



Submission to Transport for NSW (TfNSW)

Feedback: NSW Future Transport Technology Roadmap

31 January 2017



The Australian Driverless Vehicle Initiative (ADVI) is the national peak advisory body for autonomous vehicle technology and is a trusted adviser to government and industry partners.

ADVI commends the NSW Government for putting driverless vehicles on the transport planning agenda and commencing the public discussion about future infrastructure investments to support the introduction of autonomous vehicles.

These investments are supported by the findings the ADVI Position Paper: *Economic Impacts of Automated Vehicles on Jobs and Investment* released in September 2016 as follows:

- Potential for \$95 billion a year in economic value to generate 16,000 new jobs by taking a more proactive approach to the introduction of autonomous vehicles in Australia.
- Growing Australia's stake in the global intelligent mobility sector from 0.25% to 1% would inject \$15 billion into the economy and create 7,500 direct jobs and an additional 8,500 indirect jobs.
- Shared autonomous vehicles will account for 10 per cent of vehicle sales by 2030, and 30 per cent of all kilometres travelled.

ADVI is pleased to provide feedback in response to **Chapter 3. Five key technology strategies** and in particular to **Strategy 4: Enable connected and automated vehicle platforms.**

[ADVI support for roadmap](#)

There is much common ground between NSW government aspirations to facilitate driverless vehicles and ADVI's work with government and industry. ADVI supports the key recommendations and aspirations of this roadmap, which includes:

Pursuit of National Standards

ADVI is encouraged by the Transport for NSW objective **to pursue national standards for the road infrastructure, systems and regulatory frameworks needed to adopt greater levels of vehicle automation earlier, and identify how best to deliver community benefits that autonomous vehicles will bring.**

Next step, 'no regrets' initiatives

- **Activate the Smart Innovation Centre for Advanced Transport Technology.** Establish and extend collaborative partnerships with research, industry, funding and innovation partners to develop technology applications that improve road network safety and reliability, as well as develop, test, and trial connected and automated vehicles and the enabling infrastructure and systems in a controlled environment.
- **Foster development of the regulatory environment to support automated vehicles.** Take a leading role in shaping and influencing a national legislative and regulatory framework that supports the introduction and early adoption of connected and automated vehicles, provides market clarity to support confident investment, and stimulates interest from global players.

- **Develop a blueprint and operating model for automated vehicles on network.** Model the options for migration of automated vehicle operations onto road networks, evaluate the implications for traffic flows and network management, determine the behavioural and economic implications and develop options to foster early adoption where there is greatest benefit for the NSW community.

The long-term 'game changers'

- **New applications of connected and automated vehicle technologies.** Increasing adoption of vehicle automation technologies that improve road network safety and reliability, with early adoption likely occurring on open highways and in dedicated lanes.
- **National automated vehicle standards.** A set of nationally consistent connected and automated vehicles standards, protocols and regulations that enable interoperability.
- **Economically efficient use-cases for connected and automated vehicle take up.** Specific use-cases for automated vehicles on the open network that improve economic, environmental and social outcomes, with a supporting market environment that enables early adoption.

Feedback on Chapter 3

Question 1: What adjustments or refinements would you recommend to the five technology-enabled strategies to personalise transport?

ADVI also commends and encourages the intent to work with industry and adopt the practices of technology leaders in other sectors and to co-develop innovative solutions with a broad range of industry partners. This is the ADVI approach and ADVI is willing to assist the government in any way it can including facilitating access to our network of more than 90 partners.

ADVI also recognises that there is a need for more than just standards for road infrastructure, there is also a need to evolve existing vehicle standards (ADR), rules that regulate drivers (ARR) and urban development and planning.

ADVI is offering to refine the strategy through the following:

- sharing its own extensive research and support the further government work underway;
- facilitating cooperative trials between government and the private sector to better understand what each party needs to encourage rapid adoption;
- working with government and industry partners to understand the technology systems requirements, the human responses to technology and the safety and regulatory implications.

Question 2: Are there any other high-level strategies that Transport for NSW should consider, and if so, what would be the key recommended next-step ‘no regrets’ initiatives?

ADVI welcomes the opportunity to work with TfNSW to develop and refine next-step ‘no regrets’ initiatives based on the following predicted outcomes of automated vehicles:

- **Road Design:** In future, road ‘upgrades’ may not mean increasing the physical space for vehicles but focus on improving the interface between vehicles and infrastructure (i.e. V2I). With automated vehicles expected to communicate with each other, existing road space could be used more efficiently.
- **Infrastructure Planning:** Transitioning the network to an automated and driverless future should be an immediate priority. Prioritising automated corridors and routes across a growing and integrated transport network requires an agile strategy. This could include retrofitting existing infrastructure to incorporate new technology or maximising valuable road space for all types of users.
- **New mode in transport models:** Automated vehicles should be added as a new mode in transport models. Model inputs and forecast assumptions need to be reviewed and modified over time to get the input parameters right. The transport modelling process may need to be overhauled, with consideration given to replacing the current four-step method (trip-based) with another method, such as an activity-based model.
- **Evolution of the Public Transport system:** Availability and use of automated vehicles could lead to the evolution of public transport systems. While the need and demand for mass transit is likely to continue, there may be more differentials to levels of service and pricing for different demographics, and the distinctions between different service types (rail, buses, taxis and car sharing) may become increasingly blurred. There could be significant cost advantages of automated vehicles over public transport, especially when point-to-point transport becomes easily and readily available. Public transport infrastructure built with significant capital cost could be severely under-utilised, so it is critical for investments to be future-proofed so that they can be repurposed at minimal cost.
- **Safety:** Automated vehicles will create a safer environment for active travel. Vehicles will share space more safely with vulnerable road users such as cyclists and pedestrians, and automatically stop or slow down to avoid accidents. Safety in urban public spaces will be greatly improved due to complete compliance of road rules from next generation vehicles. However, the greater convenience of automated vehicles could potentially encourage a reduction of people engaging in active travel modes such as walking or cycling. Future planning processes should ensure that driverless vehicles and active transport are complementary rather than competing.
- **Parking planning:** Parking planning and allocations will drastically change. With automated vehicles able to park themselves, cheaper parking sites can be selected, which makes it possible for existing parking spaces at high value locations to be used for something else. As car sharing becomes more common, metropolitan areas are likely to be dotted with satellite shared parking sites or mini depots to ensure response times to users are minimised.



- **City design:** Driverless vehicle technology could influence the design of cities and grid patterns. Current urban planning practice encourages compact land developments and promotes public transport and active travel to minimise car-dependency. With the advent of automated vehicles, this basic principle of densification could change.
- **Supporting regional and rural communities:** Regional and rural communities should be able to take advantage of the benefits of driverless technology. As an example, access to economical public transport can be made via locally-based automated vehicles.
- **Freight systems:** Freight systems and intermodal terminals should be designed to adopt automated vehicles and platooning for national and local freight and supply chains to fully realise freight productivity benefits.
- **Mobility as a service:** While the evolution of 'Mobility as a Service' is becoming increasingly probable, consideration must be given as to who controls this future. This change in societal behaviours and transport 'use and ownership' needs to be accommodated institutionally and physically.

Who to contact for further information?

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