

David Dallaston



Committee Secretary
Transport and Public Works Committee

Dear Ms Jeffrey,

Thank you for the opportunity to provide a submission to this inquiry. My submission relates mainly to the first three terms of reference, and particularly to how the emerging technologies of electric and automated vehicles (EV and AV) will affect traffic congestion and liveability in South-East Queensland.

The submission consists of three sections:

1. Rate of adoption

The transition to EV and AV will happen soon, and quickly. It is vitally important that public policy be put in place to deal with the issues these technologies will cause.

2. Cost and efficiency

A discussion of some of the issues, opportunities and problems associated with the transition. EV and AV are cheaper, cleaner, and more efficient than current vehicle models, but these advantages come with a risk of increased traffic volume and congestion.

3. Recommended policy directions

A numbered list of recommended policies to address the issues raised.

While some of these recommendations may seem ambitious, they are not outrageous; all are similar to policies currently being pursued by governments around the world – especially in the UK, Europe, and Canada – in response to the transport challenges of the 21st century. They are policies we need to consider in Queensland, too, if we are to maintain the high quality of life we are rightfully proud of.

Again, I thank the committee for the chance to contribute to this discussion. If I can be of any further assistance, please contact me at [REDACTED]

Yours sincerely,

A handwritten signature in black ink, appearing to read 'DA' followed by a long, sweeping flourish.

David Dallaston

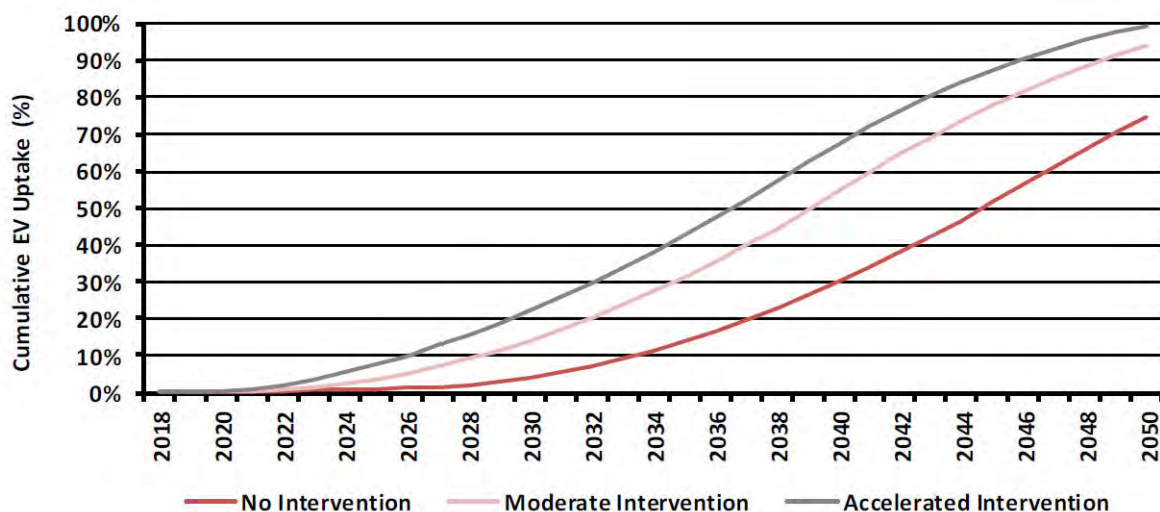
1. Rate of adoption

Electric vehicles (EV) currently have very little market share in Australia, and government policy and discussion to date has largely focused on stimulating demand and supporting innovation. However, what we know from past disruptive technologies is that once a technology matures to a ‘tipping point’, mass adoption happens extremely rapidly:

- The rollout of GSM in the 1990s saw mobile phone ownership in Australia increase from 24% of households in 1996 to over 70% in only six years.¹
- In 1945, more than 90% of railway locomotives in the US were steam engines. That number dropped below 50% in 1951, and most railroads were completely dieselised by the end of the decade.²

The first car phones were developed in the 1950s, and handheld mobile phones were commercially introduced in 1983. The first diesel locomotives were introduced in the 1920s, but it wasn’t until after the Second World War that they replaced steam en masse. In both cases, the technologies remained the domain of niche uses and early adopters for decades, before becoming near ubiquitous in a very short timeframe. A similar pattern is likely to emerge with electric and autonomous vehicles, with a tipping point almost certainly coming in the next five years.

One thing we can be sure of is that the adoption of EV will *not* look like this:³



Source: Energeia Modelling

Such a gradual transition is wishful thinking. Cars on Queensland roads have an average age of slightly less than 10 years⁴ – so, even assuming the benefits of EV do not entice motorists to retire their IC vehicles early, EV will come to completely dominate Queensland’s urban road network within the next two decades.

