

**To the attention of:**

The Department of Infrastructure,  
Transport, Regional Development,  
Communications and the Arts,  
Australia

**Issued on:** 18/12/2023

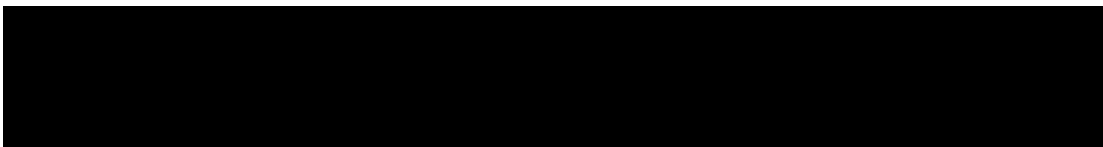
## **5G Automotive Association response to the Draft National Road Transport Technology Strategy and draft 2024-27 National Connected and Automated Vehicle (CAV) Action Plan**

The 5G Automotive Association is a global, cross-industry organisation of companies from the automotive, technology, and telecommunications industries (ICT), working together to develop end-to-end solutions for future mobility and transportation services.

Learn more about our work on <https://5gaa.org/publications/>

Contact details: 

5GAA confirms this submission can be made publicly accessible.



## 5GAA feedback to the draft 2024-27 National Connected and Automated Vehicle (CAV) Action Plan

5GAA appreciates the opportunity to respond to the draft 2024-27 National Connected and Automated Vehicle (CAV) Action Plan in Australia. We are committed to make the deployment of Cellular-V2X a reality for global Connected and automated Mobility (CAM) uses.<sup>1</sup>

- How can the role of governments and the principles guiding government action in the draft strategy be improved?

5GAA welcomes the strategy's proposal to grant the Australian governments the regulatory stewardship, in particular to remove unnecessary regulatory barriers and ensure regulation is appropriately technology neutral and adaptable to changing circumstances.

When it comes to deployment of connected and automated mobility capabilities, governments have a key role in ensuring an environment conducive to cooperation models, i.e. a set of ideal circumstances that sets a level playing field to encourage and enable deployment by all stakeholders. CAV and, in general, Connected and Automated Mobility (CAM) deployment requires a holistic approach, which can differ according to existing mobility ecosystems. 5GAA considers that, in the context of the large-scale introduction of advanced safety and automated driving use cases supported by C-V2X, a more integrated model involving all parties (vehicle manufacturers, road administrations and operators, communication service providers i.e. mobile network operators and neutral host infrastructure providers) should be considered as well as other services providers who are playing an increasing role in the ecosystem e.g., location-based data marketplace, Mobility as a Service (MaaS), etc.<sup>2</sup>

- Are the actions in the draft action plan the right ones? Do you disagree with any proposed actions? Are there any actions missing?

5GAA welcomes the intentions proposed in the CAV Action plan. We list below particular comments to the proposed initiatives:

Proposed **Action 2.1 to build a national plan** that would cover several (listed) elements is key to a working system that can provide the benefits envisaged by the proposed Road

---

<sup>1</sup> Cellular-V2X (C-V2X) is the umbrella term which encapsulates all 3GPP V2X technologies, including both direct (PC5) and mobile network communications (Uu). Initially defined as LTEV2X in 3GPP Release 14, C-V2X allows vehicles to communicate with each other and the wider transport ecosystem. It includes Vehicle-to-Vehicle (V2V), Vehicle-to-(Roadway) Infrastructure (V2I) and Vehicle-to-Pedestrian (V2P) via direct communications and connectivity to the mobile 4G and 5G networks (V2N). 3GPP continues to innovate and develop further releases to the standard including a clear evolution path to 5G for the direct and network communication modes in a complementary way.

<sup>2</sup> 5GAA, Cooperation Models enabling deployment and use of 5G infrastructures for Connected and Automated Mobility (CAM) in Europe, White Paper, 2021, available at [https://5gaa.org/content/uploads/2021/03/5GAA\\_White-Paper\\_5G-Coop-Models.pdf](https://5gaa.org/content/uploads/2021/03/5GAA_White-Paper_5G-Coop-Models.pdf)

Transport Strategy. 5GAA finds the proposed elements of the action plan sufficient for initial deployment that can support basic safety and advanced driving use cases use cases. 5GAA recommends the prioritisation of the **intended statement of intent on standards, short range communications and spectrum**, noting that 5GAA is a strong supporter of C-V2X as a combination of both direct and network modes of communications in a synergistic, balanced and complementary way. Furthermore, C-V2X has a clear evolution path to 5G (also called 5G New Radio (NR)) for both modes of operation mentioned above. Members of 5GAA embrace the arrival to maturity of 5G-V2X as a foreseen worldwide consensus, which relates to automotive-relevant 3GPP 5G technologies. It supports advanced driving and previous message types including basic safety and will deliver service continuity.

Data exchange of vehicle-generated and road infrastructure data (V2X), particularly between jurisdictions, road operators and users' needs to be consistent across Australian states as well as consistent with leading international standards (such as ETSI protocols). Data exchange, handling and storage must be managed safely, securely, lawfully and ethically.

Given that C-ITS / V2X communication will pave the way for autonomous driving, we need to ensure that the platform(s) / software solutions are open-standards, modular, interoperable and scalable, e.g. extensible (API-based software platforms). Future-proofing needs to be considered from day one: low-latency comms, MEC hosting and sufficient bandwidth.

