively small. The koala is an endeared national symbol of Australia and is very vulnerable to traffic. Drivers would be expected to instinctively take evasive action to avoid hitting a koala. As with the larger animals, when attempting to avoid a koala, motorists may also run off the road and/or collide with other vehicle(s) or roadside objects, causing injury to occupants and damage to vehicles. For these reasons, when signs are warranted, wildlife warning signs are appropriate for koalas.

5.1 Large birds (including emus and cassowaries)

Wildlife warning signs shall only be provided for birds which cannot fly (that is, emus, cassowaries and so on) or birds which are large enough (that is wedge-tailed eagles and so on) to cause significant damage to vehicles or personal injury to occupants if involved in a vehicle collision.

In some circumstances, such as the presence of ducks in an area, there may be a strong community perception that wildlife warning signs are needed. The use of such signs is discouraged as they have not been proven to be necessary or effective in altering driver behaviour or compliance or in reducing the number of bird fatalities. Wildlife information signs may be considered for ducks if they meet the criteria outlined in this guideline.

5.2 Kangaroos

Wildlife warning signs indicating the presence of kangaroos (W5-29) shall be assessed and installed if warranted in accordance with this Technical Note and the MUTCD. Wildlife warning signs indicating the presence of kangaroos should not be installed in extensive or remote areas where kangaroos would inhabit on a regular basis or where the presence of kangaroos should be expected. The 'KANGAROO' (W5-29) warning sign should be used to warn drivers of sections of road on which kangaroos are likely to be a hazard. The sign should be used in conjunction with a 'NEXT... km' (W8-17-1) supplementary plate.

Repeater signs along the road should only be required if the roadside environment has changed. Wildlife warning signs for kangaroos should have a fluorescent yellow background colour due to their increased activity at dawn and dusk.

5.3 Wallabies

Wildlife warning signs indicating the presence of wallabies shall be assessed and installed if warranted in accordance with this Technical Note and the MUTCD. There is no specific warning sign for wallabies – where wildlife warning signs are warranted for wallabies, the 'KANGAROO' (W5-29) warning sign shall be used.

5.4 Wombats

Wildlife warning signs indicating the presence of wombats (W5-48) shall be assessed and installed if warranted in accordance with this Technical Note and the MUTCD.

5.5 Koalas

Wildlife warning signs indicating the presence of koalas shall be assessed and installed if warranted in accordance with this Technical Note and the MUTCD. Where the requirements are met, the 'KOALA' (W5-47) warning sign should be used to warn drivers of sections of road on which koalas are likely to be a hazard. The sign should be used in conjunction with a 'NEXT... km' (W8-17-1) supplementary plate. Repeater signs along the route should only be required if the roadside environment has changed. Wildlife warning signs for koalas should have a fluorescent yellow background colour due to their increased activity at dawn and dusk.

The 'KOALA' (W5-Q08) warning sign has been superseded by a new design (W5-47) showing a 'walking' rather than an 'at rest' symbol. There is no need for a wholesale replacement of the superseded sign. The superseded sign should be replaced with the new sign as dictated by maintenance needs.

5.6 Other wildlife

In areas where there are wild horses, camels, deer or other large animals, the relative wildlife warning signs shall be assessed and installed if warranted in accordance with this Technical Note and the MUTCD.

6 Stock crossing and stock warning signs

Guidelines on the use of stock on road signs are provided in Technical Note 1.19 of the *Traffic and Road Use Management Manual*.

7 Wildlife information sign requirements

Wildlife warning signs should not be installed for small animals that are unlikely to cause any damage or personal injury during a collision. Signs indicating the presence of small animals, such as the tree kangaroo, ducks, possums, lizards, echidnas and small birds that are unlikely to cause damage or personal injury during a collision are considered unlikely to alter driver behaviour. However, if wildlife signs are warranted for smaller animals, wildlife information signs may be installed.

Wildlife information signs consist of a green legend on a white background (Class 1 material). Wildlife information signs are rectangular in shape and consist of a green legend of 'CARE FOR OUR WILDLIFE', with a green symbolic animal.

Wildlife information signs should not be provided for animals that inhabit a region on a seasonal or short-term nature. Wildlife must frequently encroach onto the roadside in localised areas during time periods where there is a significant traffic volume or where drivers are unlikely to expect them to warrant the installation of signs. Wildlife information signs should also be provided in areas where the presence of animals along the road is well known or expected. Wildlife information signs should be continually assessed for their need and relevance, and signs that are no longer applicable should be removed.

Wildlife information signs shall indicate a single type of animal that should be expected. If there are different types of animals encroaching on the roadside within a localised area and wildlife information signs are required for two or more different animal types, the installation of one sign (indicating the animal most at risk from traffic strikes) on the one post shall be provided. No more than one wildlife information sign is to be installed at any one location. Wildlife information signs may be duplicated (installed on each side of the road) where required (that is, on multi-lane divided roads).

Wildlife information signs are not permitted to be erected on the same post as wildlife warning signs. If wildlife information signs are warranted in locations where wildlife warning signs exist (or are proposed), consideration needs to be given to the effect of these additional signs on driver behaviour. In most cases, wildlife information signs should not be installed in areas where there are wildlife warning signs. In all situations, wildlife warning signs shall take precedence over wildlife information signs. In addition, wildlife information signs should be placed so that they do not compete with other roadside signs for the driver's attention. Wildlife information signs shall not take precedence over, or be permitted to obscure or detract from, any other traffic control devices.

