

TRANSPORT LEGISLATION AMENDMENT (AUTOMATED VEHICLE TRIALS AND INNOVATION) BILL 2017

First Reading

Bill introduced on motion by Mrs Melinda Pavey, read a first time and printed.

Second Reading

Mrs MELINDA PAVEY (Oxley—Minister for Roads, Maritime and Freight) (16:33): I move:

That this bill be now read a second time.

I am pleased to introduce the Transport Legislation Amendment (Automated Vehicle Trials and Innovation) Bill 2017. The purpose of the bill is to establish a legislative framework to provide for the safe testing of connected and highly automated vehicle technology in New South Wales. The bill also seeks to provide an additional function for Transport for NSW to conduct research, develop policy and test applications of innovative, automotive and digital technologies to meet future challenges and opportunities that increased automation in road vehicles has the potential to offer. Amendments are proposed to the Road Transport Act 2013 and the Transport Administration Act 1988.

Members would agree that the New South Wales Government has embraced technology and innovation. The New South Wales Innovation Strategy aims to position New South Wales as an innovation leader by being more open to new ideas and approaches and capitalising on research and development to drive social and economic value. Emerging technology, and how humans respond, has the potential to revolutionise how our cities, towns and the New South Wales transport system works. To shape the most customer-centric, innovative, digitally enabled transport system in the world, the Government must test, trial and adopt new world-class technologies as they emerge.

International standards classify automated driving into six levels: From no automation through to level 5, full automation, where the system performs all aspects of driving. Level 2 partially automated vehicles are those where the system can steer and accelerate and decelerate but the human driver performs all other aspects of the driving. These vehicles already are operating legally on New South Wales roads. Level 3, conditional automation, are those vehicles where the system performs all aspects of driving and the human driver intervenes when requested. At level 4, high automation, the system performs all aspects of the driving task, even if the human driver does not intervene when requested. Industry expects that by 2020, vehicles with level 3 automation will be available commercially in Australia.

Experts insist that self-driving vehicles have the potential to significantly reduce the road toll because 90 per cent of collisions involve human error. While partially automated vehicles currently are available in the Australian market, vehicles with higher levels of automation, including driverless vehicles, are yet to be approved for use on public roads. Transport for NSW already has received expressions of interest from companies seeking approval to conduct on-road trials of automated vehicle technologies. Although there is work being done in the university sector, including in the field of robotics, there are no local manufacturers of connected and automated vehicles in New South Wales. There is evidence that the widespread introduction of these vehicles would boost the State's economic performance through the creation of new business and employment opportunities in areas such as software engineering, digital innovation, robotics and artificial intelligence, data analytics, smart infrastructure and next-generation telecommunications.

The rise of connected and automated vehicles is likely to spur growth in the entire automotive industry, ranging from vehicle manufacturers to component suppliers. The New South Wales Government launched the NSW Innovation Strategy in November 2016 to manage the

transition from traditional jobs to new industries by focusing on education and training from primary and tertiary levels. The Government's approach to embedding innovation in our planning and service delivery strategies opens up huge opportunities for how we approach and implement transport that will revolutionise the way we live, work and travel. Within that mix above all we are committed to ensuring the safety of customers across the entire New South Wales transport network.

If I may, I will take members on a journey back in time to the year 1885 to the birth of the modern motorcar by Karl Benz. His Motorwagen was nothing more than a single cylinder, two seat, three wheeled tubular framed marvel. Back then they could not have imagined how far motor vehicles and the technologies in them would evolve, let alone advance to the level we see today. What seemed like only science fiction a handful of years ago is now reality. We have features available to us in cars today to allow a vehicle to self park, operate in adaptive cruise control, and utilise automated emergency braking that warns the driver of a risk of collision and applies the brakes, if needed.

The Government recognises that automation and innovation are drivers of change—change that the Government must embrace if it is to be better equipped to tackle complex economic, environmental and social challenges, stimulate economic activity and drive shared prosperity for the people of this State. We need to lead across industry and the community to assist in the delivery of integrated transport systems that ultimately make New South Wales a better place to live and do business. By putting New South Wales at the forefront of adopting new and emerging technologies we are shaping the future of transport.

The Government's Future Transport Strategy is the new approach to planning transport and engaging the people of New South Wales as our customers. It is a 20- to 40-year strategy focusing on customer needs and the technological, economic and social changes ahead, with connected and automated vehicle technologies identified as a key pillar of the strategy. The strategy builds on the New South Wales Government's integrated Long Term Transport Master Plan launched in 2012, and meets the commitment to review the plan after five years.

