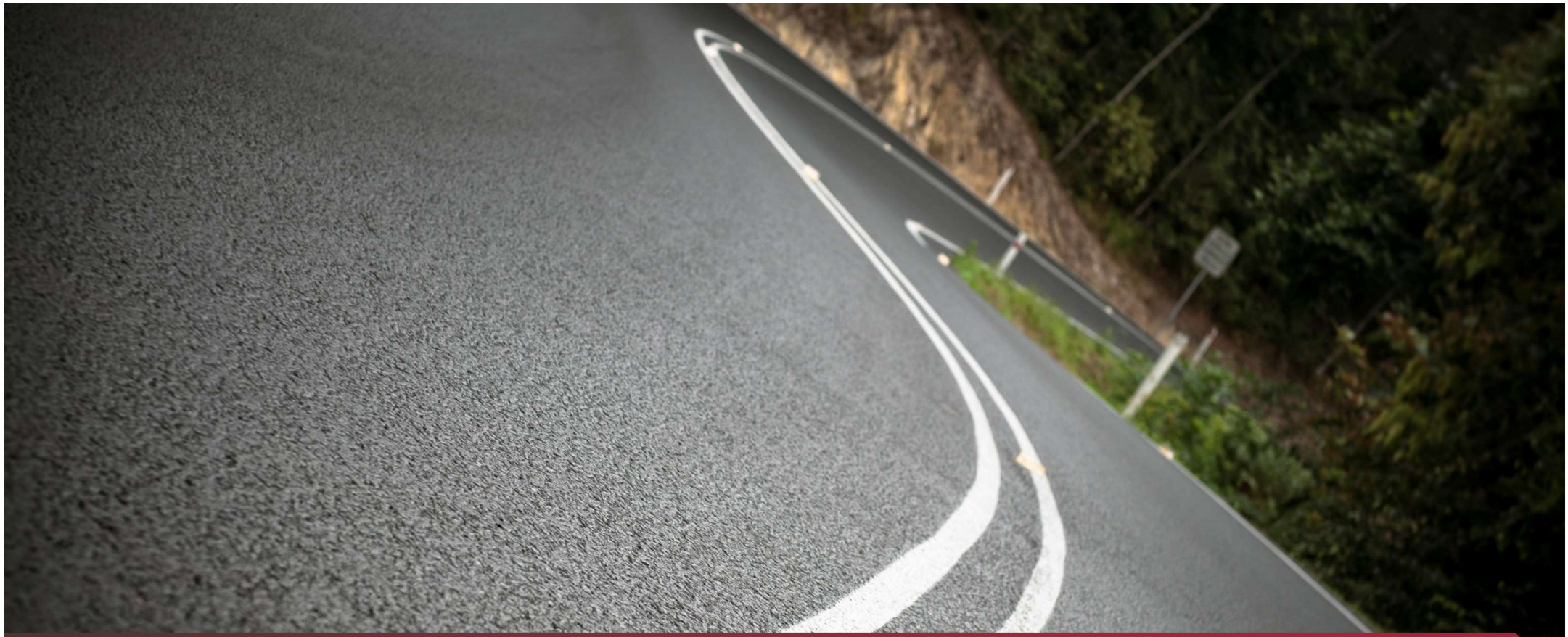


Austroads Research and Guidance

Australian Pavement Recycling and Stabilisation Conference | 7 August 2024

Keynote Speaker: Ross Guppy

Austroads

About Austroads

The collective of Australasian transport and traffic agencies

- Transport for NSW
- Department of Transport and Planning Victoria
- Department of Transport and Main Roads Queensland
- Main Roads Western Australia
- Department for Infrastructure and Transport South Australia
- Department of State Growth Tasmania
- Department of Infrastructure, Planning and Logistics Northern Territory
- Transport Canberra and City Services Directorate Australian Capital Territory
- Department of Infrastructure, Transport, Regional Development, Communications and the Arts
- Australian Local Government Association
- NZ Transport Agency Waka Kotahi

Who we are

- Put simply, we solve problems for Australian and New Zealand transport agencies.
- We employ more than 80 staff, with offices in Sydney and Melbourne. We have program managers based in Melbourne and Brisbane.

