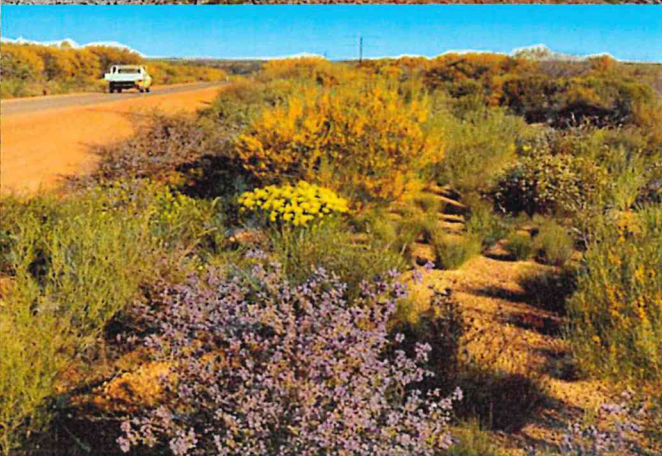


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PLANNING TO ENHANCE ROADSIDES



Roadside Conservation Committee

2019



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1. PURPOSE OF THIS GUIDE

This guide is to help road reserve managers develop plans and practices that include roadside values. While relevant to road reserves in general it is most apt for Local Government. This guide:

- Outlines how core areas with significant roadside conservation values may be put into planning for projects and works so they may be prioritised for protection. This accords with “Best management practices should ideally be incorporated into the planning stages of road and rail maintenance activities.” (DER 2105)
- Gives an example for mapped areas which takes five steps to put values into planning.
 - Mapped areas are those Local Government areas which have Roadside Conservation Value (RCV) mapping prepared by the Roadside Conservation Committee (RCC).
 - In unmapped areas surrogate cues may be gathered instead and put into planning (such cues may substitute for Roadside Conservation Values or be used to enhance them).
- Emphasises the importance of regional and landscape context to conservation of remnant native vegetation and the processes that support it.
- Encourages initiatives aimed at consolidating local and regional links.
- Outlines how work in an existing maintenance zone fits clearing exemptions (GWA 2004).
- Outlines how forward works plans should:
 - Aim to keep unavoidable maintenance zone widening outside core conservation areas; &
 - Ensure more detailed study and survey work is available for areas that may be affected.

So the main aims for road managers are to:

A) Chiefly build an overview of local roadside vegetation and plan to prioritise routine protection of:

- a) Core corridors and networks of roadside vegetation.
- b) Areas with localised statutory values (e.g. Threatened Flora & Communities & other Environmentally Sensitive Areas like wetlands).

This is covered in more detail by the steps below (see Parts 5 & 6 on sustaining roadsides).

B) Cautiously use this overview to plan ahead for non-routine programs that may affect roadsides:

- a) Consider infrastructure needs in advance for the medium-term.
- b) Clarify where these may affect roadsides and aim to avoid & minimise impacts.
- c) Gather more detail on areas likely to be impacted (add full survey to background data).
- d) If seeking assessment of a clearing proposal provide details on conservation values of the area and also of plans to minimise and mitigate impacts on it.

2. APPROACH

Consider that roadsides also create conservation networks across the state's landscape.

Above all, this guide encourages integrated road reserve management that makes suitable provision for roadside protection, alongside roadway concerns such as efficacy and safety.

Each local jurisdiction should be aware that they play a role in safeguarding and managing a unique part of the State's biodiversity, which in the south-west is of national and international significance. The full biodiversity of roadsides (including the flora, fauna and soil organisms) is so complex that once cleared it cannot be fully replaced. This makes these remnants a central part of our heritage.

The scope of roadside management should reflect a wider context. It should cover local vegetation and biodiversity at a landscape scale and aim to avoid cumulative impacts and net loss. A well-integrated and strategic approach can ensure values are maintained at local and regional scale.

As once common native vegetation declines in many areas, any intact roadsides have become operating constraints to land managers. There is a very high risk that, especially in the south-west, any clearing of remnant native vegetation will cause significant loss of natural heritage values.

As stewards of conservation values, roadside managers should be aware of their responsibilities to prevent further decline in biodiversity, and to protect remnant vegetation, especially conservation corridors. This requires refining management practices so as to support local native vegetation.

Stewards are encouraged to include such assets in policy as well as planning and works programs.

Every local jurisdiction has a role in creating a strategy that enhances local and regional networks. Each safeguards both the wider continuity of common elements and the hub of unique ones.

Desirable protection outcomes, in order of priority, include:

- I. The retention of remaining local biodiversity in place (i.e. avoidance). In particular, avoidance of impacts to local vegetation or the severing of ecological linkages.
- II. The retention of as many intact roadsides (conservation zones), along local access roads and any wider (>20m) road reserves, as possible.
Especially networks of these (i.e. clusters &/or parallel corridors).
- III. Where widening or re-alignment are unavoidable, accommodation of values through a hierarchical approach:
 - i. First, plan to avoid higher conservation value roads or stretches as much as possible;
 - ii. Second, retain as much of the conservation zone on each roadside as possible;
 - iii. Third, leave one wide roadside with the higher values, rather than two thin roadsides;
 - iv. Fourth, protect similar parallel linkages in the immediate vicinity; and
 - v. As a last resort, where significant values are impacted, consider offsetting that impact through 'restoration' or other offset options.

3. HISTORY OF ROAD RESERVE CREATION IN WESTERN AUSTRALIA

The south west of Western Australia has a legacy of two stages of roadside creation. This legacy reflects growing appreciation of extraordinary local values and the need for their protection. In the early stages of development the 'bush' was taken for granted, as it was everywhere, while developed areas were small. At first, stage 1 road reserves were only 20m wide and were the default. Adequate reservation of vegetation was not a key consideration at this stage. However, the balance soon tipped as 'bush' was vanishing in many areas. This generated wide spread concern, both in local communities and at government levels. Deliberations about this state of affairs led directly to the survey of wider road reserves that would serve to retain a cross section of local vegetation. Road reserves took on a second purpose, that of reservation of vegetation. This occurred in the mid to late 50s and was essentially reactive. So the wider stage 2 road reserves vary from 40m to 200m wide and tend to be found in areas developed in the latter half of the 20th century through to the present. Most stage 2 road reserves are in Local Government areas (e.g. Jerramungup, Ravensthorpe and Esperance), though state roads were also reserved wider (e.g. Brand Highway).

Given the extent of the early stages of development, this means that many, if not most, road reserves in the southwest were only 20m wide and will always remain problematic. This is because they were set aside for the modes of transport of their era and, critically, without regard for their broader potential function. Nevertheless, for purely historical reasons, this made these narrow reserves the primary repository for the last remnants of unique and rich local natural heritage in the most intensely developed areas of the state. This outcome has left inadequate reserves of any kind in many areas. While far from ideal, this is a reality that must be managed in the context of society's ongoing expectations for both infrastructure and the environment.

The RCC had its origins during the period in which society began to recognise the value of its remaining natural assets. The RCC's predecessors arose in the late 60s and the present RCC was convened by the State Government in 1985 (around the same time as both the *Conservation and Land Management Act 1984* and the *Environmental Protection Act 1986*). So its terms of reference reflect the entire context above. They are "To ... promote the conservation and effective management of rail and roadside vegetation for the benefit of the environment and the people of Western Australia."

In 1999 the EPA issued Position Statement No 2 which emphasized how crucial all remaining remnants in extensively developed areas were to the state. Especially as many areas were well below a critical threshold of 30% cover which sustains viable landscape processes and vegetation. Since then the EPA (2016) has highlighted: i) clearing as a key threat to biodiversity in the wheatbelt; and ii) the absence of a means of accounting for total clearing in WA.