Wildlife information sign installation shall comply with this guideline and the MUTCD. The sizes of wildlife information signs shall be:

- Size A: 750 x 600 mm for roads with 85th percentile speed less than 70 km/h
- Size B: 900 x 720 mm for roads with 85th percentile speed above 70 km/h.

The actual advance distance (or location) for wildlife information signs cannot accurately be determined because of the random nature of animals along the road. The signs should be located prior to the area where the animals are likely to be encountered. The distance supplementary plates 'NEXT... km' (W8-17-1) or 'NEXT... m' (W8-17-2) must not be used in conjunction with a wildlife information sign.

8 Injured animal contact phone number signs (RSPCA's 1300ANIMAL number)

Transport and Main Roads has been reluctant in the past to erect signs displaying contact numbers for groups that care for injured wildlife. This has mainly been due to the high number of different contact details and potential changes of details on such signs. The RSPCA has developed and is operating a statewide easily-remembered 1300-number for animal welfare emergencies and has also made a commitment to progress this number at a national level with the aim of one national number for the reporting of wildlife emergencies. The 1300ANIMAL number is both an initiative of and operated by the RSPCA.

The 'ANIMAL' corresponds with alphanumeric numbers on a phone keypad (264625) making it very easy to remember. All calls to the 1300ANIMAL number are directed to the RSPCA call centre, which operates 24 hours a day, seven days a week to co-ordinate assistance/rescue based on the RSPCA's wildlife carer database.

The RSPCA database will enable the call centre operator to match the animal type with a suitable and approved carer in a nearby location to the caller. This system will not only assist with the delivery of care to injured animals but will also provide a high profile service for those who find injured animals and are unsure of what action to take.

There are a number of conditions that must be met before the 1300ANIMAL (TC1547) supplementary plate may be installed. All installations of the 1300ANIMAL sign must be supported by the RSPCA. This is to ensure that the owners and operators of this service (the RSPCA) are aware of all locations that the signs are installed and that they also have sufficient approved carers in those locations to service the signed area. All sites requested for signing must also have a documented history of injured animals.

The 1300ANIMAL (TC1547) supplementary plate must be installed under a wildlife warning or wildlife information sign. The wildlife warning or wildlife information signs must be assessed and installed (if warranted) in accordance with this Technical Note and the MUTCD. The 1300ANIMAL supplementary

plate must not be used as a stand-alone sign.

Figure 8.1 – Examples of ‘1300ANIMAL’ supplementary plate applications



9 Supplementary plates for wildlife warning signs

Where the supplementary plate ‘NEXT... km’ (W8-17-1) is warranted for use with wildlife warning signs, they are installed directly under the wildlife warning sign. If the RSPCA’s ‘1300ANIMAL’ (TC1547) supplementary plate is also warranted at the same location, it should be installed beneath the ‘NEXT... km’ (W8-17-1) supplementary plate. If both plates are to be installed below the wildlife warning sign, choose the size of the ‘NEXT... km’ (W8-17-1) plate to match the width of the RSPCA’s ‘1300ANIMAL’ supplementary plate.

The background colour for the ‘NEXT... km’ (W8-17-1) supplementary plate is to match the background colour of the wildlife warning sign. For example, if fluorescent yellow is the background colour for the wildlife warning sign the ‘NEXT...km’ (W8-17-1) supplementary plate must also have a background colour of fluorescent yellow.

When the ‘NEXT...km’ (W8-17-1) supplementary plate is used with a wildlife warning sign, it is important to estimate the distance of the threat of an animal vehicle collision as accurately as possible. As a driver behaviour change is the desired effect of the sign, drivers are more likely to alter behaviour for a one or two km (short) stretch of road rather than over a much longer length of road (say 10 to 15 km). If the animals are present over a long distance, the wildlife warning signs may be repeated (if warranted) at intervals of not less than five kilometres. It may be more effective, in terms of modifying driver behaviour, to select specific locations and sign short individual lengths of road where the chances of an animal vehicle collision are greatest.

The ‘NEXT...km’ (W8-17-1) supplementary plate should be installed beneath the wildlife warning sign at most wildlife warning sign installations. Where the ‘NEXT...km’ (W8-17-1) supplementary plate is not warranted, the ‘SLOW DOWN’ supplementary plate (TC1608) may be installed. If the ‘SLOW DOWN’ supplementary plate is installed below a wildlife warning sign where the RSPCA’s ‘1300ANIMAL’ supplementary plate is also to be installed, the ‘SLOW DOWN’ supplementary plate is installed above the RSPCA’s ‘1300ANIMAL’ supplementary plate and the size of the ‘SLOW DOWN’ supplementary plate is to match the width of the RSPCA’s ‘1300ANIMAL’ supplementary plate.

The ‘NEXT... km’ (W8-17-1) supplementary plate is not to be used with wildlife information signs or with significant wildlife conservation area signs. For significant wildlife conservation area signs (refer Section 10), the distance of the conservation area along the road is indicated on the main sign.

Note: The 'NEXT ...m' (W8-17-2) supplementary plate may be substituted in all cases for the 'NEXT...km' (W8-17-1) supplementary plate.

Advisory speed signs (W8-2) are only to be installed for road geometric (horizontal and vertical) conditions and must not be installed under wildlife warning or wildlife information signs.

10 Significant wildlife conservation area signing

In defining areas suitable for significant wildlife conservation area signs and the higher impact treatments available, the following criteria should be used as a guide. Above all, the likelihood of an animal/vehicle collision should be considered.

