

Attachment 1

Standing Committee on Communications and the Arts
PO Box 6021
Parliament House
CANBERRA
Canberra ACT 2600

Submission response— Inquiry into the deployment, adoption and application of 5G in Australia

This submission can be published on the World Wide Web
Yes

Date of submission
1 November 2019

Logo of organisation—if an organisation making this submission



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1. Introduction

The Department of Transport and Main Roads (TMR) is committed to working with telecommunications carriers (carriers) to facilitate safe access to road corridors. It is anticipated that the majority of the 5G network will be rolled out in road corridors across Australia.

In achieving its strategic goals TMR works closely with all industry stakeholders, contractors and consultants to find ways to work smarter, improve the way we do business and reduce the costs across the board. Similar approaches have been made to the Telecommunications Industry to work together to achieve mutual benefits and costs savings. For road authorities, this is often achieved through arrangements directly with willing telecommunications carriers – consistency is important and not all carriers wish to engage.

There are several matters to consider regarding the safe and efficient deployment of small cell 5G radio facilities for telecommunications (small cell installations) on roads.

2. Good engineering and safety

Small cell installations on street lighting, traffic lighting, signs and other road infrastructure assets can impact road safety, the structural integrity of the asset, electrical safety for the public in the event of the installation being impacted by an errant vehicle and the safety of operational staff undertaking ongoing maintenance.

For example:

- Split installations, with antenna on poles and cabinets on ground introduce new roadside hazards into safety clear zones near road carriageways.
- All in one installations introduce a 50+kg weight mounted on roadside poles that represent a significant risk to road users in run-off-road crashes. This crash type is responsible for many fatal and serious injury crashes in Queensland every year.
- If insufficient diligence is applied to the placement and design of the installations (as detailed in TMR's relevant specifications and design guides)

While the Telecommunications Code of Practice and *Telecommunications Act 1997* (Cwth) (Telco Act) requires carriers to act in accordance with 'good engineering practice' and follow Australian Communications and Media Authority's (ACMA) industry standards when carrying out activities, these requirements do not explicitly mention road engineering and electrical safety requirements. As a result, in some circumstances it can be challenging to help carriers (and their contractors) understand and comply with good engineering requirements for road infrastructure, especially in the short timeframes provided under the Act.

In Queensland, engineering service providers are bound by the *Professional Engineers Act 2002 (Qld)*, have commitments under the *Electrical Safety Act* and the recently updated responsibilities under the *Safe Work Act*. Despite the Telco Act requiring compliance to good engineering practice, it is deficient in linking to these critical engineering requirements as they relate to roads.

Road asset management requires a Registered Professional Engineer of Queensland with appropriate road safety and electrical engineering experience to approve the design, construction, maintenance and operation of relevant assets. Telcos Land Access Notifications for installation and maintenance activities for small cell 5G, submitted to TMR under Schedule 3 of the Telco Act, rarely have this critical road engineering information.

3. Application to Connected and Automated Vehicles

The international transport community is deploying critical connected vehicle platforms for road transport safety and efficiency. These platforms currently supply services for vehicle to vehicle and vehicle to infrastructure communications using both direct 5.9 GHz WiFi and indirect 3G/4G mobile.

The telecommunications industry has been vigorously promoting the application of 5G in the deployment of connected and automated vehicles (refer to 5GAA consortium). Connected and automated vehicles are being seen internationally as a key development in achieving safer roads. It is also widely acknowledged in the intelligent transport systems community that the scale and coverage of deployment of 5G, over the next decade, is likely to be insufficient to reach key regional and remote areas where the road safety need is greatest.

As 5G networks and performance does become available, current and new services will likely rely on the availability of some 5G functions. Connected vehicle safety services must be able to operate when and where 3G/4G/5G services are not available. Due to technology integration, efficiency and consumer needs, the connected vehicle platform uses a mix of WiFi and mobile phone communication and that mix will change depending access to 3G/4G/5G. TMR is leading Australia in developing and deploying connected vehicle services and has strong links with the international deployments. 5G development and services must harmonise with current road transport safety services and initiatives.

Consideration of 5G for transport use should be based on a principled approach:

- Support for transport outcomes – safety, sustainability, mobility
- Availability – coverage in urban, rural and regional areas
- Affordability – subscription based for discretionary services
- Community obligations – business model for safety and security services
- Inter-operability with other technologies for transport
- Opportunity cost of delaying alternative technologies while 5G is developed and deployed.

4. Process

The telecommunications industry is federally regulated. Carriers have the right to install low-impact facilities under Schedule 3 of the Telco Act. The federal Telecommunications (Low-impact Facilities) Determination 2018 (Low-impact Determination) designates small cell installations co-located on road safety infrastructure as low impact. Classification of 5G infrastructure co-located on road safety infrastructure as low impact does not reflect the added risk it has on road safety, planning and operations.

Because carriers do not have to get TMR's consent prior to undertaking an installation, the only avenue for TMR to prevent an inappropriate installation on a street or traffic light or other road infrastructure, is to object to it within five business days. If TMR does not object in time, the carrier is entitled to continue with the proposed activity. If Land Activity and Access Notices are to increase twentyfold over two years due to 5G proposals, this timeframe would make the number of applications unmanageable and five-day review/objection turnaround unreasonable.

