Submission

07 March 2018 **Submission to Infrastructure Victoria**

Automated and zero emission vehicle infrastructure

COMMITTEE FOR MELBOURNE

Ideas to outcomes

About the Committee for Melbourne

The Committee is an apolitical, not-for-profit, member-based entity that brings together over 130 organisations from greater Melbourne's business, academic and civic sectors, who share a common vision to make Melbourne a better place to live, work and do business.

As an independent organisation we represent no single interest group or political position, but seek to challenge conventional thinking and to develop innovative ideas to continue to enhance our position as an economically prosperous and highly liveable global city.

Our thanks

The Committee would like to express its appreciation to our member organisations, who helped contribute to the development of this submission.

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Introduction

It is our pleasure to contribute to Infrastructure Victoria's report on the infrastructure required to enable the implementation of automated and zero emission vehicles in Victoria.

Committee for Melbourne (Committee) welcomes the Victorian Government's forward-thinking approach to infrastructure development, and the work that Infrastructure Victoria is undertaking to advise the government.

The Committee welcomed the opportunity to co-host a member workshop with Infrastructure Victoria on 20 February 2018, to identify and discuss infrastructure requirements for the successful implementation of automated and zero emission vehicles (AV/ZEVs). Multinational professional services firm, and Committee member, EY, expertly facilitated the workshop.

The Committee launched its *Melbourne 4.0* report in May 2017, which examined how Melbourne can continue to thrive in the age of the Fourth Industrial Revolution. The work Infrastructure Victoria is undertaking aligns with the Committee's agenda, as we help prepare the city for transformational change.

To ensure the feedback provided to Infrastructure Victoria was informed and balanced, the Committee invited members from a variety of sectors, who brought with them different perspectives and insights. All who attended are employed with some of Melbourne's most prominent businesses, government bodies, and knowledge sector organisations.

Overview

Workshop attendees were asked to consider two questions:

- Are there any additional uncertainties we need to consider?
- Are there any other decisions that Victoria will need to make about the future of AV/ZEVs?

The subsequent discussion explored a range of issues relevant to the infrastructure requirements for widespread market adoption of AV/ZEVs.

This document offers a brief, high level overview of some of the *key* themes which were raised by our members, in response to the two questions posed. It does not probe deeply into each issue discussed, nor does it address each challenge that Infrastructure Victoria will need to identify and consider in its report to government.

The Committee recognises that many of the key themes acknowledged in this submission overlap with other key themes listed, or form part of a much broader discussion related to challenges associated with preparing for widespread adoption of AV/ZEVs.

Economy

Workshop participants acknowledged that the economic impact resulting from greater market penetration of AV/ZEVs would be profound across many industries. While the automotive industry will be directly impacted, other industries, including personal transport, freight, construction, health, auto repairs, insurance, and legal, will also be disrupted.

One major concern raised by participants in terms of economic impact however, was the financial ramifications for government as AV/ZEVs become adopted more broadly.

Their concerns are well founded. In a report entitled *Shifting the dial: 5 year productivity review,* the Productivity Commission warned that the current road funding arrangements – of which fuel excise revenues accounts for approximately 45 per cent of total road-related charges in 2015-2016 – were unstable.[1] This was partly due to increasing market adoption of new technologies, including AV/ZEVs.

Victoria, and Australia, are not alone in dealing with this challenge. Mayors and politicians around the world are grappling with the fact that widespread adoption of AV/ZEVs will negatively impact government revenue streams. In the US, the Highway Trust Fund, which relies on the federal gas tax to help fund road infrastructure, is causing considerable concern for lawmakers. It

[1] Productivity Commission. (2017). *Shifting the dial: 5 year productivity review,* Melbourne, Australia. P. 136.

has been losing money for more than a decade, due in part by dwindling revenue resulting from AV/ZEV adoption.[2]

Innovative solutions are beginning to emerge to address this challenge, such as road pricing regimes. For example, the state of Oregon has implemented *OreGo*; a program where participating consumers pay a road usage charge for the amount of kilometers they drive, instead of the fuel tax.[3] This initiative ensures the funding system is equitable for drivers of traditional cars, as well as the early adopters of AV/ZEVs.

Furthermore, there are potential savings to be made in other areas. The National Highway Transportation Administration in the US estimated that public revenues paid $18 billion of vehicle crash costs in 2010.[4] Factors that contributed to this amount included insurance and administration costs, property damage, emergency services, and legal costs. Therefore, provided AVs can improve the safety of road network users by reducing the amount of vehicle accidents, the widespread adoption of AVs could deliver significant cost savings for governments.

