The Committee for Sydney

Parliamentary Inquiry into Automated Mass Transit

Submission to the Standing Committee on Infrastructure, Transport and Cities for the Inquiry into Automated Mass Transit

December 2018

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About the Committee for Sydney

The Committee for Sydney is an independent champion and think tank for Greater Sydney. Helping Australia's leading global city to play its key role for the state and nation, the Committee fulfils an advocacy role in promoting Greater Sydney's interests and future prosperity. The Committee has members from across the private, public and not-for-profit sectors and engages with business leaders, politicians, government and other stakeholders in policy discussions that affect the global competitiveness of Sydney as a business centre and as a place to live and visit.

Introduction

The Committee for Sydney welcomes the opportunity to respond to the Standing Committee on Infrastructure, Transport and Cities *Inquiry into Automated Mass Transit*. The Committee for Sydney commends the Australian Government for undertaking consultation to ensure that current regulations are fit-for-purpose and appropriately responsive to evolving technological advances in the transport industry. This submission will focus primarily on the area of automated point-to-point mass transit and the importance of ensuring that shared mobility becomes the most common framework under which autonomous mobility is operated.

The Committee for Sydney in cooperation with Arcadis recently published a report which considered: *Are Sydney's property and infrastructure owners prepared for autonomous mobility?* The report drew on survey responses and interviews with some of Sydney's largest private owners of commercial, residential, retail and mixed-use properties, as well as representatives of local and state government. Participants were asked about their preparedness for the potential impacts of Autonomous Vehicles (AVs) and connected automated vehicles (CAVs) on the built form within our city, as well as what's blocking, what's supporting and what could support better preparedness. The report also asked respondents to put forward their own view about what a successful autonomous future would look like.

While this report was focused on autonomous vehicles more narrowly and not on all fields of mass autonomous transit, it nonetheless highlighted an important challenge. Specifically, that while 100% of respondents believed that their assets would be impacted by transport automation, only 10% had introduced a formal planning resource dedicated to planning for this issue. The low level of preparedness for the substantial and emerging challenges of transit automation has prompted this submission.

The Committee for Sydney is hopeful that the Australia Government's response to this Inquiry will strike an appropriate balance between the need to embrace the consumer benefits of automation while simultaneously ensuring the efficient and productive operation of our transport networks.

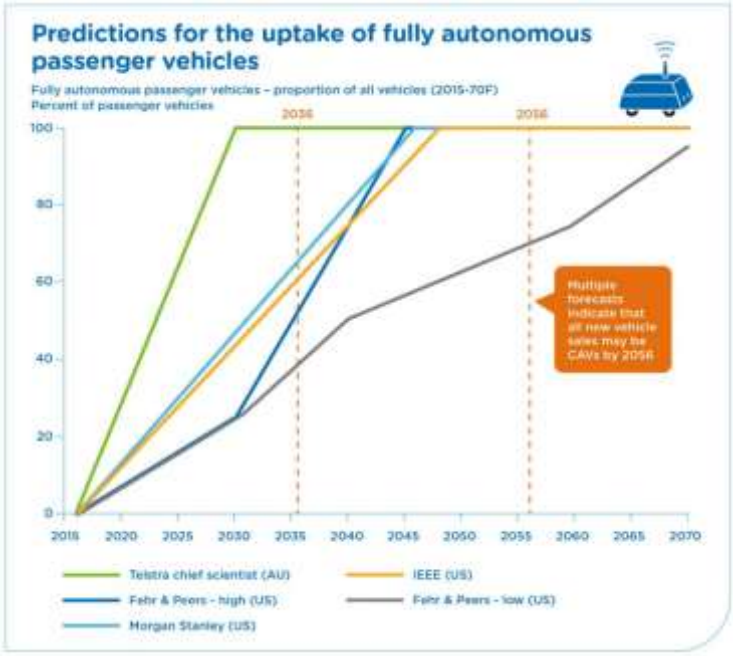
The importance of getting it right

The timeline for change

As it stands, Australia lags the rest of the developed world when it comes to preparing for the automation of transit. According to the 2018 KPMG Autonomous Vehicle (AV) Readiness Index, Australia ranked 14th out of 20 countries evaluated. Australia received the maximum score for the quality of our mobile networks but only average ratings for the quality of our roads, availability of 4G and the number of electric charging stations.

