Safe Sustainable Future

IPENZ Transportation Group Conference 2017
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Distinction Hotel
Hamilton

IPENZ TRANSPORTATION GROUP

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ABSTRACT SUBMISSION FORM

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Paper details:	
Presentation title:	Autonomous Vehicles - Modelling of possible scenarios and regional comparions

Overview of presentation (300 word maximum)

Include details of topic scope, key findings, and any issues for discussion or further investigation

Autonomous vehicles (AVs) are likely to have significant impacts on travel behaviour and road network operations in the medium to long term. Autonomous vehicles will improve safety on roads as they more closely and consistently observe their surroundings (using technologies such as radar, LIDAR, GPS, and computer vision) and react much more quickly. As a result, these driver-less cars will be able to travel closer together and operate at higher speeds, thus increasing capacity on roads. However, the improved comfort; ability to better use the time while travelling; and reduced complexity of parking will make road-based travel more attractive. This is likely to increase trip making and increase average trip lengths. The extra demand pressures could be exacerbated by the use of cars to auto-chauffeur people, reducing parking requirements but increasing counter peak traffic flows. The relative attractiveness of public transport will also be altered; on the one hand the improvements to car travel will make PT relatively less attractive; on the other hand autonomous vehicles could improve connections to services and make PT more responsive and affordable.

This paper uses TransPosition's 4S model to evaluate the effects of AVs on mode share, congestion, safety, and environmental impacts of travel. It considers a number of scenarios, including ranges of AV uptake and different proportions of privately owned vs shared use vehicles. It shows that very different outcomes are possible, and that there will be significant problems if AVs are adopted as improved privately-owned cars. The analysis makes use of TransPosition's recently developed model of New Zealand to allow a comparison of AV scenarios in various areas of New Zealand and contrast them to previous analysis done in Australia. Finally the paper discusses implications for policy and transport strategy.

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