COUNCIL OF CAPITAL CITY LORD MAYORS

SUBMISSION TO THE INQUIRY INTO THE SOCIAL ISSUES RELATING TO LAND-BASED DRIVERLESS VEHICLES IN AUSTRALIA

House of Representatives Standing Committee on Industry, Innovation, Science and Resources

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INTRODUCTION

The Council of Capital City Lord Mayors (CCCLM) appreciates the opportunity of providing comments to the inquiry into the social issues relating to land-based driverless vehicles in Australia.

The CCCLM represents the interests of the Lord Mayors (and ACT Chief Minister) of Australia's eight capital cities. Australia's capital cities drive national economic growth, innovation and creativity, and are home to over 75% of our population.

The Council of Capital City Lord Mayors welcomes the Federal Government's initiative in commencing a dialogue on the introduction of driverless vehicles, which will contribute to the development of the appropriate environment that encourages development in a safe and productive manner.

We offer the following comments, and note our interest in remaining part of the discussion as the development of policy for the introduction of driverless vehicles in Australia evolves.

We note that motor vehicles manufacturers are setting aggressive targets to introduce autonomous vehicle (AV) technology into their products. Google plans to commercialise self-driving vehicles by 2020. The Volvo Car Group has agreed to a $300 million alliance with Uber to develop self-driving cars. Ford also announced its intention to make self-driving cars for commercial ride-sharing or on-demand taxi services by 2021. Apple and Amazon are also making multibillion dollar investments into autonomous vehicle research and development.

While this level of investment is being made in the technology of autonomous vehicles there is far less public investment in their possible impacts and being able to realise the benefits they may provide.

Research suggests that autonomous vehicles will be commercially available between 2020 and 2025. It is expected they will be safely moving in mixed traffic and will be common place. Rethinking city transport for 2020 and 2025 in city and urban context could completely require the reimagining of long term infrastructure plans.

The transition to driverless vehicles will take many years before they might become a ubiquitous form of transport. There will most likely be a graduated move to autonomous vehicles meaning both driver and driverless vehicles will use our roads for many years. High entry level pricing, ongoing costs, the infrequent turnover of vehicles by the average car owner and concerns regarding fledging (unproven) technologies will influence decisions to purchase autonomous vehicles (AV) (Fagnant, 2014).

Deployment of autonomous vehicles is one of several current trends likely to affect road, parking and transit demands, and these changes will probably occur gradually over several decades' (Litman, 2017).

This could be offset by the current trend of young people not wanting a driver's licence, backed by no desire to own a car. The movement toward car-sharing and ride-sharing services will transform commuting to and from work, play and home.

Assuming there is an 'inevitable' move to autonomous vehicles, this long-term transition will mean that autonomous cars will share the roads with non-autonomous vehicles for many years.

Many of the benefits and costs cited in research are predicated on there being large scale take up of autonomous vehicles.

BENEFITS AND COSTS

Litman *(2017)* provides a useful summary of potential benefits and costs in the following table:

BENEFITS	COSTS/PROBLEMS
Reduced driver stress. Reduce the stress of driving and allow motorists to rest and work while traveling. **Reduced driver costs.** Reduce costs of paid drivers for taxis and commercial transport. **Mobility for non-drivers.** Provide independent mobility for non-drivers, and therefore reduce the need for motorists to chauffeur non-drivers, and to subsidize public transit. **Increased safety.** May reduce many common accident risks and therefore crash and injury costs and insurance premiums. May reduce high-risk driving, such as when impaired. **Increased road capacity, reduced costs.** May allow platooning (vehicle groups traveling close together), narrower lanes, and reduced intersection stops, reducing congestion and roadway costs. **More efficient parking, reduced costs.** Can drop off passengers and find a parking space, increasing motorist convenience and reducing total parking costs. **Increase fuel efficiency and reduce pollution.** May increase fuel efficiency and reduce pollution emissions. **Supports shared vehicles.** Could facilitate carsharing (vehicle rental services that substitute for personal vehicle ownership), which can provide various savings.	**Increases costs.** Requires additional vehicle equipment, services and maintenance, and possibly roadway infrastructure. **Additional risks.** May introduce new risks, such as system failures, be less safe under certain conditions, and encourage road users to take additional risks (offsetting behavior). **Security and Privacy concerns.** May be used for criminal and terrorist activities (such as bomb delivery), vulnerable to information abuse (hacking), and features such as GPS tracking and data sharing may raise privacy concerns. **Induced vehicle travel and increased external costs**. By increasing travel convenience and affordability, autonomous vehicles may induce additional vehicle travel, increasing external costs of parking, crashes and pollution. **Social equity concerns.** May have unfair impacts, for example, by reducing other modes' convenience and safety. **Reduced employment and business activity.** Jobs for drivers should decline, and there may be less demand for vehicle repairs due to reduced crash rates. **Misplaced planning emphasis.** Focusing on autonomous vehicle solutions may discourage communities from implementing conventional but cost-effective transport projects such as pedestrian and transit improvements, pricing reforms and other demand management strategies

Table 1: *Autonomous Vehicle Potential Benefits and Costs (Litman (2017))*

LEGISLATIVE AND LEGAL CONSIDERATIONS

Most of the enabling legislation for autonomous vehicles is the concern of State and Federal Governments. For example, 'California's more detailed legislative content provides concrete requirements for autonomous vehicles. It includes specific requirements for autonomous vehicles testing on public roads, including insurance bonding, the ability to quickly engage manual driving, failsafe systems in case of technology failure, and sensor data storage prior to any collision' (Fagnant, 2014).

In regard to liability, it is noted in much of the research that the reliance on specific technologies will shift much of the burden of liability from individual drivers to manufacturers of vehicle and those (such as Federal, State and Local Government) who may install specific infrastructure in support of autonomous vehicles.

A considerable risk to AV's being rolled out is the threat of legislators not keeping up with the technological changes of AV's, the three tiers of governments being accused of 'red tape' holding back the roll out of the AVs into the public domain. It will be important that the Commonwealth agree to AV regulations that are applicable across all our States and Territories.

IMPACTS FOR CITIES

Driverless (autonomous) vehicles, have the potential to greatly alter the physical and social landscape of our cities – including (but not limited to):

- **Public Realm:** new infrastructure, new roadways and return of roadways to public use

- **Access and mobility:** Greater movement of people including those traditional not able to drive
- **Planning:** Changes in density and dispersal of population centres
- **Employment:** Changing employment opportunities, industries and centres
- **Environment with zero CO_2 vehicles and less vehicles commuting in and out of cities**

Changes in human behaviour and business operations arising from a potential large uptake of autonomous vehicles could cause changes in the how cities operate and are planned. Some research notes that 'because the driver will be able to engage in alternative activities. Another effect of this may be to increase commuter willingness to travel longer distances to and from work. This might cause people to locate further from the urban core. Just as the rise of the automobile led to the emergence of suburbs and exurbs, so the introduction of AVs could lead to more dispersed and low-density patterns of land use surrounding metropolitan regions' (James M. Anderson, 2016).

In metropolitan areas, driverless vehicles may lead to increased density as a result of the decreased need for proximate parking. One recent estimate concluded that approximately 31 percent of space in the central business districts of 41 major cities was devoted to parking (James M. Anderson, 2016). This could bring about significant changes to property development with multi-storey developments not requiring car parking.

