

Asset Management Plan

Appendix 1.3

Local Roads 2009

1. Introduction

This plan covers the management of local roads throughout the Shire. Local roads which are managed by Moira Shire Council are listed in Council's Road Register; these are maintained as part of the requirements of the Road Management Act 2004.

2. Levels of Service

Council is also committed to providing a safe road network for the public to use. Regular inspections and maintenance / repairs are carried out as detailed in the Road Management Plan.

Gravel Roads

Council is also committed to providing all weather access from the sealed road network to every existing permanently occupied residence in the Shire

Where several access routes are available, Moira Shire Council may determine that only one route will be maintained to all weather standard, usually the shortest length of gravel. This standard generally consists of a minimum depth of gravel pavement with a minimum width of 4.0 m.

Where the condition of the pavement has been affected by moisture, it is considered that all weather access is available, if passenger vehicles can safely use the route at significantly reduced speeds. (i.e. the surface is not slippery or boggy during wet periods)

Sealed Roads

For single lane sealed roads, a minimum width of seal of 3.6 m is provided. Extra width is intended to reduce the amount of maintenance required on edge and shoulders, whilst also improving the overall safety. The seal will be widened and the shoulders reduced in width to maintain the same total formation width of 8.0m

The minimum formation width (seal plus shoulders) is 8.0m.

3. Future Demand

Population growth and economic growth within the Shire will lead to additional roads within new subdivisions and road extensions in other locations. These will be constructed at the developer's cost by Council or the developer.

Increased ratepayers expectations may lead to a demand for an improved service levels from existing roads. Council may elect to meet this via special charge schemes. The proportion of the contribution from adjoining land owners will be dependent on the use of the road by the general public and in accordance with Council's policy with respect to special charge schemes at the time.

4. Asset Portfolio

There is approx 1,020km of sealed road and 2,550km of unsealed road throughout the Shire. These roads are classified into various functions, usage and location, as shown below.

- Functions (hierarchy) - link, collector, access, farm access
- Usage - bus & truck, bus, truck, car
- Location - urban / rural

Function: LINK

Roads of this classification primarily provide a direct linkage between significant population centres and major traffic generators such as Residential, Industrial, Commercial, Agricultural and Tourist areas and Arterial Roads. These roads have an Identifiable Origin and Destination. (e.g. Townships and places of significance).

Function: COLLECTOR

Roads of this classification primarily provide a route between, and through, Residential, Industrial, Agriculture, Tourist and Forest traffic nodes and the Rural Link and/or Arterial road network.

Function: ACCESS

A road or laneway in this category primarily provides direct access for abutting Residential, Industrial, Commercial, and in other locations, Forestry, Tourist and Agricultural properties and connect into either the Link, Collector or Arterial road network. Traffic using these roads are predominantly local vehicles.

Function: FARM ACCESS

A road or laneway in this category primarily provides access for abutting agricultural properties and connects into either the local road network or the arterial road network. There is minimal to no through traffic, and access is not available in all weather condition.

A detailed list of the assets is kept in Council's corporate asset data base – Conquest.

4.1 Asset Types

The following asset types exist on Council's local roads

- Gravel road pavements
- Sealed road pavements
- Asphalt wearing course
- Bituminous seal wearing course
- Subgrades under sealed and gravel roads

4.2 Asset Value, Life

Gravel Road Pavements

The value of the asset has been estimated at \$2.50/m², which is the estimated cost of a resheet (600m³/km loose) over an existing pavement at intervention level. The average life of a gravel pavement is estimated at 25 years. This varies from 10 years from a heavily used sandy pavement to over 30 years from a low trafficked hill gravel pavement.

Sealed Road Pavements

The value of the asset has been estimated at \$20/m², which is the estimated cost of rehabilitating a failed existing pavement. The life of the asset has been estimated at 160 years.