We deliver value through our five programs of work:

- Transport Infrastructure
- Road Safety and Design
- Transport Network Operations
- Vehicles and Technology
- Environment and Sustainability

And our national services:

- Transport Certification Australia
- National Exchange of Vehicle and Driver Information System
- National Prequalification System for Civil (Road and Bridge) Construction Contracts
- Austroads Safety Barrier Assessment
- Austroads Safety Hardware Training and Accreditation Scheme
- National Harmonisation of Temporary Traffic Management Practice (including the AITDSA scheme)

Austroads Strategic Plan 2023-27

The plan identifies five areas of challenge and opportunity for Austroads in the coming years to continue providing support and guidance to its members:

1. The evolving priorities and needs of our members
2. Impacts from government and regulatory reform
3. Emerging trends and disruptions
4. Developments in technology and data
5. Constraints on capability and capacity

Transport Infrastructure Program

Austroads

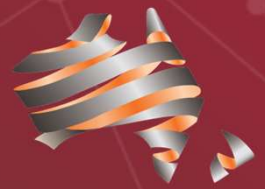
Aim

Improve the management and performance of transport infrastructure for road users and the community.

Direction provided by

- Austroads Technical Advisory Group (ATAG)
- Assets Task Force
- Bridges Task Force
- Pavements Task Force
- Road Tunnels Task Force
- Project Delivery Task Force

Austroads Technical Specifications



ASP6089

Austroads Technical Specifications

Background

- Established by the Austroads Board in 2018.
- Overseen by the Austroads Technical Advisory Group (ATAG):
  - Comprises Chief Engineers or equivalent from every jurisdiction
  - Chaired by Austroads Transport Infrastructure Program Manager (Ross Guppy)
  - Meets regularly (every 4 to 6 weeks)
  - Reports progress to the Austroads Board.

Key project objectives

- Deliver efficiencies for industry, leading to costs savings for agencies; and
- Encourage the adoption of best practice.

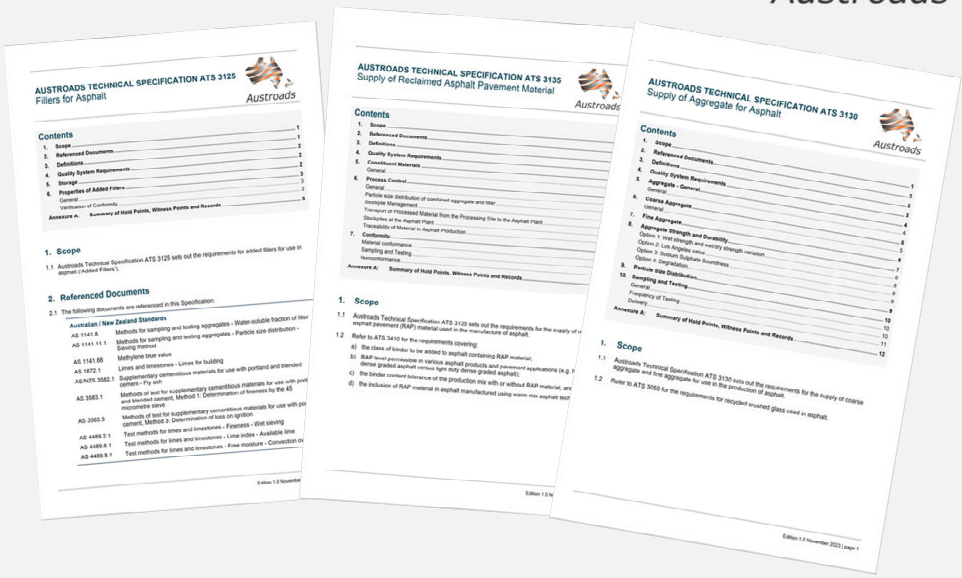
ASP6089

Austroads Technical Specifications

What do the specifications cover?

The Austroads Technical Specifications specify requirements for the supply of materials, treatments and infrastructure, and are published in a numerical sequence relating to their subject matter:

- General (Series 1000)
- Earthworks & Stormwater (Series 2000)
- Pavements (Series 3000)
- Traffic Facilities and Incidental Construction (Series 4000)
- Bridgeworks (Series 5000).