In addition the tenuous state of native vegetation in the agricultural zone is starting to be formally recognised in other ways. For example the EPBC listing of the Wheatbelt Eucalypt Woodlands Threatened Ecological Community acknowledges the very limited amount of woodlands left in the Avon Wheatbelt (and hints at its diversity, as it is really a fusion of many vegetation types).

4. ADVANTAGES OF A PLAN

An integrated plan for roadsides offers:

- A means to manage natural assets and resources consistently.
- Some medium term surety for a one-off investment.
- More clarity on where conservation values are located.
- Leeway to adjust practices to suit roadside sectors and to limit impacts.
- Evidence of pre-planning when dealing with Environmental Impact Assessment.

5. SUSTAINING ROADSIDES - STEPS FOR MAPPED LOCAL GOVERNMENTS

Local Governments with RCC RCV mapping can use 5 steps to plan as per the text and diagrams.

It is preferable to use whole-of-local-area vegetation maps to create an overview. If available, draw on a framework of RCV mapping accompanied by more detailed vegetation mapping, and then add other localised values. The strengths of RCV mapping are that it is continuous, extensive, and proven; while its drawbacks are lessened if it is used as a framework to which more recent and/or detailed data is added.

Step 1: Gather background.

The key background is roadside mapping. This offers a way to prioritise roadsides.

Step 2: Outline roadsides with residual local values.

This means: i) highlighting the stretches with high to medium-high values; ii) highlighting cells around which stretches are grouped (this is simply to make unbroken roadside circuits that might build a network stand out) ; iii) identifying corridors with stretches between reserves and larger remnants; iv) adding clusters of other statutory values (principally threatened species and Ecologically Sensitive Areas {ESAs}); and v) overlaying state roads and Restricted Access Vehicle roads rated 5 to 7 (so that roads with the highest infrastructure limitations are shown).

Ideally a Local Government will also have kept track of changes on their roadsides since mapping occurred. This includes any stretches severely altered by disturbance or that were rehabilitated with local-origin stock.

Older roadside maps can still assist priority setting as: a) first, low rating stretches can be made lowest priority, unless they are the only links to higher rating stretches; and b) second, when the state of stretches needs to be reassessed, a basic audit can be aimed at high and medium-high (and perhaps then medium-low) rating roadsides.

Step 3: Highlight areas with mostly unbroken cells and links of vegetation.

Put the highlighted values (roadside mapping, reserves, statutory values, etc.) into their whole-of-local area context and see how they contribute to an overall plan for roadsides.

Step 4: Identify prospects to unite local and regional cells and links.

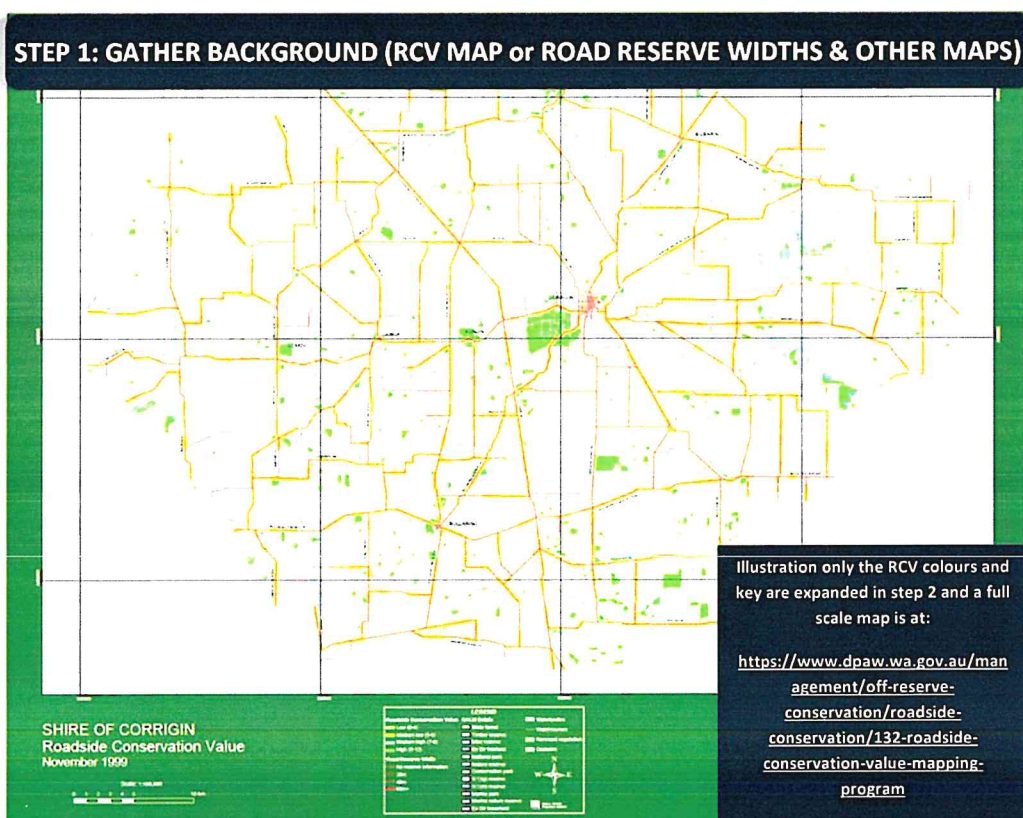
Consider how to consolidate cells and links within and between local government areas. So also look at neighbour's values to see how these might connect. In the example three regional linkage prospects appear: 1) along the rabbit-proof fence; 2) along railway corridor remnants; and 2b) along the highway (subject to 'restoration' in places).

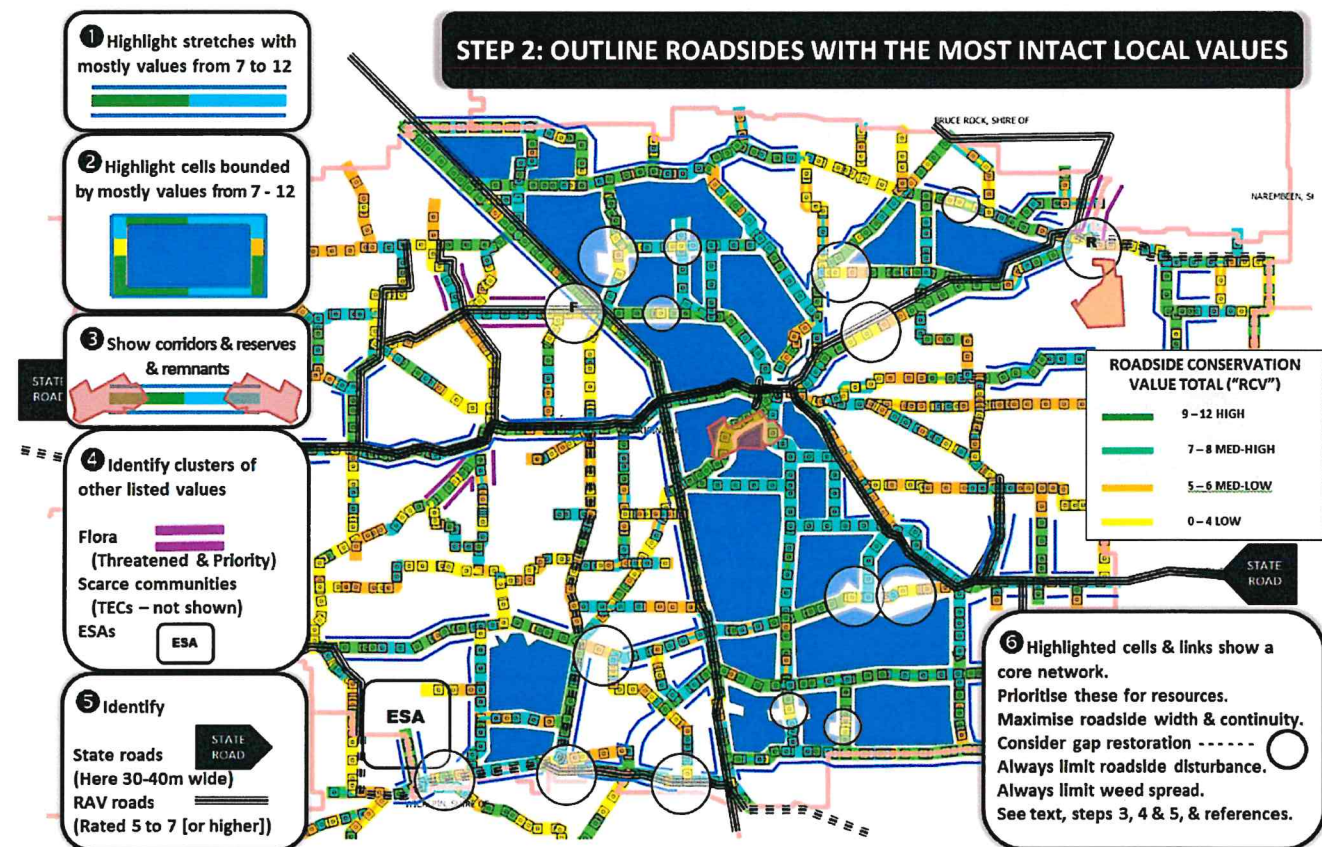
Step 5: Put assets into policy, planning and works programs.