Consumers too are keen for change. Survey data compiled by Transurban has identified that some 84% of Australian drivers are eager to have automated features in their next car, with only 9% indicating that they are very hesitant to change.

While debate exists around the precise date when autonomous vehicles will hit the market, Transport for NSW's Future Transport Strategy 2056 makes it clear that it is a question of when, not if the market will change. The graph below shows the Department's record of various predictions made for the start date of fully autonomous passenger vehicles.



The Australian Driverless Vehicle Initiative (ADVI) has also developed timelines for when various levels of automated technology could be available in Australia. With Level 3 technology already embedded in some light passenger vehicles, ADVI expects the arrival of Level 4 technology between 2020 and 2025, and Level 5 technology between 2026 and 2030. This view aligns with timeframes previously submitted by the NRMA in public papers, including *The Future of Car Ownership*.

Private or shared – Two very different futures

The expected benefits of automated transit are well known. Given that 90% of all traffic collisions are caused by human error, the potential for automation to reduce vehicular fatalities in Australia is substantial. Automation also stands to substantially reduce carbon emissions when paired with electric vehicle technology and a clean energy grid.

However, the evidence is equally as clear that a failure to properly prepare for automation could result in a number of negative, costly and largely avoidable outcomes. In a literature review for UrbanGrowth, the University of Sydney, Macquarie University and Western Sydney concluded that:

> *Autonomous Vehicles may incentivize suburban sprawl by making the home-work commute more convenient, productive and affordable. In this scenario, the attractiveness of the private (and likely electric) vehicle remains, bringing with it corresponding infrastructure requirements such as CAV-only highway lanes.*

In WSP's *Driving Towards Driverless: A guide for government agencies*, multiple scenarios were modelled which compared situations in which automated vehicles operated largely as private vehicles do now, versus models where shared mobility has become more common.

In the former situation, the result was the creation of what was called the '**Driverless Nightmare**' Scenario. By continuing with a business as usual, private ownership-oriented model, vehicle miles travelled (VMT) increases dramatically due to longer commuting distances (urban sprawl) more people using vehicles (e.g., elderly, disabled), and lack of ride sharing. This concurrently resulted in increased congestion and travel times. The end result was that government was forced to invest large sums in increasing road capacity and its associated maintenance costs due to the significant increase in VMT.

By contrast, an overwhelmingly shared mobility model resulted in a '**Driverless Utopia**' scenario. In this scenario, VMT stayed the same but congestion and travel times were improved due to reduced vehicle headways, faster roadway speeds and fewer accidents. Road capacity needs decrease, as did parking needs due to the reduction in single-occupancy vehicle/privately owned cars. The contrast between the two scenarios can be seen below.

Impacts Summary of Driverless Vehicle Future Scenarios
(Changes from Today)

	Driverless Nightmare	Driverless Utopia
Safety	↑	↑
VMT	↑	↑
GHG Emissions	↓	↓
Urban Sprawl	↑	↓
Parking Requirements	No Change	↓
Roadway Maintenance Requirements	↓	↓
Low-Income Mobility	↓	↑

This research has been replicated elsewhere. The International Transport Forum (ITF) conducted a study to examine the potential impacts of a driverless fleet of vehicles in Lisbon, Portugal. The study found that shared driverless vehicles, combined with high-capacity public transportation, could remove 9 out of 10 cars in a mid-sized European city. Additionally, most on and off-street parking could be removed.

A 2014 study completed at the Massachusetts Institute of Technology (MIT) suggested that a shared-vehicle mobility solution in Singapore could meet the personal mobility needs of the entire population, requiring a fleet size that is approximately one-third of the total number of passenger vehicles currently in operation.

A Columbia University study modelled the impacts of shared driverless fleets on three environments: a mid-sized U.S. city (Ann Arbor, Michigan), a low-density suburban development (Babcock Ranch, Florida) and a large and densely populated urban area (Manhattan, New York). The study found that for the 120,000 residents of Ann Arbor who travel less than 70 miles a day, the shared fleet could provide near-instantaneous access to a vehicle on request with just 15 percent of the vehicles currently needed for these trips.

