

Congestion, Construction & Maintenance

Road congestion adds time to journeys, increases greenhouse emissions, and increases the risk of road crashes. Road construction and road maintenance must be done quickly causing as little congestion as is possible.

Flexible pavements can be quickly constructed and maintained. They can also be maintained a lane at a time or with short-term road closures.

- **Flexible pavements reduce congestion during maintenance and construction**



The combination of glare and road congestion can increase the risk of road crashes.

Reflection

Glare from the sun and headlights can be reflected off smooth, light coloured and wet roads, increasing considerably the risk of road crashes.

Flexible pavements are generally black and relatively non-reflective. Open graded asphalts particularly offer significant reductions in road surface glare and assist in making line markings stand out in contrast to the road.

- **Flexible pavements reduce sun and headlight glare helping to prevent road crashes**

Innovative Future

Flexible pavements have a low environmental footprint. They retain the carbon in the bitumen within the pavement structure, they are reusable/recyclable and asphalt plants meet and exceed strict environment protection and community standards.

The flexible pavement industry is also continually seeking innovative ways to further reduce environmental impacts. For example a new technology known as warm mix asphalt is being applied in Australia. This considerably reduces the energy used and greenhouse emissions to make asphalt.

- **The industry is committed to reducing its already low environmental impact**

Glossary

Flexible Pavements - pavement surfaces made by combining bitumen and stones. They are the major road surfaces used in Australia and include asphalt and sprayed seals.

Bitumen - heavy grade of hydrocarbon used to bind stones to form a strong and durable flexible pavement. Bitumen remains in the pavement and can be reused / recycled.

Asphalt pavements - long lasting road surfaces generally used in heavy traffic areas and cities. Made by mixing bitumen and stones in a fixed or mobile plant to form a material that is laid at relatively high temperatures.

Spray Sealed Pavements - surfaces used on major interstate highways and rural roads. Formed by spraying bitumen on a surface, then spreading and rolling stones into that bitumen. This forms a low cost, all weather surface ideal for long distances.

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Asphalt and Bitumen

Environmental and safety benefits of flexible pavements

Produced by the
AUSTRALIAN ASPHALT PAVEMENT ASSOCIATION

Asphalt and bituminous pavements are sustainable and have low greenhouse footprints

Greenhouse emissions

Bitumen is a hydrocarbon but unlike other hydrocarbons (eg petrol, diesel, oil) it is not burnt to produce energy. Instead it is used to make a durable, safe and long lasting road surfaces.

- **The bitumen used in flexible pavements does not release greenhouse gas**

Reuse/recycling

The material used in flexible pavements may be reused and recycled. In the US the asphalt industry reuses and recycles nearly 100 million tonnes of its own product each year.

Over time the wearing (top) course of a pavement may become damaged or worn. When this occurs this layer can be removed using a milling machine and a new surface can be applied.

The material removed can be returned to an asphalt plant and combined with new material to be used in another road project.

- **Flexible pavements are fully recyclable**



A milling machine removing the top layer of an asphalt pavement on the Gold Coast.

Road Safety

Flexible pavements give vehicle tyres a superior road surface, providing both quality of ride and high friction under cornering and braking.

The surface friction characteristics can also be readily maintained through resurfacing without the need to reconstruct whole roads.

- **Properly maintained flexible pavements increase road safety, giving safe, comfortable travel**



Noise Reduction

The interaction between tyres and road surfaces generates noise, particularly when there are large volumes of fast moving traffic.

This noise can be very disturbing to occupants of vehicles as well as to those living or working nearby.

Asphalt surfaces are low noise surfaces compared to other surfaces. Low noise asphalt surfaces can result in a reduction in noise equivalent to halving the traffic volume or reducing the traffic speed by 25%.

Quiet surfaces can be applied as the last step in road construction or added as an overlay to an existing road, even to non-asphalt surfaces. The noise absorbing properties of specially designed asphalt remain effectively undiminished over time.

- **Flexible pavements reduce noise**

Wet Roads

Wet roads can significantly increase the risk of collision due to the reduced visibility caused by water spray and the lowering of friction on a wet surface.

Flexible pavements can reduce spray and maintain effective skid resistance. Open graded asphalt provides pathways for water to run-off, minimising the amount of water between the tyre and road.

High textured flexible pavements also significantly reduce glare as well as water spray.

- **Flexible pavements increase safety in the wet**



Same truck, same weather but different road surfaces. The surface on the right is an open graded asphalt.

Energy Savings

Vehicles travelling on smooth, well maintained surfaces reduce fuel consumption. US studies have shown that vehicles travelling on these roads consume up to 4.5% less fuel compared to rough pavements.

Lower fuel consumption reduces costs for motorists and reduces greenhouse emissions.

Asphalt pavements are laid smooth and stay smooth throughout their life. When maintenance is required, the top wearing course can be readily and cheaply replaced with little disruption to traffic, reducing congestion and saving fuel.

- **Flexible pavements provide smooth, safe surfaces and minimise fuel consumption**