> *'Autonomous vehicles may provide mobility for those too young to drive, the elderly and the disabled, thus generating new roadway demands. Parking patterns could change as autonomous vehicles self-park in less-expensive areas. Car and ride sharing programs could expand, as autonomous vehicles serve multiple persons on demand; and the trucking industry may realize better fuel savings via road-trains, or even one day go driverless' (Fagnant, 2014).*

Early indications show that public transport may achieve more take up of autonomous vehicles than private cars. Adoption of autonomous public transport technology in Singapore and trials in South Perth indicate public organisations are able to invest in the new technologies more quickly than private owners, which will have a direct impact on those currently employed in public transport should providers embrace autonomous vehicles. Research is further indicating that organisations such as UBER and LYFT AV may compete directly with public transport. Ride-sharing and autonomous vehicles are proving to be cheaper to operate than trains (Joël Hazan, 2016)

It is noted that while 'car manufacturers have poured resources into autonomous vehicle research and development, research into the impacts that these vehicles could deliver to the transportation system is relatively scarce' (Fagnant, 2014). The case could be made for significant investment in ongoing research for the impact and adaption of autonomous vehicle technology.

Should this become a reality, governments may need to introduce policy to protect considerable investment in light and heavy rail and rethink road infrastructure.

The South Australian State Government supported Australia's first on-road demonstration of automated vehicle technology. In an Australian first, laws allowing for the on-road trials of driverless cars are now in place in South Australia.

Whichever course of action is taken it is imperative that there be a degree of national coordination around road rules, the impact and roll out of autonomous vehicles. Capital city councils have a key role in supporting a national approach, given that cities are likely to bear the major impacts of any major changes. It is important that driverless vehicles can move between States and Territories and operate under the same rules and regulations.

It would be helpful for national coordination of research into autonomous vehicles. Currently States and universities are competing to create research programs linked back, in some cases, to overseas universities

and vehicle manufacturers. Australia has an opportunity to be at the forefront of this technological research and contribute the knowledge and skills required to advance the technology. An integrated, linked up approach to research could deliver efficiencies and effectiveness in terms of a better spend of taxpayer research dollars. This should be driven by the Federal Government.

Capital city councils operate both on and off-street parking. In Adelaide alone, on-street parking is expected to contribute $9.6million and off-street parking $17.3million to the bottom line of Council operations. This revenue contributes to enabling high levels of Council services to be maintained, while reducing the need for any dramatic rates increases. Research consistently points to the likely impact on the viability of parking services over the long term and for local governments, this may have a particular longer term impact.

The Rand Corporation (James M. Anderson, 2016) notes that:

> *The emergence of autonomous vehicles could sharply reduce the amount of parking needed in core urban areas in at least two ways. First, after dropping off its passenger or passengers in a downtown location, an autonomous vehicle could pilot itself to a remote lot in a peripheral area, reducing the amount of parking needed in the densest urban areas where land values are highest. Second, as described earlier, autonomous vehicle technology might lead to a new model for urban mobility in the form of driverless taxis. Under such a system, autonomous vehicles often would not need to park; rather, after completing one trip, they would simply travel to pick up the next passenger. Additionally, the convenience and low cost of such a system would likely induce many urban dwellers to forgo car ownership, or at least to reduce the number of cars owned. Thus, driverless taxis could reduce the number of parking spaces needed in residential buildings as well as at commercial centers. These effects could free up substantial amounts of space in urban areas. On the other hand, by making parking unnecessary, this transition could threaten a reliable source of municipal revenue.*

The environmental impacts of autonomous vehicles will need careful consideration and monitoring. The research is somewhat divided on whether autonomous vehicles will have a nett positive or negative impact on the environment.

It is recognised that autonomous vehicles may reduce;

- the actual number of privately owned vehicles on the roads,
- running costs,
- environmental degradation,
- air pollution,
- vehicle and road maintenance costs.

The Committee for Economic Development Australia (CEDA, 2015) recently reported that 'more than five million jobs, almost 40 per cent of Australian jobs that exist today, have a moderate to high likelihood of disappearing in the next 10 to 15 years due to technological advancements'.

Though the Federal government has made some contribution to reskilling programs, to meet potential job losses, considerable money needs to be invested in reskilling, or training those who lose their relatively low skilled jobs. We must be ready for this change and be proactive, rather than reactive.

The Council of Capital City Lord Mayors would welcome the opportunity of further engagement with the Federal Government to address policy as driverless vehicles are tested and introduced into Australian's lives.

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