



Considerations for sealing Local Government roads in Western Australia

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This practitioners guideline have been prepared to equip Local Governments to make informed decisions about the sealing of unsealed roads. They provide a technical basis for assessing the benefits of sealing unsealed roads, taking into consideration the whole-of-life cost implications, impacts of traffic growth, and road safety.

Background

A key consideration for Local Governments in Western Australia is how vehicle traffic impacts both sealed and unsealed local roads, the cost of road maintenance and costs to road users.

Over time, there has been increases to heavy vehicle axle loads and light traffic volumes on unsealed local roads, including growth through land use development, industry, and tourism.

This has had a direct impact on the condition of local roads and as a consequence, Local Governments are facing significant increases in costs from road wear.

Approach

The guidelines have been prepared as two key documents:

The Practitioners Guideline is a summarised guideline in a user-friendly format, interpretable by non-technical practitioners. The Technical Report is the report containing all background research and supporting technical information.

The guidelines were developed in 5 stages:



Literature Review to identify previous research, guidelines, and technical documents



Subject Matter Expert review



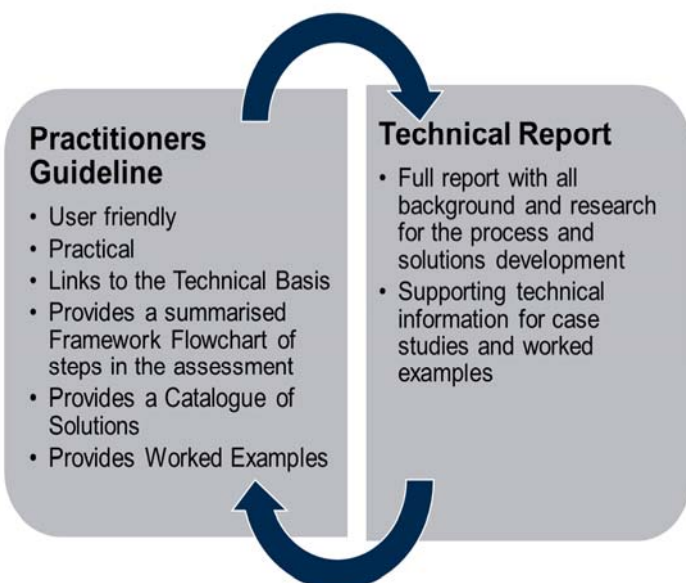
Consultation with local government to identify current practices and future needs



Application of a Whole-of-Life Asset Management Approach to Create a Catalogue of Solutions



Development of the Practitioner's Guideline



Implementing the Findings

Using the research and practitioner contributions, a whole-of-life asset method was developed. The method encourages road asset managers to consider all lifetime costs and benefits, for road construction, maintenance, rehabilitation and upgrade decisions, and including all stakeholders, rather than focusing solely on internal capital or operating costs. The method provides comparative assessments for managing and potentially optimising an unsealed road. It also provides alternative options for sealing the road for two cost levels: high and typical.

To implement the Guideline and to determine the appropriate course of action for sealing an unsealed road, practitioners should follow the decision process flowchart. With the correct information as inputs, the practitioner can fulfil each of the steps 1 to 7 and select the most accurate scenario.

Following the Guideline, the practitioner can use a number of the presented results tables and graphs from the *Catalogue of Solutions* in their decision making (see Table below for an extract of the *Catalogue of Solutions*). The *Optimum Sealing Strategy Decision Matrix*, depicted below, provides the final sealing choice that delivers the lowest total lifetime cost in each circumstance for use in subsequent business cases, budget bids, and plans.

How does this practitioners guideline support local government?

This guideline equips Local Governments with the necessary information to make informed decisions about the sealing of unsealed roads within their jurisdiction.

By implementing this process local governments can undertake comprehensive analyses of the benefits of sealing unsealed roads, taking into consideration the whole-of-life cost implications, likely impacts of traffic growth from many sources, and road safety costs.

Implementation Flow Chart



Catalogue of Solutions

From Step 1 Road category	From Step 2 Climate zone	From Step 3 Cost level	From Step 4 Unsealed practice	Catalogue link	From Steps 5 & 6 AADT & HV%
Regional distributor	1	Typical	Typical	Figure A1	Select solution
			Good	Figure A2	Select solution
		High	Typical	Figure A3	Select solution
			Good	Figure A4	Select solution
	2	Typical	Typical	Figure A5	Select solution
			Good	Figure A6	Select solution
		High	Typical	Figure A7	Select solution
			Good	Figure A8	Select solution
	3	Typical	Typical	Figure A9	Select solution
			Good	Figure A10	Select solution
		High	Typical	Figure A11	Select solution
			Good	Figure A12	Select solution
	4	Typical	Typical	Figure A13	Select solution
			Good	Figure A14	Select solution
		High	Typical	Figure A15	Select solution
			Good	Figure A16	Select solution

Optimum Sealing Strategy Decision Matrix (Extract)

Climate Zone 1	Typical Costs	Heavy Vehicle (%)				
		5	15	25	50	
		AADT_50	Not Viable	Not Viable	Not Viable	Base Upgrade
AADT_100	Not Viable	Not Viable	Alt Upgrade	Alt Upgrade		
AADT_175	Not Viable	Alt Upgrade	Alt Upgrade	Alt Upgrade		
AADT_250	Alt Upgrade	Alt Upgrade	Alt Upgrade	Alt Upgrade		
AADT_500	Alt Upgrade	Alt Upgrade	Alt Upgrade	Alt Upgrade		
High Costs	Climate Zone 1	Heavy Vehicle (%)				
		5	15	25	50	
		AADT_50	Not Viable	Not Viable	Not Viable	Not Viable
		AADT_100	Not Viable	Not Viable	Not Viable	Alt Upgrade
		AADT_175	Not Viable	Alt Upgrade	Alt Upgrade	Alt Upgrade
		AADT_250	Not Viable	Alt Upgrade	Alt Upgrade	Alt Upgrade
AADT_500	Alt Upgrade	Alt Upgrade	Alt Upgrade	Alt Upgrade		