Amy Gillett FOUNDATION
Safe together

27 August 2018

Attention: Dr Allison Stewart
Project Director, Automated and
Zero Emission Vehicle Infrastructure Advice
Infrastructure Victoria
Level 16, 530 Collins Street
Melbourne 3000

Lodged online via:
https://yoursay.infrastructurevictoria.com.au/vehicles-advice/consultation

Dear Dr Stewart,

Re: Feedback on the Automated and Zero Emission Vehicle Infrastructure Advice

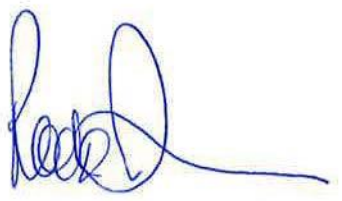
The Amy Gillett Foundation (AGF) welcomes the opportunity to provide comment on the Automated and Zero Emission Vehicle Infrastructure Advice. The Amy Gillett Foundation has a direct interest in contributing to the conversation about new technology and how to improve safety for cyclists.

The AGF applauds Infrastructure Victoria's objectives as articulated in the initial report setting out the selected scenarios. There is particular alignment with objective 2 (Foster healthy, safe and inclusive communities), however many of the other 9 objectives can be seen as consistent with safer infrastructure for cycling and other active travel modes.

We have reviewed the Evidence Base in consultation with the AGF Research and Policy Committee. The response attached includes additional issues that need to be addressed in finalising Victoria's response to future technology scenarios.

Please do not hesitate to contact us should you wish to further discuss matters raised.

Yours sincerely



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AGF Research and Policy Committee

- Dr Rod Katz, AGF Board Member and Chair
- Phoebe Dunn, AGF CEO
- Kenn Beer, Safe System Solutions
- Professor Narelle Haworth, Queensland University of Technology
- David Healy, D J Healy Road Safety Consulting
- Dr Jan Garrard, Deakin University
- Dr Marilyn Johnson, AGF Research and Policy Manager and Monash University
- Professor Jennie Oxley, Monash University Accident Research Centre

Amy Gillett Foundation

The Amy Gillett Foundation (AGF) is a national organisation with a mission to reduce the incidence of serious injury and death of bicycle riders in Australia. We draw on evidence and international best practice, and collaborate with governments, business and the community to create a safer environment for cyclists, while maintaining an efficient road network for all road users.

Our Understanding of the Consultation

Our understanding of the purpose of this consultation is for Infrastructure Victoria (IV) to gather feedback on the assumptions implicit in the Evidence Base report and generally test the analysis contained in the advice.

Because we adopt the perspective of vulnerable road user safety, we are in a position to critically evaluate implicit assumptions. It would be understandable that IV, despite its stated 30-year objectives, may be constrained in its thinking on transport by its focus on providing for motor vehicle and freight transport capacity. These involve costly infrastructure and are highly sensitive. **The paradox of providing infrastructure for active travel is that it is relatively so cheap that it does not get much attention**.

We do have a different perspective, but we acknowledge that our resources do not allow a major investment of time and analysis into the minutiae of each of the studies constituting the Evidence Base. We have thus focussed on high level comment and specific comment on a couple of select areas.

Seven Scenarios

Scenario planning is commonly used in a variety of contexts from military through to business. The purpose of using a scenario planning process is typically to prompt thinking about strategic responses.

A feature of useful scenario planning is creating a set of scenarios that are both plausible and distinct one from the other. Arguably the Seven Scenarios selected in the Future Scenarios document from April 2018 do not meet these conditions. They are in many cases quite similar or lack plausibility. An example of this is the selection of an all-electric vehicle scenario with no automation, and an all-autonomous scenario with no electrification. There is likely to be a correlation between the take up of electric vehicles and the development of autonomous features and so these extreme cases appear implausible. By creating separate scenarios for each extreme case, the reader is asked to do extra work without considering plausible, distinct scenarios. A similar argument can be made about the hydrogen fuel cell scenario. This could be treated as a special case of the electric vehicle scenario.

For a more engaging scenario planning process, it would be preferable to synthesise the ideas contained in the existing seven scenarios and present three or four models with distinct features that require distinct policy or strategic responses. Such an approach would be much easier for decision makers to digest and act upon.

An example of transport scenario planning that is more along the lines of the suggestions above is the, now somewhat dated, 4Seeable Futures document from Queensland[1]. This exercise had the advantage of identifying a set of scenarios that could be envisaged based on different exogenous trends and endogenous policy responses. It allowed a systems analysis of the environmental, economic, engineering, technological, regulatory and behavioural sub-systems that shape transport system performance. It allowed decision makers to shape policy with a view to desirable future characteristics.

Reviewing the Seven Scenarios selected here, we would note that none explicitly model the impacts of new vehicle technology on safety and amenity for people walking and cycling and infrastructure requirements that may be needed in response.