An objective in the *Nature Conservation Act 1992* is the dedication and declaration of areas representative of the biological diversity, natural features and wilderness of the state as protected areas. The classes of protected areas to which this Act applies are:

- a) National parks (scientific)
- b) National parks
- c) National parks (Aboriginal land)
- d) National parks (Torres Strait Islander land)
- e) National parks (recovery)
- f) Conservation parks
- g) Resources reserves
- h) Nature refuges
- i) Coordinated conservation areas
- j) Wilderness areas
- k) World heritage management areas
- l) International agreement areas.

Significant wildlife conservation area signs and other higher impact treatments may also be considered where the following applies:

- The 'conservation' status must be related to wildlife and not to other issues, such as scenic value or flora, and
- The area is classed as a protected area (as defined above) or by one of the following:
 - land within state forests, timber reserves or dedicated as a reserve (or protected area) for environmental purposes under the *Land Act 1994*
 - a world heritage area under the World Heritage Convention
 - an area supporting a critically endangered or endangered ecological community in the list established under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
 - a declared RAMSAR wetland under the EPBC Act
 - an area of high nature conservation value under the *Vegetation Management Act 1999*

- an area, other than state-controlled land, identified in a local government's planning scheme as an area that has special environmental significance for native wildlife.

Note: All significant wildlife conservation areas do not automatically qualify for signs.

Significant wildlife conservation areas may warrant the installation of wildlife conservation area identification signs (TC1607). Significant wildlife conservation areas may be signed as a general area (no specific animal) or be signed with a specific animal (that inhabits the conservation area) depicted on the sign. To warrant the installation of significant wildlife conservation area signs, the wildlife present must first qualify for the installation of wildlife warning signs. If wildlife warning signs are not warranted, then significant wildlife conservation area signs must not be installed.

Significant wildlife conservation area signs should be erected as close as possible to the boundary of the conservation area, but must be placed so that they do not compete with other traffic control devices or pose a safety hazard to road users.

Significant wildlife conservation area signs are made up of a green legend on a white background and incorporate an animal warning sign and the '1300ANIMAL' supplementary plate. Refer to the sign library (Section 24) for examples of animal warning signs that may be used with the significant wildlife conservation area sign.

As the significant wildlife conservation area signs incorporate the '1300ANIMAL', the RSPCA must be contacted before the sign is erected to ensure they have sufficient approved carers in those locations to service the signed area.

If a significant wildlife conservation area sign is warranted, then the generic 'WILDLIFE' warning sign may be used on the significant wildlife conservation area sign in lieu of a specific animal warning sign; however, it is considered best practice to install the symbolic animal warning sign of the specific or dominant animal in the area.

Green RRPMS and/or threshold pavement marking may be used in conjunction with significant wildlife conservation area signs to highlight areas of greater significance or where vehicle/animal collisions are significantly overrepresented. Refer to Section 15 for installation warrants for green RRPMS. Refer to Section 16 for installation details of significant wildlife conservation area threshold pavement marking.

Significant wildlife conservation area signs and associated threshold pavement markings and RRPMS should only be installed at locations to highlight areas of greater wildlife significance or where vehicle/animal collisions are significantly overrepresented. The overuse of the higher impact sign/line marking/RRPM wildlife treatments will lessen their effectiveness in areas where they are required/justified.

11 Significant wildlife conservation corridors signing

As part of the declaration of significant wildlife conservation areas, significant wildlife corridors may also be established or defined. Wildlife corridors do not warrant the installation of significant wildlife conservation area signs, but may be signed (if warranted) by using wildlife warning or wildlife information signs.

12 Fauna aerial bridge (canopy bridge) signs

Fauna aerial bridges or canopy bridges are structures that are primarily used by tree-dwelling animals, such as possums, to travel between trees above the road surface, thereby avoiding the danger of

being struck by vehicles. Areas that have been treated with fauna aerial bridges or canopy bridges may have area identification signs erected to advise the public of what the structures are.

Signs (TC1576), if warranted (to advise the public what they are), should be erected in advance of the first aerial bridge and repeated (if required) at intervals of not less than five kilometres and may be duplicated (installed on each side of the road) where required (that is, on multi-lane divided roads).

13 High impact wildlife warning signs

High impact wildlife warning signs (TC1621 and TC1622) consist of a white target board with a green border and incorporate an animal warning sign with various supplementary plates or a combination of plates. The white target board provides a good contrast to the green background effect of trees usually found at locations where wildlife is present, thus improving sign conspicuity. Refer to the sign library (Section 24) for examples of high impact wildlife warning signs.

High impact wildlife warnings signs should be used selectively at locations with significant wildlife roadkill history and or significant conservation value.

High impact wildlife warning signs may be used in conjunction with significant wildlife conservation area signs to highlight roadkill hotspots within the conservation area.

Green RRPMs and/or threshold pavement marking may be used in conjunction with high impact wildlife warning signs located within significant wildlife conservation areas to highlight areas of greater significance or where vehicle/animal collisions are significantly overrepresented. Refer to Section 15 for installation warrants for green RRPMs. Refer to Section 16 for installation details of significant wildlife conservation area threshold pavement marking.

