Annual Review as at December 2022 – National Land Transport Technology Action Plan 2020–23

Related actions are projects being progressed outside of the direct responsibility of the National Land Transport Technology Working Group. Their reporting in this document summarises their progress or is found in an attachment. They are reflected in the Action Plan and this report to improve visibility of work underway in Australia and encourage collaboration, shared learnings and joint efforts.

Theme	Item/ sub item	Action Item	Lead	Anticipated End Date, as stated in Action Plan	Status	Comments
Safety, Security and Privacy	1.1	**End-to-end regulation for the commercial deployment of automated vehicles** The National Transport Commission (NTC) is working with the Commonwealth, states and territories to develop a regulatory system that supports the safe deployment and operation of automated vehicles in Australia, covering first supply, in-service and decommissioning. Key actions 1.1A, 1.1B and 1.1C relate to this work.				This item captures 1.1A, 1.1B and 1.1C. Changes in the projected availability of highly automated vehicles in Australia have extended the timelines for actions under 1.1. In May 2021, Infrastructure and Transport Ministers agreed a roadmap for implementing the national safety framework for automated vehicles, with the aim of having regulatory arrangements in place by 2026.
	1.1A	**Implementing regulatory arrangements so automated vehicles are safe at the point of first supply in Australia.**	Commonwealth, NTC, states and territories	End 2019	⬤	The Commonwealth is working towards regulating automated driving systems in road vehicles, balancing the need to assist in the development of, and continued alignment with, international vehicle regulations whilst continuing to develop ADR 90/01. The first round of public consultation on ADR 90/01 was completed in June 2021 and a second round of public consultation is being planned for early 2023. The department is expecting a revised version of ADR 90/01 to be presented to the next Infrastructure and Transport Ministers Meeting (ITMM) meeting in May 2023.
	1.1B	**Reviewing the approach to in-service safety for automated vehicles, including consideration of institutional arrangements and road traffic and driving laws.**	NTC, Commonwealth, states and territories	Mid 2020	⬤	In February 2022, ITMM agreed that the Automated Vehicle Safety Law will be implemented through a Commonwealth law, with supporting complementary law changes across the states and territories. The NTC and the Commonwealth are working with state and territory governments to implement this. ITMM is scheduled to consider drafting instructions for the new law, along with policy positions to support complementary state and territory laws in May 2023. An Intergovernmental Agreement is being developed to support the new automated vehicle regulatory arrangements and is expected to be finalised by late 2023. The automated vehicle regulatory framework is expected to be operational by 2026.
	1.1C	**Reviewing state and territory based motor accident injury insurance schemes to ensure appropriate insurance arrangements are in place to deal with crashes caused by automated vehicles.**	States and territories, Commonwealth, NTC	Mid 2021	⬤	The ITMM Secretariat has requested a formal update from the Board of Treasurers on work to establish a nationally consistent approach to third party insurance for automated vehicles. The NTC will work with the states and territories and heads of Motor Accident Insurance schemes to progress this work.
	1.2	**Cooperative Intelligent Transport Systems (C-ITS) Security Credential Management System (SCMS) Pilot Project** The Queensland Department of Transport and Main Roads is conducting on-road operational testing of an SCMS. The SCMS approach secures communication between C-ITS applications. The iMOVE Cooperative Research Centre will study the use of SCMS and its future role in C-ITS applications for transport authorities, including vehicle safety and security, privacy issues and system performance and governance. This pilot will inform government decision-making on a potential national deployment plan.	Commonwealth, QLD	End 2021		**Completed** The final project report was delivered in December 2021 and distributed to iMOVE project partners. The report findings are informing further work to identify requirements and specifications for a nationally consistent SCMS to support safe and secure deployment of C-ITS, and the new project will be included in the next (2024-2027) Action Plan.

