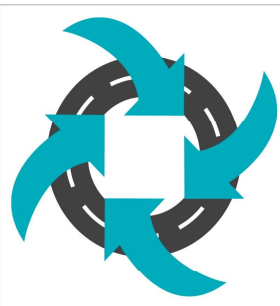


Construction of an (almost) completely Recycled Road

Stuart Baverstock, Senior Manager Maintenance & Delivery North

Transport for NSW



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Murrawal Road, Wyongah - Before



Road Construction – Utilising Recycled Products



Recycled Road

Murrawal Road, Wyongah



Warm mix asphalt – batched at lower temperature – to reduce energy consumption and CO₂ emissions, and includes recycled crushed asphalt

Pavement



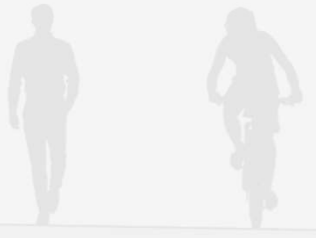
Reuse existing road pavement gravels and improve strength by stabilizing with fly-ash and cement

Free draining recycled crushed glass



Kerb and gutter
"Greencrete" containing fly ash and recycled crushed glass

Recycled crushed concrete



Shared path

"Greencrete" containing fly ash and recycled crushed glass, with steel reinforcing being replaced by Emesh®, a recycled plastic fiber

Subsurface drainage pipe

Made of partially recycled plastic

Trench backfills

Free draining recycled glass sand instead of virgin sand

Drainage pipe

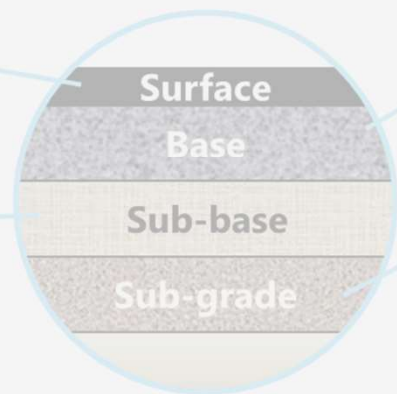
Utilises fly ash, blast furnace slag, manufactured sand and recycled sand in the concrete pipes



Warm mix asphalt – batched at lower temperature to reduce energy consumption and CO₂ emissions, and includes recycled crushed asphalt

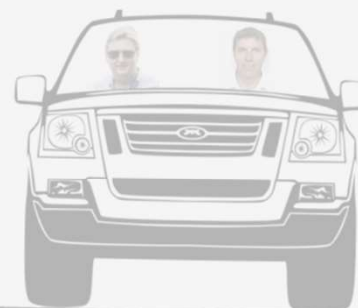
Recycled crushed concrete

Pavement



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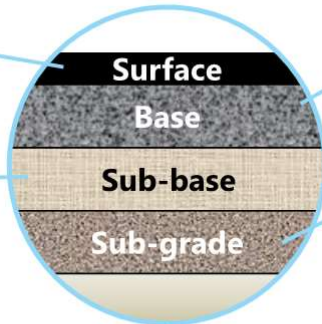