Download for free

austroads.info/technical-specifications

82 available or coming shortly

13 on pavements works

43 being developed

ASP6089

Austroads Technical Specifications

Flexible Pavements (excluding asphalt)

- A working Group is currently meeting to develop the following:

ATS 3310	Unbound Pavements
ATS 3320	Plant-Mixed Stabilised (slow setting / cementitious)
ATS 3330	Insitu Stabilised Pavement (slow setting / cementitious)
ATS 3340	Plant Mix Foam Bitumen
ATS 3350	Insitu Foam Bitumen

- The group has made good progress, but it is likely that agency / contract specific annexures will be needed where we can't reach agreement; e.g. standard verses modified compaction.
- These will refer to existing agency specifications for the supply of pavement materials in the foreseeable future.

ASP6089

Austroads Technical Specifications: Impact on Test Methods

- Each road agency maintains a suite of test methods for use where there are no standard test methods.
- As part of the development of the Austroads Technical Specifications, these test methods are reviewed and if appropriate, an Austroads test method will be developed.
- There are three collections of Austroads test methods:

Asset Management Test Methods (Series AGAM/T)

Pavement Test Methods:
- Aggregates (Series AGPT/T001-099)
- Binders (Series AGPT/T100-199)
- Bituminous Mixes (Series AGPT/T200-299)
- Pavement Investigation (Series AGPT/T400-499)
- Equipment (Series AGPT/T500-599)
- Cemented Materials (Series AGPT/T600-699)

Bridge Materials Test Methods (Series AGBT/T700-799)

Flexible Pavements – Test Methods

- Wherever possible, the ATS will refer to an Australian / New Zealand standard test method or Austroads Test Method.
- If there is no suitable AS/NZS or Austroads Test Method, we may need to continue to use existing agency test methods in the short term.
- Develop Austroads Test Methods to replace these in the longer term.

ASP6089

Austroads Technical Specifications

Integration of the specifications into existing systems

Now that a reasonable number of Austroads Technical Specifications have been published, transport agencies need to further consider:

- The management of agency specific requirements
- How the Austroads Technical Specifications will be adopted and integrated into existing specification / contracting systems.

Asphalt Specifications

Austroads

Asphalt Specifications

Austroads

- Most specifications in Australia and New Zealand are ‘recipe’ based with some performance requirements:
  - Constituent materials (e.g. binder type)
  - Volumetric properties and binder content
  - Grading envelope
  - Performance properties (modulus, fatigue, rutting, stripping) – varies between jurisdictions
- Prescriptive specifications are not conducive to innovation and/or optimisation
- Alternative options:
  - End-product specification (how the end product should perform and at the end of the contract)
  - Performance specification (how the end product should perform over time)
  - Performance-related specification (material characteristics that correlate with fundamental properties that predict performance)
  - Performance-based specification (fundamental engineering properties that predict performance)

APT6183 Asphalt Performance Specification

Austroads

Benefits of performance-related/based specifications:

- Optimise the performance of asphalt mixes
- Facilitate the introduction of innovative technologies
- Use of local available materials
- A better understanding of performance risks
- Greater design optimisation

APT6183 Project Scope

Austroads

- APT6183 is aimed at developing quality assurance guidelines for implementing a new performance-related asphalt specification, including an assessment of the effect of production variability on the flexural modulus, fatigue resistance and deformation resistance tests.
- Project scope:
  - literature review and consultation to review performance-based specifications currently in use, with a focus on balanced mix design in the US.
  - undertaking laboratory testing to assess the effect of mix variability on the permanent deformation, flexural modulus and fatigue resistance.
- The project will build on the following previous Austroads projects:
  - APT1953 National Performance-based Asphalt Specification Framework previously developed a concept performance-related asphalt mix design framework
  - APT6123 National Harmonisation of Test Methods Used in Asphalt Performance Specifications delivered the first component of the new specification framework. This project is nearing completion.

Foamed Bitumen Stabilised Pavements

Austroads

APT6245

Developing Design Procedures for Foamed Bitumen Stabilised Pavement

Austroads

The current project scope:

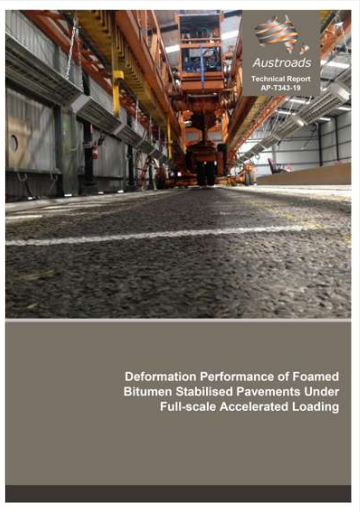
- develop an Austroads interim design procedure for FBS layers in new pavement construction based on the Queensland Department of Transport and Main Roads' practice and specifications.
- develop a plan for the additional research required to include a new mechanistic-empirical procedure in the Guide to Pavement Technology.