Theme	Item/ sub item	Action Item	Lead	Anticipated End Date, as stated in Action Plan	Status	Comments
Digital and Physical Infrastructure	1.3	**Guiding principles and approaches to facilitate safe and legal larger-scale trials of automated vehicles** Building on the establishment of the Guidelines for Trials ofAutomated Vehicles in Australia in 2017, this key priority will develop guidance on conducting larger-scale trials with a view to commercial deployments.	Commonwealth, NTC, states and territories	End 2021	●	**Completed** The NTC has consolidated information for trial applicants, developed a new online information hub, established best practice for trials, and continues to examine the process for potential cross-border trials. Jurisdictions will continue to scope opportunities for larger scale trials. Austroads is developing reporting guidelines to support consistent automated vehicle trial evaluation and reporting, knowledge sharing, and results comparison through project *Consistent Evaluation and Reporting of Automated Vehicle Trials* (FCA6347). The project commenced in February 2022 and is expected to produce guidelines in early 2023. These guidelines will expand the value of each trial through knowledge sharing and capability development.
	1.4 Related action	**Accelerate the deployment of road safety technologies and innovation** There is a strong commitment across all levels of government to improve safety outcomes on our roads. Governments are committed to implementing the National Road Safety Strategy 2011-2020 and the associated National Road Safety Action Plan 2018–2020, including priority actions for the deployment and uptake of vehicle safety technologies. The Commonwealth will streamline the process for legislative and regulatory changes to vehicle safety standards to improve the uptake of new safety technology in the Australian new vehicle fleet, and consider aligning Australian regulations with the proposed European regulatory package to commence within a similar timeframe.	Commonwealth, states and territories	Ongoing	●	The [National Road Safety Strategy 2021-30](#) (NRSS) was released in December 2021. The National Road Safety Action Plan 2023-25 was agreed to by Infrastructure and Transport Ministers in December 2022, subject to relevant jurisdictional approval processes. The Action Plan will be released following all final approvals by the end of January 2023. Further information is available on the National Road Safety Strategy website at: https://www.roadsafety.gov.au/nrss
	2.1	**Develop guidance on how infrastructure can be future ready for CAV technology within an integrated transport and land use planning framework** The Commonwealth will develop guidance to support policy and investment decisions on technology in the road transport sector. The guidance will consider strategic priorities for governments to harness the safety, productivity, sustainability and accessibility benefits of transport technology.	Commonwealth, Austroads	Mid 2020	●	Austroads has undertaken several projects that feed into this item (see [2021 progress update](#)). A future project, *Minimum requirements for signs, signals and lines* (CAV6383), will synthesise much of this work, incorporating recent overseas research results on infrastructure readiness for CAVs as vehicle technologies evolve. A number of medium to long term planning needs were identified in the Austroads project *Minimum Physical Infrastructure Standard for the Operation of Automated Driving* (FPI6258), completed in March 2022. Other projects within Austroads' Future Vehicles and Technology program, such as *Developing digital twins in road transport* (CAV6374) will also inform options for integration of transport and land use planning in the context of higher-level vehicle automation and road transport planning needs. Queensland's connected and automated vehicle pilot is looking at the use of C-ITS infrastructure to improve safety, with a report expected to be completed during 2023-24.
	2.2 Related action	**Program of work to address the barriers and challenges impeding the uptake of Low and Zero Emissions Vehicles (LZEVs)** Developed through the LZEV Working Group, this action will support the improvement of environmental performance of infrastructure and transport systems, remove barriers to innovation and capitalise on new and emerging technologies. This work will also consider the development of a National Hydrogen Strategy and the future development of a National Strategy for Electric Vehicles.	LZEV Working Group	Mid 2022	●	During October 2022, the Australian Government sought the community's feedback on the [National Electric Vehicle Strategy](#). Submissions to the consultation closed on 31 October 2022, and the Government is considering the input provided in the consultation. The LZEV Working Group comprises representatives from Commonwealth and state and territory governments, the New Zealand Government, the Australian Local Government Association, Austroads and the NTC. Members lead actions under the work program to address the barriers to the uptake of LZEVs. The LZEV Working Group continues to provide updates at ITMM meetings. NSW has partnered with iMOVE and the Australian Road Research Board to investigate the viability of hydrogen fuel for heavy vehicle use. Further information is available at: https://imoveaustralia.com/project/investigating-viability-of-hydrogen-fuel-for-heavy-vehicle-use/

