

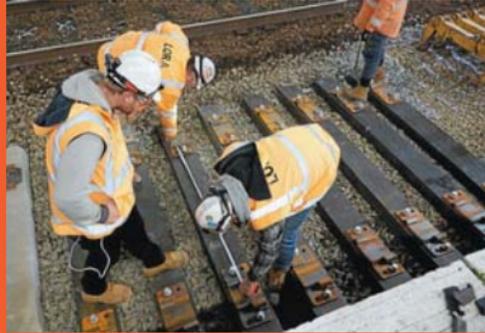
Recycled-waste sleepers enter first metro trial

NEARLY 200 SLEEPERS MADE primarily from a mix of recycled plastic have been incorporated into track in inner-suburban Melbourne.

In a first for metropolitan rail in Australia, the composite product – unveiled on the network on 24 June – is being trialled by Public Transport Victoria (PTV) in collaboration with Monash University's Institute of Railway Technology (IRT).

During maintenance work carried out by Metro Trains Melbourne (MTM) on the weekend of 22–23 June, 190 Duratrack sleepers were laid alongside platform two at Richmond station.

The recently developed sleepers were produced by Integrated Recycling at its factory near Mildura in north-west Victoria from a blend containing 85 per cent discarded agricultural plastic such as vineyard covers and cotton-bale wraps and surplus plastic pipe from the mining industry, plus unwanted polystyrene. Integrated Recycling's raw



ingredients are sourced wholly within Australia.

IRT director Ravi Ravitharan said the new sleepers were manufactured from “waste that would otherwise have gone to landfill”.

“IRT and PTV are looking to trial the use of these recycled plastic railway sleepers for 18 months,” Mr Ravitharan said. “They’re made from a mix of polystyrene and agricultural waste and have a potential lifespan of 50 years.”

For every 1km of track laid with the sleepers, 54t of plastic and 10t of

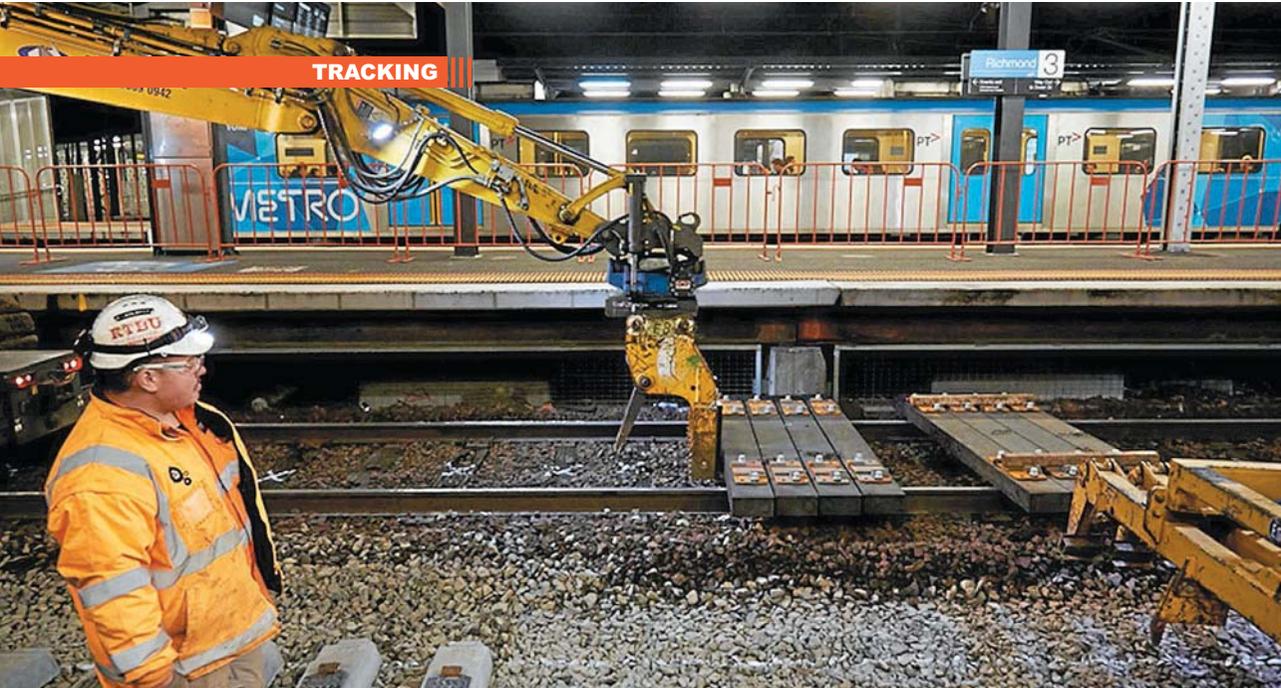
polystyrene that would previously have been consigned to landfill or exported to be disposed of overseas is put to use.

With a lifespan of up to 50 years, the Duratrack version has been shown to last at least three times as long as, and require far less maintenance than, traditional timber sleepers. In addition, these sleepers cost only half as much as their wooden counterparts and are compatible with existing tooling and infrastructure.

Integrated Recycling general manager Stephen Webster said Duratrack was the result of three years of development examining “many formulations”.

“Millions of railway sleepers across Australia need replacing,” Mr Webster said. “Timber sleepers are rotting, splitting, decaying and being eaten by termites. Hundreds of thousands are replaced each year.

“Through three generations of materials that we’ve tried in-track and tested in the laboratory we’ve developed a railway



sleeper that's durable, long-lasting and fit for purpose."

Mr Webster said Duratrack was pest- and rot-resistant, maintenance-free and cost-effective. "It's also eco-friendly and non-toxic, and 30 Duratrack sleepers will save about 300 trees."

If the new sleeper gains the approval of PTV and MTM it could be rolled out further across the network as part of future upgrades.

PTV is not alone among mainstream Australian rail owners and/or operators now monitoring the revolutionary technology.

Queensland Rail is trialling Duratrack at two locations to the east and west of

the Toowoomba Range in south-east Queensland (see **Track+Signal** 23-1 February–April 2019), and as this issue of the magazine was being finalised in July V/Line was due to install the product at a site in regional Victoria.

Having gained certification from IRT in 2017 the sleepers have been in use for some time on selected tourist and heritage railways in Victoria, including Puffing Billy in the Dandenong Ranges on Melbourne's eastern fringe, the Walhalla Goldfields Railway in Gippsland and the Victorian Goldfields Railway between Castlemaine and Maldon near Bendigo.

"The success of this composite sleeper development has also attracted attention from the sugarcane industry for its sugarcane track maintenance," Mr Ravitharan said.

The current round of in-track trials follows almost four years of research and product development led by Integrated Recycling and IRT, supported by state government investment administered by Sustainability Victoria in the form of two grants under the Research, Development and Demonstration program and one from the Resource Recovery Infrastructure Fund totalling \$630,000.

"This project is a great example of the circular economy we're creating through innovation and rethinking a product we use every day," Victorian Minister for Energy, Environment and Climate Change, Lily D'Ambrosio, said.

"At the end of their lifetime these will be recycled into new sleepers," a



Sustainability Victoria spokesperson added.

"The environmental benefits of using them are clear as they reduce the need for timber resources, reduce concrete production – the second-largest carbon emitter in the world – and meaningfully recycle plastic waste. Compared to concrete, timber or steel sleepers they also require less energy and resources to manufacture, thereby producing significantly less greenhouse gas.

"We're on the way to a future where commuters look through a train window and see recycled plastic sleepers flashing by instead of concrete or wood – and that's something to smile about."