Transport Market Reform & Technology Branch
Surface Transport Policy Division
Department of Infrastructure, Transport, Regional Development, Communications and
   the Arts
GPO Box 594
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C-ITSPrinciples@infrastructure.gov.au

8 February 2023

Dear Sir / Madam

Please find attached a submission from the Australian Automobile Association (AAA) in response to the Commonwealth Government's *Draft Principles for a National Approach to C-ITS in Australia.*

The AAA thanks the Department of Infrastructure, Transport, Regional Development, Communications and the Arts for the opportunity to provide a submission. The AAA would welcome the opportunity to be involved in future consultations and be kept informed of progress.

Should you wish to further discuss this matter, my office can be contacted on 02 6247 7311.

Yours sincerely

Michael Bradley
Managing Director

NRMA   RACV   RACQ   RAA   RAC   RACT   AANT

AAA Submission on *Draft Principles for a National Approach to Cooperative Intelligent Transport Systems (C–ITS) in Australia – February 2023*

Introduction

The Australian Automobile Association (AAA) is pleased to provide feedback to the Commonwealth's *Draft Principles for a National Approach to Cooperative Intelligent Transport Systems (C-ITS) in Australia*. The AAA thanks the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) for the opportunity to provide a submission.

The AAA is the peak organisation for Australia's motoring clubs and their 8.9 million members. The AAA's constituent clubs are the NRMA, RACV, RACQ, RAA, RAC, RACT and the AANT. The AAA regularly commissions research and develops in-depth analyses of issues affecting transport systems, including affordability, road safety and fairness.

Background

Benefits of C-ITS

The AAA welcomes the draft principles for a *National Approach to C-ITS in Australia* as C-ITS is expected to provide benefits for road safety, productivity, sustainability (reduced pollution and emissions) and road user journey comfort and experience. When finalised, the principles will provide certainty and support to industry to inform investments.

Austroads has estimated that C-ITS can prevent 25% to 35% of serious crashes.[1] Therefore, C-ITS will be important in delivering the National Road Safety Strategy's target of a 50% reduction in road deaths (to under 570 fatalities) per annum by 2030 (30% for serious injuries) and zero deaths and serious injuries by 2050.[2] There were 1,187 deaths on Australian roads in the 12 months to December 2022, an increase of 58 deaths on the 12 months prior.

C-ITS may provide congestion and travel time savings. This is an important consideration as congestion costs exceed $23 billion each year.[3] Without major policy changes, congestion costs will reach between $30.6 and $41.2 billion by 2030.[3] Further, between 2013 and 2018, across all Australian major capital cities, average speeds declined, and travel time reliability decreased with

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[1] Green D, Gaffney J and Bennett, P (2012) *Cooperative ITS Strategic Plan*, report no. AP-R413-12, Austroads, Sydney, Australia, accessed 17 January 2023.

[2] Commonwealth of Australia (2021) *National Road Safety Strategy 2021–30*, report no. infrastructure 435, ISBN 978-1-922521-09-1, Australia, accessed 17 January 2023.

[3] Bureau of Infrastructure, Transport and Regional Economics (2015) *Information Sheet 74: Traffic and congestion costs trends for Australian capital cities*, Australian Government, Australia, accessed 17 January 2023.

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the capital city travel time average variability calculated at 23%, while variability on the airport routes was 28%.[4]

C-ITS Data Sharing

An effective C-ITS using standardised high-quality data across Australia will allow road operators to better manage and inform drivers, pedestrians, cyclists, motorcyclists and other mobility users, thereby improving their safety and travel efficiency. The AAA notes that data sharing and availability will underpin all Australian Governments being able to deliver an effective C-ITS system.

At present only limited Australian road safety (crash) data is available nationally and is not up-to-date or timely. There are no regulations or agreed processes for vehicle manufacturers to share vehicle data in a consistent format. Therefore, improving the data quality, consistency and sharing capacity across C-ITS, road safety and other required data sets is imperative.

