Caravan Industry Association of Australia

Automated Vehicle Safety Reforms
Public Consultation Submission

Executive Summary

In an era marked by innovative technology and tech-savvy consumers, the Australian caravan industry faces a period of great uncertainty. The imperative for both our industry as an end-user of the auto-manufacturing sector, as well as our consumers, to have confidence in this new wave of transport and mobility will require ongoing government oversight during Australian implementation. Caravan Industry Association of Australia's submission to Department of Infrastructure, Transport, Regional Development, Communications and the Arts regarding *'automated vehicle safety reforms'* will outline detailed considerations for the government to consider to ensure that the caravan industry will be adequately supported through this transformative journey. We welcome further consultation with the Department of Infrastructure, Transport, Regional Development, Communications and the Arts to ensure a balanced approach.

Key Objectives:

1. **Achieving Consumer and Road User Safety:** Set clear parameters for road user safety, including specific guidelines regarding unacceptable risk to human life.
2. **Futureproofing modification regulations:** Ensure that there is industry specific guidance as to how our sector will be able to modify ADS's once widely available.
3. **Promoting interoperability:** Ensure industry is positioned to maximise full capabilities of incoming ADS's by ensuring that ADS's are compatible with towable products.
4. **Prevention of *black swan events:*** Consider outlier situations to prevent *worst-case scenario* outcomes.

Strategic Actions:

- **Innovation in Caravan Safety:** Foster research and development in homegrown safety technology reform within the caravanning sector.
- **Manufacturing Process Overhaul:** Implement AV assistive technology that can improve range and efficiency.
- **Technology Integration:** Incorporate advanced safety technologies and smart systems for integrated caravan safety systems.
- **Regulatory Compliance and Standards:** Ensure adherence to evolving legislation and regulation, both domestically and internationally.

Background

The drive tourism industry, characterised by travellers embarking on road trips and exploring destinations by car, has a rich history dating back to the early 20th century. The advent of the automobile revolutionised tourism by providing unprecedented freedom and flexibility in travel.

As technology has advanced, so too has the nature of travel. The introduction of AVs marks a significant evolution in the drive tourism industry. AVs, equipped with sophisticated sensors, artificial intelligence, and connectivity systems, will inevitably transform how people road trip and plan long-distance travel. This transformation is poised to influence several aspects of the sector, particularly travel safety, convenience, the economic landscape of tourism-dependent regions and the regulatory environment governing these technologies.

Historically, travelling by car has been both a source of freedom and a challenge, requiring navigation skills, constant attention, and the ability to cope with fatigue and unpredictable road conditions. Automated vehicles will ultimately attempt to solve many of these challenges by taking over driving responsibilities, thus reducing the cognitive strain on travellers. The shift from active driving to passive travelling can enhance the overall travel experience by allowing space for travellers to focus on the scenic views, engage in leisure activities, or rest during long journeys, making road trips more appealing to a broader demographic, particularly the elderly and those with disabilities.

Moreover, the safety benefits of AVs are substantial. Human error is a leading cause of traffic accidents, and automated systems can significantly reduce these errors through precise and consistent operation. This improvement in safety can boost confidence in long-distance travel, further incentivising drive tourism and regional dispersal.

The convenience offered by AVs extends to the logistical aspects of travel. With the ability to optimise routes, avoid traffic congestion, and find the most efficient paths to destinations, AVs can make road trips more efficient and enjoyable. This optimisation not only saves time but also reduces fuel consumption and emissions, aligning with growing environmental concerns and the push towards sustainable tourism.

Economically, the rise of automated vehicles can have profound effects on regions reliant on drive tourism. Small towns and roadside attractions that have historically benefitted from passing motorists may see changes in visitor patterns. However, AVs also present opportunities for these areas to innovate and adapt. Enhanced data collection and connectivity can enable targeted marketing and personalised travel experiences, attracting tech-savvy tourists. Furthermore, AVs could facilitate the creation of new tourism routes and destinations that were previously less accessible due to challenging driving conditions.

