

SUMMARY OF RESPONSE TO RECOMMENDATIONS

The NSW Government embraces technology and innovation, which has the potential to revolutionise the way we live and travel, and is committed to ensuring the safety of customers across the whole transport system. The NSW Government supports the Staysafe Recommendations, including the national approach for the development of connected and automated vehicles, the national guidelines (which, when released, will govern NSW trials), and planning for the future economic and social impacts of connected and automated vehicle deployment.

STAYS SAFE RECOMMENDATION #1

The Committee believes that improved road safety outcomes can be best achieved through a national regulatory framework which will maximise the benefits and minimise the risks of automated vehicle technology. Therefore, the Committee recommends that a national regulatory framework for the development and deployment of automated vehicles be developed by the National Transport Commission, in consultation with NSW and other states, and implemented by an agreed date with the following components:

- a) A robust national trialling and testing regime, including collaboration between regulators and manufacturers, and consultation with users;*
- b) The establishment of agreed benchmarks for setting safety and performance standards for both automated vehicles and users, and other road users, including vulnerable road users;*
- c) Incorporation of the benefits of international standardisation and/or an international framework;*
- d) A determination of the liabilities attaching to the manufacture, sale, and use of the technology, to be legislated if necessary;*
- e) An examination of the security of the data systems which underpin the technology, including the development of protocols to facilitate data sharing and address privacy issues;*
- f) A comprehensive public education campaign about the deployment of the technology, targeting amongst others, drivers of both automated and non-automated vehicles, cyclists, motorcyclists, and pedestrians;*
- g) The public identification of automated vehicles to make them visually distinctive to other road users, particularly during the trial and testing phase;*
- h) A program to determine the impacts of automated vehicle technology on the provision and maintenance of road infrastructure, including consideration of both current arrangements, and any new arrangements required to support vehicle connectivity; and*
- i) Transition protocols for managing safe road use by a mixed fleet.*

RESPONSE TO RECOMMENDATION #1

Supported

Comment:

The NSW Government embraces technology and innovation, which has the potential to revolutionise the way we live and travel, and is committed to ensuring the safety of the whole transport system.

The NSW Government has now launched the Future Transport Strategy, a new approach to long term transport planning that started with the first Future Transport Summit in April 2016. Input from industry and stakeholders who attended the summit has been distilled into the Future Transport Technology Roadmap, launched in November 2016. The rapid changes brought on by significant technology innovation globally means that our Future Transport Strategy will be driven by this technological advancement.

One of the key strategies in the Future Transport Technology Roadmap is to enable connected and automated vehicles (CAVs) to efficiently, reliably and safely move people, goods and services. In addition to road safety benefits, CAVs that are fully automated or driverless have potential to increase transport options for the community, especially for those with mobility issues, and to also reduce congestion and environmental pollution. This will improve customer service and economic productivity in NSW, and help shape the future of transport in this state.

To enable the broader benefits that CAVs can offer, the NSW Government recognises and supports the need for a nationally consistent approach to the increased application of CAV technology. A consistent national regulatory framework for CAVs is important as Australia is a single market and the setting of vehicle design standards is a national responsibility. The NSW Government will work with national and international jurisdictions to ensure there is a consistent regulatory approach for CAVs, to remove barriers for industry and manufacturers to trial and innovate with the new technology, and to gain community confidence and acceptance of their potential safety, social, economic and environmental benefits.

The NSW Government, along with all other Australian jurisdictions, is providing input into work currently undertaken by both the National Transport Commission (NTC) and Austroads to identify and address issues that may currently impede the safe and reliable introduction of

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automated vehicle technology on Australian roads.

The Transport and Infrastructure Council (TIC) considered a package of NTC recommendations on CAVs at its recent meeting in November 2016. At this meeting all Ministers agreed to a range of initiatives to facilitate an accelerated introduction of automated vehicles on Australian roads over the next few years. These initiatives will focus on ensuring Australia can maximise the potential opportunities and benefits of automated vehicles, including improved road safety, better managed congestion, improved customer service and local amenity, improvements in road freight and passenger transport productivity and the overall performance of the Australian economy. The TIC will consider further advice from NTC and Austroads at its following meeting in May 2017.