The Future Transport Strategy kicked off in 2016 with the first Future Transport Summit. The Minister for Transport and Infrastructure welcomed more than 500 guests for the two-day event headlined by Apple co-founder Steve Wozniak. Input from industry, thought leaders and customers who attended this and other collaboration events last year was refined into the Future Transport Technology Roadmap published in April 2017. The roadmap is another milestone in the New South Wales Government's journey that forecasts the use of innovation and emerging technologies as the key to the delivery of better transport services in New South Wales. The roadmap identifies the major technology trends that are shaping the future of transport and, through future transport scenarios, looks at how people respond to them. Five technology strategies have been developed to meet the objective of unlocking the full value of our transport networks and customising and personalising transport services to create a better experience for our customers. One of the strategies is to enable connected and automated vehicle platforms.

Work to develop a national approach for the consistent management of highly and fully automatic vehicles is currently being progressed by the National Transport Commission and Austroads at the direction of the Transport and Infrastructure Council. In November 2016 Australian transport Ministers agreed to a phased reform program so that conditional automated vehicles can operate safely and legally on our roads before 2020 and highly and fully automatic vehicles, including driverless vehicles, from 2020. A phased approach is being adopted to ensure that the reform agenda remains flexible to address evolving technologies and market developments.

In early 2017, Austroads published its research report that identifies and assesses key issues that need to be addressed to enable the safe operation of automated vehicles on the road network, including registration and licensing and compulsory third party insurance arrangements. The National Transport Commission has released a series of discussion papers since February 2016

including the development of national guidelines to support on-road trials of automated vehicles, clarifying control of an automated vehicle and options for an automated vehicle safety assurance framework. The National Transport Commission and Austroads published the national guidelines for trials of automated vehicles in Australia in May 2017. As a matter of policy New South Wales will adopt these guidelines to support the bill as an added measure to ensure that trials are conducted safely and consistently with other jurisdictions in the country.

The New South Wales Government will continue to contribute to the national development of standards and regulatory settings to create an optimal and safe environment for undertaking testing and trials of automated technologies. Ultimately it is hoped that when these technologies are ready for mass deployment in the future, nationally consistent laws will have been developed for use by the public. However, New South Wales must position itself as an innovation leader, able to test and trial emerging automotive technologies in this State while maintaining public safety. It is crucial that automated vehicles are trialled in order to demonstrate the capability of the technology while increasing awareness and understanding and, most importantly, building trust and confidence in the public—the users and beneficiaries of the mobility revolution.

The New South Wales Government has established the Smart Innovation Centre as a new research and development hub for emerging transport and road technology. The Smart Innovation Centre is New South Wales' hub for collaborative research and development of safe and efficient emerging transport technology. The Smart Innovations Centre's mandate to be a world-class innovation incubator brings government together with industry, academia and investors to test and develop technology to deliver improved transport outcomes, including trials of driverless cars.

The bill delivers on the Government's continued commitment to ensure an efficient, safe and technologically advanced transport future by amending the Transport Administration Act 1988 to provide additional functions for Transport for NSW. This amendment affirms the agency's leadership role in research, policy development and testing the application of innovative, automotive and digital technologies.

The further amendments within this bill to the Road Transport Act 2013 provide for the removal of barriers so that the likes of car and automotive parts manufacturers, specialised robotics and information technology [IT] software companies are encouraged to bring their business to New South Wales. Whether it is a local start-up or a global company, industry is assured that emerging technologies can be tested in New South Wales to assess their safety, reliability and performance against real-world challenges. While the majority of larger manufacturers and tech giants are based overseas, inviting them to New South Wales to test new technologies will bring increased opportunity to generate and grow local technology industries, and increase jobs in areas such as software engineering, digital innovation, robotics and artificial intelligence, data analytics, smart infrastructure and next generation telecommunications. This, in turn, will continue to improve and diversify the New South Wales economy. It is a win-win for all parties involved.

Turning now to the details of the bill, schedule 1 provides for amendments to the Road Transport Act 2013. This is the insertion of a new part specifically for trialling automotive technologies, including highly and fully automated vehicles. The objects of this part are to enable the Minister for Roads, Maritime and Freight to consider and approve trials, by order published on the New South Wales Legislation website, of highly and fully automated vehicles on New South Wales roads. Automotive technology means technology related to advances in the design or construction of motor vehicles. This includes technology related to the use of connected and highly or fully automated vehicles.