More locally, SGS Economics and Planning recently completed modelling for Infrastructure Victoria which considered three different scenarios along a sliding scale of automation from private ownership to shared mobility. The scenarios were:

- **Slow Lane** – A 50/50 mix between private and shared ownership and between automated and zero emission and internal combustion vehicles. Many of the benefits of the former (e.g. increased speeds, reduced accidents) are not fully achieved as half of the vehicles are still driven by humans.
- **Private Drive** – All cars are privately owned, fully automated and create zero emissions. The car knows the best route to take because it is continuously updated with current traffic patterns and road maintenance data.
- **Fleet Street** – Households and business no longer own private cars. Rather companies own fleets of automated, zero emission vehicles and offer a range of transport services at different price points.

The modelling explored a wide range of impacts and notably concluded that the Private Drive scenarios "generally result in greater sprawl than the equivalent Fleet Street scenarios". Longer commutes were also more common while public transport mode share notably decreased. VMTs were also substantially higher under the Fleet Street scenario. International transit expert Jarrett Walker has explained the consequences thus:

> *"Increasing VMT means that you are taking more space to move the same number of people. This may be fine in low-density and rural areas, where there's lots of space per person. But a city, by definition, has little space per person, so the efficient use of space is the core problem of urban transportation. When we are talking about space, we are talking about geometry, not engineering, and technology never changes geometry. You must solve a problem spatially before you have really solved it"*

These geometric realities force us to consider that the end result of unchecked private autonomous vehicle ownership will inevitably be an increase in VMTs and the associated congestion costs that come with that increase. The potential for autonomous vehicles to add to Australia's congestion costs is significant. Congestion is currently one of Australia's most significant handbrakes on growth, with the economic cost projected to grow to $42.9 billion in just 10 years if no reduction measures are put in place. Transdev has calculated that the unchecked development of autonomous vehicles for single person use may increase congestion by a further 20-30% in urban areas.

Moving towards shared mobility will likely bring additional efficiencies. The private motor vehicle has also been an expensive convenience for many decades, but it now sits idle for 95% of the time. In Australia alone, the average household spends around $332 a week on car ownership, which is a lot of money for such an unproductive asset. Given these realities, it is not surprising that we are already starting to see a shift towards shared mobility options, further enabled by the advent of car sharing companies like Uber and GoGet. Millennials have been driving this trend forward more than any other generation. In Victoria, the number of under 25 year olds without a licence has grown by 10% in the last 10 years to 35%. In NSW, the proportion of young drivers has fallen by around 1% per year. These trends are expected to continue moving forward.

If shared mobility becomes the dominant framework under which autonomous vehicles are used, the potential to supplement the existing public transport network is substantial. Uber has indicated that a large proportion of trips made across Sydney start or finish at a train station or major bus stop. Should autonomous vehicles and ride sharing services continue to expand, it will result in expanding the catchment areas for public transport services, which will encourage further urban development, reduce the total amount of kilometres driven by vehicles on our roads and increase public transport usage. McKinsey has also estimated that some 70% of commuting time is spent waiting for a service to arrive at a stop or station and when the service actually leaves. These statistics add further evidence to the starkly different impacts on congestion that will result from embracing a shared mobility model linked with public transport versus a private ownership model of worsening congestion and urban sprawl.

Other considerations – Data, energy and road user pricing

Beyond the question of whether or not autonomous vehicles should operate under a primarily shared or private ownership model, there are other areas of consideration that the Committee conducting this inquiry will need to be aware of.

The first of these is that new connectivity will generate more and more data that can be put to use for better public and personal decision-making. However, by definition, it will mean that we need to work harder on data security and associated risk management, as well as on generating much greater public acceptance and understanding. Recommendations made by ARUP to the Irish Government are worthy of consideration in the Australian context. Arup explained that that:

> *"The creation of new roles for a 'data arbiter' and 'data aggregator' will offer vital support in this area. The appointment of an independent data arbiter and governance validation is necessary to create an intermediary between public and private entities…This will help to establish the necessary transparency around the movement of data between bodies, as well as helping to define the required operating model to facilitate pass-through of ownership between competing bodies…Data aggregation is necessary to underpin the trust between the travelling public and the public and private bodies that use its data (ensuring anonymity etc)."*

This submission notes that data aggregation and coordination will need to be operated at a federal level, alongside a coordinated approach to regulation. The Committee for Sydney remains concerned that a potential scenario exists in which autonomous vehicles operate independently of both the local environment and each other. CAVs from one manufacturer may communicate only with other CAVS from that manufacturer, and not with rival CAVs on the network. Should this become a reality, it will mean that islands of CAVs will exist, operating independently of the needs of the overall network and mitigating the value-add in the use of such technology. Therefore, to establish a desired future scenario in which all CAVs provide a defined, minimum level of information both to each other and to road operators, it is important that government establish a policy on accessibility, interoperability and transparency across the CAV ecosystem.