- a) The key priority identified by the NTC is the need to review and if necessary update regulatory frameworks to ensure that partially or conditionally automated vehicles can be legally tested and demonstrated on public roads. The NTC has recommended that each State should review and if necessary update current regulatory arrangements, and recently published a discussion paper on national guidelines for automated vehicle trials.
- b) Establishment of agreed benchmarks for setting safety and performance standards for both automated vehicles and users, and other road users including vulnerable road users, were considered in the NTC policy paper presented at the November TIC meeting. At this meeting Ministers agreed to initiatives that will focus on the development of a comprehensive performance-based safety assurance regime for automated vehicles.
- c) Consistent safety standards are needed to ensure that risks to all road users are appropriately managed. However, it needs to be acknowledged that Australia is subject to international vehicle standards developed by UNECE Working Party 29 (WP29), and this committee is working to facilitate emerging technologies in the standards. NSW will advocate to the Commonwealth that findings from Australian research be included in this process by the Commonwealth Department of Infrastructure and Regional Development, Australia's representative on the WP29. It should also be noted that the NSW Government is establishing the Smart Innovation Centre (SIC) to provide international-standard research expertise and to trial CAV technologies to maximise the benefits of new technologies, and the work undertaken by SIC is likely to inform the development of international standards.
- d) Consideration of liability issues for the manufacture, sale, and use of automated vehicle technology was considered in the NTC policy paper presented at the November TIC

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meeting. The State Insurance Regulatory Authority (SIRA) and the NSW Police Force note that the NTC has identified significant complexities involved in assigning fault for partially, conditionally, highly and fully automated vehicles which may be involved in crashes resulting in injury or death. The NSW Government has advised the NTC that manufacturers conducting trials in NSW must have sufficient public liability insurance to cover any crashes.

- e) Examination of the security of the data systems which underpin the technology is under consideration by the NTC, and its future work on CAV regulation will include consideration of the specific issues raised in these recommendations from Staysafe. It is important to note that appropriate data access for authorities is needed in the event of a crash or road rule violation. Existing security regimes will be reviewed in light of the issues likely to be raised by automated vehicles and other transport technology developments, and should be adapted to remain relevant as technology continues to develop. Specification of security for data systems should include consideration of compliance with international standards as well as existing frameworks for data integrity in NSW.
- f) Public education campaigns will be needed to facilitate community confidence about the implications of CAVs, including their safety benefits and challenges, and potential contributions to long-term employment creation and economic development. Public education will be required to communicate the safety benefits and limitations of partially and conditionally automated vehicles that are currently available in the market, and make clear the driver responsibilities and legal liability during automated driving (for instance, when using an autopilot function). Education will also help manage the challenges of a mixed vehicle fleet, including protecting the safety of vulnerable road users. Nationally consistent campaigns may be valuable and cost-effective, however campaigns for individual jurisdictions are also likely to be needed to respond to specific safety challenges being experienced in that jurisdiction.
- g) The public identification of automated vehicles to make them visually distinctive to other road users is a matter that was identified in a discussion paper on national guidelines for automated vehicle trials recently released by the NTC. The need for public identification of automated vehicles should be determined as part of a safety framework for individual trials and relate to the specific risks of that particular trial. It should also be noted that public identification of automated vehicles may produce an increased distraction risk for other road users, and deliberate attempts to elicit responses from marked CAVs by road

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users has been identified as a further risk in overseas jurisdictions.

- h) Determining the impacts of automated vehicle technology on the provision and maintenance of road infrastructure is a key consideration for a current Austroads research project to assess the key road operator actions to support automated vehicles, which will also consider specific issues raised by these Staysafe recommendations. When available, the final report will help inform any future developments to improve road infrastructure preparedness to support CAVs. Depending on how CAVs are designed and used, there may be significant implications for planning decisions such as the supply, demand and operation of roadways and traffic signals, as well as parking.
- i) Transition protocols for managing safe road use by a mixed fleet are expected to emerge from national NTC work and development of a Safety Assurance Framework for CAVs, which will consider specific issues raised by these recommendations from Staysafe. Human factors, such as unpredictable driving behaviour, could also exacerbate the risks of crashes in a mixed fleet environment if fully automated vehicles are unable to interpret, anticipate and respond to unpredictable behaviour by other road users. This is a major area of research at Transport for NSW, and the research outcomes will inform the development of the Safety Assurance Framework.

STAYSAFE RECOMMENDATION #2

The Committee recommends that pending the introduction of a national framework, the NSW Government should publish a clear statement outlining the terms and conditions for conducting trials of automated vehicles on NSW roads, or adopt a code of practice, based on the current regulatory and policy settings, for governing the deployment of the technology in NSW.