Data

Workshop participants noted that tremendous data inputs are needed for widespread adoption of AV/ZEVs, and with that a safe and secure methodology for capturing and storing data.

While it was acknowledged that data was vital for successful implementation of AV/ZEVs, much consideration was needed regarding which data would be collected, as well as how it would be collected, stored, and regulated.

Providing AV travel data to government agencies, including departure and arrival times, travel routes, and destinations, is likely to cause angst among the Victorian community. There is concern about the potential for it to be passed on to law enforcement agencies, or to be misused by government

[2] Lee, T. (2016, January 10). *Self-driving cars to drain millions from city, state coffers.* Retrieved from https://www.sfchronicle.com/business/article/Self-driving-cars-to-drain-millions-from-city-6749724.php
[3] Morris, D. (2015, July 17). *Oregon just debuted this radical alternative to the gasoline tax.* Retrieved from http://fortune.com/2015/07/17/oregon-road-usage-charge/
[4] National Highway Traffic Safety Administration (2014, May 28). *New NHTSA Study Shows Motor Vehicle Crashes Have $871 Billion Economic and Societal Impact on U.S. Citizens.* Retrieved from https://www.nhtsa.gov/press-releases/new-nhtsa-study-shows-motor-vehicle-crashes-have-871-billion-economic-and-societal

bureaucrats. If the data was obtained by commercial organisations, individuals could be susceptible to targeted advertising.

To consider the ethical implications of automated and connected driving, the German Federal Minister of Transport and Digital Infrastructure appointed a national ethics committee, which released a code of ethics in June 2017. It would be worth considering establishing a similar committee in Victoria.

Physical infrastructure

Workshop attendees maintained that traditional forms of road network infrastructure assets would need to be optimised, or replaced.

Road markings and traffic lights will need to broadcast data to AVs, which will be utilised by the vehicles on deciding when to travel, which route to travel, and the optimal speed to travel. This technology will ensure we are making faster, more efficient, and potentially safer journeys. It will require regular upgrades to remain in top condition, which would be no easy undertaking given the size, and population dispersion, throughout Victoria, and by extension, Australia.

For widespread market penetration of ZEVs, the availability of charging infrastructure will be critical. Significant foresight, planning, and investment would be required to ensure that this infrastructure is in place.

Infrastructure design and development would require coordination with other Australian states and territories, as well as international bodies, to ensure seamless cross-border travel. Consideration would need to be made as to the level of such regulation and how much should be standardised on a national or global scale.

Safety

Proponents of AVs claim that, given that human error is the major contributing factor of vehicle accidents, AVs will significantly reduce the number of accidents on our road network. This might be the case, but identifying new and evolving risks will be important.

Vulnerability to cyber-attacks is an issue which must be addressed by manufacturers and regulators alike. As an AV will be connected to, and transferring data between the internet, control systems, as well as other AVs, its susceptibility to cyber-attacks could hamper the widespread adoption of these technologies.

Another safety concern will involve the interaction of AVs with human-driven vehicles, and pedestrians. Even when the AVs are following the road rules and doing everything they are supposed to be doing, picking up the nuances of human interaction and the error-prone ways of human drivers, will likely elude these artificially intelligent vehicles.

Land use

There must be consideration for land use changes, including the built environment and urban landscape, resulting from widespread adoption of AV/ZEVs.

AVs will potentially eliminate the need for parking spaces. This will free up a significant amount of space, with the potential to activate and transform these spaces, whether into public realms, including parks and gardens, or more affordable housing complexes. Mandatory parking supply requirements will also have to change, especially in areas with high-value property.

Building design and construction will have to adapt, to create more space for the dropping off and picking up of people. Buildings which experience a high volume of people coming and going will need to develop systems for managing the flow of AVs.

Conclusion

Committee for Melbourne welcomes the work Infrastructure Victoria is undertaking to determine the infrastructure requirements that will enable the implementation of automated and zero emission vehicles in Victoria.

The Committee acknowledges that preparing and providing sound and informed advice for the State Government concerning these transformative changes is extremely complex, and commends you for addressing this issue with the thoroughness which it deserves.

The purpose of this document is to offer a high level overview of some of the *key* themes raised by our members at the workshop held on 20 February 2018. The Committee hopes Infrastructure Victoria will address these issues in more detail, as it prepares its advice for the Victorian Government.

Please do not hesitate to contact me should you require clarification of the content in this submission, or if you would like further input from the Committee's members. We look forward to reading the final report.

Yours sincerely,

Martine Letts
Chief Executive Officer