Wearing Course

The value and life of these assets are shown below

	Asphalt	Bituminous seal
Value	\$22.00/m ²	\$3.20/m ²
Estimated Life	30 years	18 years

Subgrades

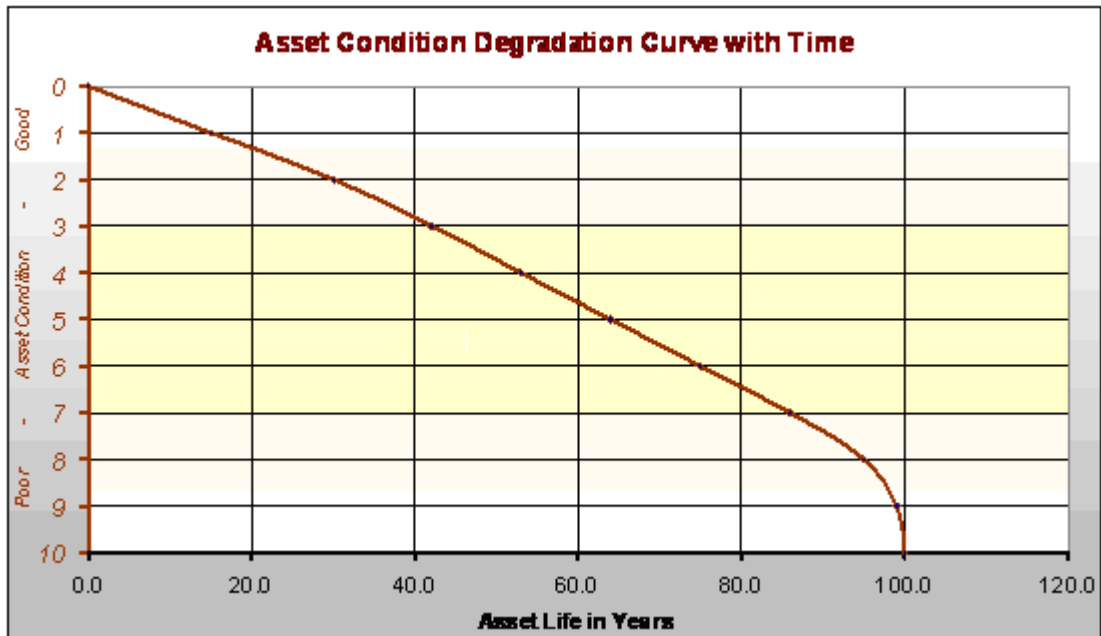
The value and life of these assets are shown below

	Sealed Road	Gravel Road
Value	\$2.50/m ²	\$2.00/m ²
Estimated Life	Not depreciated	Not depreciated

These have been set using local experience and benchmarking against figures from other municipalities. In particular, the estimated asset life is based on current maintenance practices.

4.3 Asset Degradation

The default degradation curves provided by the MAV Step program has been adopted as typical for these assets in Moira Shire. A copy of a typical graph is shown below.



4.4 Condition Assessment

Gravel Road Pavements

Condition assessments are carried out every two years, as per the asset condition assessment program (see Asset Management Strategy). The procedure for assessing the condition of a gravel road (and calculating the Gravel Resheet Prioritisation Score) is detailed in Appendix 1.3A. This score reflects the remaining life shown in the above degradation curve.

Defects requiring resheets over short lengths are identified through customer requests and regular maintenance inspections by Operations Department inspectors with the following information

- An estimated cost to repair the defect
- Prioritisation of the defect repairs

The assessment of the defects will be used to develop capital works programs over the next two years.

The condition of each asset is kept (attached to the asset) in Conquest and the defect is also recorded as an action against the asset in Conquest.

Wearing Course (Bituminous Seals & Asphalt)

Condition assessments are carried out for sealed road wearing courses and pavements every three years as per the asset condition assessment program (see Asset Management Strategy).