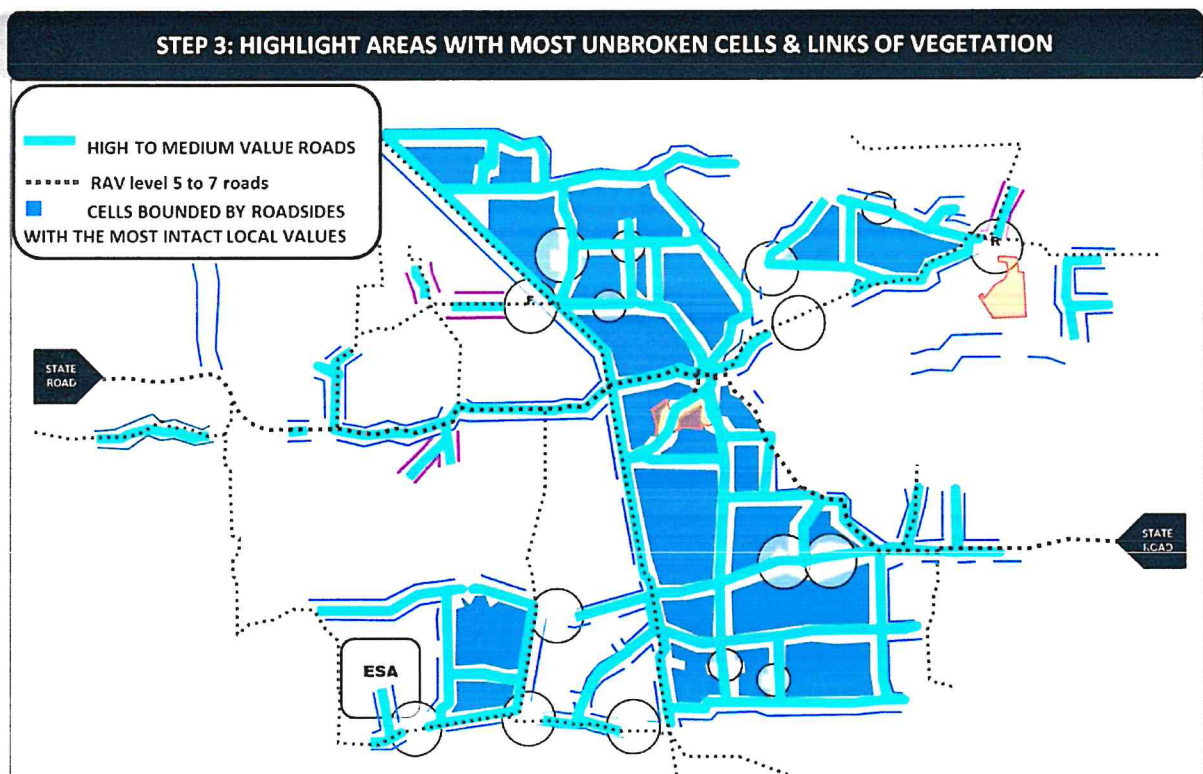
Put highlighted cells and links into planning and practice. Use the cells and links to: i) outline sectors of the road system that are given priority for local vegetation protection and ensure the roadsides within these are set as constraints in the works program and projects; & ii) stress best practice in these sectors (ensure work is in the minimum footprint for maintenance or upgrades).

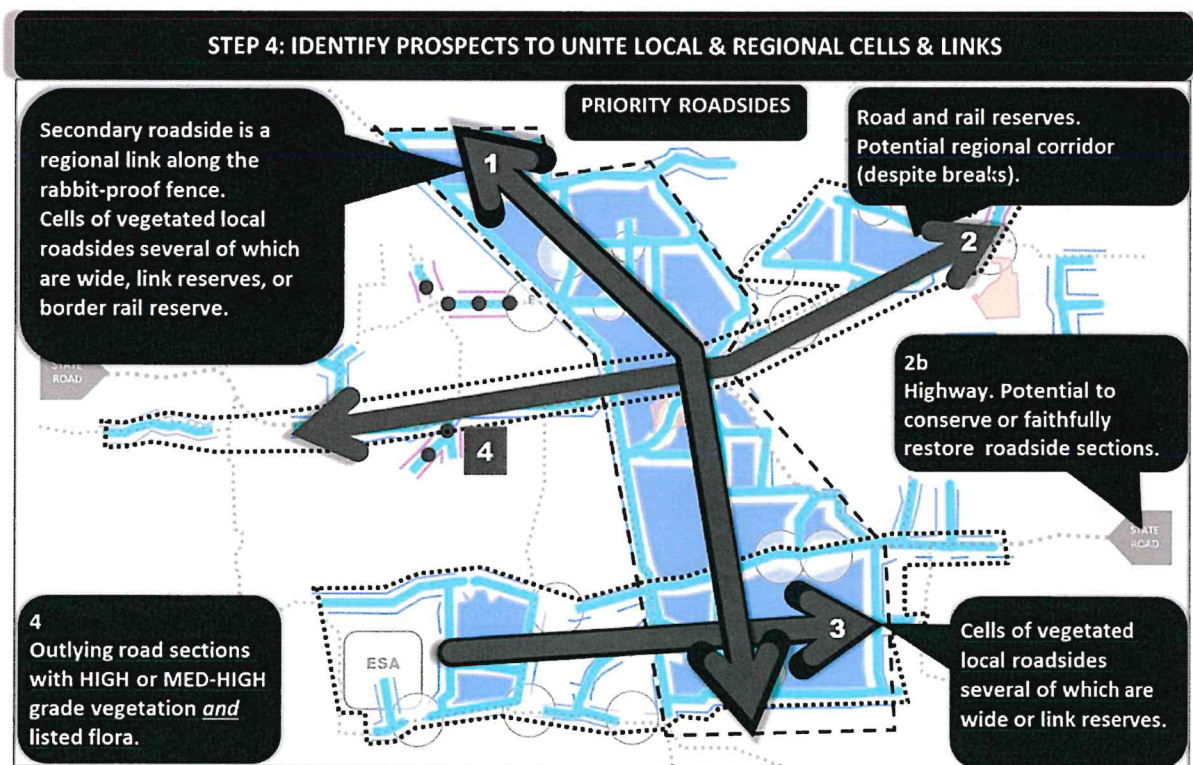
Note that smaller stretches of higher value roadside shouldn't be ignored, and it remains important that staff know how to ensure general best practice by keeping to the maintenance zone.