The objects of this part also ensure that adequate insurance is in place to cover any personal injury or property damage that may arise during a trial. It also provides for the modification of references in law to the driver or person in charge of a vehicle that is highly or fully automated. The new provisions allow an applicant, the approved person, to apply to the Minister to use a trial

vehicle on the road in circumstances that would not otherwise be lawful. Trial approval sets out where and when the trial vehicle may be used. The approved person must ensure the trial vehicle is not used except in accordance with a trial approval. Failure to do so is an offence and attracts a maximum penalty of \$11,000. The Minister may also suspend or revoke trial approval if any trial conditions are not met. Flexible provisions allow the Minister to determine registration conditions for a trial vehicle including whether it is to be exempted from registration.

The Minister may also direct Roads and Maritime Services to register the vehicle or to issue an unregistered vehicle permit for the use of the vehicle if needed. This arrangement reduces administrative barriers to creative development, and allows for a range of trial methods and solution outcomes. As a safeguard, and to ensure that any road user injured by an automated vehicle will not be any more disadvantaged than if they were injured by a human-operated vehicle, trial approval is conditional on the trial vehicle being covered by compulsory third party [CTP] insurance or that arrangements are made to indemnify the nominal defendant against a claim that may arise during the trial period as a result of the trial vehicle not being an insured motor vehicle. A public liability insurance policy of at least \$20 million or such larger amount as the Minister may require in a particular case is also needed to cover damage caused by or arising out of the use of a trial vehicle. The Minister is required to suspend or revoke trial approval if any such insurance requirements are not met.

Trial approval is also conditional on a vehicle supervisor being in the trial vehicle when used during the trial, unless the Minister determines otherwise. The vehicle supervisor must hold a current unrestricted drivers licence that is of an appropriate class having regard to the trial vehicle type and approved by the Minister. The vehicle supervisor must be able to take control of the trial vehicle at any time or to stop it in an emergency or if required to do so by an authorised officer. As a further safeguard the approved person is required to notify the Minister of certain incidents occurring during an approved trial including collisions involving the trial vehicle and other accidents or incidents that have or could have caused significant property damage, serious injury or death. The Minister may determine how references in laws to a driver or person in charge of a vehicle are to be understood in the case of a highly or fully automated trial vehicle as part of an approved trial. This means that the Minister may specify that any such reference is taken to be a reference to any one or more of the following: the vehicle supervisor, the approved person, the owner of the trial vehicle, no person, or a person prescribed by regulation.

This clarifies who is responsible for the trial vehicle, including a driverless trial vehicle, which is critical for police and insurers to determine liability for offences and insurance claims if the need arises. An offence, with a maximum penalty of \$11,000, is created for a person who hinders or obstructs the movement of a trial vehicle or interferes with a trial vehicle or any other equipment being used for the purposes of an approved trial. This sends a clear message that the New South Wales Government is serious about protecting the physical safety of people in and around trial vehicles. It also extends to protection against cyber security threats and breaches of privacy.

In accordance with the national guidelines for trialling automated vehicles in Australia, trialling organisations will also be required to collect and provide certain information related to the event and the performance of the automated driving system to the Smart Innovation Centre or to Roads and Maritime Services to assist with record keeping, incident management, and the evaluation of the trial. This information will be available online, to inform the people of New South Wales of the progress that is being made in understanding this technology, how safe it is, and how it can be used to deliver better transport outcomes for the community.

The Government understands the importance of the type of data this sort of technology is capable of capturing, and is mindful of the need to manage privacy issues, including commercial sensitivity and the value of intellectual property. Authorised use of de-identified data available from a vehicle's black box can be invaluable for research and planning. In a future where numerous black

boxes are coupled with big data capabilities, the ability to solve congestion and scheduling issues are enhanced exponentially. Proper use of such data could also help police with pinpointing the exact time, weather, road, and traffic conditions in a crash.

New South Wales is committed to working with other States and Territories to maintain consistency and to ensure the administrative burden of trial applications is minimised. Traffic travelling on Australian's east coast must travel through New South Wales. Therefore, to reduce administrative effort in assessing the merits of any similar trial seeking approval to operate in New South Wales, the Minister may take into account approvals of trials for automated vehicles granted in other States or Territories in determining whether to grant a trial approval.

