



AUSTRALIAN FLEXIBLE PAVEMENT ASSOCIATION

**Transport and Infrastructure Net Zero
Consultation Roadmap**
2024

ABOUT AfPA

The Australian Flexible Pavement Association (AfPA) is the peak industry body representing the \$27 billion flexible pavement industry. It delivers safe and sustainable outcomes that benefit communities across Australia.

For over 50 years, AfPA has brought together our dynamic and multifaceted industry that is responsible for the design, specification, manufacture, construction, and maintenance of all forms of bituminous flexible pavements.

AfPA's members constitute a diverse array of professional organisations that support the industry and are passionately committed to advancing flexible pavement technology for the benefit of the road user and the broader community.

AfPA members include bitumen suppliers, asphalt producers, sprayed surface operators, major consultancies, suppliers (such as equipment providers, line markers and profiler contractors), all Government Road Authorities, and many Local Governments from across Australia.

AfPA's vision embodies three key objectives:

- To support industry be healthy, safe, innovative, and adaptive to change, acting as a platform for industry sustainability.
- To support the national harmonisation of best industry practices, promoting the benefits of flexible pavement.
- To drive a national culture of continuous improvement in infrastructure.

AfPA welcomes the opportunity to make a submission to the Federal Government's Transport and Infrastructure Net Zero Consultation Roadmap. We are firmly committed to working with all levels of Government towards building a stronger, more sustainable infrastructure future to support the current and future needs of our nation.

FLEXIBLE PAVEMENT INDUSTRY SNAPSHOT

Australia's roads are the critical infrastructure that logistically connects us and ensures our basic functionality as a society. Across all aspects of our day-to-day lives, roads bring us together, facilitating all functions of our social fabric and economic activities. Their ongoing viability, level of service, and safety are entirely dependent on the significant contributions of all levels of Government to new projects and the maintenance of the existing network, and equally, a skilled, competent workforce to deliver on these commitments.

AfPA recognises that key areas for achieving net zero include enhancing road resilience in the face of climate change and extreme weather events, and utilising innovative, low carbon materials and solutions to achieve net zero emissions across both metropolitan and rural networks.

A core component of maintaining existing networks is road resilience, which is defined by the US Federal Highway Administration (FHWA) as the ability to anticipate, prepare for, and adapt to changing conditions, as well as to withstand, respond to, and recover rapidly from disruptions. Equally crucial is sustainability and the use of viable, modern materials for roads to ensure that the industry meets modern standards of technology, and continually reduces the carbon impact of pavement infrastructure construction and maintenance. Integrating innovative materials and sustainable practices into road construction and maintenance will not only enhance the durability and performance of our roads but also minimise environmental impact, contributing to a more sustainable future. This includes designing, constructing, and maintaining pavements for long life and reuse of end-life pavement materials.

Australia's expansive road network stretches for over 817,000 kilometres. Of this, approximately 40% are sealed and 60% are unsealed. The size of the existing road network, paired with Federal and state government investment, means Australia's road network will face even greater expansion over the coming decades.

Transport is currently the third-largest source of greenhouse gas emissions in Australia, accounting for 21% of the nation's emissions in 2023, with the construction industry contributing up to 10%. We support an industry transition to reduce the carbon footprints of roads, transport, and infrastructure to help meet Australia's net zero by 2050 decarbonisation targets. Sustainable efforts will not only benefit communities but also bring innovative approaches to infrastructure that are economically viable and improve the industry.

Our industry members note the importance of the Australian Government prioritising the safety, sustainability, and seamless connectivity of the nation's rural and regional road network. There is an ongoing, urgent need to bridge the road maintenance service gaps and failures that disproportionately affect regional and remote communities.



COLLABORATION WITH GOVERNMENT

Increasing open discussions around circularity and sustainability in the roadwork and flexible pavement industry are vital. So too is collaboration between industry, agencies, and government to ensure that road networks play a key role in Australia's transition to net zero.

Achieving 2030 and 2050 goals will rely on a 'whole of industry' approach, where incremental and strategic improvements in operations will collectively contribute to our greenhouse gas reductions. Furthermore, we will need to leverage existing technology, accelerate innovation, and engage with our upstream and downstream stakeholders to incentivise the adoption of sustainability and utilise wider government initiatives to deliver broader technological advancements across other sectors that will contribute to reducing our impact/contributions to emissions.

By working together, we can integrate sustainable, unified practices into the roadwork and transport industry, fostering long-term resilience, productivity, and competitiveness. This partnership is crucial not only in metropolitan areas but also in rural networks, ensuring that all communities benefit from sustainable infrastructure.