Note that some roadsides highlighted for protection are along major regional roads (highways and secondary roads with high speeds, more traffic and heavy haulage) which will tend to have most emphasis on infrastructure; however, these can often have some of the wider road reserves and higher value roadsides (such as in the example here). So these road reserves are well worth investing resources in to ensure best practice from both infrastructure and conservation perspectives.









STEP 5: PUT ASSETS INTO POLICY, PLANNING AND WORKS PROGRAMS

A POLICY - FOR ROADSIDES WITH LOCAL NATURAL VALUES.**A PLAN - FOR ROADSIDES that includes:**

- Key balances to protect local roadside biodiversity & linkages
- Key network sectors given priority to vegetation protection
 - With such sectors as a fixed check in the works program
- Road maintenance and upgrade *which mostly:*
 - Emphasizes best practice and least harm
 - Seeks and works in a minimum footprint of road-&-verge
- Where widening or re-alignment are *unavoidable* aims to:
 - Avoid higher value roadsides & stretches
 - Retain as much higher value roadside as possible
 - At least keep one wide roadside rather than two thin ones
 - Protect nearby alternate linkages
 - Make ample provision for 'restoration'

DESIRABLE PROTECTION OUTCOMES, IN ORDER OF PRIORITY, INCLUDE:

- I) The retention of remaining local biodiversity in place (i.e. avoidance).
- II) The retention of as many intact roadsides (conservation zones), along local access roads and any wider (>20m) road reserves, as possible.

Especially networks of these (i.e. clusters &/or parallel corridors).
- III) Where widening or re-alignment are unavoidable, accommodation of values through a hierarchical approach:
 - First, plan to avoid higher conservation value roads or stretches as much as possible;
 - Second, retain as much of the conservation zone on each roadside as possible;
 - Third, leave one wide roadside with the higher values, rather than two thin roadsides;
 - Fourth, protect similar parallel linkages in the immediate vicinity; and
 - Fifth, where significant linkage values are disrupted, factor in 'restoration'.

6. SUSTAINING ROADSIDES - STEPS FOR UNMAPPED LOCAL GOVERNMENTS

If an area lacks an RCC Roadside Conservation Value map the approach differs at “Steps 1, 2 & 3”.

Step 1: Gather background - Plan to protect roadsides & limit clearing if any of these cues apply:

- ☐ Remnant vegetation is in a landscape with <30% cover of original local vegetation left. (◆; *CPe*)
- ☐ Other validated vegetation mapping shows areas with remnant local vegetation; especially if this is nearly continuous (*CPe*).
- ☐ Unmade road reserves that were never cleared or grazed are present (*CPe*).
- ☐ Wider road reserves (those over 20m) and combined road-rail reserves are present; as
 - Many wide corridors were expressly reserved for conservation.
 - Wider road reserves tend to sustain values;
 - Roadsides with rail reserves alongside tend to sustain values;
- ☐ Road reserves are nominated by parties with sound knowledge of local plants (criteria follow *).
- ☐ Roadsides have vegetation with several native plant species &/or 2 or more layers of these and/or with few weeds (*; *CPea*).
- ☐ There are localised values and their linkages: i) Vegetation with large trees with hollows; ii) Threatened Flora or Ecological Communities; and iii) other Ecologically Sensitive Areas (ESAs; like wetlands). (◆; *CPbcd*)
- ☐ Roadside remnants link larger remnants (reserves, crown land & freehold). (◆; *CPh*)

In unmapped LG areas assemble and combine these cues so they can substitute for where:

- ☐ Roadside assessment shows vegetation in the RCV classes high & medium-high; especially if this is nearly continuous (see Jackson 2002). (◆; *CPe*)

Note that ‘CP’ indicates which Clearing Principles are covered by the cue, see Table 10.1.

Some of this data is available from spatial & biodiversity databases (◆; see 15 links).

Cues may also be assessed by the Environmental/NRM Officer with the Works Manager, or by a suitably qualified specialist. In the absence of any suitable data for stretches:

- a) for management purposes at least assess whether local vegetation with several native plant species &/or 2 or more layers of these is present; or b) preferably conduct biological survey of selected areas (especially before seeking assessment of clearing proposals).

Step 2: Outline roadsides with multiple cues indicating vegetation is intact.

Consider the overall extent of roadside cues and outline:

- Stretches with mostly patches of cues (these replace high & medium-high RCV classes).

Step 3: Highlight areas with most unbroken cells & links of vegetation.

Highlight and prioritise for protection in the local area:

- Groupings of such cue-rich stretches in corridors or networks
- And also any unconnected areas with localised statutory values.

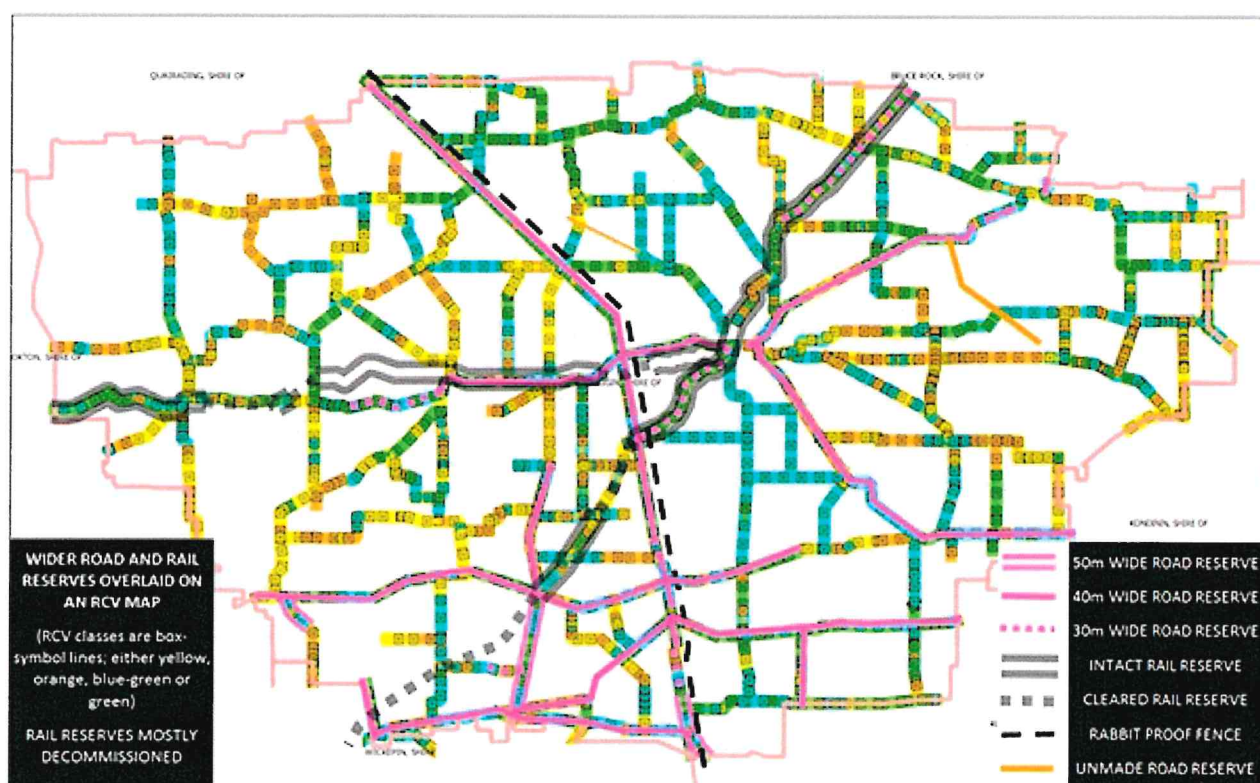
Step 4: Identify prospects to unite local and regional cells and links.