14 Requests for wildlife warning and wildlife information signs

Requests for wildlife warning and wildlife information signs on state-controlled roads should be forwarded to the District Office for consideration. If the request relates to an animal for which a standard sign exists, the district shall determine whether such signs are necessary and, if so, install the signs in accordance with these guidelines and the MUTCD. If the request relates to an animal not currently depicted by a standard sign, and the district has determined that the sign is required, a request should be made (refer Section 20) to the Principal Engineer (Traffic Engineering), Transport and Main Roads, Engineering and Technology Branch, Traffic Engineering and Data Unit, for the appropriate sign to be designed and approved for use.

Requests for wildlife warning and wildlife information signs on non-state-controlled roads should be forwarded to the relevant local government authority. For consistency reasons, it is recommended that local governments also use this guideline when assessing applications for wildlife signage. If wildlife signs are assessed and required, they should be installed in accordance with this guideline and the MUTCD. Local governments should refer to Section 20 for the procedure to follow when applying for new signs or treatments to be designed and approved for use.

The installation of wildlife signs that are not approved (under Section 20), or included in this guideline or the MUTCD, must be avoided. All other sign and pavement marking treatment options for wildlife (not detailed in this guideline or in the MUTCD) are not approved official traffic control devices for use within Queensland. All signs in this guideline (refer the sign library in Section 24) are approved for use on all roads within Queensland.

A uniform approach to the treatment of wildlife issues is considered critical to modifying driver behaviour and achieving the desired results for both road users and wildlife.

15 Retroreflective raised pavement markers (RRPMs)

RRPMs, when installed, must be installed in accordance with this Technical Note and the MUTCD. Green RRPMs may be used in conjunction with significant wildlife conservation area signs and are intended to be a high impact type measure and should only be used in areas of higher importance. Green RRPMs must not be used in conjunction with wildlife information signs.

If warranted, green RRPMs placed to identify significant wildlife conservation areas must meet the following requirements:

- Must only be installed where significant wildlife conservation area signs are warranted and installed, and the area is a significant wildlife conservation area of higher importance.
- Must not be installed on roads that do not have edge line and separation line pavement marking.
- Must not be installed on freeways or motorways as green RRPMs on these road types are used to indicate off ramps.
- Must be bi-directional and installed adjacent to the road edge line on both sides of the road.
- Must be installed with bi-directional white RRPMs installed on the centre line at the locations and spacing as specified in the MUTCD.
- Must only be installed over the length of road defined by significant wildlife conservation area signs.
- Must not be installed on roads or in locations where they may pose a hazard to other road users, such as cyclists.
- Must be placed 25 to 50 mm clear of painted lines and located on the traffic side of the line for lane widths of 3.5 m and above, and be placed outside the painted line for lane widths less than 3.5 m.
- Green RRPMs must have a minimum spacing of 48 m and not exceed a spacing of 96 m. Green RRPM spacing (m) should be a multiple of 12. Spacing must also be uniform over the length of the area defined by the significant wildlife conservation area.
- If existing RRPMs (red or white) are installed, and green RRPMs are also to be installed, the existing RRPMs (red or white) are to be retained and must be installed at the locations and spacing specified by the MUTCD. This may require the existing RRPMs (red or white) in some cases be reinstated or replaced. Green RRPMs may then be installed on the edge lines at spacings as specified above.
- If red RRPMs are to be installed on the edge line with green RRPMs, the locations and spacing for the red RRPMs must be as specified in the MUTCD.
- Once the RRPMs are installed, the road is to be inspected (at regular intervals) and maintenance of the RRPMs conducted as required.
- If the green RRPMs are no longer warranted (that is, the wildlife conservation area signs are removed) the green RRPMs must be removed.

16 Wildlife threshold pavement marking

Wildlife threshold pavement marking may be used to identify the start and finish of signed significant wildlife conservation areas. The threshold treatment, when installed, must be located adjacent to the significant wildlife conservation area sign. Threshold treatments should generally not be used on multi-lane arterial roads. The purpose of threshold treatments is to complement the entry signs into a significant wildlife conservation area and advise drivers that they should modify their driving behaviour and reduce their speed where required.

Wildlife threshold pavement marking must only be used in conjunction with significant wildlife conservation area signs to highlight areas of greater significance. Overuse of the threshold treatment should be discouraged. Green RRPMs, if warranted, should be used in conjunction with all threshold treatments. Refer Section 15 for installation warrants and details for green RRPMs.