The procedure for assessing the condition of a wearing course is determined by evaluating the following on a score of 0 (new) to 5 (poor)

- Oxidation (weighting factor - 7)
- Cracking (weighting factor - 3)
- Depth of binder (weighting factor - 1)
- Stone loss (weighting factor - 1)
- Patching (weighting factor - 2)

This weighted sum (divided by 100) provides condition scores which reflect the remaining life shown in the earlier degradation curve.

5. Risk Management

Maintenance is carried out on roads as per the standards and the methodology specified in the Road Management Plan. Maintenance is carried out for the following reasons

- To minimise risk to the public using the asset
- To ensure that the asset reaches its predicted life

Works are prioritised based on the risk they pose to the travelling public.

Defects which need to be carried out prior to renewal of the wearing course will be identified by Operations inspectors during regular maintenance inspections. These defects will be recorded against the asset in Conquest, and will generally be funded through the annual capital works program.

6. Acquisition

New Roads

New roads are built as part of new subdivisions at the full cost of the developer. Council specifies the standards of construction for these roads and then checks the as constructed standards, to ensure that they will perform as required when they become Council assets.

Standards are detailed in Council's Infrastructure Design Manual.

Dust Suppression

Council may carry out light construction and sealing works on sections of gravel road which require dust suppression measures. Candidate jobs are generally identified through customer requests. Works are funded through the annual capital works program; works on rural roads require a matching contribution from property owners along the effected road. Projects will be prioritised by

- Level of traffic
- Connectivity within the road network
- Cost / benefit analysis

Extensions of Existing Roads

Gravel roads and sealed roads will only be extended to new residences, where the owners of the residence meet the cost of construction of the road to Council's standards.

Other Improvements

Other improvements are generally carried out to reduce the maintenance costs on a section of road, or to improve safety at a location, and will be funded through the annual capital works program or as part of a special charge scheme.

7. Operations and Maintenance

Currently, Council spends \$2.2M pa (07/08 budget) on maintaining the existing road network (sealed surface and pavement), as a safe facility for the public to use, in accordance with the above risk management procedures and the works program described in the Road Management Plan.

8. Renewals

Gravel Road Pavements

Gravel road renewals (resheets using a minimum of 600m³ per km) are funded through the annual capital works program. Candidates chosen from both the condition assessment results and the short resheet defect list and are prioritised by

- Extent of the works
- Road hierarchy and usage
- Risk of the defect as determined by the risk assessment matrix (see Road Management Plan)

Sealed Road Pavements

Lengths of sealed road pavement which require reconstruction are funded through the annual capital works program. Defects in the pavement are also rectified through the annual capital works program, prior to wearing course renewal.

Wearing Course (Asphalt & Bituminous Seals)

Renewal of wearing course (reseals) is funded through the annual capital works program. Projects are determined using

- Wearing course condition rating
- Road function and usage
- Rate of deterioration of the seal (determined using previous condition assessments)

Subgrade

Renewal of subgrade is only carried out at times when the pavement is reconstructed

9. Disposal

Road assets will be disposed or downgraded, only when they are no longer required to meet the agreed levels of service. This may take the form of either

- Sealed road downgraded to unsealed
- Gravel road downgraded to formed
- Road reserves closed and handed to DSE to arrange lease to adjoining landowner
- Road reserves discontinued and made available for sale by either Council or DSE as appropriate