Highlight groupings that are part of links to other local areas. That is, wherever groupings of cue-rich roadsides also form regional corridors or networks.

5: Put assets into policy, planning and works programs.

The information and maps may be reviewed and endorsed by the land manager. Land managers are encouraged to adopt an overview of roadsides and to prioritise the identified sectors for protection.

The next figure shows where some of the above cues occur in the example; they are the cues for wider road reserves (pink), rail links (grey) and unmade roads (orange). Note that the pink and grey reserves match many of the key edges of cells and links based on mapped roadside values for the same area (see mapped area example above). Yet, widths fail to highlight the cluster of 20m road reserves with higher values in the vertical strip up the middle; so more cues need to be assembled.



7. ADJUSTING FOR SUSCEPTIBILITY TO DISTURBANCE

The presence of higher values or several cues in a road reserve increases its importance and the need for seeking alternative infrastructure planning outcomes (see Table 7.1 - classes A, B & C).

TABLE 7.1: SUMMARY OF RISING SUSCEPTIBILITY TO DISTURBANCE - <i>AIM TO PROTECT A, B then C.</i> (A – most susceptible to impacts to D – least susceptible to impacts due to earthworks)		
	Map RCV grade	['&/or] 'Surrogate Cues'
A	high (9 – 12)	<u>Cues: Many. Nearly continuous.</u> Several or many native plant species &/or more than one layer –often several. (Also include vegetation with naturally fewer layers; e.g. thickets, wandoo, York gum and salmon gum woodland.) (Some weeds may be present; likely few, but may be increasing.)
B	medium-high (7 – 8)	<u>Cues: Several/Many – significant stretches in the majority.</u> Several/many native plant species &/or over one layer – likely several. (Some weeds may be present; likely few/fewer, to verging on common.)
C	medium-low (5 – 6)	<u>Cues: Few/several – some significant stretches, close to the majority.</u> Some to several native plant species &/or more than one layer. (Some weeds and/or clear patches may be present & also common.)
D	low (0 – 4)	<u>Cues: None/few – very scattered, negligible in extent.</u> Roadsides where long, low-rating, clear, or totally weed congested stretches are in the majority.

Those roadsides where long, low-rating, clear, or totally weed congested stretches are in the majority should be assigned lower conservation priority. These are the most suitable for new, more extensive, roadworks with fewer constraints or conditions (D).

It should also be noted that the vegetation and condition of road reserves proposed for extensive roadworks may need to be surveyed and mapped in detail by a qualified specialist once a route is proposed and before a clearing permit is applied for through the Department of Water and Environmental Regulation. Preliminary environmental assessment using the methodology described above may reduce the need for such survey, and increase the likelihood of obtaining a clearing permit, especially if roadsides are demonstrably low-rating, clear, or totally weed congested.

8. AVOIDING AD HOC PITFALLS

Adhere to an overall plan for the full range of conservation values in your area and try not to let ad hoc items distract from overall accounting.

Avoid only concentrating on isolated issues, as this will lead to a poor, ad hoc approach for the whole network. (Hence do not mistake any approved “flora roads” for an overall plan or adequate protection or focus on these alone. “Flora roads” are simply a way to showcase some roadsides which are small parts of the whole network.)

Scattered specially-protected values (Environmentally Sensitive Areas)

Other minority parts of the whole network are Environmentally Sensitive Areas (ESAs). As used here ESAs include Threatened Flora and Threatened Ecological Communities and wetlands (such features are referred to by a range of Acts including the EPBC Act and Biodiversity Conservation Act, and under the clearing principles within the EP Act). There may be cause for extra caution in these areas and it is advisable to check requirements (for example the exemption for maintenance under the clearing regulations may not apply).

Note that the 5 steps above should cover many such ESAs, especially if they occurred in the core sections identified under the steps. However, there will also be isolated occurrences, and it should also be ensured that the location of these is part of any overview and is also included in works planning.

It is essential to avoid grading between yellow “hockey stick” markers, which mark areas where threatened flora occur, until you have consulted with the local Department of Biodiversity, Conservation and Attractions officers, as plants may have spread into the maintenance zone after grading. Such “most-scarce” plants are often isolated and widely scattered. Furthermore the records of threatened plants in a local area can be dynamic. This is because: i) each population may spread as new plants germinate; ii) more populations may be found or existing populations may decline; and iii) new species or sub-species may be discovered.

Consistent best practice should suffice with most other ESAs (those that do not involve Threatened Flora) as all other sorts of ESAs can be extinguished within a long-standing maintenance zone. This means there will only be risk to any outlying ESAs if work strays outside the maintenance zone. (For example TECs include sub-groups of vegetation which are conservation priorities, are scattered and may lack detailed maps of their location. Widespread examples of nationally listed TECs include Wheatbelt Eucalypt Woodlands and Kwongkan Shrubland.)

Scattered stretches of higher values without special protection

There will also be scattered stretches of higher value roadsides without special protection that are not included in the steps above. These can also be protected if: i) best practice confines work to the existing maintenance zone; and ii) staff and contractors recognise the difference between weeds and native plants and can avoid and buffer the latter. However, priority for resources should go to the core stretches identified by the steps above.

9. CLEARING FOR NEW WORKS AND THE *ENVIRONMENTAL PROTECTION ACT 1986*

Note that an overall plan will not remove the obligation to demonstrate new works (those outside existing exemptions) will not have a significant impact on native vegetation.

Any clearing undertaken outside the scope of existing exemptions, such as for the existing maintenance zone, crossovers and lines-of-sight, is likely to be clearing for which a clearing permit would be required (See Appendix 3 for background on provisions and Acts and see TERMS). In such circumstances, the clearing proposal must be assessed for values and risk of impacts and *declined or approved* by the Department of Water and Environmental Regulation (DWER). The department seeks to be suitably informed and gather available data about the values of areas in question. Given the size of the state there is insufficient detail on values for project areas, and so survey by qualified personnel is often required. Note that RCC survey does not detail all the species and values present.

10. APPROACH TO CLEARING & THE CLEARING PRINCIPLES

In terms of clearing adopt an approach that aims to protect dwindling conservation values:

- 1) **Avoid the need for new clearing.** In most cases and most of the time.
- 2) **Minimise any new clearing that cannot be avoided.** In few cases and infrequently.
- 3) **Mitigate any new clearing.** This should be a last resort as it often results in replacement or at best only partial restoration, with net loss of conservation values. Furthermore work that attempts restoration of the original biodiversity is resource intensive and a long-term commitment.

Note choices are not equal and should be weighted (e.g. *at least >99% 'avoid' and <1% 'minimise'*). Consider the impacts of choices at both the scale of the overall vegetated network, and the project.

Respecting point (1) “avoid” in as many higher-value road reserves as possible will help avoid engaging with the Environmental Protection Act. It is good stewardship of roadsides to consider all stretches with relatively intact local vegetation as planning and operating constraints.

Points (2) *minimise* and (3) *mitigate* involve some clearing as they involve work outside the existing exemption for clearing in existing transport corridors. (DER 2015 FS1)

The RCC cautions that further clearing in extensively cleared areas is hard to justify, especially where the little remaining native vegetation is conserving in-situ biodiversity, soil and water assets, and providing social and economic benefits. So it is essential to carefully consider any potential clearing.

In terms of clearing the Environmental Protection Act 1986 states that “*Native vegetation should not be cleared if...*” it meets any of 10 principles. The principles are listed in full in Table 10.1.