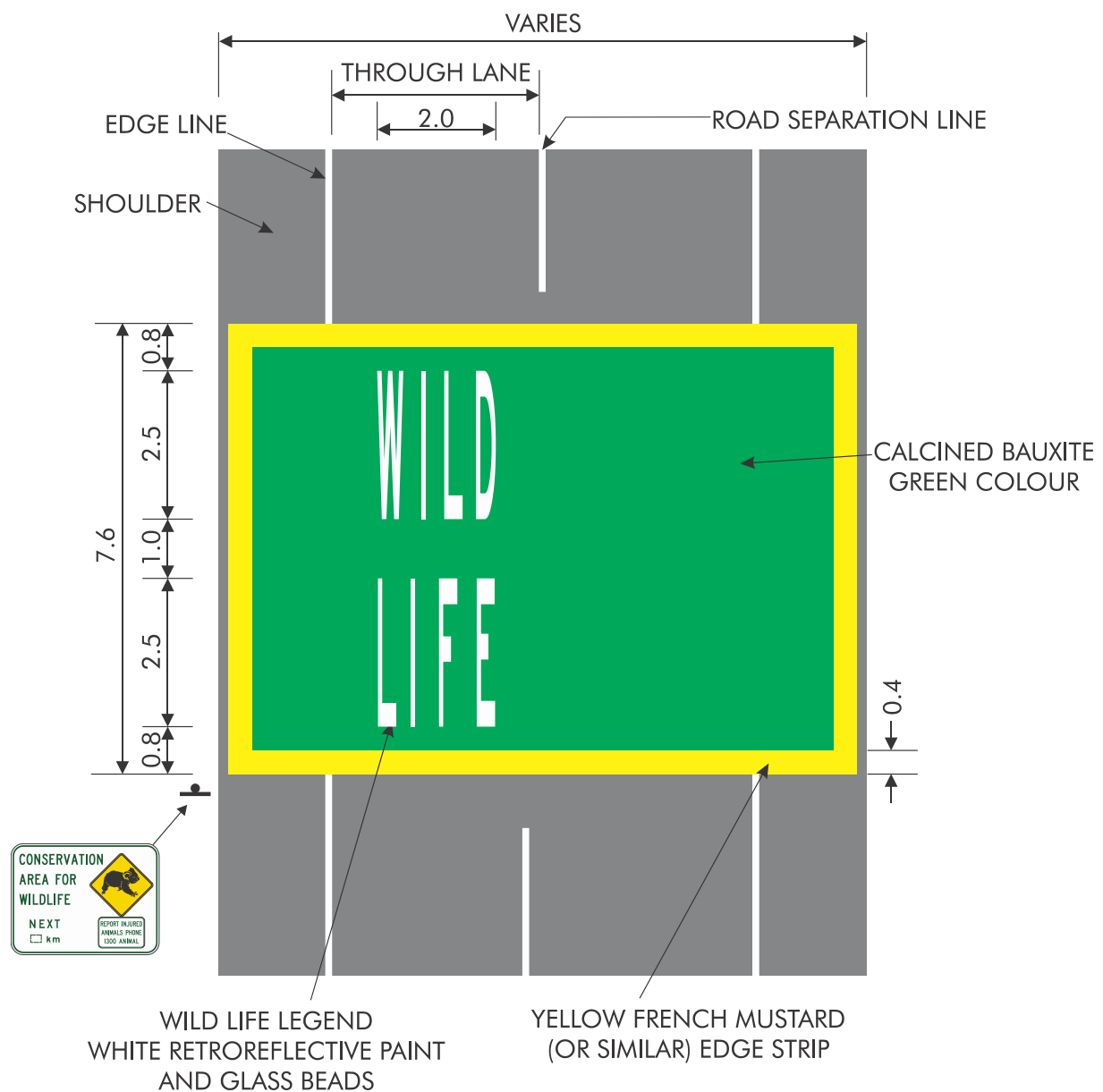
Wildlife threshold pavement marking may also be used in conjunction with high impact wildlife warning signs located within significant wildlife conservation areas to highlight areas of greater significance or where vehicle/animal collisions are significantly overrepresented.

Wildlife threshold pavement marking consists of the words 'WILD' and 'LIFE' in white lettering (retroreflective paint and glass beads) on the traffic lane into the area. A green background with a yellow border complements the lettering. Green and yellow coloured threshold treatment pavement marking must be constructed with skid resistant materials and may also be retroreflective if required.

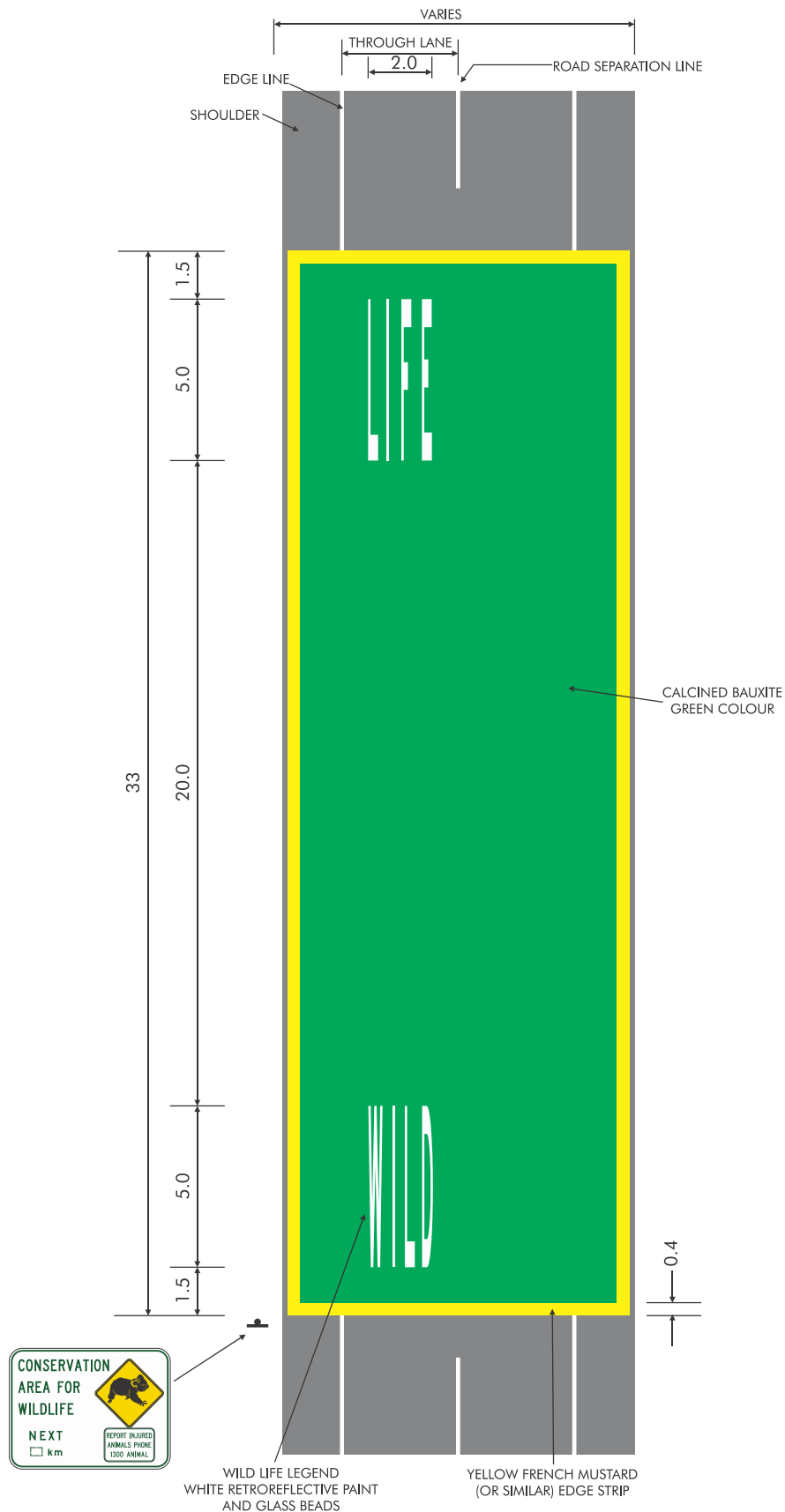
The use of green as a background colour for the 'WILD LIFE' threshold treatment, while the same colour as used for bike lane threshold treatments, should not cause any confusion as the 'WILD LIFE' threshold treatment is continued across all traffic lanes and shoulders of the road (with a yellow border) and, when used, must be installed in conjunction with significant wildlife conservation area signs.

