NACOE
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PROJECT TITLE:
Transferring Crumb Rubber Modified Gap Graded Asphalt Technology to Queensland

PROJECT LEADERS:
Jason Jones (TMR) and Joe Grobler (ARRB)

PROJECT STATUS:
In Progress

AN INITIATIVE BY:
The Queensland Department of Transport and Main Roads and the Australian Road Research Board

PROJECT PURPOSE:

The purpose of this project is aimed at facilitating the implementation of crumb rubber modified gap graded asphalt mixes in Queensland.

BACKGROUND:

International experience have shown that crumb rubber modified gap graded asphalt can provide improved resistance to crack reflection compared to conventional asphalt mixes. In addition, the use of recycled end-of-life tyres has significant environmental and sustainability benefits. However, there are currently no specifications available for these mixes and Queensland which is a major barrier that prevents road agencies to make use of the benefits offered by this particular type of asphalt.

APPROACH/METHODOLOGY:

1. Literature review of local and international best practice when using crumb rubber modified binders in asphalt mixes
2. Industry engagement to develop a mix design using local materials
3. Laboratory testing to characterise the performance of locally manufactured crumb rubber asphalt
4. Undertaking construction trials to demonstrate the crumb rubber modified asphalt can be manufactured and placed using local materials and equipment
5. Documenting the findings in a technical report

KEY PROJECT OUTCOMES:

To date, the project has resulted in:

- The development of a new technical specification for the use of crumb rubber modified binders in open graded and gap graded asphalt mixes (PSTS112 Crumb Rubber Modified Asphalt).
- The construction of a trial that demonstrated crumb rubber asphalt can be successfully manufactured and placed in Queensland using local materials.
- A technical report that documents the project tasks, findings and outcomes.

ANTICIPATED PROJECT BENEFITS:

It is envisaged that this project will result in:

- The increased use of recycled end-of-life tyres
- Improved pavement performance by using a highly crack resistant asphalt on existing pavements
- Reduced whole-of-life costs associated with resurfacing existing cracked pavements.

NEXT STEPS:

Further work is planned to benchmark the performance of locally produced crumb rubber modified asphalt and facilitate additional demonstration projects.

IMAGES:

Source: Australian Flexible Pavement Association – Demonstration by Fulton Hogan Crumb Rubber Modified Gap Graded Asphalt, Pimpama Jacobswell Road, City of Gold Coast, June 29, 2018

Finished crumb rubber modified gap graded asphalt surface

REPORTS & PUBLICATIONS:

- TMR Project Specific Technical Specification PSTS112 Crumb Rubber Modified Asphalt
- Technical Report: Transfer of Crumb Rubber Modified Gap-Graded Asphalt Technology to Queensland and Western Australia (Grobler 2021)
- P31 Transfer of Crumb Rubber Modified Asphalt and Sealing Technology to Queensland (Phase 2)

CONTACTS:

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