The second consideration is that autonomous vehicle manufacturers have largely indicated that fully autonomous vehicles will almost certainly be electric. This means that the power requirements for the EV network will have to be carefully weighed against the existing use of power networks.

Currently it is estimated that at least 80% of charging is done at home, however the most popular time to charge is after work. This coincides with existing peak demand globally, adding additional pressure to the grid. Infrastructure Victoria noted that in overseas jurisdictions:

> *"Neighbourhood and destination-based fast chargers operating at 50-120kw are placing large amounts of strain on the grid in locations where such levels of energy were not previously required, and crating need for network investment that is not linked to dwellings."*

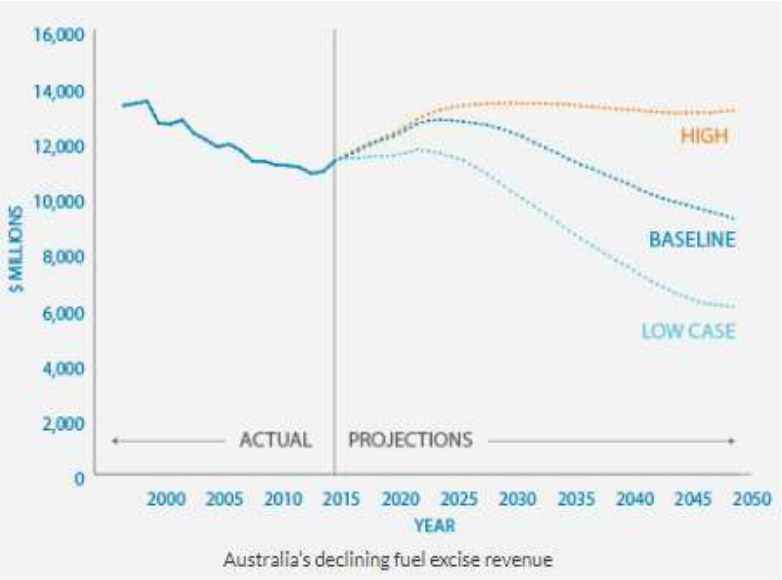
Given the ongoing importance placed on ensuring grid reliability and preventing costly investments in network infrastructure that are inevitably passed on to consumers, the Australian Government will need to work with state and territory governments through the COAG process to ensure that the roll-out of automated vehicles does not create unintended negative consequences for the energy grid.

The final consideration for governments seeking to limit the potential congestion impacts of automated transit is also the most politically challenging. Specifically, the issue of road user pricing. This submission notes that the arguments in favour of road user pricing have already been well examined by the Productivity Commission, the Harper Competition Policy Review, Infrastructure Australia, Infrastructure Victoria, and many other reputable organisations. This submission does not intend to revisit these debates, though it does accept the political challenges that are inhibiting reform.

The case for reform may be shifting however, with the federal budget confronted with the challenge of declining revenue from the fuel excise. As acknowledged by Transurban:

> *"Fuel excise currently contributes 52% of total road-related revenue from all levels of government, but this revenue stream is declining at around 16% each year due to increasing fuel efficiency. Declining fuel excise threatens Australia's ability to maintain old roads and build new roads, all of which will be required to cope with our rapidly growing cities and urban areas"*

This grim reality is captured by the graph below:



Australia's declining fuel excise revenue

Transurban has already completed a real-world test of user-pays road charging in Australia. This study found that at the start of the trial, some 85% of participants were comfortable with the current funding system. However, after experiencing alternative ways of paying for their road use, 60% said they preferred a user pays system. This suggests that developing a narrative to overcome community opposition to a user pays model is not politically impossible.