RESPONSE TO RECOMMENDATION #2

Supported

Comment:

Transport for NSW (TfNSW) intends to adopt the national guidelines for automated vehicle trials to provide clear guidance for vehicle and technology manufacturers who wish to trial automated vehicle technology in NSW. The national guidelines will support current and future legislation that promotes innovation and will provide detailed operating guidelines. It is anticipated that the national guidelines will be published by the NTC in mid 2017. Pending the development of a national legislative and regulatory framework for connected and automated vehicles (CAVs), the Government has decided to amend NSW road transport legislation to facilitate the safe and legal trialling of CAVs in NSW. It expects to introduce the amending legislation during 2017.

STAYS SAFE RECOMMENDATION #3

The Committee recommends that the NSW Government take measures to identify the economic and social impacts of the deployment of automated vehicles including:

- a) The future investment in, and form of public transport, public transport infrastructure integration, and any measures to protect current and future investment in public transport;*
- b) The impacts on road congestion;*
- c) The compatibility of automated vehicle technology with road access pricing;*
- d) Mobility for the disabled and the elderly, and for people who are not eligible to be licensed drivers;*
- e) The price charged to individuals for automated vehicle technology;*
- f) The impact on commerce and industry, including on employment in transport industries;*
- g) The costs and benefits of providing and maintaining the existing and future infrastructure required to support the technology, including how these costs should be raised, from whom and by whom;*
- h) The impact on driver training, skills development and retention, and driver behaviour; and*
- i) A review to identify any other legislative impacts.*

RESPONSE TO RECOMMENDATION #3

Supported

Comment:

The NSW Government has commenced planning for the future economic and social impacts of connected and automated vehicle (CAV) deployment with the launch of the Future Transport Technology Roadmap in November 2016. The Future Transport Strategy will be developed throughout 2017. The Roadmap plans to put NSW at the forefront of adopting new and emerging technologies to transform transport services, better connect communities, and enhance customer experience and economic productivity. Enabling the deployment of CAV technology is one of five key strategies in the Roadmap that will help shape the future of transport in this state.

The NSW Government acknowledges the Staysafe Committee's finding that deployment of CAV technology may represent particular challenges as well as opportunities for rural and regional areas. Delivery of the Future Transport Technology Roadmap will consider how technologies such as CAVs can support the needs of regional customers, for example, by providing greater access to more cost-effective, more personalised transport service options for regional customers, and by improving the safe and efficient movement of freight. This will reduce the

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costs of road crashes, the costs of goods and services delivered to rural and regional areas, as well as costs faced by rural and regional producers in getting their products to market.

Delivery of the Future Transport Technology Roadmap will also consider how best to meet the specific challenges of building and maintaining the roadside infrastructure requirements for the safe operation of CAVs in country NSW, noting that unsealed roads in remote areas present particular challenges.

In the meantime, as the Committee noted, CAV technology is evolving rapidly and it is possible that it will be able to do tomorrow what it cannot do today. Other technologies are also rapidly evolving, and will likely form part of the solution. One example is the use of data and artificial intelligence to implement predictive maintenance. These issues will be given consideration as part of the development of the national framework for CAVs.

The NSW Government will continue to investigate and identify the economic and social impacts of the deployment of automated vehicles with relevant business and industry groups. The NSW Government is establishing the Smart Innovation Centre (SIC) to provide collaborative support, facilities and expertise to promote research and innovation. The SIC will aim to maximise the potential opportunities afforded by new technologies.

- a) In planning for the future of our transport system, Transport for NSW is aware that emerging transport technologies have the potential to impact both positively and negatively on public transport. The attraction of public transport services is more likely to be maintained or enhanced if future CAV services are planned and deployed in a way that complements and integrates with mass public transport. This complementary deployment can be supported by governments implementing policies that support CAV deployment as public transport, shared transport or on-demand services, and by facilitating easy interchange between existing public transport services and emerging CAV-based services.
- b) CAVs have the potential to mitigate congestion by making more efficient use of existing road capacity, reducing road accidents and delays, and improving the efficiency of intersections. Increased availability of affordable and comfortable CAV-based public transport, high-occupancy ridesharing and car-sharing passenger services may also reduce private car usage, which in turn could alleviate road congestion. However, there is also a risk of additional congestion if CAVs were to attract passengers away from

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public transport and onto the road network during peak periods, and could even encourage longer and more frequent trips. The impacts on overall energy consumption will need to be monitored and appropriate metrics and systems to monitor those impacts need to be established.