In broad terms the principles indicate vegetation “should not be cleared if” there is risk of:

- Further loss of remnant vegetation and biodiversity (e & a);
- Collateral damage (including to buffers or linkages (h));
- Landscape-scale deterioration (g, i & j);
- Threats to localised flora and fauna, communities and wetlands (c & b, and d & f; which relate to the state BC Act and the federal EPBC Act).

In terms of local and regional roadside networks it is principles a and e that are the most pertinent, as these cover the retention of biodiversity and remnant vegetation.

Table 10.1 also illustrates that:

- Three of the principles overlap with matters covered by the Biodiversity Conservation Act;
- Four principles are touched on by Roadside Conservation Values (RCV); and
- Many principles are touched on by data sources like the Environmental Planning Tool (EPT).

TABLE 10.1: PRINCIPLES THAT UNDERPIN PROTECTING (NOT CLEARING) VEGETATION UNDER THE EP ACT 2016 AND HOW SOME KEY DATA SOURCES AND THE BC ACT 2016 ALIGN TO THEM			
PRINCIPLES FOR CLEARING NATIVE VEGETATION [EP Act 1986 Schedule 5; 21/09/16]	PRINCIPLES EACH ITEM COVERS		
	<i>Biodiversity Conservation Act 2016</i> Only what applies to Act	RCV maps Verified local remnants	Environmental Planning Tool Covers much available data (includes RCV)
1. Native vegetation should not be cleared if -			
(a) it comprises a high level of biological diversity; or		(X)	(X)
(b) it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia; or	X	(X)	X
(c) it includes, or is necessary for the continued existence of, rare (threatened) flora; or	X		X
(d) it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community; or	X		X
(e) it is significant as a remnant of native vegetation in an area that has been extensively cleared; or		X	X
(f) it is growing in, or in association with, an environment associated with a watercourse or wetland; or			X
(g) the clearing of the vegetation is likely to cause appreciable land degradation; or			X
(h) the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area; or		(X)	X
(i) the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or			(X)
(j) the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.			
KEY: X – principle covered by item; (X) – principle partially covered by item.			

To help unite environmental data for assessment the WA Local Government Association (WALGA) has prepared the Environmental Planning Tool (EPT). The EPT unites any available data relevant to the clearing principles; including Roadside Conservation Value (RCV) mapping (see table). Data in the EPT are also kept up to date. (The EPT also includes many aspects of WALGA's Road Reserve Asset Management Plan (RRAMP) project.) The EPT has many common data sets. When making assessment, DWER relies on common data sets and its own data sets and other proved data.

The RCC encourages stewards to see any tool (like the EPT) as a way to support stewardship, and not just as a way to enable clearing. Such tools are best used to support steps like those above and so integrated planning for the network's conservation values. Note also, such tools hold a subset of data that can always be enhanced, especially with local details. Most data sets have limitations.

Remember - it is the approach that is adopted that is pivotal to good overall stewardship.

11. NEW WORKS AND MAJOR UPGRADES - PRE-PLANNING

If new, more extensive, work is unavoidable - check that:

- Conservation values are assessed, prioritised, and put in planning by extent and importance.
- That there is provision to adjust routes to avoid higher conservation value remnants, with early planning minimising inconvenience and delays later in the process.
 - Per network – plan to:
 - Retain at least medium & high value roadsides &/or those with several cues.
 - Exclude these from local feeder & secondary routes.
 - Seek parallel routes to avoid medium & high conservation values.
 - Retain local roads with intact roadsides as much as possible.
 - Per roadside – plan to avoid the conservation zone:
 - Minimize carriageway & maintenance zone widths.
 - Avoid or minimize the need for “clear zone” intrusion (& keep frangible plants).
 - Work to optimise any default recovery area that already exists.
 - Consider design options; like shoulder seal, audible edges & barriers.
 - As a last resort, if sizable widening is unavoidable, leave one wide roadside with the higher values, rather than two very thin roadsides (e.g. 1–2m wide).
- Allowance has been made for mitigation where impact on high value areas is unavoidable.
 - Principles that can enhance rehabilitation include:
 - Collecting local provenance seed in a way that samples genetic diversity.
 - Sample the broadest range of species, and many individuals of a species, from the to-be-impacted vegetation and also adjacent areas with the same type/s of vegetation.
 - Respreading any weed-free topsoil.
 - Reinstating local and regional vegetation linkages by protecting and managing vegetation on parallel roads and rehabilitation on suitable adjacent land.

12. NEW WORKS AND MAJOR UPGRADES – PREPARING FOR CLEARING ASSESSMENT

Any intrusion in vegetated roadsides requires approval for clearing (as it exceeds the maintenance zone exemption). Plan to firstly minimise, and then secondarily mitigate, intrusion. In preparation:

- Clearly and precisely describe the extent to which proposed activities exceed the maintenance zone;
 - Include all relevant road reserve tasks (e.g. authorised fence line clearing);
- Provide justification for such activities;
- Provide information in relation to matters of conservation significance in the given area;
- Detail actions that will be taken to avoid, minimise or mitigate any impacts on native vegetation as a result of such activities.

Prepare well in advance for clearing assessment

Start gathering data on roadside conservation significance well in advance (especially if area-wide roadside data is lacking or needs to be improved). Advance assessment can provide leeway to balance efficacy, safety and conservation matters. Starting assessment early allows it to be done in increments and with less demand on resources at any one time and with less potential for delays.

Clearing applications require a high level of detail on roadside vegetation and conservation values (this will exceed the level required for a LG's overall roadside management plan). This is due to specific risks, such as that, new populations of Threatened Flora or even new species may be found.

Local Governments should anticipate the need to gather information on roadside vegetation and related environmental values:

- Aim to outline the ecological value of roadside native vegetation in the designated area. For example the full range of plant communities that are present, their conservation significance (extent and condition), and then more localised values including the location of any threatened species, threatened ecological communities, or like areas of special significance;
- Gather data from - plant identification by vegetation survey, mapping, database and Geographic Information System (GIS) for the entire area, OR, on a case-by-case basis using qualified staff or experts. (See 16 – LINKS, for data sources which include the EPT.)

Applying for clearing assessment and permits

If work is of limited extent Local Government can apply for a clearing permit from the Department of Water and Environmental Regulation (<https://www.der.wa.gov.au>).

Think strategically about the need for permits

Local Governments are encouraged to account for all their medium-term road work needs network-wide so they can better balance these with their overall roadside plan.

In this regard the Department of Water and Environmental Regulation is considering the viability of Strategic Purpose Permits (SPPs). These are intended to help provide some surety in medium-term planning for both roadsides and infrastructure. They may reduce the need for case-by-case consultation about ongoing or standard activities; provided sufficient detail is included.

13. NEW WORKS AND MAJOR UPGRADES - MONITOR WORKS AND CHECK FOR IMPACTS

Conservation values of roadsides affected by planned upgrades should be recorded and all staff involved, from planners to works crews, should be made aware of the values to be protected.

Construction programs should include staff induction about conservation values and operational procedures that ensure least disturbance. This includes outlining conservation constraints on operational procedures in all areas retaining local native vegetation.

Compliance audits for construction should include outcomes for conservation values, and include construction phase record keeping, with staged audit, and final sign off. This should include checks of roadside values before, during and after construction.

13. TERMS

Verge – that part of the roadway from the edge of the carriageway to the outer edge of the backslope batter on the drain or equivalent line.

Roadside – that part of the road reserve from the outer edge of the backslope batter or equivalent line to the boundary. *Not exempt under the clearing regulations; approval to clear required.*

Conservation zone – covers the same zone as the roadside, it is usually vegetated.

Maintenance zone – the full roadway including the carriageway and verge, the central road reserve between the outer edges of the two backslope batters. *A clearing exemption applies to the long-standing, legally cleared, part of this.*

Higher value roadsides or vegetation – those that include the RCV classes high and medium-high. (Ideally there will be some regard for the medium-low category as well, as while it should be more disturbed, it may still hold significant values. Note also that because ratings are made for the general state over a length of several hundred metres even low class stretches may have some pockets of values, but if mapping was thorough these should be very much in the minority.)