The wildlife threshold treatment may be installed (if warranted) on both high speed (speed limit greater than or equal to 80 km/h) and low speed (speed limit less than 80 km/h) roads. The design of the threshold treatment is different for high and low speed roads.

Example wildlife threshold pavement marking layouts (for a two-lane, two-way road) are provided on the following pages.



THRESHOLD TREATMENT FOR WILDLIFE CONSERVATION AREAS IN LOW SPEED ZONES (< 80Km/h)



THRESHOLD TREATMENT FOR WILDLIFE CONSERVATION AREAS IN HIGH SPEED ZONES ($\geq 80\text{Km/h}$)

17 Motorist behaviour

Wildlife warning and wildlife information signs installed along the road are intended to warn motorists that animals may be on, or crossing, the road at any time at this location. The installation of wildlife warning signs, wildlife information signs and other treatment options included in this guideline are intended to modify driver behaviour in areas where wildlife may be encountered. There are a number of steps that a motorist can take to reduce the number and severity of crashes involving animals on the road, thus reducing the cost of vehicle repairs, possible personal injury and saving wildlife.

A motorist can reduce the risk to themselves, and to wildlife, by:

- Slowing down and being able to stop or give way when animals are on the road or roadside. Remember animals are not 'road smart' and may cross without warning.
- Watching out for animal warning signs and other animal advisory signs and react accordingly by slowing down and being prepared to stop if required.
- Being aware of following traffic if required to brake heavily for animals.
- Always keeping control of the vehicle and trying not to swerve wildly. Remember that swerving to miss an animal on the road may cause you to crash.
- Trying to pass (if possible) behind an animal that is on or crossing the road.
- Scanning the roadside ahead for animals, especially at dawn and dusk when animals are more active.

Some other points a motorist should be aware of include:

- Some animals may respond to the sound of a vehicles horn. If animals are on the road ahead or moving towards the road, slow down and sound the horn. Care must be taken when using the horn as animals on the side of the road may be startled by the noise and respond erratically by suddenly crossing the road in front of you.
- High beam may temporarily dazzle (freeze) wildlife as nocturnal creatures have very sensitive vision. If animals are on the road ahead, the temporary dimming of the vehicles headlights may allow the animal time to recover and move off the road.
- The key points to remember when an animal is on, or approaching, the road is to slow down, briefly dim headlights and sound the horn.

What to do if you hit an animal:

- Stop (only if safe to do so) and check the animal's condition. This may be done from a distance, especially if the motorist is unsure of an injured animal's potential reactions or of their own abilities.
- If the animal is injured, please report this to the RSPCA animal welfare emergency phone service by phoning 1300ANIMAL (1300 264625).
- Also be aware that a dead or injured animal may be carrying a baby in its pouch. It is not recommended that motorists check an animal's pouch for a baby that has survived, this is best left to wildlife experts by phoning 1300ANIMAL and reporting the incident.
- All animal/vehicle collisions should be reported to 1300ANIMAL. A dead animal will need to be removed from the roadside as other animals may be attracted to it. The reporting of all

incidents also allows a record to be kept of when and where animals are being hit and which species is involved.

This section is included in the guide to allow road authorities to provide consistent information on the part drivers may play in reducing animal mortality on the road.

18 Special speed limits for wildlife zones

In order to encourage the highest possible levels of voluntary compliance with speed limits, Queensland's speed management strategy aims to ensure that speed limits throughout the State are consistent and credible.