In particular, AfPA welcomes the opportunity for continued collaboration with the Government to develop industry-driven solutions that address the net zero challenge. A focus on rebuilding and revitalising rural and regional roads to build long-term resilience and lower carbon impacts will also support healthy and local economies.

DECARBONISING OUR INDUSTRY – AUSTRALIA’S ROAD TO NET ZERO

Australia’s road network connects communities and facilitates the supply of essential goods and services. However, it is increasingly stressed by climate change and severe weather events, and maintenance funding constraints, leading to significant deterioration.

AfPA, through its members, is dedicated to maintaining and improving the fabric of our road network, reducing the carbon footprint of the road industry, integrating circular economy practices, and driving sustainable operations to meet the 2030 and 2050 environmental targets. We strongly support the Federal Government’s ambitious goals of Net Zero by 2050 and reducing emissions by 43% below 2005 levels by 2030.

We are eager to collaborate with the Federal Government and its departments to align our industry’s circular and sustainable objectives with these targets. We advocate for federal funding through local governments to promote circularity in road maintenance, as maintaining existing roads provides significant environmental benefits compared to constructing new ones. By prioritising sustainable funding and maintenance, we not only support local communities but also contribute to reducing Australia’s carbon footprint while meeting the needs of evolving industries.

Circularity in Maintenance

Road maintenance projects provide far greater environmental benefits compared to the construction of new roads and ultimately support the reduction of Australia’s carbon footprint. This is achieved by encouraging the reuse of existing construction waste and other recycled materials into maintenance road projects and is a practical way that industry is delivering on the circular economy.

Far too often, the announcement of new projects and roads is deemed more favourable and attractive to governing authorities than the upkeep and service of existing ones. AfPA contends that this approach doesn’t necessarily result in the best outcome for all by not just leading to deteriorating road networks but also contributing to the use of excess materials and increasing waste.

Roads and the Environment

With the expectation of increasing climate change induced severe weather events, and the evidence of natural disasters in recent years, the reliability of our road network across Australia is increasingly essential in responding and equally under threat.

Rural and Regional Communities

To achieve net zero targets, it is crucial for the road sector to address the significant maintenance needs of rural and regional networks as well as those of major infrastructure projects. Rural communities are disproportionately impacted by road maintenance funding shortfalls and infrastructure damage, highlighting the necessity for targeted support and investment. Maintaining and repairing existing roads in these areas is notably less carbon-intensive compared to constructing new projects.

Ensuring that rural roads are stable and incorporating net-zero technologies is critical for supporting these communities through the transition to a low-carbon economy. By investing in the sustainability of rural road networks, we can support emerging industries and local economies, and ensure that all communities benefit from advancements in clean technology and sustainable infrastructure.

AfPA recommends the Government to:

- Promote and support innovative designs and solutions, including those that enhance the life cycle, renewability and sustainability of road infrastructure.
- Ensure that the Government continues to support the industry in utilising low carbon and renewable materials with sound engineering properties that benefit and improve road performance to help address a growing national circular economy challenge.
- Encourage the Government to use low carbon and recycled materials in its procurement practices, particularly ensuring consistency in the interpretation of requirements between policy and compliance.
- Encourage the Government to continue to keep Australia’s most crucial asset, its roads, at the forefront of resilience to natural disaster events, ensuring that the nation’s roads continue to act as a crucial lifeline to all communities. This means adopting a routine, healthy pipeline of maintenance and upkeep work to ensure that full capacity is upheld year-round.
- Call for the extension and expansion of initiatives that work to address dangerous, poorly maintained roads that disproportionately affect rural communities. For regional communities, a well-maintained road is a safe road for all.

Key Areas for Road Pavements to Achieve Net Zero:

The two key focus areas in achieving net zero in road pavement construction and maintenance are:

- **Road Resilience:** Ensuring our road infrastructure is resilient to climate change and extreme weather events, providing longer-lasting, more effective road pavements.
- **Low Carbon Materials:** Utilising innovative, circular (recycled, reused, repurposed) and low carbon materials and solutions

To address these two areas, it is proposed that AfPA should collaborate with the Government and other authorities, industry associations and organisations with suitable subject matter expertise to:

1. **Standards and Specifications:** Streamline pathways for innovative and developing low carbon and circular materials to be adopted into standards and specifications.
2. **Carbon abatement potential:** Undertake a study to determine carbon abatement potential across the life cycle of alternative pavement maintenance and other treatments.
3. **Procurement Guidelines:** Developing and implementing standardised guidelines that drive sustainable behaviour and support accurate and timely measurement and reporting of carbon abatement outcomes.
4. **Shifting Perspectives:** Provide education and awareness to the industry to overcome inertia, and shift towards sustainable and circular practices being more readily adopted in road construction and maintenance.
5. **Progressing the Supply Chain:** Ensuring that the entire supply chain, including asset owners, contractors, designers, and manufacturers, align with evolving industry standards.