Conservation values – the overall suite of original natural heritage values in an area. This suite may be represented in various ways. For instance it is broadly sketched by RCV scores, and may be further detailed by other means (such as the surrogate cues listed in Part 7).

RCV – Roadside Conservation Values are four classes into which mapped roadsides are allotted. It applies to Local Government areas surveyed by the RCC. Classes are: high (score 9-12); medium-high (7-8); medium-low (5-6); low (0-4). Classes are based on: the number of layers in vegetation; plant species diversity; extent of vegetation; corridor value; width of roadside; & weed levels (see Jackson 2002).

Surrogate cues – these are cues to conservation values that can be gathered if RCV maps are lacking; the cues can also be used to enhance existing maps and the overall store of roadside data (see Parts 6 & 7).

Cell – an area bounded by roadsides that have key remnant vegetation; that is, a cell of such links.

Frangible – plants or plant parts that are 10cm or less in diameter; shrubs to 3.5m may be frangible. In most locations the majority of smaller plant species will tend to be frangible.

Environmentally Sensitive Areas (ESAs) - Includes “The following areas ... declared to be ESAs:

- a defined wetland and the area within 50 metres of the wetland.
- the area covered by vegetation within 50 metres of rare flora, to the extent to which the vegetation is continuous with the vegetation in which the rare flora is located;
- the area covered by a threatened ecological community;...” (DER 2014a)

14. REFERENCES

Coates, D.J., Byrne, M., Cochrane, J. A., Dunne, C., Gibson, N., Keighery, G.J. , Lambers, H., Monks, L.T. , Thiele, K.R. , and Yates, C.J. 2014 Chapter 8: Conservation of the Kwongan flora: threats and challenges. In: Lambers H., (ed) *Plant Life on the Sandplains in Southwest Australia, a Global Biodiversity Hotspot*. University of Western Australia Publishing, Crawley, Australia. Pp 263-284.
An account of factors that must be managed if remnant local vegetation is to be retained.

Department of Environment Regulation (DER) 2014a Environmentally Sensitive Areas (Environmental Protection Act 1986) CLEARING REGULATION FACT SHEET 24 - DER2014/001566

Department of Environment Regulation (DER) 2015 FS1 Native vegetation clearing legislation in Western Australia - Environmental Protection Act 1986. Government of Western Australia.
CLEARING REGULATION FACT SHEET 1

Department of Environment Regulation (DER) 2015 A guide to the exemption for clearing native vegetation for maintenance in existing transport corridors - *Environmental Protection Act 1986*.

Environmental Protection Authority 1999 Position Statements Number 2: "Environmental Protection of Native Vegetation in Western Australia" (December 1999)

In 1999 the EPA concluded that... "from an environmental perspective, any further reduction in native vegetation through clearing for agriculture (in the agricultural region) cannot be supported", while pointing out the need for equity issues to be considered. The Final Report of the Native Vegetation Working Group (January 2000) to the Minister for Primary Industry reached similar conclusions, and also provided advice on managing equity matters.

Government of Western Australia 2004 Environmental Protection Act 1986: Environmental Protection (Clearing of Native Vegetation) Regulations 2004.

Hussey, B.M.J. 1991 The flora roads survey – volunteer recording of roadside vegetation in Western Australia. In: D.A. Saunders and R.J. Hobbs (eds.) *Nature Conservation 2: The role of corridors*. Surrey Beatty & Sons, Sydney. Pp 41-48.

Brief account of the history of road reserves in Western Australia and of RCC survey.
(Note that reference to 'flora roads' in the title is confusing as it is referring to all roads and not to the scheme for showcasing select roads labelled "flora roads" that came later.)

Jackson, K. 2002 *Assessing Roadsides: A guide for rating conservation value*. 1st Edition. Roadside Conservation Committee (of Western Australia).

Lambers, H. 2014 *Plant life on the sandplains in southwest Australia – a global biodiversity hotspot*. UWA Publishing, Crawley, Western Australia 6009. 332p
An introduction to the diversity and complexity of southwest Australian shrubland.

Native Vegetation Council (NVC) 2018 Interim guidelines for the Management of Roadside Native Vegetation. Endorsed for public consultation 29 August 2018. State of South Australia.

Stokes, A.L., Heard, L.M.B., Carruthers, S., and Reynolds, T. 2006 *Guide to the native vegetation survey methodology for South Australia*. Department for Environment and Heritage, Adelaide.

15. LINKS TO ITEMS MENTIONED IN THE TEXT**Department of Biodiversity, Conservation and Attractions**

- Threatened Flora - flora.data@dbca.wa.gov.au
- Threatened Ecological Communities (TECs) - communities.data@dpaw.wa.gov.au
- Department of Biodiversity, Conservation and Attractions (DBCA) 2019–, NatureMap: Mapping Western Australia’s biodiversity, DBCA, <http://NatureMap.dbca.wa.gov.au/default.aspx>
- Western Australian Herbarium 1998. FloraBase—the Western Australian Flora, Department of Biodiversity, Conservation and Attractions (DBCA), <http://florabase.dbca.wa.gov.au/>

Department of the Environment and Energy (Australian Government)

- Threatened Ecological Communities - <https://www.environment.gov.au/biodiversity/threatened/communities>
- Wetlands – <https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands>

Department of Water and Environmental Regulation

- <https://www.der.wa.gov.au/>

Roadside Conservation Committee

- Roadside Conservation Value maps (for ~60 southwest LGs that have been mapped) <https://www.dpaw.wa.gov.au/management/off-reserve-conservation/roadside-conservation/132-roadside-conservation-value-mapping-program>
- Roadside Conservation spatial data can also be viewed and downloaded through the link to the Shared Land Information Platform (SLIP).
- Roadside Conservation Publications (including the “Handbook of environmental practice for road construction and maintenance”). <https://www.dpaw.wa.gov.au/management/off-reserve-conservation/roadside-conservation/131-roadside-conservation-publications>
- Best practice case study from Cunderdin (“Minimising the impact of roadworks on native vegetation – a case study”) <https://www.dpaw.wa.gov.au/management/off-reserve-conservation/roadside-conservation/137-minimising-impact-of-roadworks-on-native-vegetation-a-case-study>

Western Australian Local Government Association

- Environmental Planning Tool (A mapping product, offering access to a range of data for landuse, infrastructure and environmental planning and to reporting aligned to regulatory processes.) <https://walga.asn.au/Policy-Advice-and-Advocacy/Environment/Environmental-Planning-Tool>