Accordingly, the *Manual of Uniform Traffic Control Devices* (MUTCD) contains some important objectives and principles, including:

- the need to contribute to road safety, mobility and amenity on public roads by providing a credible system of speed limits that is compatible with the speed environment
- the need to ensure that a speed limit will not be so low that a significant number of road users ignore it, and
- the need to ensure that speed limits maintain a balance between a road user's perception of the speed environment and an acceptable level of environmental amenity for all road users and abutting land users.

The MUTCD also recognises that the speed of vehicles along a section of road may be influenced by a range of factors that vary over time, including weather, lighting, road surface condition and the presence of animals within the road reserve. However, the MUTCD states that such factors should not be taken into account in the determination of speed limits. Drivers are required by law to adjust their driving speeds to suit the prevailing conditions.

If the speed limit on any road is seen as unreasonably low by a significant number of motorists or if motorists cannot see a reason for the lower speed limit, it can lead to a general disregard of the speed limit. This, in turn, can lead to a more widespread disregard of speed limits on other roads, with a resulting adverse effect on road safety.

Some years ago, Transport and Main Roads carried out an extensive trial of a reduced speed limit on roads in koala habitat areas. The study found that there was no real change in actual speeds, even with police enforcement. Motorists generally disregarded the reduced speed limit (perhaps they did not consider that there was any real danger to the driver or occupants at higher speeds). Consequently, the trial of the reduced speed limit had no impact on reported koala deaths and injuries. It is possible that the lack of compliance with the reduced speed limit was because most motorists rarely, if ever, saw koalas on the road and, hence, did not accept that the reduced speed limit was credible or justified.

The results of the trial do not support a general imposition of lower speed limits in areas where wildlife could be encountered on roads. Rather, they suggest that any such action could have an adverse effect on road safety by reducing the credibility of speed limits and leading to widespread disregard of speed limits. The results of the trial appear to confirm the validity of the objectives and principles contained in the MUTCD. There are no plans to modify the requirements of the MUTCD to include specific wildlife criteria when assessing/reviewing speed limits. The speed limit review process already mandated in the MUTCD requires a full evaluation of the speed environment of the road.

Advisory speed signs (W8-2) are only to be installed for road geometric (horizontal and vertical) conditions. They are not to be installed for wildlife considerations.

19 Assessment criteria

The district or local government shall evaluate all requests received for the installation of wildlife warning or wildlife information signs. This assessment shall take into consideration, but is not limited to, the information in this guideline and the following:

1. Type of animal (species/native/endangered)
2. Size of animal (warning or information sign)
3. Number of animals in the area
4. Habits of the particular animal (fast/slow/predictable)
5. Nature of occupation of the area (seasonal/nocturnal)
6. Frequency at which animals cross/are on the road
7. Time of crossings (day or night, dusk or dawn)
8. Visibility of the animal to the road user (animal size/street lighting)
9. Do the animals cross the road at a small, localised area or over a long length of the road?
10. The habitat adjacent the road (roadside environment) and does this change over the length of area being assessed?
11. Traffic volume (especially during times the animals are crossing or on the road)
12. Number and severity of officially recorded animal related crashes
13. Information on animal mortality along the road section
14. Whether drivers are unlikely to expect the animal to be crossing or on the road at this location (that is, the presence of animals at this location is unexpected or well known and expected)
15. What other animal warning signs are in the area and have they been effective in reducing crashes involving animals or animal mortality rates?
16. Are there any other animal road environment features installed or that could be installed/recommended (canopy bridges, underpasses, land bridges, wildlife fencing, and so on)?
17. Whether the animal or colony of animals is endangered or considered environmentally significant to the area.
18. Does the animal reside within an established wildlife conservation area?
19. Is the location defined as a wildlife movement corridor?

Other factors to consider include:

- The placement of signs does not increase the hazard to either the wildlife, the environment or the road user.
- The placement of signs would have a beneficial impact on the wildlife without a negative road safety effect.

The Transport and Main Roads District or local government may recommend the installation of wildlife warning signs or wildlife information signs or that no signs are warranted at this time, based on current information available. If wildlife warning signs or wildlife information signs are warranted, they must be installed in accordance with this guide and the MUTCD.

20 Treatments (signs or pavement marking) not included in this guideline

This guideline defines the sign and pavement marking treatment options for wildlife that are approved for use within Queensland. All other sign and pavement marking treatment options for wildlife not detailed in this guideline or in the MUTCD are not approved official traffic control devices for use within Queensland.

If a treatment is proposed for use and is not included in this guideline or the MUTCD, an application must be made before the new wildlife treatment may be installed. The following procedure applies:

1. A statement giving the detailed nature of the problem.
2. A detailed description of the proposed wildlife sign or pavement marking treatment, including illustrations as required.
3. Outline the reasons the proposed sign or pavement marking treatment is required, including the expected benefits.
4. If other approved wildlife sign or pavement marking treatments have already been trialled and found ineffective, provide details of what was trialled and the assessment conducted.
5. The information required above is to be forwarded to Transport and Main Roads and marked for the attention of the Principal Engineer (Traffic Engineering), Traffic Engineering and Data Unit, Engineering and Technology Branch.
6. Transport and Main Roads will assess the application including consultation with other traffic authorities or environmentalists as required.

This guideline outlines the requirements for the uniform treatment of wildlife issues throughout the state. Through the use of this guideline, the MUTCD and the application process above, a consistent and standardised approach to the treatment of wildlife issues throughout Queensland should be achieved.

A uniform approach to the treatment of wildlife issues is considered critical to modifying driver behaviour and achieving the desired results for both road users and wildlife.

