Submission No 2

DRIVERLESS VEHICLES AND ROAD SAFETY

Organisation: Institute of Public Works Engineering Australasia NSW Division (Roads and Transport Directorate)

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Date Received: 31/03/2016

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29 March 2016

Mr Greg Aplin
Chair
Staysafe (Joint Standing Committee on Road Safety)
Parliament House
Macquarie St
Sydney NSW 2000

Dear Mr Aplin,

Submission to Staysafe Inquiry into Driverless Vehicles and Road Safety in NSW

Introduction
The Institute of Public Works Engineering Australasia (NSW Division) is a registered charity, membership based, professional organisation representing engineers and others involved in the provision of public works and services predominantly in the local government sphere.

The Roads & Transport Directorate has been set up by IPWEA (NSW) in conjunction with Local Government NSW to provide support to its members working in local government across the state. It is supported financially by membership contributions from Local Councils in NSW.

Background
The Roads & Transport Directorate has been set up to meet the demand from members of IPWEA (NSW) to act as a focus for research activities and to provide technical advice.

Its main purpose is to assist Local Government in NSW in the area of road infrastructure and transport related activities by:

- Assisting members in discharging their road management roles in the most effective manner consistent with current legal obligations and the most recent technical practices in the critical area of consistent and cost effective asset management and road safety;

- Assisting the IPWEA (NSW), Local Government NSW, individual Councils and members in lobbying for a higher priority to be placed on road infrastructure provision and maintenance and for a more equitable share of resources and funding; and

- Providing for IPWEA members and Local Government a powerful technical and research resource on transport issues at regional, state and national level. The activities would be, as circumstances dictate, either proactive or reactive to achieve the optimum benefit for the region or state.

The Directorate commenced operation in October 2004 and has been involved in determining the needs of members and developing solutions to meet those needs. Over that period the Directorate has made submissions on a range of issues including the 2013 Inquiry into Non Registered Motorised Vehicles and the 2015 Inquiry into Motor Cycle Safety in NSW.

Terms of Reference
The terms of reference of this inquiry are:

That the Joint Standing Committee on Road Safety (Staysafe) inquire into and report on driverless vehicle technology in New South Wales with particular reference to:

1. *The capacity of driverless vehicle technology to deliver improved road safety outcomes including a lower road toll, and fewer accidents and injuries to drivers, pedestrians and other road users*
2. *The extent to which current road safety policies and regulations in NSW anticipate the introduction of driverless vehicle technology, including driverless heavy vehicles, and any regulatory and policy changes which will be required*
3. *The preparedness of NSW road safety regulators to meet the challenges extended by driverless vehicle technology*
4. *The experience of other jurisdictions in Australia and overseas in adopting and adapting to driverless vehicle technology*
5. *Other related matters.*

Basis of this Submission
Neither IPWEA (NSW) nor the Roads & Transport Directorate hold themselves out as being experts in the field of driverless vehicle technology at its current stage of development. Nor do we possess detailed legal knowledge relating to progresses in this field.

Notwithstanding these limitations, this submission looks at the terms of reference from the viewpoint of road infrastructure owners and managers who will be responsible for the ongoing provision and maintenance of road and associated facilities necessary to accommodate driverless vehicle technology in New South Wales.

The resulting submission will raise a number of questions which we hope will be helpful to the Committee. These questions are not intended to present a negative view of the developments in driverless vehicle technology, but rather to draw attention to areas that are of concern to our members and that appear not to have been adequately addressed to date.

What is Driverless Vehicle Technology?
This submission is based on the assumption that driverless vehicle technology involves the use of sensors within a vehicle which allow it to operate on the public road system without

the need for a driver to control it. These sensors may involve a combination of vehicle to object, vehicle to vehicle, vehicle to infrastructure and vehicle to satellite (GPS) technologies.

On this basis there are a number of issues which are of interest to infrastructure owners across NSW.

The NSW Road Network

The current road network in NSW consists of the following approximate road lengths:

State Roads: RMS	Sealed	18,000km
	Unsealed	2,000km
Regional and Local Roads: Councils:	Sealed	80,000km
	Unsealed	80,000km
	Total	**180,000km**

There are other privately provided roads which the public are able to access (eg National Parks and Wildlife 38,500 km).

Road users are not concerned about the ownership of any elements of the network – they simply want to be able to go from origin to destination in relative comfort and with safety.

This will also be true of the need for driverless vehicles to access all parts of the road network irrespective of who owns the infrastructure.