Theme	Item/ sub item	Action Item	Lead	Anticipated End Date, as stated in Action Plan	Status	Comments
Data	3.1 **Related action**	**Explore uses of C-ITS and AV data to improve network efficiency and investment** CAV data has the potential to support governments in improving network efficiency and safety, and be used as an input to inform investment decision making. Developing learnings, potentially drawing from trials, to inform the approach to data would help guide governments and the community in effective uses of this data. The NTC will undertake a project scoping the potential uses of C-ITS and AV data by governments. There are likely to be other CAV data projects needed to align with past and planned data projects. Austroads will undertake a project looking at the data needs for connected and automated vehicles from road agencies; for example, the location and effect of road works. This project will include national and international data consistency issues.	Commonwealth, NTC, Austroads, states and territories	Mid 2021	🟢	**Partly completed** Several initiatives are supporting this action: • The NTC's National Vehicle Data Working Group, a joint industry-government working group on vehicle-generated data, is developing a data sharing framework and exploring priority areas to test data sharing arrangements. • Austroads project *Connected vehicle and road agency data exchange* (FCA6314) is underway and Austroads is due to commence work on *Guidance for Developing Standardised Transport Data Exchange for Australia and New Zealand* (CAV6376). • Western Australia has commenced trials of C-ITS applications and data exchange for virtual variable messaging and provision of emergency information to reduce congestion and improve road safety. This action continues Action 8 of the 2016-2019 National Land Transport Technology Action Plan.
Standards and Interoperability	4.1	**Evaluate deployment models and associated costs and benefits of C-ITS vehicle technologies** Many automotive and transport sector leaders have indicated that connectivity in vehicles will help solve complex problems in emerging technology. National and international work is underway on connectivity solutions including short-range communications and cellular technologies. A greater understanding of business and assurance models for deployment in Australia and their cost-benefit for industry and government will support effective regulatory and investment decision-making.	Commonwealth	Early 2021	🟢	The Commonwealth Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA), the Department of Transport and Main Roads Queensland, Transport for NSW and Austroads have completed a joint project examining the costs and benefits of C-ITS deployment models with a view to informing policy and investment decision making by Australian governments. This work informed *Draft Principles for a National Approach to C-ITS in Australia*, on which consultation with industry will take place in early 2023. DITRDCA has commissioned follow-up research through iMOVE to examine specific issues relating to short-range communications to support C-ITS and associated standards. The report of this work is expected to be available in early 2023. Outcomes will feed into Action Item 2.1, as well as ongoing Action Items 2, 4 and 5 under the 2016-2019 National Land Transport Technology Action Plan.
Disruption and Change	5.1 **Related action**	**Identify and facilitate emerging technologies that improve freight outcomes** International and Australian trials and research have shown that new technologies can increase freight network efficiency, decrease risk to transport users, reduce fuel usage and emissions, and enhance traceability of supply chains. Through the National Action Plan of the National Freight and Supply Chain Strategy, jurisdictions will: • facilitate research and trials of transport technology in the Australian freight sector; • develop an evidence base to inform next steps on improving freight outcomes, skills, workforce and industry impacts, and future infrastructure needs; and • promote national consistency to support interoperability.	Commonwealth, states and territories	Ongoing	🟢	The National Freight and Supply Chain Strategy sets an agenda for coordinated and well-planned government and industry action across all freight modes to 2040 and beyond. The Commonwealth and states and territories each lead initiatives under the Strategy. Progress of initiatives under the Strategy is reported on annually and is available at the Freight Australia website at: https://www.freightaustralia.gov.au/ DITRDCA has commissioned a research project through iMOVE to examine the workforce implications of transport digitalisation and automation in the context of the Australian market. The final report is expected to be published in early 2023. Victoria facilitated the first on-road automated truck trial in Australia in late 2022, in partnership with industry to capture valuable insights on technologies that can improve freight outcomes.