This bill is not intended to support large-scale commercial deployment of automated vehicles, such as the sale of vehicles to the general public. There is still much that we do not know, in terms of how the mass deployment and commercial uptake of these vehicles will impact or influence the use of our road network. However, this bill is sufficiently flexible to enable the Minister to permit a single vehicle or class of vehicles to operate under trial conditions for a trial period for any number of years on any road in the State. For example, the Minister could authorise a car manufacturer to operate a fleet of trial vehicles on any road in New South Wales for any number of years, subject to the car manufacturer continuing to comply with the trial conditions of operation, including compliance with the trial guidelines, insurance arrangements, provision of data from the trial vehicles, and safety management plans.

New South Wales could also conduct a heavy vehicle platoon trial under these arrangements. For example, automated vehicles can interact with each other and drive very closely as a platoon, which could reduce the total energy consumption of road transport by four to 25 per cent, because vehicles that follow closely behind each other face less air resistance. This bill will confirm to industry and to the people of New South Wales that our State is an innovation leader open to new ideas and approaches that can capitalise on research and development to drive social and economic value. As needed, the Minister may delegate functions under the proposed part to Transport for NSW or to Roads and Maritime Services. Statutory rules may also be made for approved trials to support future developments.

In developing the framework for the proposed amendment, the South Australian law has been referenced to ensure consistency in intent and outcomes sought from trialling automated vehicle technology. However, the New South Wales framework has been refined to include additional insurance safeguards, consideration of arrangements in place to conduct trials in other jurisdictions, and additional penalties to deter the use of a trial vehicle outside trial approval. Furthermore, this bill makes clear that New South Wales is not limited to short-term trials of a limited number of vehicles. As we learn and build confidence, and as technology advances, this bill is flexible enough to allow for more advanced and widespread trials of connected and automated vehicles for an extended period under specific conditions.

The proposed amendment is also consistent with approaches that have been adopted overseas for trialling automated vehicles, based on global industry advice, and accords with the National Transport Commission's approach, including the use of the Commission's guidelines for automated vehicle trials in Australia in New South Wales. Transport for NSW has worked and continues to work in close consultation with the commission and interstate counterparts in examining required legislative, regulatory, and road design changes to ensure road safety is prioritised as new technology is made available. Under this bill, industry will have enormous flexibility in the type of trials that can be run. By addressing key issues such as a clear scope of operations and a safety management plan that addresses risks and appropriate insurance, industry can get on with what it does best.

With our unique range of urban, regional and rural road environments, combined with our transport infrastructure boom and the diversification of industry and jobs, New South Wales is

positioning itself as the preferred testbed for automotive technologies in Australia. The bill opens the way for the Government to advertise to local and global industry that New South Wales is the place to do business and that we are committed to ensuring that the people of New South Wales benefit from automated vehicle technologies and the opportunities they create.

Technology is not just for the big city. This Government recognises that much of regional New South Wales' public transport focuses on getting people to and from Sydney. We have listened when many people in regional communities have told us they want more transport options for shorter journeys like getting to work, going to school, visiting family or seeing the doctor. This includes getting to a nearby regional city. I am pleased to see bipartisan support from the Opposition leader, as well as the shadow Minister for Innovation and Better Regulation for her recent push for driverless car trials in New South Wales.

We believe that by focusing more on connecting regional cities to surrounding regional towns and centres we can improve the amenity of our regional communities and make life easier for the people living there. Trials of automated vehicle technologies will enable new transport technologies which could provide public transport options for rural and regional communities, allowing for opportunities for greater social inclusion. By improving the convenience of commuting through automated technology, long distance travel by road from rural and regional centres becomes more attractive and safer as it no longer puts a burden on the driver, providing greater and longer use of the road network.

Technologies such as automated vehicles can support the needs of regional customers by providing greater access to cost-effective transport service options and by better prioritising roads for freight transportation and provision of goods and services in regional areas. Where public transport services in rural and regional areas right now may be too marginal, the efficiency of new technologies may allow for more or different public transport services. Automated vehicle technology has the potential to improve accessibility and mobility for a range of groups that are currently unable or unwilling to drive. Greater access to mobility would improve social inclusion and access to essential services and economic opportunities.

New South Wales is already leading the world in trialling connected and automated vehicle technology with the Cooperative Intelligent Transport Initiative that has been running for several years. This trial is a regional success story worthy of mention. Here, connected technologies are being tested between freight vehicles and on buses around the Southern Highlands, Port Kembla and Wollongong. It is the biggest trial of these technologies in the world right now.