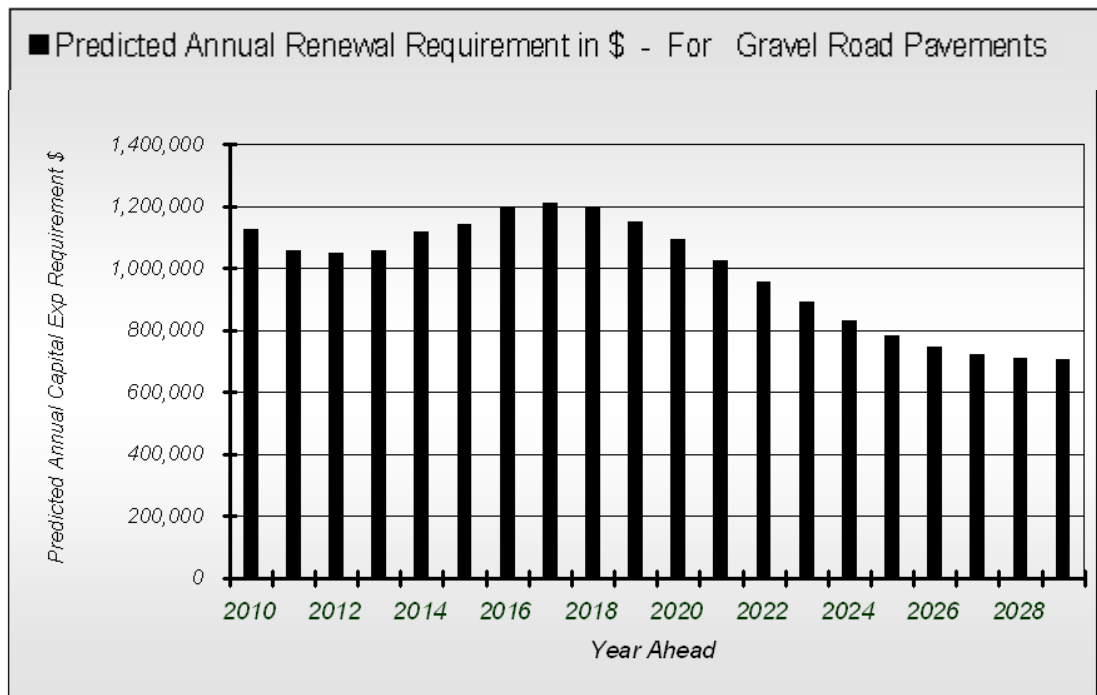
These actions will require the approval of Council.