Theme	Item/ sub item	Action Item	Lead	Anticipated End Date, as stated in Action Plan	Status	Comments
	5.2	**Investigate the role of governments in MaaS and identify priorities and enablers to support its effective development and deployment** MaaS combines public and private transport options in a single app, providing an integrated origin to destination journey, handling payment and bookings through the same platform and providing dynamic route-planning information to users. This provides a model to improve mobility and accessibility in cities, towns and regions. The specific business models of MaaS are being explored and tested around the world, including Australia. This action will define the opportunities and challenges in an Australian context of integrating various forms of transport into a single, optimised on-demand mobility service. This includes describing the enabling roles of governments in guiding the deployment of MaaS.	Commonwealth, states and territories	End 2020	🟠 Investigation work under this action remains ongoing but formal conclusions have not yet been prepared.	The *MaaS and Mobility Australia/New Zealand Government Working Group* was established in 2022, chaired by Queensland. The Working Group has been established to share learnings about MaaS and Mobility, and discuss opportunities for collaboration. Queensland continues to implement its government-enabled MaaS Business Model with an established research and policy program, enabling technology project, as well as the continued operation of the ODIN PASS MaaS trial in partnership with The University of Queensland and iMOVE. NSW has commenced a 12-month trial of a new Opal Plus MaaS app that factors in first and last-mile connections to public transport to make it easier to plan, book and pay for multiple transport modes. Trial results are expected to be available mid-2023. Western Australia maintains a watching brief on MaaS and continues to progress research, projects and initiatives which enable increasingly connected multi-modal journeys designed to deliver optimal transport system outcomes. Industry is also actively involved in consideration of MaaS issues. The Mobility Reference Group is led by Intelligent Transport Systems (ITS) Australia and comprises members from most state and territory governments, as well as industry and the research community. It meets twice-yearly for workshops, fostering collaboration and furthering the equitable and effective development of MaaS in Australia.
	5.3	**Research into the competition impacts of automated vehicles** Potential deployment scenarios for automated vehicles may influence commercial issues such as repairer access, e-commerce platforms and access to data. Research into this aspect of the technology will guide future regulatory decisions making and identify future analysis needed.	Commonwealth, NTC	Ongoing	🟢	Following amendments to the *Competition and Consumer Act 2010* (Cth) in 2021 to make provisions requiring car manufacturers to share some information necessary for motor vehicle repair (known as 'right to repair') and non-inclusion of information relating to automated driving systems (ADS) in this scheme, consideration of the different risks in managing ADS compared to conventional vehicles is ongoing. Further work on competition impacts will be undertaken as automated vehicles move into the Australian market.

Ongoing actions from 2016-19 Action Plan

#	Action Item	Lead (as indicated in 2016-19 Action Plan)	Original 2016 Timing	Status	Comments
2	**Develop national operational guidelines to support the on-road use of automated vehicles** Austroads has completed projects in support of this action, including key road agency actions to support automated vehicles, registration and licensing issues and automated heavy vehicles in remote and regional areas. Further work isunderway on complex issues such as road operations, pavement markings for machine vision and driver education.	Austroads	Late 2017	Ongoing	Work on a number of projects, many led by Austroads and mentioned above, continues to support preparations by road managers for CAVs. Delays in both the readiness of vehicles and stabilisation of the technology suite used by CAVs has delayed the development of operational guidelines for on-road use of automated vehicles. To the extent it is necessary given related work, national operational guidelines to support on-road use of CAVs may occur as Australia approaches readiness for the use of automated vehicles with higher degrees of automation on Australian roads.
3	**Undertake priority trials and research of Intelligent Transport Systems** Research and trials of emerging transport technology remains a priority for all jurisdictions. A Connected and Automated Vehicle Trials and Technology working group was established across jurisdictions to monitor future trials, avoid duplication and optimise information sharing. Austroads continues to publish information about ongoing trials on its website. This research and trialing is a key exercise to inform further analysis sought through **key priority 2.1**.	ITSOC	2016-19	Complete	Queensland has published a series of reports and technical documents for the Ipswich Connected Vehicle Pilot: • Safety evaluation reports are available at: https://imoveaustralia.com/project/project-outcomes/ipswich-connected-vehicle-pilot/ • Technical documents are available at: https://www.tmr.qld.gov.au/business-industry/Technical-standards-publications/Ipswich-Connected-Vehicle-Pilot See Action 4.1 above for further details of ongoing work relating to C-ITS.
4	**Develop a connected vehicle (Cooperative ITS) infrastructure road map** A nationally coordinated road map will provide greater certainty to industry on potential deployment methods and timeframes, with work underway to position Australia to take advantage of opportunities in connected infrastructure. Austroads has undertaken a range of research and assessments on C-ITS through its Connected and Automated Vehicle program with **key priority 4.1** a key step to progress this work.	ITSOC	Mid 2017	Complete	See Action 4.1 above for details of ongoing work relating to C-ITS.
5	**Publish a connected vehicle (Cooperative ITS) statement of intent on standards and deployment models** Creating a technologically neutral statement of intent for Australia will help give guidance to industry on likely deployment models. In January 2018, the Australian Communications and Media Authority made the Radiocommunications (Intelligent Transport Systems) Class Licence 2017, providing certainty that C-ITS applications can be used in the 5.9 MHz spectrum. C-ITS technologies and standards development continue to evolve in what is a highly complex environment, with governments and stakeholders progressing work to evaluate their adoption including through **key priority 4.1** of the National Land Transport Technology Action Plan 2020-23.	ITSOC / Commonwealth	Early 2017	Complete	See Action 4.1 above for details of ongoing work relating to C-ITS.