Trials of automated vehicles in rural and regional New South Wales will also provide an opportunity to gain insight into how these vehicles will detect animals, in particular, the iconic kangaroo. Volvo has recently indicated that the kangaroo has been identified as a real challenge for the vehicle's detection system. As it turns out, the unusual way that a kangaroo moves completely throws off the car's detection system and it is unable to determine how far away it is. This underpins the need to trial technology in local conditions and environments.

Emerging connected and automated vehicle technologies also offer new opportunities for regional research bodies and collaborations with regional business. These regional collaborations are supported by the New South Wales Government. For example, the \$12 million Boosting Business Innovation program has been designed to accelerate innovation by supporting collaboration between local research organisations and business. The program's delivery partners include Charles Sturt University, Southern Cross University and the University of New South Wales.

Charles Sturt University will also develop an innovation ecosystem, including the establishment of collaborative workspaces for start-ups, programs to assist small and medium enterprises to improve innovation and technical capacity, and the establishment of research partnerships with small and medium enterprises in Central West and southern New South Wales.

Southern Cross University will establish the Lismore enterprise lab, a cutting-edge collaborative workspace for students, researchers and small and medium enterprises. The enterprise lab will foster collaboration to tackle key challenges and opportunities and accelerate innovation.

The University of New England will establish the SMART Region Incubator in Armidale and Tamworth. The incubator will provide a collaborative workspace for small and medium enterprises, offer them access to the university's research data and facilitate their connections to regional, national and international innovation networks. As members will be aware, the New South Wales Parliament's Joint Standing Committee on Road Safety inquired into driverless vehicles and road safety and published its report in September 2016. The committee made three recommendations: that a national regulatory framework is required for the successful introduction of the technology; that pending the introduction of a national framework, the conditions under which automated vehicle technology can be trialled and tested on New South Wales roads should be published by the NSW Government; and the NSW Government examine a range of additional issues related to automated vehicle technology that have been presented in evidence to the inquiry.

The additional issues raised by the Staysafe committee's inquiry into driverless vehicles relate to benchmarking the safety of self-driving and human-driven vehicles, automated vehicle systems failure, Cooperative Intelligent Transport Systems security and the impact of automated vehicle technology on current risk-taking behaviour.

The New South Wales Government is working on addressing these issues, particularly within the context of national regulatory frameworks, and will continue to provide input into work currently undertaken by both the National Transport Commission and Austroads to identify and address issues that may currently impede the safe and reliable introduction of automated vehicles on Australian roads. The Staysafe report, Government response to recommendations, additional issues raised by Staysafe and a formal response to each issue from the New South Wales Government are all published on the Parliament of New South Wales website. While a detailed review of the understanding of the full implications of automated vehicle technology for drink- and drug-driving laws, additional issue 4, has not yet been undertaken, this bill is proof of the Government's commitment to delivering the committee's recommendations.

This bill supports the phased approach envisaged by the committee's recommendations and findings. Over time we will see the risks associated with the driving task move from the human driver towards the automated driving system, and our regulatory framework must be able to accommodate this change. A phased approach allows for trialling automated vehicles in a real-world context to identify risks that can be mitigated through the introduction of countermeasures, including the design of a safety assurance framework to determine how the safety of automated vehicles should be assessed before they can operate legally on our roads. Trials will also enable us to establish legal obligations for automated driving system entities as the driving task moves away from the human driver.

As I have already stated, while it is not intended that this bill will support the broad commercial deployment of automated vehicles, it is feasible that trial vehicles could operate as a fee for service in New South Wales. When that happens, the Minister for Transport and Infrastructure and the Minister for Roads, Maritime and Freight will determine the appropriate mechanism to operate such a trial to ensure public and passenger safety is maintained. Work has already commenced at the national level on identifying the necessary arrangements to support the broader deployment of automated vehicles. Phasing our approach through the use of trials to ensure that automated vehicle technology can be safely deployed on our roads is prudent and consistent with approaches in use in other jurisdictions here and overseas. For example, in the US, several individual states have progressively legislated for the operation of automated vehicles to varying degrees. In September 2016 the US National Highway Transport Safety Administration published its Federal

Automated Vehicles Policy, giving industry and US agencies broader guidance on safety regulation for automated vehicles.

The transition to automated vehicles is likely to be the largest shift in transport history since the transition from horse and cart. The promise of unprecedented mobility and affordability, the creation of new jobs and industries, the economic productivity boost and the reduction of congestion, emissions, injuries and deaths is real but yet to be realised. With much to do before this can become a reality, this bill will ensure that the people of New South Wales are included on this journey and are ready to embrace this technology and all the benefits and opportunities that may unfold as it matures. I commend the bill to the House.