About the Caravanning and Camping Sector

The caravanning and camping sector, a significant segment of the drive tourism industry, stands to benefit substantially from the ongoing innovation surrounding AVs. Our industry, which historically has involved towing caravans or driving motorhomes to campsites, could see transformative changes in how people approach outdoor travel and accommodation.

Automated vehicles could simplify the complexities associated with towing caravans. The precise control and navigation capabilities of AVs can reduce the stress and skill required to tow a caravan, making it more

accessible to novice travellers. This ease of use could potentially encourage more people to explore caravanning as a holiday option, boosting the sector's growth.

Additionally, AVs could enhance the camping experience by providing greater flexibility in choosing camping destinations. AVs equipped with off-road capabilities could navigate difficult terrains, allowing campers to access more remote and less crowded locations. This can lead to a resurgence in interest for eco-tourism, outdoor camping and adventure travel, catering to visitors seeking unique and immersive travel options.

Despite these promising prospects, several policy pitfalls and regulatory challenges must be addressed to fully capitalise on the benefits of AVs in the drive tourism industry. One major challenge will be the development of comprehensive and consistent regulations across state and federal jurisdictions. The current patchwork of state and national regulations can create confusion – both for consumers and those in the manufacturing process and hinder the widespread adoption of AVs. Harmonising or at least detailing how future regulations will impact stakeholders will be crucial to ensure seamless travel across Australia.

Another policy pitfall could be the potential for increased surveillance and data privacy concerns. AVs generate vast amounts of data, including travel patterns, personal preferences, and even biometric information. Ensuring robust data protection measures and transparency in data usage is essential to maintain public trust and prevent misuse of sensitive information.

Infrastructure readiness is another critical factor. Many regions lack the required infrastructure to support AVs, such as high-quality road networks, reliable connectivity, and charging stations for electric AVs. Even on micro issues such as distinct road markings in regional areas, it will be critical the Government take into consideration how these issues will impact the transition. Governments and the private sector must collaborate to invest in and upgrade infrastructure to accommodate the needs of automated vehicles.

Liability and insurance frameworks also need to be redefined. In a world of automated driving, traditional notions of driver responsibility become obsolete. Policymakers must develop new liability models that clearly delineate responsibilities between vehicle manufacturers, software developers, and users.

Public acceptance and ethical considerations represent another layer of complexity. There will be an ongoing need for exhaustive campaigns to address potential misconceptions about AVs. Ethical dilemmas the public will grapple with when considering purchasing an AV, such as decision-making in unavoidable accident scenarios, must be addressed transparently to ease concern and promote uptake.

Recommendations for Ensuring Safety

Develop Comprehensive Safety Standards: Establish and enforce stringent safety standards for AVs towing caravans. These standards should cover all aspects of towing dynamics, communication protocols, sensor integration, and cybersecurity.

Promote Industry Collaboration: Encourage and incentivise collaboration between AV manufacturers, caravan producers, modifiers and technology providers to foster the development of interoperable systems. Joint efforts can lead to the creation of universal standards and best practices.

Invest in Research and Development: Fund research focused on the specific challenges of AVs towing caravans, such as stability control and environmental adaptability. Pilot programmes and field tests can provide valuable data to refine these technologies.

Enhance Public Education and Training: Educate the public and caravan owners about the safe use of AVs, including the importance of regular maintenance and updates. Incentivising ongoing training through RTOs for technicians and mechanics on AV-specific issues can also ensure proper upkeep and repairs.

Implement Robust Testing Protocols: Before AVs towing caravans are allowed on public roads, they should undergo rigorous testing in diverse conditions. This includes simulations, controlled environments, and real-world testing to identify and address potential safety issues. This also includes a form of testing that examines interoperability with towing products.

Ensure Regular Software Updates and Compatibility Checks: Establish a protocol for regular software and firmware updates that includes thorough compatibility checks with caravan systems. These updates should be seamless and user-friendly, minimising the risk of disruptions.