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DISCLAIMER

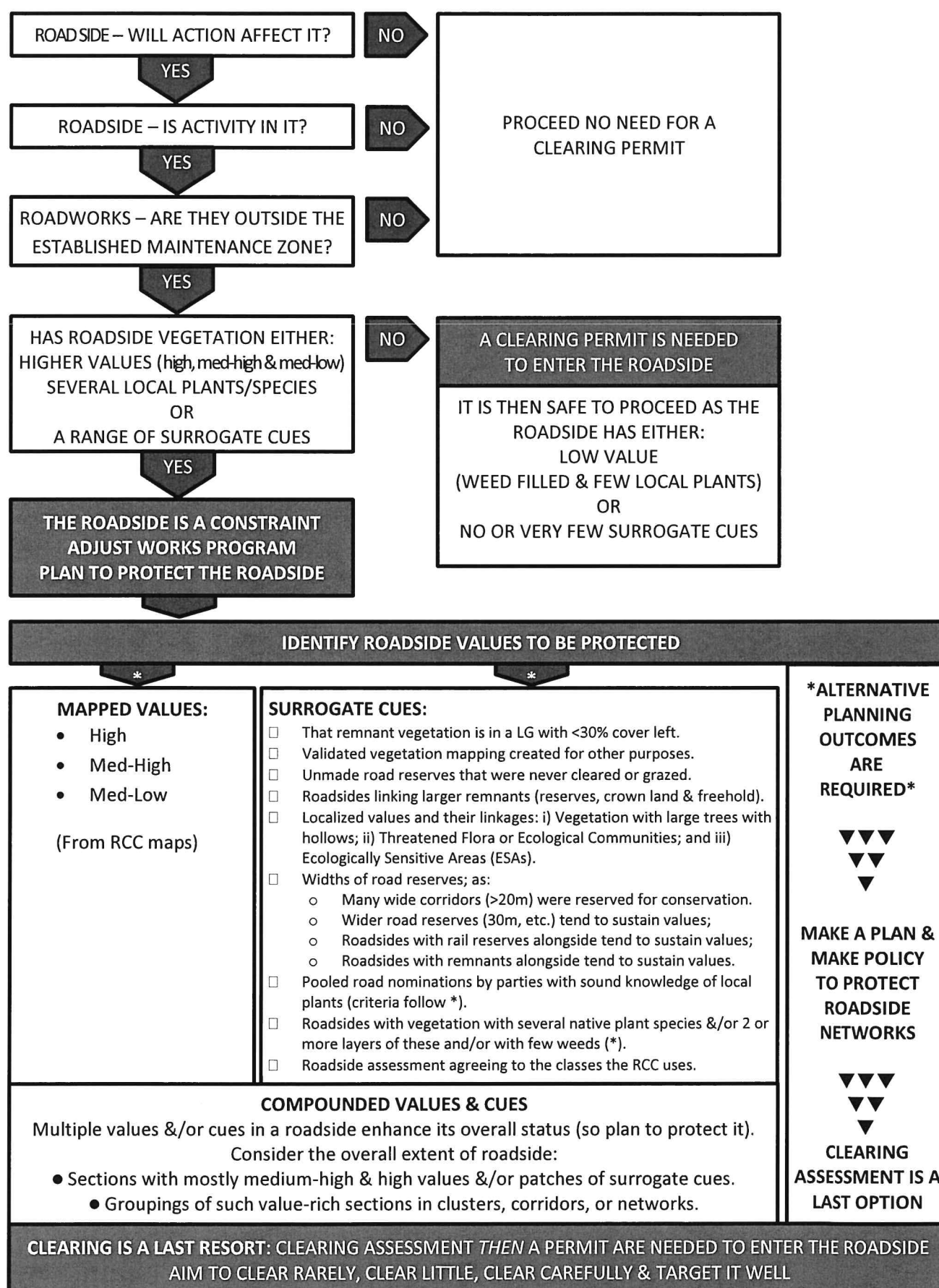
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APPENDIX 1: CHECKLIST FOR A ROADSIDE VEGETATION MANAGEMENT PLAN

CHECKLIST FOR A ROADSIDE VEGETATION MANAGEMENT PLAN (After NVC 2018)

1. Consider establishing a local consultative group comprising council staff (Works Manager and Planner), Environmental Officer or Natural Resource Management Officer, and community members. At least one member should have a good understanding of local native vegetation assessment and management. The group should ensure the preparation, incorporation and execution of the plan.
2. Identify who will prepare the plan. The person with good understanding of native vegetation assessment and management is the likely lead, but they should involve the Works Manager.
3. Identify matters that may affect roadside vegetation in the area. Routine road maintenance, property access and fence maintenance are common examples. Also anticipate future developments where feasible.
4. Establish policies and objectives for the management of roadside vegetation. These may include “to prevent harm to the environment”, “to ensure no net loss of local vegetation” and “to continually improve vegetation management practices”. Consider how much management standards will be influenced by road category (e.g. local, secondary feeder, sealed, unsealed & RAV rating). Keep the balance of biodiversity, transport & safety in view.
5. Set clear parameters and criteria for activities to be undertaken under the plan and develop procedures for managing activities of council staff, contractors, landholders, service providers, etc. where such activities are likely to affect roadside native vegetation. Procedures may include necessary referrals and authorisations (e.g. fenceline clearing).
6. Collate existing information on native vegetation on roadsides in the Local Government area and any information the LG has on roadside vegetation management. Seek all available databases, and survey and biodiversity information.
7. After review of available information and the risk of impacts it may prove necessary to carry out a roadside vegetation survey of the road network.
8. Detail how impacts on native vegetation will be minimised. Avoid impacts on matters of conservation significance including: roadside vegetation in high, medium-high and medium-low condition; species or communities listed under the Biodiversity Conservation Act 2016 and EPBC Act; and other Environmentally Sensitive Areas.
 - 8a. Aim to sustain the main networks (of stretches and cells). Consider their role in linking remnants in the local area and those in other local areas (e.g. along the rabbit-proof fence).
 - 8b. Detail how targeted restoration will occur. For instance rebuild broken stretches and cells. Deploy methods such as fence setback and roadside gap restoration.
9. Set out roles and responsibilities of LG staff for executing all aspects of planning for roadsides; including approval, monitoring and reporting responsibilities.
10. Review all aspects of the plan at 3 to 5 year intervals; ensure the roadside consultative group is involved.

APPENDIX 2: FLOWCHART – LIMITED CLEARING SUPPORTS A ROADSIDE PLAN



BACKGROUND ON CLEARING PROVISIONS AND THE BIODIVERSITY CONSERVATION ACT 2016

Clearing provisions (abridged from DER 2015 FS1)

“Under the EP Act it is an offence to clear native vegetation unless the clearing is done in accordance with a clearing permit, or an exemption applies. Under this legislation, clearing is not generally permitted where the biodiversity values, land conservation and water protection roles of native vegetation would be significantly adversely impacted.

The Department of Water and Environmental Regulation (DWER) is responsible for administering the native vegetation clearing provisions.

‘Clearing’ as defined in s 51A of the EP Act:

- (a) the killing or destruction of;
 - (b) the removal of;
 - (c) the severing or ringbarking of trunks or stems of; or
 - (d) the doing of any other substantial damage to,
- some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity that causes -
- (e) the killing or destruction of;
 - (f) the severing of trunks or stems of; or
 - (g) any other substantial damage to,
- some or all of the native vegetation in an area.”

Exemptions from the requirement of a clearing permit

“All clearing of native vegetation requires a permit unless it is exempt. There are two types of clearing exemptions:

- exemptions that are a requirement of a written law, or authorised under certain statutory processes under Schedule 6 of the EP Act; and
- exemptions for prescribed routine low impact land management practices under Regulations. These exemptions do not apply in environmentally sensitive areas (ESAs).”

More details

For more details on clearing provisions see: [https:// www.der.wa.gov.au/our-work/clearing-permits/49-fact-sheets](https://www.der.wa.gov.au/our-work/clearing-permits/49-fact-sheets)

Fact Sheet 1 - Native vegetation clearing legislation in Western Australia
Fact Sheet 24 – Environmentally Sensitive Areas;

For more details on clearing exemptions see: [https:// www.der.wa.gov.au/our-work/clearing-permits/48-guidelines-clearing-permits](https://www.der.wa.gov.au/our-work/clearing-permits/48-guidelines-clearing-permits)

Guide 4 - A guide to the exemption for clearing native vegetation for maintenance in existing transport corridors.

Biodiversity Conservation Act 2016

See: <https://dpaw.wa.gov.au/plants-and-animals/biodiversity-conservation-act-regulations>

Biodiversity Conservation Act 2016 Summary Table

APPENDIX 4: FLOWCHART - PROCESS FOR ROADSIDE CONSERVATION