When considering automated vehicles (AV), an accelerated timeline is also likely. Most current models predict a gradual transition to fully automated vehicles, via intermediate generations of partially automated, ‘driver assist’ technology. However, drivers testing partially automated vehicles

1 ABS - Australian Social Trends, 2007
 2 Interstate Commerce Commission - Transport Statistics of the United States
 3 Energeia Australian Electric Vehicle Market Study – May 2018
 4 ABS - Motor Vehicle Census, Australia, 31 Jan 2018

have shown a tendency to become dangerously inattentive;⁵ and if partial automation is unsafe, AV manufacturers will necessarily seek to introduce fully automated vehicles as soon as possible.

2. Cost and efficiency

Electric and automated vehicles have significant financial and opportunity cost advantages over conventional IC cars.

- Electric running costs are 60-90% cheaper than petrol.⁶
- Electric cars are cheaper to maintain than IC engines.⁷
- Cooperative Intelligent Transport Systems (C-ITS) will reduce congestion on arterial roads, by allowing vehicles to drive faster and more smoothly with shorter headway.⁸
- Fully autonomous vehicles which do not require a licenced driver will enhance mobility for the elderly, disabled or infirm.⁹

However, this improved efficiency is not all good news. **Any reduction in the cost of private vehicle use will increase the use of those vehicles.** Without further intervention, this will result in more traffic, more urban sprawl, and more car dependency.

2.1 Fuel excise replacement

Petroleum fuels in Australia are currently taxed at 41.2c per litre, plus 10% GST. As electric vehicles do not require petrol, a replacement tax for the fuel excise has often been mooted, most commonly in the form of a tax on vehicle kilometres travelled (VKT tax or Road User Charge). Fuel excise has historically had a Pigovian effect, driving the popularity of more fuel-efficient vehicles and imposing a cost on unnecessary vehicle use. It has also often been seen as unfair, disadvantaging drivers in rural areas who must use more fuel to cover longer distances.

A flat federal VKT tax, directly replacing the fuel excise, would not address this disadvantage; but a variable VKT tax would. A higher VKT rate for urban areas would effectively be a congestion charge, discouraging vehicle use in the inner city, while subsidising rural users who drive as a matter of necessity rather than convenience.

2.2 Arterial road efficiency

Traffic congestion on South-East Queensland's arterial road network is a major social and political issue. Widening roads and building new links does not solve the problem; rather, it increases it, by inducing demand and enabling sprawling, car-dependent commuter development on the outskirts of urban areas. South-East Queensland is expected to be home to almost two million extra people in 25 years,¹⁰ and failing to shift public policy and discussion around infrastructure will see almost all of them housed in outer suburban, car-dependent dormitory suburbs, massively exacerbating our current traffic problems.

5 The Conversation - Automated vehicles may encourage a new breed of distracted drivers

6 The Future Is Electric: Queensland's Electric Vehicle Strategy 2017

7 Ibid.

8 National Policy Framework for Land Transport Technology Action Plan: 2016-2019

9 Ibid.

10 South East Queensland Regional Plan 2017

While this is a problem we will have to tackle in coming years regardless, new technologies have the potential to make the situation far worse. The efficiency gains of decreased headway, cooperative merging, higher speeds and faster acceleration will fit more cars into less space, effectively adding additional lane space to every road in the state.

This increased efficiency does, however, provide an opportunity to *decrease* the public space devoted to vehicle traffic, without necessarily disadvantaging existing road users. Reclaimed lane space in existing corridors can be repurposed to improve local walkability and provide dedicated transit links at a fraction of the cost of building separated busways or rail lines.

2.3 Urban congestion control

Two current limiting factors on traffic congestion are:

- Drivers don't like sitting in traffic.
- Drivers have to park close to their destination, and for an acceptably low cost.

Automated vehicles defeat both these mechanisms, and could consequently lead to a large increase in inner-city traffic congestion. A passenger in an automated vehicle can sleep, read, eat, or otherwise occupy their time while stuck in traffic; an unoccupied driverless car is, of course, *completely* indifferent to traffic conditions. AV can drop their passengers off at their destination without parking, and either return to base, park in the nearest unmetered suburban street, or simply drive around the block until needed, if the cost of doing so is less than the cost of parking.

Congestion charging – transferring the current high cost of inner city parking from parking to driving – will help, but is unlikely to counter the extreme convenience that AV will offer city commuters. The only real solution may be pedestrianising central Brisbane and other high-congestion centres, removing access to cars completely.

2.4 Mobility as a service

Car sharing schemes, where residents do not own their own vehicles but hire them from a pool as needed, are often touted as a future trend. However, such schemes are only likely to reduce traffic congestion as a symptom of better urban design. Car sharing for occasional use by residents who live a mostly car-free lifestyle provides significant social benefit; merely replacing owned cars with hired cars in car-dependent suburbs does not.

Electric vehicles may also have benefits to ownership beyond driving convenience; for example the possibility of using an EV as a storage battery connected to a rooftop solar system. Private ownership of vehicles is likely to remain the dominant model where households remain car-dependent for every day activities.