Under the process, if TMR objects to a proposal the carrier and TMR would then enter a twenty-day consultation period to discuss safety, engineering and planning issues. Again, considering the anticipated volume of 5G installation proposals, this process presents an administrative burden and significantly increases costs to TMR.

Careful and detailed safety and technical consideration of proposed 5G installations on road safety assets, and other roadside infrastructure, is required for 5G small cell installations. A proliferation of these assets located on infrastructure pose a significant impact to TMR administration, operations and maintenance of assets and public safety (road safety and electrical safety) irrespective of how they are classified under regulation.

Compared with several international regulatory models, other jurisdictions have struck a better balance of power between telecommunications and road networks with consent based, streamlined processes borne by the telecommunications industry.

TMR's preferred model is a consent-based access process, consistent with all other public utilities with networks in road corridors. A consent-based process would still require a road authority to meet statutory timeframes in responding to proposals, while allowing comprehensive consideration of safety of carrier installations and maintenance activities, and their impact on road operations.

5. Costs

The four telecommunications carriers with 5G spectrum, Dense Air Australia, Mobile JV (the joint venture of TPG Telecom and Vodafone Hutchison Australia), Optus and Telstra are all commercial organisation which no longer conform to a public service model of operation. If the objection-based process is used for 5G, it would represent a transfer of costs and risk from telecommunications carriers to the taxpayer via state governments.

It is appropriate for TMR to receive reasonable return when any of its land and assets are used for commercial purposes, such as adverting and other third-party asset installations. This ensures fair and equitable use, and that cost burdens are not transferred to the State. This could most easily be solved by removing 5G from the Low-impact Determination, or could also be solved by carriers and road authorities reaching commercial agreements as per the provisions under section 11, schedule 3 of the telco act.

6. Relocation of assets to facilitate road upgrades

The Telco Act does not have any provisions specifying how relocations of carrier assets could occur due to road upgrades. This means TMR must negotiate with carriers to move carrier assets located on its land or assets, often at a high cost to TMR and at the timing convenient to carriers.

With the volume of 5G installations proposed in road corridors, there is the potential for a massive increase in relocation costs of carrier assets during road upgrades. Further, because carriers have no obligations to comply with TMR's requests to undertake works within set or agreed timeframes, this also led to project delays, increased costs to taxpayers.

TMR proposes that regulation and legally binding code of practice be developed to manage the relocation of carrier assets required to deliver road upgrades so that:

- TMR is only be responsible for the costs of relocation works, not carrier profits on those works
- carriers are responsible for all upgrade and betterment costs
- there is clear guidance on how to assess and determine reasonable relocation and betterment costs
- agreed asset lifecycle tables are published annually in a national code
- relocation works are made contestable from a panel of authorised suppliers, providing TMR with the option of choosing an alternative, competitively-priced supplier who is paid directly to undertake the relocation works as part of the road works program.

7. Standardisation and information sharing

A barrier to streamlining processes and access is the reluctance of carriers to share information on 5G assets and specifications on how they would be installed on road safety assets. Specifics regarding installations specifications (weight, size, materials etc.), structural engineering considerations for each pole asset type and assessments on the wind loading, standardisation of electrical safety, metering of electrical supply and impact on road safety is required to facilitate access and ensure road safety for the public.

Rollout of small cell 5G technology will likely occur in a relatively short timeframe and require clear processes. This could be facilitated through:

- agreeing on standard terms and conditions for access
- carriers engaging in forward planning sessions to deal with a group of proposals together, and
- agreed technical requirements to be met by carriers

With regard to the proposals of the telecommunications carriers, TMR is particularly concerned that proposals do not:

1. result in an inappropriate shifting of costs from the commercial sector to the taxpayer via state governments.
2. compromise TMR's ability to fulfil its obligations, as a state government department, to manage transport infrastructure for the safe and efficient movement of goods, people and services – including the ability to manage workplace health and safety legislation.
3. shift the costs of the shortened life of host infrastructure and increased maintenance to the Queensland taxpayer.
4. render road assets unfit-for-purpose through the addition of telecommunications devices thereby requiring the host infrastructure be redesigned or replaced.
5. increase potential safety risks to road users by introducing additional infrastructure, without commensurate safety mitigation, into the clear zone or making previously frangible assets (designed to fall over and disconnect power to minimise potential electrical and road safety risks in vehicle strikes) non-frangible.

8. Operations

5G poses an increased risk to relocation timeframes and costs to road widening and realignment projects due to a proliferation of telecommunications assets. It is possible, that with four carriers, a 5G asset could be installed every 50m-100m in urban areas.

Further, any disruption to franchised roads due to the work of carriers will result in penalty fees payable to the road operator by TMR. Neither the Queensland Government nor TMR is funded for, nor can it absorb, the additional work and costs the proposed changes would require.

9. Summary

Working together to balance providing transport and telecommunications services, will enable positive outcomes for TMR, telecommunications carriers and the community. This can be achieved by streamlining the deployment of modern communications technology with consideration to road and engineering safety while reducing administrative burden.

5G has the potential to provide important road safety and efficiency services if it is developed in harmony with current connected vehicle deployments, otherwise it may slow or disrupt current road safety initiatives.

TMR welcomes further opportunities to provide a more detailed information and discuss the challenges and opportunities the deployment of this technology in roads and other transport corridors.