This guideline will be updated and modified if and when required.

21 Information on other engineering treatments for wildlife

Transport and Main Roads is also committed to investigating new ways of effectively reducing the impact of roads on native fauna while maintaining road safety for all road users.

Transport and Main Roads has developed a Fauna Sensitive Road Design series. This series currently includes Volume 1 and Volume 2. Volume 1 discusses the effectiveness of engineering structures and management practices that are presently adopted for road projects to reduce animal mortalities and help facilitate fauna movement. Volume 2 documents findings from field research (from Australia and overseas) into vehicle/wildlife treatments.





Some of the engineering treatments for wildlife (other than signs and pavement marking) include wildlife fencing, dual purpose culverts (lower section for water with a raised dry section for fauna), purpose built culverts (for wildlife only – for example, cassowaries), canopy rope bridges (for possums), glider poles (for gliders) and land bridges (for land-based animals, such as koalas, wallabies, etc.).










22 Glossary










Term	Definition
MUTCD	Manual of Uniform Traffic Control Devices
RAMSAR	Is a short term for the 'Convention on Wetlands of International Importance', originally signed in 1971 in the town of Ramsar, Iran.
RRPM	Raised retroreflective pavement marker
RSPCA	The 'Royal Society for the Prevention of Cruelty to Animals'
1300ANIMAL	RSPCA call centre phone number to report animal welfare emergencies, including assistance when encountering injured animals on the road.
Hotspot	A location where there is a known road kill problem.

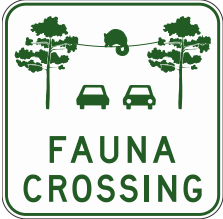




23 Wildlife sign library




The wildlife sign library provides an overview of the wildlife signs available and approved for installation on Queensland roads. For installation warrants and recommendations, please refer to the previous sections of this guideline and any notes on the sign design drawings.

Sample	Description	Sign No.
	Kangaroo/Wallaby	W5-29
	Camel	W5-44
	Wild Horse	W5-46
	Deer	TC1454

Sample	Description	Sign No.
	Emu	W5-45
	Cassowary	TC9866
	Wombat	W5-48
	Koala	W5-47
	Koala Do not use (superseded by TC9701)	W5-Q08
	Wild animals	W5-49
	Tree kangaroo	TC9954
	Duck	TC1011
	Possum	TC1586

Sample	Description	Sign No.
	Lizard	TC1587
	Echidna	TC1588
	Small bird	TC1589
	Turtle	TC1604
	Snake	TC1605
	1300ANIMAL Supplementary plate only (Not to be installed separately)	TC1547
	NEXT ...km Supplementary plate	W8-17-1
	NEXT ...m Supplementary plate	W8-17-2
	SLOW DOWN Supplementary plate (must only be installed under Wildlife Warning signs where W8-17 is not required) This supplementary plate should not be used on high speed (> 70 km/h) roads.	TC1608

Sample	Description	Sign No.
	Fauna Aerial Bridge (Possum Canopy Bridge)	TC1576
	Wildlife Conservation Area (Koala) Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign or the generic 'WILDLIFE' sign, W5-49	TC1607
	Wildlife Warning Sign with Target Board (Koala) Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign. The 'SLOW DOWN' supplementary plate may be substituted for either distance supplementary plate (W8-17).	TC1621
	Wildlife Warning Sign with Target Board and 1300ANIMAL (Koala) Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign. The 'SLOW DOWN' supplementary plate may be substituted for either distance supplementary plate (W8-17).	TC1622 (‘B’ & ‘C’ size) Preferred sizes (‘A’ size should only be used when space is limited)
	Wildlife Warning Sign with Target Board and 1300ANIMAL (Koala) Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign. The 'SLOW DOWN' supplementary plate may be substituted for either distance supplementary plate (W8-17).	TC1622 (‘A’ size only) Non-preferred size. Should only be used where space is limited.

Sample	Description	Sign No.
 <p>A rectangular target board with a green border. It contains two diamond-shaped warning signs stacked vertically: the top one shows a possum and the bottom one shows a kangaroo. Below the diamond signs is a rectangular 'SLOW DOWN' supplementary plate.</p>	<p>Wildlife Warning Sign with Target Board</p> <p>Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign.</p> <p>The 'SLOW DOWN' supplementary plate may be substituted for either distance supplementary plate (W8-17).</p>	TC1918_1
 <p>A rectangular target board with a green border. It contains two diamond-shaped warning signs side-by-side: the left one shows a possum and the right one shows a kangaroo. Below the diamond signs is a rectangular 'SLOW DOWN' supplementary plate.</p>	<p>Wildlife Warning Sign with Target Board</p> <p>Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign. The 'SLOW DOWN' supplementary plate may be substituted for either distance supplementary plate (W8-17).</p>	TC1918_2
 <p>A rectangular target board with a green border. Above the board is a black rectangular device with two circular lights, one grey and one yellow. The board contains a diamond-shaped warning sign showing a possum. Below the diamond sign is a rectangular 'SLOW DOWN' supplementary plate.</p>	<p>Wildlife Warning Sign with "Vehicle Activated flashing Lights"</p> <p>Note: The diamond wildlife warning sign may be substituted for any animal-specific wildlife warning sign.</p>	TC1921

24 Future development

The following will be incorporated into future versions of this note:

- Transverse linemarking
- Vehicle Activated Signs (VAS) for kolas and cassowaries.