2.5 Public transport

Increased traffic congestion has a negative impact on public transport. After a decade of London's Congestion Charge successfully reducing traffic and increasing public transport patronage, the emergence of private vehicle-for-hire schemes (eg, Uber) has seen traffic increase again in recent years.¹¹ When bus services become unreliable due to traffic congestion, patronage falls;¹² London's

11 The Conversation - London congestion charge: why it's time to reconsider one of the city's great successes

12 London's bus network August 2017 - Greater London Authority

Mayor is now looking at adjusting the congestion charging scheme, reducing speed limits, and increasing pedestrianisation to counter this, and continue towards a target of reducing the mode share of cars (including for-hire vehicles) to 20% by 2041.¹³

Autonomous taxis have occasionally been presented as the future of public transport – solving the ‘last mile problem’ by offering door-to-door service. The reality is that low-occupancy vehicles are inefficient and will cause congestion, regardless of who owns or operates them or whether they are classified as public transport, ‘ride-share’, or anything else. The best solution to the last mile problem remains walkability; putting as many residents as possible in highly walkable transit-oriented precincts.

3. Recommended policy directions

3.1 Reducing congestion

1. Introduce a variable VKT tax (road use charge). Without a VKT tax, the extremely low operating cost of electric vehicles will result in a massive increase in car use. Making the VKT variable will act as a congestion charge in urban areas, but a subsidy for rural drivers.

2. A moratorium on suburban road construction and widening. While roadworks are often politically spun as ‘congestion busting’, the reality is increasing space for cars induces demand and enables urban sprawl. The money saved on these projects can instead be put towards public and active transport reform. Where congestion remains a localised issue, alternative policies (particularly closing or limiting access, and improving public and active transport links in the area) should be discussed and prioritised over new road construction.

3. Tax retail car parking. While common elsewhere, Queensland does not tax retail car parking, which has enabled the proliferation of congestion-causing car-oriented mega-shopping-centres like Westfield Chermside. Taxing car parking spaces would both deter future over-construction of car parking, and provide a revenue stream to enhance local public and active transport.

3.2 Prioritising public and active transport

4. Assess the current public transport network for accessibility and efficiency. Particularly, any commuter bus services which currently encounter significant traffic congestion should be improved, either by removing traffic from their path (via conversion of road lanes to bus lanes, using bus-only portals to remove peak-hour through traffic from secondary roads, etc), or by replacing city-bound services with local feeders to other, higher-speed city trunk lines. Both the Queensland Government and Brisbane City Council have previously acknowledged the desirability of moving to a trunk-and-feeder public transport model.¹⁴

¹³ Mayor’s Transport Strategy 2018

¹⁴ Connecting Brisbane

5. Build local active networks around schools, parks, shopping centres and transport hubs. The active connectivity of our local neighbourhoods is vital if we expect people to use their cars less and walk more. Schools, shops, railway stations and bus stops should be comfortably and safely accessible to as many pedestrians as possible; major walking routes should be assessed to new, higher standards of surface condition, width, and shade. Local ‘village centres’, where many destinations and activity centres can be found together, should be completely pedestrianised.

6. Reduce the standard speed limit on suburban streets from 50km/h to 30km/h. This speed reduction not only greatly reduces the chance of pedestrians being injured in a collision, but symbolically reclaims the street as a space for living, not just for driving. 30km/h¹⁵ (or 20mph¹⁶) is increasingly becoming the standard speed limit for ‘liveable streets’ across the world.

3.3 Leading the way

7. Require high Transit-Oriented standards in Priority Development Areas (PDA). All development overseen by the State should have identified and measurable transit-oriented goals, including but not limited to:

- exceptional walkability, public open space and public transport links
- A significant reduction in car mode share compared to the surrounding area
- A significant reduction in car ownership compared to the surrounding area

8. Prioritise walkability over car parking at railway and bus stations. Commuter parking should be minimised, and a fee charged for all non-accessible parking on government land.

9. Above all, set ambitious goals and lead the conversation. To take London as an example again: 37% of trips across Greater London are currently made by car. Their 2041 goal is 20%. They will achieve that goal because they’re willing to say: this is the goal, these are the benefits, this is what it will take to achieve it.

In South-East Queensland, the mode share of cars is significantly higher: over 80%.¹⁷ What if we set a 25 year target – not London’s 20%, but perhaps 50%? It would be a difficult target to reach, certainly, but the ambition *kickstarts the conversation* – because the first question people have is, “how?”, and we can’t answer that with platitudes about ‘congestion busting’. New transport technologies will bring the problems with Queensland’s roads to a crisis point in the next ten or 20 years. If we want to avoid that crisis, now is the time to start leading the conversation.

15 en.30kmh.eu

16 www.20splenty.org

17 Connecting Brisbane