Data Quality and Availability

The Commonwealth is unable to adequately quantify the extent of road trauma, or the effectiveness of interventions to reduce it. The poor measurement, analysis and reporting of national road safety performance continues to be the major impediment to data-driven, evidence-based solutions to road safety problems. This is despite all Australian Governments signing the *Intergovernmental Agreement on data sharing between Commonwealth and State and Territory governments* on 9 July 2021. This agreement states action will be taken to address national priority data sharing areas, and to reform governments data sharing systems, with road safety one of the three initial priority areas.[5]

The WSP and partners report states the importance of near real time, detailed and openly shared data and claims that most state agencies have "sought to share datasets openly with public in near real time" (p. 53).[7] However, this is not the case for road safety and infrastructure data. Crash data, infrastructure safety ratings and specific safety features cannot be consistently analysed across the national road network. This is due to inconsistencies between the level of sharing (both across governments and with the public) by different state agencies.

Some jurisdictions provide weekly or daily updates on road deaths, but a national picture of crashes is released monthly with only high-level information that omits contributory factors. Detailed locational analysis of road crashes is limited to council areas, with one jurisdiction providing council information on a 12-month lag. This level of frequency is clearly not "near real-time".

Data needs to be nationally consistent, reliable, accurate, high quality (including in its raw format) and secure. Data must be provided in real time for C-ITS to function effectively and to realise its benefits. Thus, a national data exchange with a standard interface between central systems to

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[4] Australian Automobile Association (2019) *Road congestion in Australia*, Canberra, Australia, accessed 17 January 2023

[5] Commonwealth of Australia (2021) *Intergovernmental Agreement on data sharing between Commonwealth and State and Territory governments*, accessed 17 January 2023.

rapidly utilise data across various systems is needed[6]. This further highlights the need for the Commonwealth to lead the way in the development and implementation of a C-ITS framework, policy standards, procedures and a roadmap[7].

Australia's response to COVID-19, and the demonstrated ability of Government Agencies to collate and publicly publish daily statistics on infections, vaccinations, deaths, recoveries and hospitalisations (by age, gender and location) show what is possible within the nation's federated system of government.

As not all jurisdictions appear able or willing to provide priority data immediately, the AAA encourages the Commonwealth to work with agencies and organisations to allow data systems to be built sequentially and enhanced, rather than waiting for all jurisdictions to provide data. The timely and consistent provision of national data is the area in which the Commonwealth can deliver leadership and effect the greatest change to ensure effective Australian C-ITS outcomes.

Response to Questions

1. Are principles for a national approach to C-ITS in Australia necessary? And if so, are the draft principles, as articulated, sufficient to inform investment by industry in C-ITS?

The AAA notes that the WSP and partners report indicated national direction is needed through a framework, roadmap, policy standards and guidelines. This is to provide certainty and equal opportunity for vehicle manufacturers and industry to deliver beneficial C-ITS solutions (p. xix).[7]

The AAA agrees a national approach to C-ITS is necessary and the development of draft principles is an important first step. The AAA supports the draft principles but notes there are practical and other barriers to them being achieved to deliver the certainty required to inform investment.

The AAA's response to each draft Principle is set out in the table below.

Principle	Response
1. Governments will work together and with industry to achieve national consistency, but individual jurisdictions should continue to decide the pace and scale of their respective investments.	The roles and responsibilities of the various entities and agencies involved in C-ITS (e.g. DITRDCA, National Transport Commission, Austroads, state authorities) are not clear, nor is the mechanism for coordination amongst them. This needs to be urgently resolved to avoid duplication and/or conflict.
	Government involvement is key to obtain the best benefit cost ratio for implementation of C-ITS (as modelled by the 2022 WPS and partners report – PA2 option) [noting C-ITS services do not need to be installed everywhere from the outset but governments need to provide central services to distribute road data for a viable C-ITS].
	Government leadership and direction (PA2 option) to support creation of a national C-ITS framework for the rollout of essential enabling technology is essential. It would support the *National Road Safety Strategy* in measuring

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[6] As per European regulations, known as National Access Point (NAP).

[7] WSP and Partners (2022). *Advice on strategies to Support C-ITS deployment findings*, confidential report for Department of Infrastructure, Transport, Regional Development and Communications (Commonwealth Government), Fortitude Valley, Queensland.