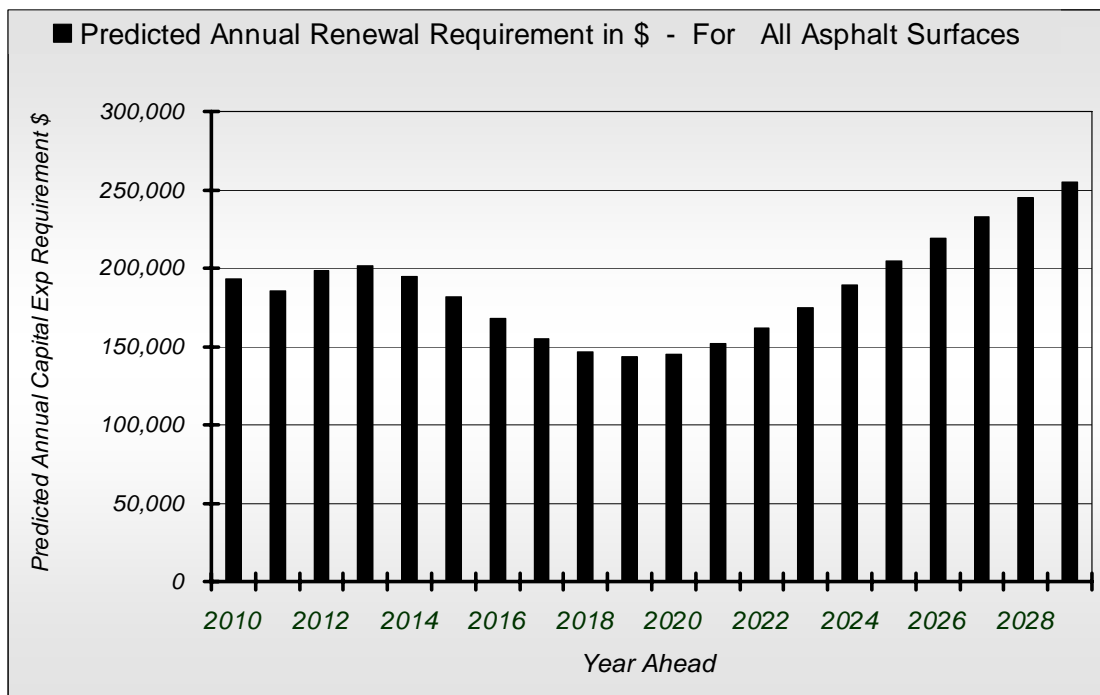
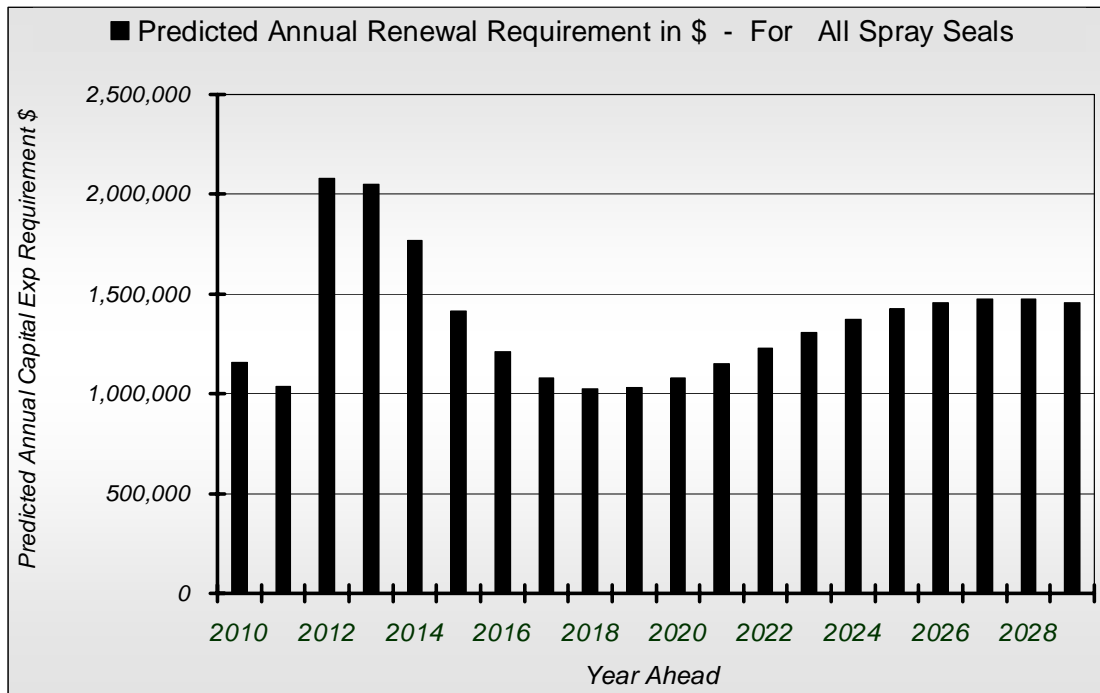
10. Financial Summary

