

Trackless trams or light rail? It's not a contest – both can improve our cities

October 23 2019, by Peter Newman



Yibin is the latest Chinese city to get the Autonomous Rail Rapid Transit (ART) system, or trackless trams. Credit: [??????/Wikimedia](#), [CC BY-SA](#)

A Greenpeace [video](#) of me plugging a trackless tram that went viral with four million hits has caused a few eyebrows to be raised over whether I think light rail is dead. So let me be clear: light rail remains the gold-standard technology for providing high-quality, rapid, zero-emissions public transport along a street corridor.

There is a strong case for using [light rail](#) in many cities with sustained all-day ridership. This includes Sydney, where [trials of a newly built light rail system](#) have begun.

Light rail also has a clear ability to attract quality urban development.

So why am I promoting [trackless trams](#)? My interest is in cities and places that lack the population density or capital funding necessary for light rail (or heavy rail). Just because you live in Hobart, Liverpool or Fremantle doesn't mean you aren't entitled to something that is "more than a bus" for your daily commute.

How can we provide those communities with the same quality of [public transport](#) as light rail provides? Trackless trams may be an option that can help urbanism flourish around stations along corridors limited until now to cars or buses.

What sets trackless trams apart?

This research interest took me to the world's largest manufacturer of railway stock, [CRRC](#), in Zhuzhou, China. CRRC has produced Autonomous Rail Rapid Transit (ART), or what [I call the trackless tram](#).

The trackless [tram](#) seeks to replicate the light rail experience. The differences are that optical guidance systems replace rails, with rubber tyres on railway-type bogeys replacing steel wheels. Many of the track-laying and utility relocation costs of light rail construction can be avoided.

The capital cost of Sydney's light rail has risen to [around A\\$210 million per kilometer](#). For a [fraction of that cost](#), as little as A\$4m/km, trackless trams can be introduced very quickly on a road of acceptable quality. Traffic engineers advise us good-quality road base is sufficient.

Optical guidance delivers very precise ride quality, without the sway of buses. Multiple carriages offer greater capacity – [up to 500 passengers](#) – than buses.

The first, four-stop trial [began in Zhuzhou](#) in 2017. Trackless trams have since been launched in [Yongxiu and Yibin](#).

Cities around the world are interested

The trackless tram is [attracting interest](#) from cities [worldwide](#). [Trials have begun in Qatar](#) in advance of the 2022 FIFA World Cup.

I am leading a [team at Curtin University](#) to investigate how various levels of government in Australia (and New Zealand) can support trialling and testing of this technology and, if appropriate, introduce it in a controlled way. We have been approached to help cities in Africa, Europe, Asia, the US, Australia and New Zealand.

Among other things we need to be sure the technology is reliable, provides the promised level of service, doesn't damage road surfaces and complies with regulations required for safety and sustainability.

We also need to be certain construction and long-term operations can produce the promised cost savings. Not all public [transport](#) innovations, such as [bus rapid transit](#), have lived up to their promise.

Complementing light rail

Some people are concerned the trackless tram might be a stalking horse for ideological opponents of light rail who wish to reduce investment in public transport.

In my case, I would point to my record in attracting rail investment in Perth. I started the [Friends of the Railways 40 years ago](#) to save our train. We now have a system where at the last Western Australian state election money was [taken from the Roe 8 freeway proposal and put into the MetroNet heavy rail package](#).

People are also concerned that we risk being left with a poorer public transport service if we replace a proven technology such as light rail with a less proven technology such as the trackless tram. These concerns are fair, which is why I see continued advocacy for light rail as a critical part of the trackless tram story. But the trackless tram might enable us to build the same quality service and a lot more of it.

Both technologies are likely to play complementary roles. In Sydney, for example, light rail makes sense for Parramatta into the city. The trackless tram may stack up for lower-density areas such as connecting Liverpool to the new Western Sydney International Airport.

In Perth, we certainly need such a service in many inner and middle suburbs, or for connecting major outer suburban centers to the new MetroNet lines.

Smaller and less well-off communities as well as outer suburbs are now in focus for the trackless tram. A lack of public transport means these areas have a reliance on private car use which is now not acceptable.

To avoid [greenwashing](#), and ensure we remain on a pathway to sustainability, we need a strategy underpinned by a thorough understanding of the technology. The aim is to achieve high-quality, zero-emissions, reliable and affordable public transport that can help reshape our cities.

The tram once ruled our cities as the preferred public transport mode

from the 1890s to the 1940s. Through a [calculated campaign](#) trams were denigrated in favor of the bus and car. Cities around the world tore up their tram tracks.

Not every old tram route can have a new light rail. The trackless tram presents an opportunity to rebuild high-quality public transport along major road corridors and connect suburbs with poor linkages. I would hope for a more sophisticated approach to planning transport networks, recognising that both light rail and trackless trams could play important roles.

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