Principle	Response
	transformation of the transport system by improving digital capability to understand the road environment (p. 28)[7]. This approach may encourage vehicle manufacturers to provide Australia with the latest globally available technology resulting in more modern vehicles with safety features (p. 28)[7].
2. All components of the C-ITS (e.g., vehicles, infrastructure, all road users, equipment and data) should be able to communicate with each other, and all road network agencies be able to collect and share data.	The AAA notes there is an issue with the two different competing types of short-range communications that cannot communicate with each other.[8] Australian jurisdictional differences in C-ITS standards could result in systems being unusable across borders and the benefits of C-ITS will be reduced as two different systems operate in isolation. As Australia is a technology taker, it will be crucial to follow what Europe chooses to pursue in this area, noting delays in this decision. Also, solutions are being developed to allow the communications between the two systems, although it appears this is in its infancy and problematic. Whilst a decision is being made on the type of communication system, governments can focus on data requirements, cybersecurity and human factors (e.g., driver distraction and design of the human machine interface across relevant platforms). Focusing efforts on such areas will allow Australia to be ready to deploy short range C-ITS once the market resolves and to keep pace with C-ITS deployments worldwide.
3. The work to deliver C-ITS should be cooperative between governments, industry, research stakeholders and the community.	It is critical for all stakeholders to be involved to deliver C-ITS. A systems thinking approach will ensure road users, human factors, environmental, organisational, social, legislative, enforcement and political issues are addressed, in addition to being able to mitigate system design issues that can have unintended consequences. A C-ITS needs to be built into all transport infrastructure delivery stages that include the required C-ITS infrastructure and enable emerging and future technologies for safety, security, connectivity and multi-modality.
4. Harmonise with international approaches in relation to spectrum use for C-ITS use but particularly look to harmonise with European approaches.	It is imperative to harmonise with European approaches, as Australia's automotive standards and radio spectrum allocation closely resemble those of Europe and vehicle standards are aligned with UN Regulations. Some deviation from European approaches will be unavoidable, e.g., the frequencies used for short range communications are different in Australia to Europe and some other countries.

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[8] Dedicated Short Range Communications (DSRC) (mature and used more widely) or Cellular Vehicle to everything (C-V2X). Vehicles equipped with one of DSRC or C-V2X are interoperable.

5.	Uptake of C-ITS should be on improving road safety transport productivity, sustainability and reducing emissions and support the development of new transport technologies including connected and automated vehicles.	The following issues are important to AAA constituent clubs: • road safety and other suitable data capture • reporting against key performance indicators • transport productivity • transport affordability for end users • improved end user journey experiences • reducing greenhouse and noxious emissions To achieve road safety targets and realise the other benefits of C-ITS, aftermarket fitment of the vehicle fleet with the required technologies needs strong consideration. In 2019, it was estimated that only 4% to 8% of new vehicles in Australia had cloud connectivity, a basic requirement for C-ITS.[9] A benefit cost analysis undertaken by Queensland Department of Transport and Main Roads (2016) indicated a delay in deployment of C-ITS technologies with an optimistic implementation scenario (C-ITS in all vehicles from 2020) would result in a reduction of benefits with net economic loss of approximately $200 million and approximately $60 million for a moderate deployment scenario (C-ITS in 40% of vehicles in 2020, 70% in 2030, and 100% in 2040) [2015 dollars].[9]
6.	Effective and timely solutions to managing the security of systems and messaging and privacy of data in C-ITS.	The AAA recommends that: a) The role and value of end-users in facilitating the generation of C-ITS data be recognised. In addition, community consultation and education be incorporated to build end-user trust. b) The benefits of government, stakeholders and C-ITS required data be balanced with the need to protect privacy. Vehicle data will need to ensure the owner of the vehicle cannot be identified. c) Further investigation be undertaken to understand the use cases and challenges with government access to C-ITS data, explicitly including end-user and other stakeholder interests. d) Road safety data be the initial priority in considering government access to C-ITS data. Congestion and traffic management data should also be priorities.

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[9] Somers A (2020) *Future Vehicles 2030*, report no. AP-R623-20, Austroads, Sydney, Australia, accessed 12 January 2023.

2. **Over the next 5 years, to what extent does your organisation anticipate moving into a C-ITS role or increasing its involvement in C-ITS?**

The AAA is not involved in moving into a formal C-ITS role, but it may increase its involvement in C-ITS as it is of interest to our constituent clubs and their members. However, the AAA and its constituent clubs are well placed to inform and educate its 8.9 million members. The AAA would welcome the opportunity to be involved in future consultations and be kept informed of progress.