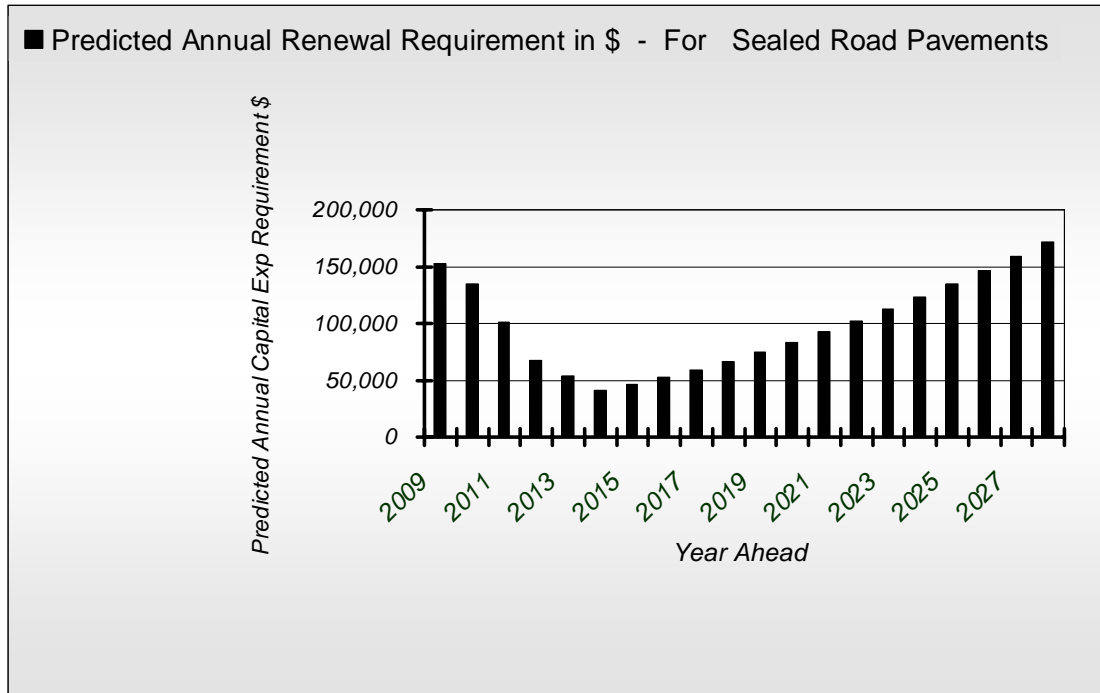
A forecast of the renewal requirement on Council’s road assets has been made, based on

- Current life expectancy (current maintenance practices)
- Existing condition profile

The forecast is shown graphically below.







11. Monitoring & Improvement Program

The service levels adopted in this AMP are based on current levels of service. Community consultation will occur to establish current expectations and this AMP will be reviewed as scheduled in the Asset Management Plan Strategy (to be finalised).

Appendix 1.3.A

Gravel Road Condition Rating

The method described below is used to rate gravel pavements with the **Gravel Resheet Prioritisation Score** used to

- prioritise gravel resheets
- assess the pavement condition for comparison with past conditions

Rating System 1	Score
81 - 100% of area	100
51 - 80% of area	80
26 - 50 % of area	50
1 - 25 % of area	20
0 % of area	0

Rating System 2	Score
Replace or renew	100
Poor condition	80
fair condition	40
minor deterioration	10
as new	0

Utilisation Score	
Link - Bus & Truck	19
Collector - Bus & Truck	18
Access - Bus & Truck	17
Link - Bus	13
Collector - Bus	12
Access - Bus	11
Link - Truck	9
Collector - Truck	8
Access - Truck	7
Link - Other	3
Collector - Other	2
Access - Other	1

Risk Level Score	
(see risk matrix for road maint)	
Extreme	250
High	100
Moderate	75
Low	50
Minor	30
Nil	0

Condition Calculation	description from Rating system 1	description from Rating system 2	score	weighting	weighted score
subgrade exposure		XXXXXX		10	
loose material		XXXXXX		8	
formation shape	XXXXXX			10	
rutting / shoving	XXXXXX			6	
drainage	XXXXXX			6	
				Total	40
				Condition Score	

Notes

weighted score = score x weighting
condition score = total weighted score / total weighting

Deprival Score			
Consequences	Increased Cost Traffic Hazard Rapid Deterioration Effect on Other Assets		
	No of consequences		Score
	4	Critical	200
	3	Major	100
	2	Moderate	50
	1	Minor	20
	0	Low	10

Gravel Resheet Prioritisation Calculation			weighted score
	Score	Weighting	
Condition Score		8	
Utilisation Score		10	
Risk Level Score		1	
Deprival Score		3	
Total		22	
Gravel Resheet Prioritisation Score =			

Notes

weighted score = score x weighting
Gravel Resheet Prioritisation Score = total weighted score / total weighting