Strengthen Cybersecurity Measures: Develop and implement robust cybersecurity protocols to protect AV and caravan systems from cyber threats. This includes regular security audits, vulnerability assessments, and the use of advanced encryption technologies.

Caravan Industry Requirements

As the caravan industry transitions to AVs, the Government must address several critical policy considerations to ensure a smooth and effective integration. These considerations span across safety, interoperability and compatibility, charging infrastructure, data privacy, economic impact, environmental sustainability, and public engagement. Each is crucial for fostering a safe, efficient, and user-friendly environment for AV-based caravanning.

Safety

Safety is paramount in the transition to AVs within our industry. Government must establish rigorous safety standards and regulations to ensure that AVs operate reliably under diverse conditions encountered in caravanning, particularly rural and off-road environments. Key safety considerations should include:

Vehicle Certification and Testing: Implementing comprehensive testing protocols for AVs that tow caravans will be essential. These protocols should simulate various real-world scenarios to ensure that AVs can handle the additional complexities of towing, such as weight distribution, braking efficiency, and manoeuvrability. Certification processes must be stringent, verifying that all safety standards are met before AVs are allowed on public roads.

Driver and Passenger Safety: Even though AVs are designed to reduce human error, there must be safeguards to protect passengers in case of system failures or unexpected situations. Policies should mandate redundant systems, such as backup power and manual override capabilities, to enhance safety. Additionally, public education campaigns are necessary to inform users about the safe operation of AVs, including emergency procedures.

Cybersecurity: AVs are highly dependent on software and connectivity, making them vulnerable to cyber-attacks. Governments must develop cybersecurity standards to protect against hacking and ensure the integrity of AV systems. This includes secure communication protocols, regular software updates, and incident response strategies.

Interoperability and Compatibility

Interoperability and compatibility between different AV systems and between AVs and existing road infrastructure will be crucial for seamless operation and user experience. Policy considerations in this area should include:

Standardisation: Governments should promote the development of standardised protocols for communication between AVs, as well as between AVs and infrastructure (V2X communication). This standardisation will ensure that AVs from different manufacturers can interact effectively and safely, enhancing traffic coordination and reducing the risk of accidents.

Infrastructure Compatibility: Existing road infrastructure must be assessed and upgraded to support AV operation. This includes clear road markings, signage, and the installation of smart infrastructure that can communicate with AVs. Policies should mandate that new infrastructure projects incorporate AV-compatible features to future-proof investments.

Cross-Border Interoperability: For caravanners travelling across regions or countries, it is essential that AV systems work seamlessly across different jurisdictions. Governments need to collaborate internationally to harmonise regulations and standards, facilitating cross-border travel without technical or regulatory obstacles. Noting the difficulty AVs may have operating across different states, it may also be worth considering whether it is legally and practically viable to supersede state road rules by all states and territories adopting the *Australian Road Rules 2023* model law.

Compatibility with Existing Caravans: Policies should ensure that AVs can be compatible with existing caravans, which may not be designed for automated towing. This might involve providing guidelines around retrofitting older caravans with compatible technology or for the design of new caravans that can be more easily towed by AVs.

Charging Infrastructure

As the adoption of electric AVs grows within the caravan industry, robust charging infrastructure becomes a critical enabler. Policy considerations in this area should include:

Expansion of Charging Networks: Governments must incentivise the expansion of charging networks, particularly in rural and remote areas popular with caravanners. This includes grants, subsidies, and public-private partnerships to install charging stations along major routes and at campsites.

Standardisation of Charging Systems: To avoid compatibility issues, governments should consider the viability of standardised charging connectors and payment systems. This standardisation will simplify the user experience, ensuring that AV users can charge their vehicles conveniently regardless of location.

Sustainability: Policies should encourage the integration of renewable energy sources into the charging infrastructure. This can be achieved through incentives for solar-powered charging stations and the development of microgrids at campsites. Promoting sustainable charging options aligns with broader environmental objectives and enhances the eco-appeal of electric AVs.