Should politicians find the political will to move towards a road user pricing model, the ability to mitigate the costly congestion associated with the roll out of autonomous vehicles will be much improved. A failure to consider these reforms could make future reform more difficult however, as politicians will likely find the taxation of electric vehicles more difficult once uptake rates have grown substantially from their current low rates.

In the *Additional Recommendations* segment of this submission there are a number of suggestions on how to best implement road user pricing in a format that would minimise congestion and encourage the development of shared mobility.

Recommendations from research with Arcadis

As noted earlier in this submission, the Committee for Sydney in collaboration with Arcadis this year released a report titled: *Are Sydney's property and infrastructure owners prepared for autonomous mobility?* The report surveyed and interviewed some of Sydney's largest private owners of commercial, residential, retail and mixed-use properties, as well as representatives of local and state government. Through this process, we asked participants about their preparedness for the potential impacts of AVs and connected automated vehicles (CAVs) on the built form within our city, as well as what's blocking, what's supporting and what could support better preparedness. We also asked what, in their view, a successful autonomous future would look like.

Our research findings revealed an interesting mix of preparedness versus inaction. Most strikingly, 100% of our respondents believed that their assets are likely to be impacted, but only 10% had formal planning resources dedicated to this issue.

When we asked who should lead our strategies for planning and design in relation to autonomous mobility, responses varied, with some taking the position that this change should be market-led.

However, the report did identify several recommendations that are of relevance to this inquiry. Specifically, a clear majority believe that our federal and state governments must, in conjunction with one another:

1. Develop an overarching vision for Australia's best possible autonomous future
2. Undertake meaningful industry engagement that ensures efficient and effective collaboration while promoting better preparedness
3. Establish the policies and legislative frameworks – including around risk, accidents and fault – that will best enable innovation and preparedness
4. Continue to design and run successful, evidence-based trials with real-world applications
5. Undertake broad community engagement that integrates and responds to public concerns, promotes public understanding of driverless technology and its benefits, and helps break down our long-held cultural bias favouring individual car ownership
6. Use real-world future scenario projections to capture and communicate an agenda in relation to shared mobility
7. Establish systems of taxes and concessions, including in the realm of road and social pricing, that will deliver desirable outcomes for all citizens, without exacerbating existing economic disparities
8. Establish the dates by which all new vehicles produced/sold will incorporate Level 4 or 5 driverless technologies and all analogue cars will be removed from our roads
9. Ensure that roll-out is consistent across both LGA and state boundaries, while also assisting LGAs and private entities with the costs of roll-out.

Additional recommendations

In addition to the recommendations contained within our own report, this submission would like to provide further recommendations which dawn upon evidence produced by the Committee for Sydney's member organisations.

When compiling these recommendations, the following sources were drawn upon:

- **WSP – New Mobility Now (2017)**
- **Arup – Autonomous, connected, electric and shared vehicles: Re-imagining transport to drive economic growth (2017)**
- **Keolis Downer – Future-Driven Autonobus Pilot Project at La Trobe University (2018)**
- **WSP & Parsons Brinckerhoff – Driving towards Driverless: A guide for government agencies (2016)**
- **Arcadis, HR&A, Sam Schwartz – Driverless Future: A policy Roadmap for City Leaders (2017)**
- **NRMA – The Future of Car Ownership (2017)**
- **NRMA – Accelerating our Smart Transport Future (2016)**
- **Infrastructure Victoria, L.E.K with input from ARUP – AV / ZEV International Scan (2018)**
- **Infrastructure Victoria - Advice on automated and zero emissions vehicles infrastructure (2018b)**
- **NRMA – Submission: Inquiry into Automated Mass Transit (2018)**
- **Infrastructure Victoria – Submission: Inquiry into Automated Mass Transit (2018c)**
- **University of Sydney, the Business School, Institute of Transport and Logistics Studies, David Henscher – Tackling road congestion – what might it look like in the future? (2017a)**
- **Transurban: Submission: Inquiry into Automated Mass Transit (2018)**

- **University of Sydney, Macquarie University, Western Sydney University – A literature review for UrbanGrowth NSW titled: Urban Policy Implications of CAV in Bays Precinct (2017b)**
- **Transport for NSW – Future Transport 2056 Strategy (2017)**
- **Transdev – Shared autonomous transport service: issues and legal frameworks (2018)**
- **SGS – Automated & Zero Emission Vehicle Land Use Scenarios (2018)**
- **KPMG – Autonomous Vehicle Readiness Index (2018)**
- **Uber – Submission to IPART (2015)**
- **McKinsey - The Internet of things: Mapping the value beyond the hype (2015)**

For ease of use by the Committee conducting the inquiry, these recommendations have been allocated into seven different categories, each addressing a different set of challenges which the Committee believes is inhibiting advancement towards a new mobility future.