Further work will be needed to:

- develop a robust process based on laboratory performance.
- develop a laboratory-to-field shift factor.
- allow design for ranging reliability levels.
- determine material performance characterisation for varying climate, traffic and local conditions.

Available Guidance on Foamed Bitumen

Design and Performance of Foamed Bitumen Stabilised Pavements
AP-T336-18



Deformation Performance of Foamed Bitumen Stabilised Pavements Under Full-scale Accelerated Loading
AP-T343-19

Laboratory Fatigue Characterisation of Foamed Bitumen Stabilised Materials
AP-R666-22

Fatigue Performance of Foamed Bitumen Stabilised Pavements Under Full-Scale Accelerated Loading
AP-T363-22

Update on some relevant projects

Austroads

Updated Weighted Mean Annual Pavement Temperature Value

Updated Austroads Guide to Pavement Technology Part 2: Pavement Structural Design

Climatic effects, and particularly temperature, have a significant effect on the ageing of materials. For pavement designs, the temperature of the asphalt can be characterised in terms of the Weighted Mean Annual Pavement Temperature (WMAPT).

Appendix B of the Austroads Guide to Pavement Technology Part 2: Pavement Structural Design has been reviewed and updated, with new values for WMAPT that have been calculated for selected sites throughout Australia and New Zealand.

APT6117

Assessing impacts of heavy vehicle increased axle loads on pavements

Austroads

The project scope:

To identify gaps, and develop guidance on the best way to approach impacts of increased heavy vehicle masses on road pavements.

$$N = RF\left(\frac{K}{\mu\varepsilon}\right)^{12}$$

Where we're at:

Project to commence shortly

AAM6160

Updating the Assessment of Remaining Service Life of Pavements

The project scope:

To review and update the pavement service life forecasts and approaches methods for assessing the remaining service life of road pavements outlined in existing Austroads research reports Assessment of Remaining Service Life of Pavements (AP-R332-08), and Remaining Life of Road Infrastructure Assets: An Overview (AP-R235-03).

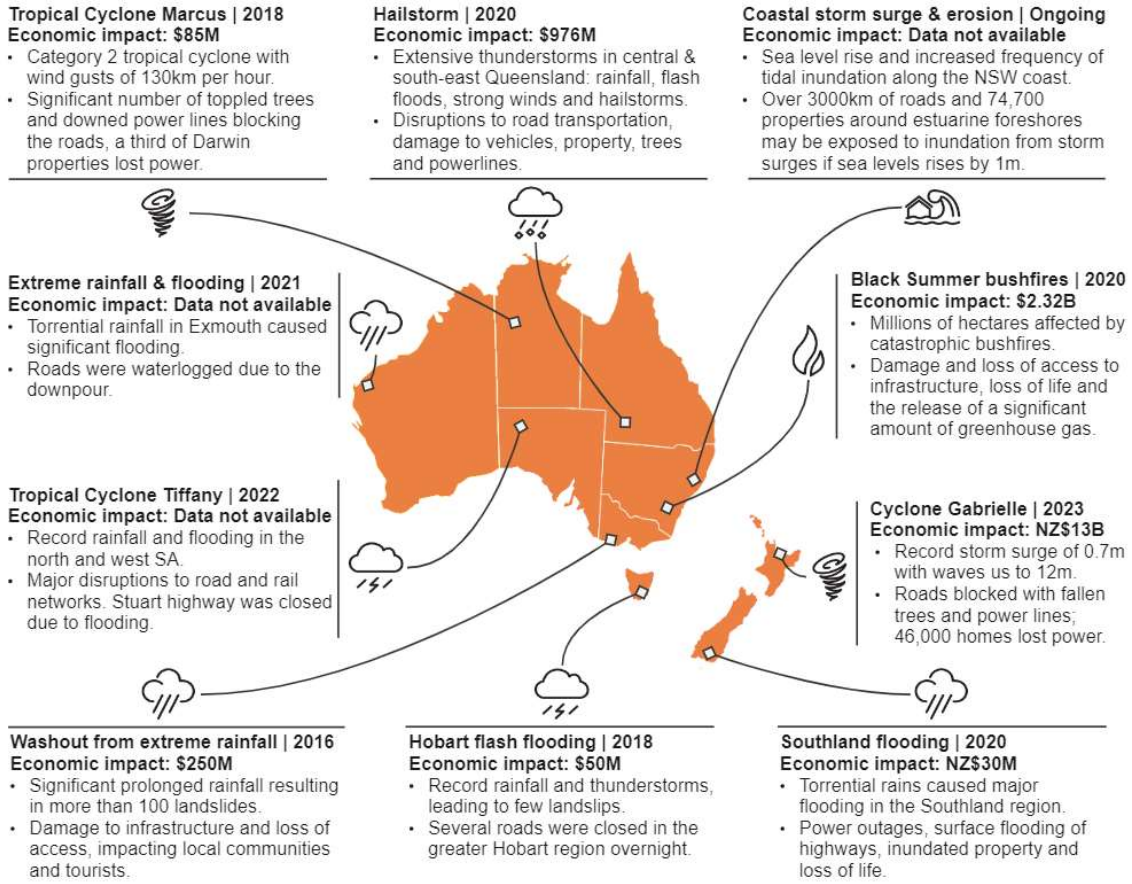
Where we're at:

Request for Tender

AAM6389

Incorporating climate change resilience in asset management

Austroads



ESG6515

Development of a carbon measurement and reporting tool – Stage 2 (of 2)

Austroads

The project scope:

To provide a single Australia-New Zealand tool to enable agencies to meet growing obligations to quantify, consider and report carbon emissions associated with infrastructure construction and maintenance activities.

Where we're at:

Request for Tender

EAS6420

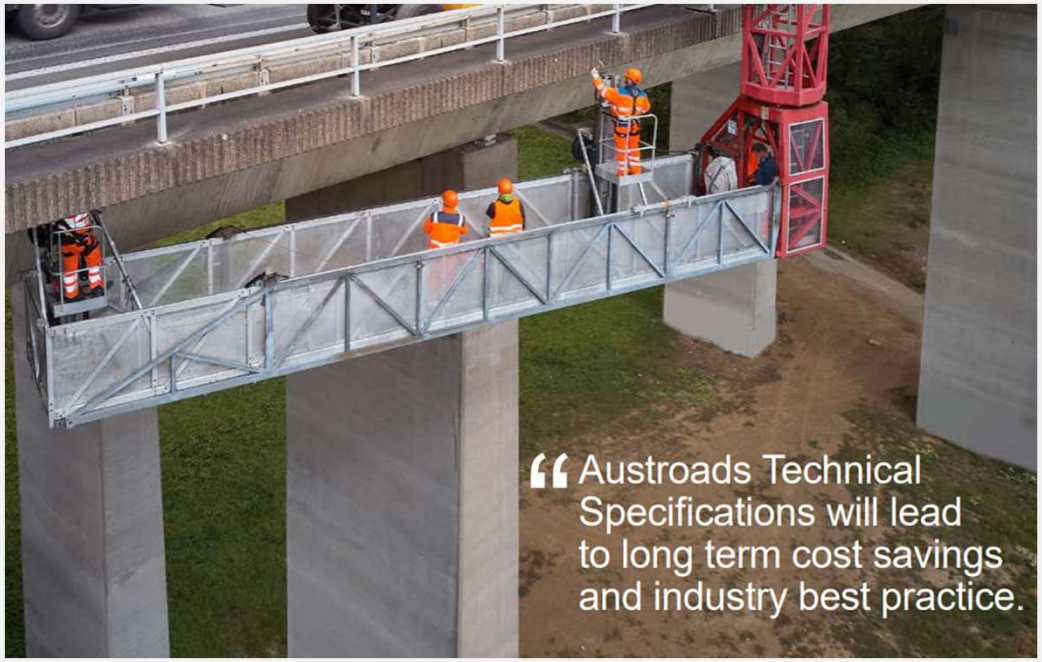
Austroads Technical Specification Sustainability review

The project scope:

To review Austroads Technical Specifications to enable greater flexibility for sustainable innovation in the market and include sustainability objectives where appropriate, to help drive circular economy, carbon reduction and net zero outcomes.

Where we're at:

Project is underway



Thank you

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Download our publications and attend our webinars

austroads.com.au

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