- c) Should future Australian governments adopt road access pricing, this would require that the supporting technology be compatible with the connected vehicle technologies to support CAV operation.
- d) The Government's approach to CAVs is firmly focussed on maximising the safety and mobility benefits that these new technologies can provide to transport customers. While some passengers will continue to require services that offer personal assistance, partial or conditional automation features, such as collision avoidance systems, may assist elderly people, people with disabilities, and others who can no longer drive a conventional vehicle. Full vehicle automation could allow these people to independently use a vehicle and gain greater mobility than otherwise possible.
- e) In general, it is expected that pricing of automated vehicles will be determined by the market and will follow the pattern of other technological innovations, where early models will arrive with a significant price premium and later models will come within reach of the wider population. However, given CAVs' potential to improve the accessibility to transport for some groups who have limited mobility options, there is a risk that the market price of CAVs could exacerbate social inequity, particularly in early years. The NSW Government's approach is to incorporate social access and equity considerations into its future CAVs policies and strategies, and continue to work with relevant organisations and the private sector to maximise social outcomes for people with limited access to mobility. It is also important to note that in future, it is likely that the competitive pricing of CAV-based services may make CAV mobility more affordable than private car ownership, which may have positive implications for road congestion and public transport mode share.
- f) The development and deployment of CAVs could boost the State's economic performance through the creation of new business and employment opportunities in areas such as smart infrastructure, sensor technologies, robotics, GIS systems and artificial intelligence. In the long-term, CAVs may result in a shift in transport and related industries, such as changes to traditional jobs and creation of new jobs, and therefore business and industry growth opportunities. The Government acknowledges that the deployment of automated vehicles could disrupt a range of sectors leading to substantial

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impacts on small businesses including, but not limited to, taxis, hire cars, ride share vehicles, tourism transport operators, community transport operators, driving schools, courier/delivery businesses, mechanical repair businesses, and panel beaters. Cost savings may also provide more cost-effective passenger transport and freight services for rural and regional areas, including wider areas, longer span of hours and higher service levels.

- g) Austroads is currently leading a research project to assess the key road operator actions to support automated vehicles. When available, the final report will help inform any future developments to improve road infrastructure provision to support CAVs.
- h) National work in this area is being undertaken as part of another Austroads project examining vehicle registration and driver licensing. It is anticipated that the results of this study, as well as other human factors research being undertaken by a number of research institutions in Australia and internationally, will inform ongoing consideration of managing risks associated with human factors as CAV technology matures.
- i) The Government is committed, through the TIC, to supporting the development of a national legislative framework for CAVs. The NSW Government advised the NTC earlier this year that it will review the NSW CTP insurance scheme within the next two years to identify any eligibility barriers to accessing the scheme by occupants of an automated vehicle, or those involved in a crash with an automated vehicle.

STAYSAFE FINDINGS

1. *The Committee finds that the NSW Government is satisfactorily monitoring the development and deployment of automated vehicle technology.*
2. *The Committee finds that a national framework for regulating the deployment of automated vehicle technology is essential to maximise the benefits and minimise the risks deriving from the technology, and particularly the road safety benefits and risks.*
3. *The Committee finds that individual state-based regulation of the deployment of automated vehicle technology will not ensure that the benefits of the technology are maximised and the risks are minimised. The Committee finds, however, that any state-specific trials to test particular technologies, vehicles, and road conditions should proceed until such time as a national framework is introduced.*
4. *The Committee finds that the National Transport Commission is engaging in a practical and consultative way with NSW and other jurisdictions to achieve a national framework for regulating the deployment of automated vehicle technology.*
5. *The Committee finds that, given the rapid development of automated vehicle technology, and noting that the deployment of Level 3 automated vehicles on Australian roads is proceeding, setting timeframes for deploying and transitioning to higher levels of automation is not practicable. The transition to automated vehicles should be regulated under a comprehensive nationally- consistent framework which supports performance-based regulation aimed at maximising the performance of the technology, achieving the best safety outcomes as early as possible, and securing community support.*
6. *The Committee finds that the public identification of automated vehicles, whether by signage or plates, will benefit other road users and contribute to road safety, at least during the transition phase.*
7. *The Committee finds that many of the economic and social impacts of the deployment of autonomous vehicles cannot be determined without more information and experience.*
8. *The Committee finds that the impact of the deployment of the technology on current infrastructure provision and maintenance arrangements, including funding arrangements, is not well understood.*
9. *The Committee finds that the deployment of autonomous vehicle technology in rural and regional areas will present particular challenges which will need to be identified and addressed within a national framework.*