Infrastructure Needs

Based on the assumptions made earlier, the use of vehicle to object and vehicle to infrastructure sensors will involve road owners accommodating the necessary technology.

Question 1: What are the minimum infrastructure requirements to support driverless vehicle technology?

Question 2: Who will meet the cost of providing the required infrastructure?

Question 3: Who will meet the cost of maintaining the required infrastructure?

Question 4: What liability will road authorities carry in the event of vehicle accidents resulting from poor of failed infrastructure elements?

Question 5: Does current driverless vehicle technology provide for travel on unsealed roads or will the vast majority of the network be excluded from use by these vehicles?

Question 6: What is the transition period for the full implementation of driverless vehicle technology?

Road Safety

The development of driverless vehicle technology has the potential to significantly reduce vehicle to vehicle accidents based on vehicle to vehicle sensing. It is unclear if current technology will remove all impacts with roadside objects such as trees and other roadside hazards or if hazards such as steep shoulders, significant batters and small drainage structures will still have the potential for causing accidents.

There has been some discussion in the press about some of the conflicts that might occur – e.g. the decision to be made between the safety of the passenger in a driverless vehicle and a pedestrian in the vehicle's path. Will the provider of the vehicle's operating system be held responsible, or will responsibility rest with the vehicle owner or the road authority that allowed vehicles and pedestrians to come into contact? The same questions arise in relation to cyclists and animals within road reserves.

Question 7: What additional liability might road authorities incur if current technology does not remove all impacts with roadside objects such as trees, steep shoulders, significant batters and small drainage structures?

Question 8: What technology will be needed by Road Authorities to manage roadworks including the use of temporary barriers and speed restrictions?

Public Transport

The successful introduction of driverless vehicle technology across the entire road network has the potential to totally change the way public transport operates. In areas where public transport currently exists will there continue to be a demand? Patrons are unlikely to walk to a station or stop when they can take their driverless vehicle from door to door and send it home without incurring parking charges.

Any congestion could be managed by controlling access by time and or location.

In regional areas where public transport is limited or non-existent at present driverless vehicles could be used to provide an on demand public transport system.

Question 9: Has any research been carried out to determine the likely impacts of driverless vehicles on the public transport system in NSW?

Licencing Requirements

The implementing of driverless vehicle technology across the total road network will render licencing of drivers obsolete. This will provide advantages to both younger and older members of the community that are currently unable to operate a vehicle.

If the technology is only available over part of the network (e.g. only the sealed road network) then licencing will still be needed but the range of skills required will need to be enhanced.

In any case there will be a transition period dependant on the uptake of technology within the national vehicle fleet.

Vehicle Trials

To date, the most comprehensive Australian trials have been carried out in South Australia. These trials provided very promising results but there is a long way to go between a trafficless freeway and an unsealed outback road west of Bourke.

It is timely for the Staysafe Committee to be looking at the road safety and legal environments within which these vehicles will operate.

Conclusion

Based on the assumptions at the beginning of this submission the Roads & Transport Directorate raises the following questions in the hope of widening the debate into the implementation of driverless vehicle technology in NSW:

Question 1: What are the minimum infrastructure requirements to support driverless vehicle technology?

Question 2: Who will meet the cost of providing the required infrastructure?

Question 3: Who will meet the cost of maintaining the required infrastructure?

Question 4: What liability will road authorities carry in the event of vehicle accidents resulting from poor of failed infrastructure elements?

Question 5: Does current driverless vehicle technology provide for travel on unsealed roads or will the vast majority of the network be excluded from use by these vehicles?

Question 6: What is the transition period for the full implementation of driverless vehicle technology?

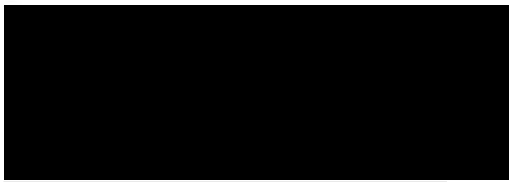
Question 7: What additional liability might road authorities incur if current technology does not remove all impacts with roadside objects such as trees, steep shoulders, significant batters and small drainage structures?

Question 8: What technology will be needed by Road Authorities to manage roadworks including the use of temporary barriers and speed restrictions?

Question 9: Has any research been carried out to determine the likely impacts of driverless vehicles on the public transport system in NSW?

IPWEA (NSW) and the Roads & Transport Directorate appreciate this opportunity to have input into the introduction of driverless vehicle technology in New South Wales and would value any opportunity to provide additional details arising from the above submission.

For further information in relation to the submission please do not hesitate to contact the undersigned on:



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