

Crumb rubber in asphalt roads – where the rubber hits the road

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Rubber tyres crushed and mixed into asphalt binder have been used for a number of years in the state of California in the USA, however it has seen limited uptake in Australia other than in spray seal applications. The addition of the crumb rubber particles to the asphalt binder have been shown to improve fatigue resistance and reduce cracking in asphalt, as well as the environmental benefits of reducing the quantity of bitumen binder required through the substitution of the rubber.

South Australia is known for its reactive clay soils leading to premature asphalt failure, and the City of Mitcham to the south of Adelaide has some of the most reactive areas in the State.

In partnership with Tyre Stewardship Australia the City of Mitcham developed a crumb rubber asphalt mix for application in a local road test environment to demonstrate the improved crack resistance and longevity that could be achieved through the addition of waste tyres.

Extensive laboratory testing was undertaken of the crumb rubber binder mix to compare directly against a standard binder asphalt mix, and a polymer modified binder mix, while quantifying the savings that could be achieved as well as the quantity of tyres that could be removed from the waste stream.

During field application of the crumb rubber mix detailed field measurements and survey were undertaken including a high detail road seal assessment to allow ongoing monitoring of the trial road over time against control standard mixes installed at the same time.

The results of the laboratory testing, field installation and monitoring, and lessons learnt will be presented, including ideas for further progression and application of the use of waste tyres in asphalt binder in Local Government roads.