Modelling

We have reviewed the modelling report developed by KPMG. These sorts of sketch plan models (essentially traditional four stage transport models) are very useful for examining discrete changes to network performance as a result of tweaking parameters. However, there are many well recognised problems with them. From our perspective, they need to be treated with great caution when looking at scenario outcomes in distant years because:

- They are not well equipped to handle last mile transport, or active travel modes
- They focus on the commute trip – a declining proportion of overall road travel
- They do not have strong behavioural foundations for many of the parameters used, especially in distant years
- They rely on calibration to existing observed network performance
- The results of the models can often appear to be very precise when they are reliant on assumptions that are ad hoc (e.g. the improved flow as a result of autonomous vehicle platooning capabilities)

The fact that the KPMG models effectively leave out active travel modes may be self-fulfilling in not providing policy makers with the strategic tools to respond to different futures.

We could anticipate that in a future where autonomous vehicles are programmed to detect and avoid people walking and cycling, and tail-pipe emissions are massively reduced, there will be a

[1] Queensland Transport and Main Roads (1999). 4seeable Futures. Brisbane, Queensland Government.

behavioural response in favour of active modes. This is most likely to occur where there is congestion that even autonomous, shared fleets cannot address. The KPMG modelling suggests that these congestion locations are likely to occur where there are many intersections and where there is traffic due to a derived demand for access and egress to public transit stations.

Observations in highly congested metropolises such as New York and Paris suggest that two wheelers of all types (privately owned and shared: bikes, e-bikes, scooters, e-scooters, hoverboards, skates etc.) are already having a significant increase in mode share in congested conditions as anticipated by the KPMG modelling.

An aspect of policy that is surprising by its omission from the modelling is road pricing to address congestion. It is, of course, natural that IV would be most interested in managing the supply of infrastructure, however, demand also needs to be managed, including through price signals.

Price signals should be sent to road users to reflect the congestion costs they place on the system together with other costs such as road maintenance and intelligent highway management. The modelling envisages empty running of autonomous vehicles in some of the scenarios. This would be subject to a significant disincentive under a well-designed road pricing system.

IV should be using the modelling available to forecast what revenues would be available as a result of road pricing and how those revenues could be allocated to improve system performance, guided by its objectives. We would argue that a significant proportion of revenues (probably an order of magnitude higher than current expenditure) should be dedicated to the creation of safe infrastructure for vulnerable road users including cyclists and pedestrians.

Applying economic management principles to future scenarios should be an important part of the policy development process. The supply side cannot be analysed on its own.

Urban Design

We briefly reviewed the urban design documentation because it might show how scenario developers see the future. It was good to see that there were pedestrians and cyclists evident in the imagery. However, the cyclists were all shown on separate bike paths or footpaths and all pedestrians were shown on footpaths or crossing carriageways at zebra crossings. This raised questions about how management of infrastructure will be handled – will cyclists be excluded from carriageways? Will pedestrians be unable to cross midblock? If the answers to these questions are ‘yes’ as a technological expedient, then the objectives of IV would be under threat.

Response to specific questions

In response to the specific questions raised on the consultation website we offer the following comments:

1. Are our key assumptions correct? If not, why?

We would suggest a recasting of the scenarios to three or four scenarios that incorporate significant mode shifts, including a scenario with a mode shift to active travel for metropolitan trips.

2. Is our analysis of the findings correct? If not, why?

Without incorporating an economic pricing regime to send effective signals to road users the analysis misses an important policy lever. The purpose of scenario planning, derived from its military heritage, is to anticipate threats and plan responses to them. The analysis does not include a review of potential responses – from design rules, performance requirements, road pricing, revenue allocation etc.

3. What further research into automated and/or zero emissions vehicles might be required beyond what we have already completed or identified?

- Safety performance with mixed pedestrian and cyclist traffic on carriageways
- Trade-off experiments using different price levels of autonomous own vehicle, pooled vehicle and robo-taxi. This would assist in predicting take-up of shared vehicles versus private vehicles and potential revenue.
- Likely use of active transport if the risk of being hit by a motor vehicle was reduced by 90% and tailpipe emissions and noise reduced significantly

4. What are the local or international trends government should be monitoring to help inform future decisions on automated and zero emissions vehicles?

- Crash involvement of vehicles employing autonomous features with vulnerable road users
- Increased use of shared vehicles in many international cities including bike share, e-bike share, scooter share and car share

5. What key decisions need to be made about the infrastructure required for automated and zero emissions vehicles?

- Identify the regulatory and pricing levers available to manage new technologies
- Identify the role of the State, Federal and Local government jurisdictions in managing the infrastructure and management issues
- Not to spend too much on technology that requires picking winners such as hydrogen fuel cells.

Thank you for the opportunity to have a say in the future of Autonomous and Zero Emission Vehicle technology in Victoria.