

**Case Study  
Recycling Road Pavements**

Road pavements in areas constrained by levels (e.g. kerb and channel) can be renewed by recycling and improving the upper sections of the existing pavement by addition and blending of cement, lime or bitumen stabilisation materials to provide the same level of service.



A road authority has adopted a renewal strategy to renew urban road pavements by recycling and stabilising the upper 150 mm base pavement layer at 50 years. Recycling is estimated to cost \$15/m<sup>2</sup> compared to reconstruction/ replacement costs for the upper layer of \$30/m<sup>2</sup>. The modern equivalent asset value (MEA) for the pavement base to be recycled is \$15/m<sup>2</sup>

Road pavement to be renewed using this method are recognised as two components, the sub-base having a relatively long life and the base with a relatively short life.

**Asset recognition**

*Pavement sub base – long life component*

Pavement sub-base	GRC *	\$45/m <sup>2</sup>
(total pavement replacement cost less cost of recycling \$60/m <sup>2</sup> - \$15/m <sup>2</sup> )		

Residual value		\$0/m <sup>2</sup>
Depreciable amount		\$45/m <sup>2</sup>
Useful life		100 years
Depreciation exp (\$45/m <sup>2</sup> /100)		\$0.45/m <sup>2</sup> /yr

*Pavement base – short life component*

Pavement base	MEA	\$15/m <sup>2</sup>
Residual value		\$0/m <sup>2</sup>
Depreciable amount		\$15/m <sup>2</sup>
Useful life		50 years
Depreciation expense (\$15/m <sup>2</sup> /50)		\$0.30/m <sup>2</sup> /yr
Total depreciation expense		\$0.75/m <sup>2</sup> /yr

Note: \* Gross Replacement Cost

**Case Study  
Renewing Rural Pavements**

Road pavements in areas unconstrained by levels (e.g. in rural areas) can be renewed by tyning and reshaping existing pavement materials and adding an additional (e.g. 100 – 150 mm) pavement base to provide the same or upgraded level of service as existing.



A road authority has adopted a renewal strategy to renew and widen (upgrade) rural road pavements from 5 m to 6 m by reshaping and widening the upper 100 mm pavement layer and adding an additional 100 mm to provide the additional sealed and shoulder width. Typical costs are:

Pavement reshaping and widening	\$3/m <sup>2</sup>
New pavement base	\$9/m <sup>2</sup>

Total of \$12/m<sup>2</sup> is apportioned as \$10 for renewal and \$2/m<sup>2</sup> for upgrade (widening).

The carrying value of the existing 300mm pavement is \$20/m<sup>2</sup>. Its age is 50 years.

Road pavements to be renewed using this method are recognised as two components, the existing pavement (to become sub-base) with estimated 100 year remaining life and the new pavement base with 50 year life.

**Asset recognition**

*Pavement sub base – long life component*

Existing sub-base carrying value	\$20/m <sup>2</sup>
Reshaping and widening cost	\$3/m <sup>2</sup>
Total sub-base	\$23/m <sup>2</sup>
Residual value	\$0/m <sup>2</sup>
Depreciable amount	\$23/m <sup>2</sup>
Useful life (50 + 100 est rem. Life)	150 years
Depreciation exp. (\$23/m <sup>2</sup> /150)	\$0.15/m <sup>2</sup> /yr

*Pavement base – short life component*

New pavement base cost	\$9/m <sup>2</sup>
Residual value	\$0/m <sup>2</sup>
Depreciable amount	\$9/m <sup>2</sup>
Useful life	50 years
Depreciation exp. (\$9/m <sup>2</sup> /50)	\$0.18/m <sup>2</sup> /yr
Total depreciation expense	\$0.33/m <sup>2</sup> /yr