Real-Time Information Systems: Developing real-time information systems that provide AV users with up-to-date information on the availability and status of charging stations is crucial. Governments should support

the creation of integrated platforms that offer route planning assistance based on charging needs, reducing range anxiety, and improving travel efficiency.

It should be noted that for a comprehensive understanding of our industry's position on regional charging infrastructure, further information can be found in our recent submission to the House of Representatives Standing Committee on Climate Change, Energy, Environment and Water's inquiry into the transition to electric vehicles – which can be provided upon request.

Data Privacy

Automated vehicles generate vast amounts of data, including travel patterns, personal preferences, and even biometric information. Ensuring robust data protection measures is essential to maintain public trust and prevent misuse of sensitive information. Policy considerations should include:

Data Protection Laws: Governments must establish and reinforce data protection laws that regulate how data collected by AVs is stored, processed, and shared. These laws should promote transparency, giving users agency over their data and the ability to opt-out of data collection if desired and practical.

Cybersecurity Standards: Implementing stringent cybersecurity standards to protect AV data from breaches and cyber-attacks will be critical. This should include regular internal audits, encryption of sensitive and personal data, and secure communication protocols.

Economic Impact

The transition to AVs will have significant economic implications for the caravan industry. Governments need to consider policies that support economic growth and mitigate any negative impacts. Key considerations should include:

Tourism Revenue: Policies should aim to maximise the economic benefits of increased tourism facilitated by AVs. This includes promoting local attractions, supporting small businesses, and ensuring that regions traditionally reliant on drive tourism continue to thrive.

Support for Innovation: Governments should provide a detailed plan for funding and incentivising research and development in AV technology, particularly focusing on improvements that benefit the caravan industry. This should include grants for SMEs and partnerships with academic institutions/RTOs.

Environmental Sustainability

As the caravan industry adopts AVs, there is a clear opportunity to boost environmental sustainability. Policy considerations in this area should include:

Emissions Standards: Governments should set reasonable and detailed emissions standards for AVs to reduce the environmental impact within an Australian context. It should be noted that any incentives placed upon manufacturers to decarbonise must be technology-agnostic to ensure that ongoing innovation and support for end-users can flourish.

Conservation of Natural Areas: Policies should reinforce the industry's efforts to ensure caravanning works with the conservation of natural areas. This should be manifested in the implementation of AV policy by providing guidelines on how AVs should interface with destinations such as national parks, thereby promoting responsible tourism practices.

Public Engagement and Education

Public acceptance and understanding of AV technology are crucial for a successful transition. Policy considerations in this area should include:

Public Education Campaigns: Governments should launch campaigns to educate the public about both the benefits and risks of AVs. This should include information on how AVs function, their safety features, and how motorists and travellers should interact with AVs on the road.

Stakeholder Engagement: Engaging with a broad range of stakeholders, including caravan manufacturers, tourism operators, and the public, will provide valuable insights and ultimately provide support for AV initiatives. Governments should establish forums, public consultative processes and advisory panels to facilitate this engagement.

Transparency and Trust: Promoting transparency about the development and implementation of AV policies will help build public trust. Governments should regularly update the public on progress, challenges, and how concerns are being addressed.

Technical Requirements for Interoperability

Interoperability between caravans and AVs is critical for seamless and safe operation. This interoperability hinges on several technical requirements:

Towing Dynamics and Stability Control: AVs must be equipped with advanced stability control systems that can accurately manage the unique dynamics of towing a caravan. This includes adaptive algorithms that adjust to the caravan's weight, size, and centre of gravity. Stability control systems should be able to detect and mitigate sway, ensure even braking distribution, and maintain optimal traction.

Communication Protocols: Reliable communication between the AV and the caravan is essential. This involves the integration of V2V and V2X communication technologies. These protocols should enable the AV to receive real-time data from the caravan regarding its status, such as brake lights, turn signals, and emergency alerts. Standardised communication protocols will ensure compatibility across different manufacturers.