5GAA also welcomes the **proposed action 2.2 to develop a nationally harmonised repository of road manager data (C-ITS central station)**, and finds that digitalisation of transport would leverage the benefits of C-V2X for enhanced traffic management operations through cellular network interfaces. Setting up such capabilities requires a holistic architecture that foresees logical paths between ITS services and the data they create, data exchange interfaces and users (i.e. road infrastructure operators). Such an architecture naturally requires quality and reliability of information, as well as stability and availability of services, which should be enabled by strong cellular networks. 5GAA is currently in the process of developing a model of such an architecture in consultation with public authorities in Europe and the US and will be glad to share it with the Australian authorities when it is finalised.

Further, 5GAA finds the **proposed action 2.4 to monitor radiofrequency spectrum arrangements for C-ITS** with a view to ensure they remain fit for purpose and align with international markets should be interlinked with the proposed action 2.1, particularly the intended prioritisation of spectrum for short range communications, i.e. direct communications (PC5). Based on the results of our studies of the spectrum needs of C-V2X direct communications (V2V/I/P), we can draw the following conclusions:

- a) The delivery of day-1 use cases via LTE-V2X for the support of basic safety ITS services requires up to 20 MHz of spectrum at 5.9 GHz for V2V/I/P communications.
- b) The delivery of advanced use cases via 5G-V2X (NR-V2X in addition to LTE-V2X) for the support of advanced driving services will require an additional 40 MHz or more of spectrum at 5.9 GHz for V2V/I/P communications.

As the ITS industry develops further, and we begin to better understand the demands of advanced driver assistance and autonomous driving, we will assess the extent to which the 5.9 GHz band (5850- 5925 MHz) – which is globally harmonised for ITS by the ITU-R – is sufficient to meet the spectrum needs of the road users, and whether additional spectrum designated for V2X direct communication will be required.

Based on the results of our studies of the spectrum needs of C-V2X network-based (V2N) communications, we can draw the following conclusions:

a) At least 50 MHz of additional service-agnostic low-band (< 1 GHz) spectrum would be required for mobile operators to provide advanced automotive V2N services in rural environments with affordable deployment costs.

b) At least 500 MHz of additional service-agnostic mid-band (1 to 7 GHz) spectrum would be required for mobile operators to provide high-capacity, citywide advanced automotive V2N services.<sup>3</sup>

- What other changes should be made to the draft strategy and action plan?

We find that the strategy and the action plan do not give a clear level of ambition on the intended connectivity coverage to attain C-ITS deployment, whether it be for direct or cellular network connectivity. The Australian geography and population spread need to be considered for accessibility by all or most road users. Hence, the need for sufficient coverage in urban and rural areas needs to be addressed. Communication via mobile networks is particularly suitable for Australian conditions as it allows much greater scalability compared to direct-short range communications (DSRC) when it comes to cross-border nation-wide deployment, including regional areas. A flexible mix of C-V2X direct communications (PC5) and cellular network communications as an ideal scenario for an effective CAV system that can meet the needs of all stakeholders involved (including road infrastructure operators, automotive OEMs and ITS service providers).

5GAA is encouraged by the Australian efforts to ensure satellite backed precise positioning for CAVs. We also see an increasingly important role of satellite-based connectivity for cellular networks, which has the potential to achieve continuity of service anywhere, any time, while enabling applications for connected and intelligent vehicles and seamless interaction between terrestrial and NTN for the future vehicle industry. 5GAA wishes to clarify that ubiquitous and uninterrupted connectivity can only be provided if terrestrial and non-terrestrial networks are integrated seamlessly, based on the guidelines of all stakeholders and experts. Non-terrestrial networks and NTN-capable user equipment should be compliant with 3GPP standards and support mobility with terrestrial 4G and 5G networks. This is fundamental in order to be able to work to the highest degree with terrestrial networks and

---

<sup>3</sup> 5GAA, Updated study of spectrum needs for safety related intelligent transportation systems – day 1 and advanced use cases, Technical Report, 2021, available at: [https://5gaa.org/content/uploads/2021/10/5GAA\\_Day1\\_and\\_adv\\_Use\\_Cases\\_Spectrum\\_Needs\\_Study\\_V2.0.pdf](https://5gaa.org/content/uploads/2021/10/5GAA_Day1_and_adv_Use_Cases_Spectrum_Needs_Study_V2.0.pdf)

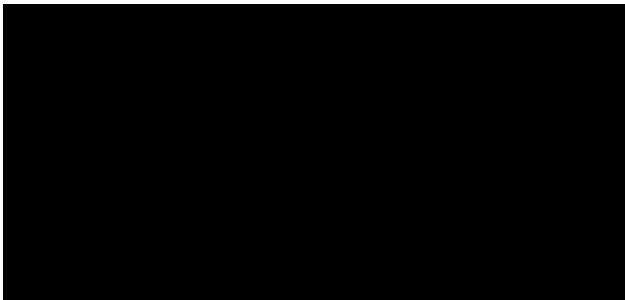
achieve an integrated approach addressing the needs of people and industry as well as facilitating security and stability.<sup>4</sup>

In conclusion, 5GAA applauds the Australian government's intent with the proposed National Road Transport Technology Strategy and the proposed National CAV Action Plan. Nevertheless, we find that an achievable public policy plan for C-ITS should also provide indicators for connectivity coverage and corresponding targets, amongst other suggested considerations above, all of which would in turn inform the level of ambition of the Australian government towards C-ITS deployment and provide clarity for the automotive industry and other CAM ecosystem stakeholders.

With appreciation,

Maxime Flament

5GAA Chief Technology Officer



---

<sup>4</sup> 5GAA, Position on the Secure Space-Based Connectivity Programme and Focus on the European Communications Satellite Constellation, Position paper, 2022, available at: [https://5gaa.org/content/uploads/2022/10/5GAA\\_NTN\\_Position\\_Paper.pdf](https://5gaa.org/content/uploads/2022/10/5GAA_NTN_Position_Paper.pdf)