

14 July 2016

David Hale
Committee Manager
Staysafe (Joint Standing Committee on Road Safety)
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Mr Hale,

Supplementary questions – Inquiry into Driverless Vehicles and Road Safety in NSW

Thank you for the opportunity for the National Transport Commission (NTC) to appear before the Joint Standing Committee on Road Safety (Staysafe) on 17 June 2016 and give evidence to the inquiry. Please find below the NTC's response to the follow up questions provided.

Potential Road Safety Benefits

1. *The Motorcycle Council of NSW quoted the RAND corporation, a global policy think tank, suggesting that to 'verify that self-driving cars are as safe as human drivers, 275 million miles (442.57 million km) must be driven fatality free'.*

- *Do you consider that we need such a benchmark?*

The NTC is looking at the question of what is 'safe enough' as part of a proposed safety assurance framework to more automated vehicles, however a detailed proposal has not yet been developed. There is no one industry standard for safety in more automated vehicles and there is no existing testing regime within Australia that could assess a vehicle against a standard. There is not a direct comparison between the automated vehicle and human driver; we do not subject human drivers to this level of testing. Testing must also account for the continuing evolution of automation technology.

The NTC will make recommendations to ministers in November on issues including a potential safety assurance framework for automated vehicles.

- *Are you aware of any country using or developing such a benchmark?*

The National Highway Traffic Safety Administration (NHTSA) in the United States noted in its letter to Google in April 2016 that new technology was proving an issue in light of existing safety standards.¹ NHTSA suggested that they could work with Google to develop an alternative process for evaluating the safety standards of a self-driving system and that long term new test procedures would be needed for future vehicles.

The California Department of Motor Vehicles (DMV) is conducting research to determine the "behavioural competencies" against which an automated vehicle can be tested. The DMV has proposed a process where a manufacturer would certify a vehicle, which would then be tested by a third party.² We are not aware of any jurisdictions developing a distance based benchmark.

The NTC will continue to monitor what is occurring internationally and apply those developments to Australian laws where appropriate. The NTC will continue to make timely incremental changes to laws to keep them current with international standards.

¹ See: <http://isearch.nhtsa.gov/files/Google%20-%20compiled%20response%20to%2012%20Nov%20%2015%20interp%20request%20-%204%20Feb%2016%20final.htm>

² See: https://www.dmv.ca.gov/portal/dmv/detail/pubs/newsrel/neware15/2015_63

Implications for Traffic Congestion (and Road Safety)

2. The NSW Government submission suggests that driverless vehicles may actually not bring a road safety benefit if they add to traffic congestion. Yet, other inquiry participants noted that 'vehicle automation may free up road space due to greater efficiency of cars movements'. And, the Committee is aware that if driverless technology is combined with vehicle sharing systems, it could lead to a significant decrease in volumes of cars on roads.

- *Do you consider that vehicle sharing systems are one of the key ways to maximise the potential road safety benefits of driverless vehicle technology?*

We don't yet know how more automated vehicles might be used and therefore what impacts they may have on congestion. There has been some modelling done by Transport and Main Roads in Queensland that looks at such impacts and could provide some insight.

- *Do you consider that vehicle sharing systems are something that should be a prerequisite for / coincide with the introduction of driverless technology?*

While the NTC doesn't have a view on this, we are aware of the push to introduce 'vehicle sharing' business models in larger cities overseas by Uber and other companies. We would note that there are possible benefits to car sharing even without automated technology.

Testing and Trialling

3. Guidelines for a trial which has commenced in Singapore require roads to have prominent signboards to give information to the public about the testing and to facilitate easy recognition by road users. All test vehicles will also sport a special decal and markings. Japan has issued number plates to allow testing of vehicles on public roads.

- *Should NSW consider similar measures to allay any concerns about dangerous interactions between driverless vehicles and other road users during the testing phase?*

The NTC hasn't looked specifically at this but interactions with vulnerable road users would be addressed as part of testing guidelines and a safety assurance framework, which could include requirements to visually identify automated vehicles. This issue has also been noted overseas with the United Kingdom and New Zealand requiring engagement with the local community as part of their testing guidelines, without specifying particular markings. The limited data to date has indicated that automated vehicles potentially have a higher incidence of lower level crashes, due to the actions of human drivers around them.³ This may indicate a need to visually identify such vehicles and/or to provide greater education to other human drivers.

Vulnerable Road Users

4. Professor Toby Walsh from UNSW suggested that automated vehicles should be visually distinctive and easily identifiable. He suggests that this could be done with plates, similar to those that are in place for learner drivers.

- *Do you consider that this would enhance road safety, and in particular benefit vulnerable road users?*

As above, this issue has not been looked at specifically, but would be addressed as part of a safety framework approach. This issue of safety and vulnerable road users is being looked at by Austroads in its report 'Safety Benefits of Cooperative ITS and Automated Vehicles'.

Road Taxes

5. Is the Commission considering how driverless/automated cars and trucks would impact on state and federal road taxes? Is there an opportunity to review the equity and technology to raise road taxes fairly relative to use and impact on infrastructure?

³ See: <http://www.umich.edu/~umtriswt/PDF/UMTRI-2015-34.pdf>.

Numbers of AVs will increase at the same time as hybrids / electronic vehicles increase. This is likely to exacerbate the rate of decline in fossil fuel based excise revenue already projected by the NTC. If projections of reduced private car ownership also prove to be correct, this would also add to the list of factors necessitating a move to an alternative charges regime, potentially based on distance travelled and/or type of road and time of day.

The NTC is not considering the effects on road related government revenue as a result of automated vehicles, however it is something we are actively monitoring more broadly. Essentially, motorists pay for roads based either directly or indirectly on taxes on fuel and vehicle registration fees. Some automated functions will improve a vehicle's fuel efficiency and consequently government revenue from fuel taxes could reduce. Therefore the amount of road related revenue received by governments will depend on the type and amount of fuel used by automated vehicles, the distances they travel and the registration charged by governments.

The NTC has published a report "Projecting future road transport revenues 2015-2050", which examines potential future trends in transport and impact on revenues. It looks at a range of changing vehicle technologies, such as hybrid vehicles and electric cars, and the effect they could have on road related revenue. The report notes that modelling conducted in the United States suggests that car sharing and self-driving vehicles could lead to a combined nine percent reduction in average distance travelled by 2050. A link to that report is below⁴.

Thank you again for the opportunity to contribute to the inquiry, we look forward to hearing your conclusions in due course. We are available to provide follow up information as needed; please contact Marcus Burke, Project Director, [REDACTED] or ([REDACTED])

Yours sincerely

[REDACTED]

Dr Geoff Allan
Chief Operating Officer

⁴ [http://www.ntc.gov.au/Media/Reports/\(68BBFA97-3FAF-4266-A478-5ED625F7559E\).pdf](http://www.ntc.gov.au/Media/Reports/(68BBFA97-3FAF-4266-A478-5ED625F7559E).pdf)