Sensor Integration and Redundancy: AVs towing caravans require robust sensor systems that can accurately perceive the environment and the caravan's position. This includes LIDAR, radar, and cameras that provide a comprehensive view of the road and the caravan's behaviour. Redundancy in these sensor systems is crucial to maintain functionality in case one system fails, ensuring continuous and safe operation.

Automated Hitching Systems: Automated hitching systems can enhance safety by ensuring secure and reliable connections between the AV and the caravan, as well as reduce human error during the coupling

process. These systems should include sensors that confirm a proper hitch, prevent accidental detachment, and alert the driver to any issues.

Power and Data Integration: Caravans often require power for various systems, including lighting, climate control, and onboard electronics. AVs must provide a reliable power connection that integrates seamlessly with the caravan's electrical systems. Additionally, data integration should enable the AV to monitor and control certain aspects of the caravan, such as interior temperature and battery status, enhancing overall safety and comfort.

Potential Pitfalls in Interoperability

While the technical requirements are clear, several potential pitfalls could hinder the successful integration of AVs and caravans. Addressing these pitfalls is crucial for ensuring safety:

Compatibility Issues: The caravan industry consists of a wide variety of models and makes, each with different specifications and requirements. Ensuring compatibility between these diverse caravans and AVs is challenging. Standardisation efforts must be rigorous and inclusive, but the risk remains that some older or specialised caravans may not be easily retrofitted to work with AV systems.

Software and Firmware Updates: Regular updates to AV software and firmware will be necessary to improve functionality and address security vulnerabilities. However, ensuring that these updates are compatible with the caravan's systems is complex. Incompatibilities could lead to malfunctions or safety hazards. A robust update protocol that includes testing for caravan compatibility is essential.

Environmental and Terrain Challenges: Caravanning often involves travel in diverse environments, including rural and off-road areas. AVs must be capable of handling these varied terrains while towing a caravan. This includes maintaining stability on uneven surfaces, managing steep inclines, and navigating through adverse weather conditions.

Human-Machine Interface (HMI): Even with automated systems, human oversight remains crucial. The interface between the human operator and the AV must be intuitive and provide clear information about the system's status, any potential issues, and manual override options. Poor HMI design could lead to confusion or slow response times in emergencies.

Cybersecurity Risks: As AVs and caravans become more interconnected, they are also more susceptible to cyber-attacks. These attacks could target the communication systems, leading to disruptions or even taking control of the vehicle. Ensuring robust cybersecurity measures, including encryption and intrusion detection systems, is vital to protect against such threats.

About Caravan Industry Association of Australia

Caravan Industry Association of Australia is the peak national body for the caravanning and camping industry in Australia. Our organisation's vision is, "To lead and champion a safe, compliant and sustainable caravanning and camping industry in Australia".

Caravan Industry Association of Australia operates as a not-for-profit organisation with a membership base comprising the individual state caravanning and camping associations with whom we work collaboratively.

There are over 6,000 businesses across the entire caravan supply chain including 2000 Caravan Parks. They are responsible for generating $27.3bn in measured annual economic impact across manufacturing, trade, retail, rental, caravan park and residential land lease revenue including visitor expenditure.

Many of these industry businesses financially support the organisation by making voluntary contributions towards a cooperative fund that aims to support the sustainability of the greater industry.

We are proudly one of the largest holiday accommodation providers in Australia and the largest provider of regional accommodation across Australia irrespective of the purpose of travel.

Our industry is also the largest remaining automotive / trailer manufacturing sector in Australia, leading the world with our innovative and durable design.

Caravan Industry Association of Australia's operational pillars span across data and research, advocacy, compliance, accreditation and marketing - working to lead and champion a safe, compliant and sustainable caravan and camping industry in Australia.

A successful and safe caravan and camping industry is good for Australia. It is good for governments, communities and businesses alike, and provides respite for all Australians looking for a holiday to reconnect with families and friends in a variety of contexts.