- Governance
- Scaling
- Infrastructure
- Pricing
- Data
- Energy
- Insurance

Governance

10. Establish a working group, with representation from industry and consumers, to seamlessly coordinate the transition to electric vehicles to ensure that Australia is ready for the future of mobility, including electrification and automation. **NRMA (2018)**
11. This working group, in consultation with technology experts, academics, ethicists, transport operators and state representatives, should develop a consistent regulatory platform of standards across all state and federal authorities to support AV deployments nationally - **Keolis Downer (2018)**
12. Government should develop a governance framework which encourages ongoing collaboration between public and private sector operators in the shared mobility space and which establishes a default process of seeking consensus around common objectives. **WSP (2017)**
13. Continuing the existing work on the development of national principles, standards and regulations for automated vehicles. This includes the ongoing Commonwealth Government work on cyber security, the National Transport Commission's work on regulations for automated driving systems and Austroads' work on line marking and signage to support the introduction of automated vehicles. Australian Design Rules should also be regularly reviewed and update to remove any barriers to AV innovation. **Infrastructure Victoria (2018c).**

Scaling

14. Switching the government vehicle fleet to EVs would act as a catalyst for Original Equipment Manufacturer (OEM) attention and supporting infrastructure investment. The Australian Government should mandate that at least 10% of light passenger vehicles acquired or leased should be zero emissions by FY2020/21, and that 25% should be zero emissions by FY2025/26. **NRMA (2018)**

15. Prove support to state government seeking to embrace the electrification of buses could also signal intent. **Infrastructure Victoria (2018a)**
16. Remove the Luxury Car Tax for electric and autonomous vehicles. **NRMA (2018)**
17. Encourage electrification for authority-owned/leased fleet vehicles unless limited by operational requirements. **WSP (2017)**
18. Examine the Source London model in the UK to identify how public-private consortiums can utilise pooled funds and infrastructure knowledge to encourage EV uptake in major cities. **Infrastructure Victoria (2018a)**

Infrastructure

1. Transport built with public money should have as part of its business case a way of looking at the material risks to taxpayers of the investment against changes in the way mobility is delivered. **NRMA (2017)**
2. Consider autonomous electric vehicles in all infrastructure planning and investment decision making processes, including the take-up of autonomous ride sharing services and the implications for travel behaviour and land use. **Keolis Downer (2018)**
3. As a new rule, major roads that require public financing and/or community pays funding from now on should demonstrate the ability to be a hybrid road capable of carrying autonomous and conventionally driven vehicles in the future. **NRMA (2017)**
4. Use the COAG process to also encourage state and territory government departments and infrastructure advisory bodies to update their travel demand models to include an evaluation of the future impact of autonomous vehicles on transport infrastructure. **WSP (2016)**
5. If the federal government wishes to provide funds to update parking at train stations, it should alternatively consider funding for the expansion of drop-off and pick-up zones, commonly known as kiss-and-rides or mobility hubs. **Arcadis (2017)**
6. Minimise congestion impacts by supporting state government trials for driverless shuttles on first and last-mile connections. Shuttles should run on a schedule corresponding with arriving and departing trains and could be operated by either transit agencies or third-party operators. **Arcadis (2017)**
7. Establish comprehensive policy standards for electric charging provision by location and land use, without incentivizing inner city private car ownership. **WSP (2017)**
8. Explore policy/pricing measures to encourage smart charging and new business models for the installation of new charging infrastructure. **WSP (2017)**

