



# Feasibility study on commercial deployment of automated public transport vehicles in New Zealand

## Is automated public transport feasible for New Zealand?

We've all heard about 'driverless' vehicles – could we see these on New Zealand's roads before long? A feasibility study in 2021/22 investigated several questions about this type of transport:

- How could automated public transport be seen as a viable alternative to traditional types of public transport?
- How might automated transport operate in different environments across New Zealand?

- How to evaluate trials in different New Zealand locations?
- How to guarantee safety, as well as accessibility, reliability, funding and acceptable emissions?

## Defining automated vehicles

The research focused on road-based automated vehicles with multiple passengers, using technology to travel between two points without relying on a human driver.



Dromos vehicles on dedicated infrastructure in Germany

## Literature review findings

Automated public transport vehicle technology is generally still a work in progress. Although some countries allow people to travel in automated vehicles in pilots and trials, the technology is still evolving.

### Are they cheaper to run than traditional public transport?

Because of commercial sensitivities, it's hard to get this type of information. Automated vehicles save the cost of employing human drivers, but may still need remote monitoring or emergency override capabilities. The infrastructure to run them is a large cost, involving installing 'virtual' tracks using radar and sensors, ensuring 5G networks are reliable, and ensuring vegetation doesn't block sightlines between camera sensors and the vehicles.

The more people they carry, the more cost-effective they are. Their travelling speed also affects cost. Smaller vehicles could be used 'on demand' by smaller communities, but predicting the demand is difficult.

Automated shuttle vehicles could be used in confined areas such as retirement villages or university campuses. They could also have a role in the 'first / last mile' part of journeys, ferrying people from railway stations or bus terminals to suburban homes or to destinations away from main transport routes.

Maintenance and cleaning costs might be higher than expected if the lack of a driver means passengers make more of a mess or damage vehicles during their journey.

### Are they safe?

All automated vehicles in operation were part of pilots or trials, so were operating under carefully controlled or monitored conditions. But no serious safety breaches were reported. This could be because vehicles had a human operator on board who could step in, or a remote operator could override the automation to avoid a problem.

The biggest problem appeared to be the other 'humans' on the road – other drivers overtaking dangerously because the automated vehicles were travelling at slower speeds, or pedestrians stepping out in front of the vehicles.

In case studies, people were more interested in the service than the type of vehicle. They thought drivers were useful for safety, deterring vandalism, assisting people with accessibility needs, or helping visitors with travel information. Their biggest concern about driverless vehicles was whether they would feel safe if other passengers acted anti-socially.

### Recommendations

1. Local pilots and trials will be needed to learn from local experience, including how to manage risk, assessing the regulatory impacts of various vehicle forms, and collecting cost data. Pilots or trials will also provide opportunities to talk to stakeholders about their experience, and then to make refinements.
2. People have expectations about public transport. If major changes are introduced, user acceptance is essential, as well as recognition of the role and functions of automated public transport.
3. Automated vehicles may not replace traditional public transport. But they could meet a common need in New Zealand, to cover the first / last mile of journeys. They could also be used in restricted areas such as tourist destinations, retirement villages or university campuses.
4. The next step is an objective, cost-based evaluation of automated public transport, to identify how it could complement traditional public transport, rather than replace it.



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