3. **How might C-ITS impact other vehicle connectivity systems in Australia, including vehicle/OEM connectivity, vehicle/cloud connectivity, heavy vehicle telematics systems, mapping systems, etc?**

The AAA recommends the consideration of human factors and systems thinking issues, especially around the design of the technology in vehicles and how it affects drivers and other road users. It is noted that vehicle design standards are not developed in Australia and Human Machine Interface and driver distraction research will influence international standards such as ANCAP and EuroNCAP. This will have relevance as vehicles with higher levels of automation and connectivity are introduced over the next five years. This will result in a mix of vehicle types in terms of automation on our roads creating additional challenges for C-ITS.

4. **The draft Principles include a focus on cooperation across industry, government, the research sector and the community: what structures would be necessary to support the development of an Australian C-ITS system?**

The AAA supports a focus on cooperation across industry, government, the research sector, and the community. The Commonwealth is best placed to take up this leadership role. The AAA recommends that a robust national framework, led by the Commonwealth, be used to support the development and success of C-ITS in Australia. The AAA believes that the national framework outlined by WSP partners which would meet the needs of all key stakeholders and provide certainty is required:

- A detailed roadmap with objectives, target state (interoperability) and timeframes to galvanise an approach to deployment.
- Early deployments to occur with investment confidence.
- Experts to establish delivery models for each aspect needed to deliver the roadmap including potential investment options.
- Industry to validate business models and technical delivery within the Australian context (p. 51).[7]

5. **After the Principles, what next steps do you think would be most productive?**

The AAA recommends that the *National Partnership Agreement on Land Transport Infrastructure Projects* (due to expire 30 June 2024) should be leveraged to require data provision by states and territories. This would compel jurisdictions to establish the needs and technical requirements for national data exchange. A national data exchange allows sharing of information consistently from central systems to C-ITS components to ensure data can be generated, processed, stored, analysed and used.

The AAA recommends mapping C-ITS capabilities by jurisdiction, e.g., what technologies/infrastructure are in place now (if such information has not already documented). A roadmap could then be developed to address gaps as identified by the mapping exercise, noting there is a "European Roadmap to Deployment" and the following issues have been highlighted.[10]

- "Technology Deployment Options e.g., for short range communications – implementation method to be used and is it suitable for the use cases and scenarios where C-ITS is expected to provide benefits?
- Aftermarket and Original Equipment Manufacturers (OEMs) – is deployment limited by the speed OEMs can introduce technology? Is retrofitting a suitable alternative for all applications?
- Infrastructure deployment – what type of infrastructure must be deployed?
- Penetration – what level of penetration must be achieved to realise benefits?
- Communications (network) coverage – are there potential issues which may arise from areas of low coverage?
- Standards and regulation – what type of standards and regulation exist and is harmonisation required?
- Human and machine interaction factors – before full automation and penetration is reached, what factors affect human reactions to information provided by C-ITS applications?
- Security, privacy and user concerns – what challenges are faced with security, credential management, and privacy?" (p. 27).

Finally, the AAA also supports early actions to help enable essential technology and establish the basis for future C-ITS deployment as listed in the WSP partners report:

- Deploying short-range communications infrastructure that is interoperable and supports delivery of priority benefits.
- Establishing a Security Credential Management System as soon as possible so trusted information can flow.
- Providing support for positioning accuracy systems via guidelines, testing and infrastructure, and encouraging higher accuracy, reliable and cost-effective solutions.
- Preparing central systems (such as traffic management centres) to provide event data to vehicles and receive data from vehicles.
- Establishing the needs and technical requirements for national data exchange to share information consistently from central systems.
- Continuing the cellular network's growth so it can support long-range communication services particularly on key corridors in remote areas.
- Building guidelines and example datasets that demonstrate Australia's implementation of nationally consistent standards.
- Establishing clarity on how Australia intends to implement standards for deployment and use of the International Standards Organisation Europe standards guideline (p. xviii).[7]

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[10] Tong J, Nassir N, Lavieri P, Sweatman P, Sarvi M, Ryan S and Harris S (2020) *Putting the Connectivity in C-ITS - Investigating pathways to accelerate the uptake of road safety and efficiency technologies*, University of Melbourne, Australia, accessed 11 January 2023.