Pricing

9. A properly considered road user charge in Australia should over-time replace existing charges, such as the collection of fuel excise, vehicle registration fees and driver licence fees, which will no longer be required in a fully autonomous future. Some element of funding however should also be set aside to compensate local council for the loss of revenue associated with reduced parking fines **NRMA (2017)**
10. To guard against unnecessary increases in vehicle kilometres and congestion, dynamic pricing should be used that builds in incentives for shared mobility and travel at less busy times. Surcharges should apply for highly inefficient or, in time with automation, empty running. **WSP (2017)**
11. Encourage states and territory governments to adopt or increase roadway tolls in general and/or specifically for single-occupancy vehicles. At the same time, states should add or designate more high-occupancy vehicle (HOV), high occupancy toll (HOT), and express lanes. **WSP (2016)**

12. Encourage state and territory governments to consider congestion pricing in and around urban areas or downtown cores/central business districts. **WSP (2016)**
13. Introduce an assurance framework for transport network companies (e.g. Uber) to ensure fair and transparent charging for customers (e.g. charging tolls at the gazetted toll price). **Transurban (2018)**
14. Once both mobility as a service (MaaS) and road user pricing is more well established, investigate options to incorporate road pricing as an input into MaaS package prices in order to optimize/regulate for network efficiency. **University of Sydney (2017a)**

Data

15. Assist state and territory governments to leverage technology to enhance mobility. Cities should work with transit agencies and private companies to adopt smartcards, open data and universal apps to allow riders to compare, book and pay for trips that combine buses, trains, bikes and ridesharing vehicles. **Arcadis (2017)**
16. An industry-wide agreement for the sharing of vehicle telematics data should be established, along with a specific set of principles to guide data availability and use **NRMA (2018)**
17. Introduce an independent Data Arbiter with responsibility for Governance as well as a transparent Data Aggregator. **Arup (2017)**
18. Users of CAVs should have access to the data generated as a result of undertaking a journey, and maintain the right to control its availability and use whenever reasonably practical, including provision to third parties and data custodians. **NRMA (2018)**
19. Government should also provide public access to data from various modes of transportation and ancillary services in a single place so that mobility as a service providers can easily access the data. Relevant data should include information relating to on-street and off-street parking, live public transport data, fuel pricing and charging station availability. **Transurban (2018)**

Energy

20. Conduct further research on specific challenges of local distribution networks to minimise barriers to uptake of zero emissions vehicles. This research should also examine measures to minimise the potential impact of electric vehicle charging on local grids. **Infrastructure Victoria (2018b)**
21. Work through the COAG Energy Council to review regulatory settings and remove barriers to network distributors addressing highly-localised impacts of zero emissions vehicles uptake. **Infrastructure Victoria (2018b)**
22. Work through COAG to review state-based regulatory settings to allow electricity providers to set demand-variable rates and demand management strategies. The review should also consider amending metering and pricing arrangements to allow for separate 'vehicle only' electricity tariffs to be offered to zero emissions vehicle owners to shift the electricity demand from these vehicles away from peak times. **Infrastructure Victoria (2018b)**
23. Work through COAG to investigate the potential for Open Charge Point Protocol (OPCC) to be utilised as a national standard across Australia to improve energy system security. While less mature in terms of development, governments should also consider if current network infrastructure can accommodate Open Smart Charging Protocol (OSCP), which forecasts 24-hour available capacity of the electricity grid, where network operators can generate charging profiles for EVs that make optimal use of available capacity without overburdening the network. **Infrastructure Victoria (2018a)**

24. Manage the risks of large-scale vehicle fleet depot charging by engaging with shared fleet operators and network businesses on the location of electrified fleet depots and optimum charging patterns for the fleets. **Infrastructure Victoria (2018b)**

Insurance

25. Encourage insurance companies to introduce policy cover which enables the future deployment of AVs in Australia. **Keolis Downer (2018)**
26. For further investigation, the future prudential framework to regulate liability and capital requirements for automated vehicle insurance should be considered by an appropriate body. Victims of personal injury caused by accidents should not be worse off as a consequence of a vehicle being controlled by an automated driving system. Future compensation schemes for personal injury should ensure premiums are appropriately funded by responsible parties. **NRMA (2018)**

Conclusion

The Committee for Sydney welcomes the opportunity to present this submission to the federal parliament and urges all members of the Committee to consider these recommendations with care.

N.B. Further questions can be directed to Sam Stewart, Policy & Advocacy Officer at the Committee for Sydney on sam@sydney.org.au