Example of decarbonisation success in the asphalt industry

AfPA's goal is to **translate low carbon and circular economy principles into delivered practical outcomes**. Examples of direct actions to be embraced by the AfPA members are included below:

- The Australian asphalt industry is a leader in the reuse and recycling of materials and is continually advancing the use of *Reclaimed Asphalt Pavement (RAP)*, which is 100% reusable as asphalt, reducing waste and the need to disturb the natural environment in pursuit of new raw materials. Importantly, the bitumen recovered in this process is "free", improving the cost-effectiveness of our assets and reducing the need for the importation of this crude oil derivative.
- Exploring and adopting biogenic bitumen sustainably derived from non-oil-based sources.
- Utilising crumb rubber from waste tyres as an additive to bitumen that enhances performance and life span and reduces waste to landfill and stockpiling of end-of-life tyres.
- Industry can reduce asphalt mixing temperatures by expanding the use of currently available technologies reducing GHG emissions, providing improved moisture control and other carbon lowering options.
- AfPA has introduced a **world-first sustainability assessment framework** for asphalt plants that will reduce direct GHG impact through mandated evaluation of operational efficiency and use of circular secondary materials, thereby continually raising industry standards.
- Progressing sustainable energy supply options through selecting renewable energy sources for fuel required/used across fixed and mobile plant operations and offices. Transition to renewable electricity for on-site sources and external providers in support of net zero carbon electricity generation and consumption.
- The asphalt industry can contribute to a net zero target through:
 - Working with pavement asset owners to procure improved pavement solutions that result in increased quality and durability of pavement materials.
 - Engaging with asset owners and associated agencies to remove barriers to improvements by continually updating specifications, championing innovation and encouraging increased efficiency.
 - Progressively procuring from as well as encouraging and incentivising suppliers to improve their products and services, such that the industry will have established net zero supply chains by 2050.
- We champion the importance of environmental sustainability across the flexible pavement industry, and the opportunities to drive sustainability in road maintenance work. The need for Australia to shift to circular economy practices has never been clearer, and the flexible pavements industry is well positioned to do its part to ensure this sustainability objective is achieved.

ROADS SYNONYMOUS WITH SUSTAINABILITY -

COLLABORATION WITH COUNCILS IN AUSTRALIA'S LARGEST RECYCLED RUBBER ASPHALT PROJECT

In an Australian first, AfPA partnered with industry bodies and 12 Sydney Metropolitan Councils in the largest crumbed rubber asphalt demonstration project in Australia. The Project represents a remarkable opportunity to transform Australia's road infrastructure while promoting sustainable waste management practices.

By introducing crumb rubber, derived from recycled tyres, into the bitumen used for road construction, the project aims to achieve remarkable improvements in road longevity, reduced maintenance costs, and a significant contribution to environmental sustainability. This approach not only enhances the performance and durability of roads but also fosters responsible waste management by repurposing discarded tyres that would otherwise end up in landfills.

The project's implementation is a collaborative effort involving key stakeholders such as AfPA, Tyre Stewardship Australia, Boral, and the Southern Sydney Regional Organisation of Councils (SSROC). This partnership ensures a diverse range of expertise, resources, and perspectives are brought together to support the project's successful execution.

In terms of material provisions, the initiative will deliver 2000 tonnes of sustainable pavement material, created through the incorporation of crumb rubber and including RAP and other recycled materials, and an additional 1200 tonnes of "conventional" control asphalt mix. These materials have been applied across various local Sydney council streets, serving as tangible evidence of the project's viability and impact.

The involvement of 12 Sydney Metropolitan Councils, including Bayside Council (NSW), Burwood Council, City of Canada Bay, City of Canterbury Bankstown, City of Sydney, Georges River Council, Inner West Council, Randwick City Council, Sutherland Shire Council, Waverley Council, Woollahra Municipal Council, and Northern Beaches Council, showcases the broad geographic reach and potential scalability of this initiative. Each participating council demonstrates a shared commitment to sustainable development and recognises the immense benefits of integrating crumbed rubber asphalt into their road construction practices.

AfPA strongly urges the Government to consider the significance of this project and its alignment with its infrastructure objectives. By providing support and funding, the government can help drive further research, development, and scaling of crumbed rubber asphalt technology, enabling its adoption on a broader scale. Incorporating this innovation into the national infrastructure investment agenda will reinforce Australia's commitment to sustainable, credible, and nation-building practices while delivering substantial benefits to our communities and the environment.