Recycled Road

Murrawal Road, Wyongah



Pavement

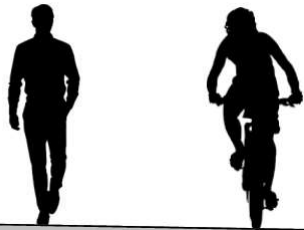


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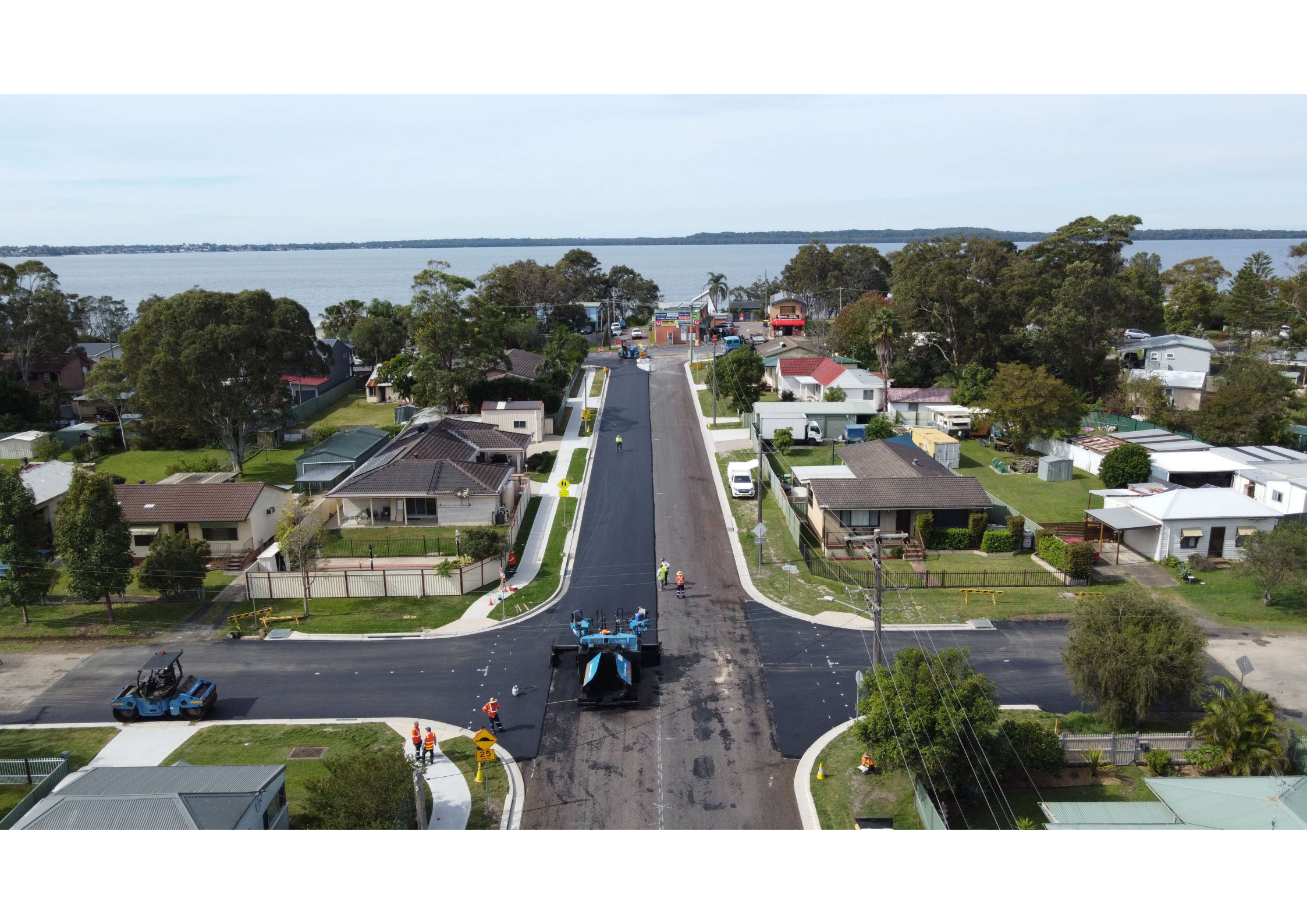












Summary of Materials

- Crushed glass 1,600 t – 6,700,000 bottles
- Concrete recycled material 62 tonnes
- Crushed concrete 1,500 tonnes
- Road pavement gravels 1,150 tonnes
- Plastic recycled 270kg – 51,000 plastic bags
- CO2 saved 6,500kg



25
km/h



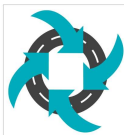
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% recycled material in total project:

92.7%



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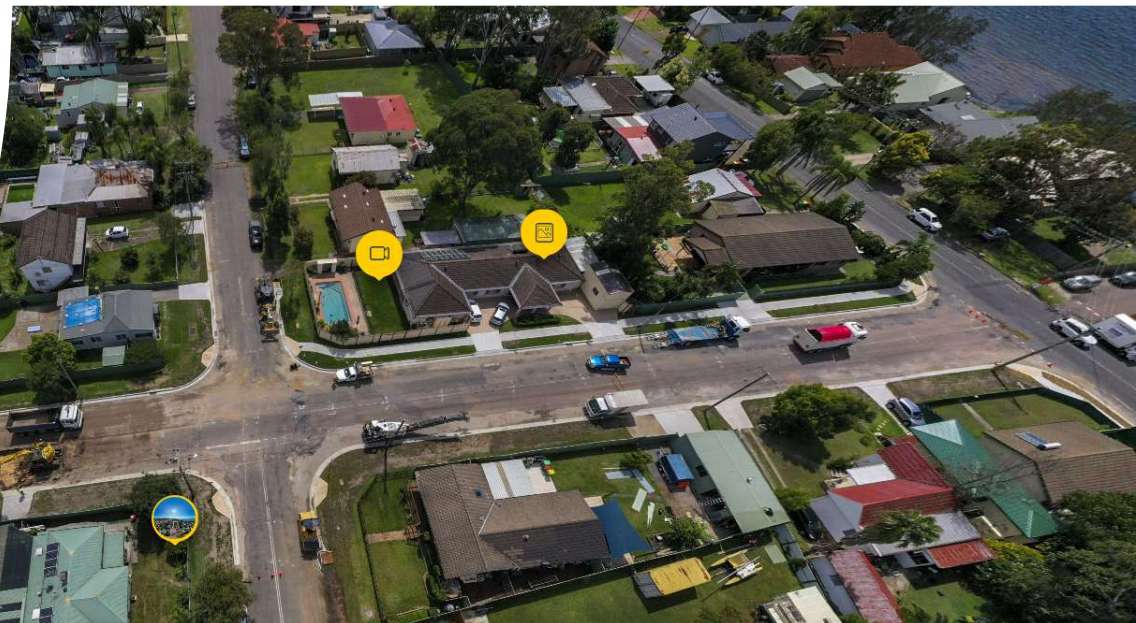


Pavement Recycling and Stabilisation Association



Lessons Learnt

- A lot of legwork is required up front, but it pays off later with ongoing adoption through works programs
- Upfront legwork gives credibility to the process, which leads to confidence from the field staff
- Main research required;
 - Investigation of every element for performance. Aim for similar or better
 - performance and life span compared to virgin materials
 - Work with your local manufacturers
 - Bring your staff along for the ride
- The media exposure is a bonus, the real winner is the environment, and our industry



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