Action Plan 2016-19

Ongoing actions from 2016-19 Action Plan

6	**Develop a nationally agreed deployment plan for the security management of connected and automated vehicles** The Commonwealth and state and territory governments are conducting research on and piloting systems for managing cyber security in CAVs and connected infrastructure, using international best-practice approaches. Work on this action is continuing through **key priorities 1.2 and 4.1** of the National Land Transport Technology Action Plan 2020-23**.**	ITSOC/ Austroads	Mid 2018	Deferred	With the completion of the SCMS Pilot Project in Action 1.2 above, the findings are informing further work to identify requirements and specifications for a nationally consistent SCMS to support the safe and secure deployment of C-ITS. The new project will be included in the next (2024-2027) Action Plan.
7	**Investigation of options to provide enhanced geo-positioning information to the land transport sector** Australian and New Zealand governments developed a test-bed for enhanced positioning techniques, including connected and automated vehicle projects. In 2018 the Australian Government funded the development of a Satellite-Based Augmentation System and a national ground station network to enhance Australian geo-positioning.	Commonwealth		Action complete, with further work ongoing	In September 2022, Geoscience Australia announced the commencement of early Open Services delivered by the Southern Positioning Augmentation Network (SouthPAN), a partnership with Toitū Te Whenua Land Information New Zealand. SouthPAN provides accurate, reliable and instant positioning services across all of Australia and New Zealand's land and maritime zones without the need for mobile phone or internet coverage. On 26 September 2022, SouthPAN early Open Services became live, with a safety-of-life certified SouthPAN services planned in 2028. Consideration of the impact of SouthPAN on road and vehicle technologies requiring accurate positioning inputs is proposed to be included in the next (2024-2027) Action Plan.
8	**Improve the availability of open data in the transport sector** Austroads published the Connected and Automated Vehicles (CAV) Open Data Recommendations report in 2018. The next stage of this project is to investigate best practices for the supply of road authority data for CAVs through **key priority 3.1** of the National Land Transport Technology Action Plan 2020-23.	All jurisdictions	2016-19	Complete	The National Freight Data Hub and Road Safety Data Hub have been established to work with data owners and custodians to improve the availability and accessibility of data across Australia's transport sector. Collection of new road performance information under the National Service Level Standards for Roads project will be part of further development of the National Freight Data Hub. Actions to support the development of a ratings framework to assess the readiness of roads for CAVs are under consideration for inclusion in the next (2024-2027) Action Plan. NSW launched a new Live Traffic NSW website and app, OneRoad, in July 2022 which provides real time traffic information across 22 Local Government Areas (LGAs) in regional NSW. The new platform increases the reach and improves the availability and reliability of information available on Live Traffic NSW. By 2024, all 128 LGAs in NSW will have the opportunity to publish local road incidents onto Live Traffic NSW through OneRoad, expanding the reach of traffic information to all roads in NSW. Further information is available at: https://www.transport.nsw.gov.au/oneroad
9	**Explore options to increase the takeup of telematics and other technologies for regulatory and revenue collection purposes** This work examined strategies for government and the private sector to accelerate deployment of telematics, and was incorporated into a review of the regulatory telematics regime. The National Transport Commission released the Review of Regulatory Telematics report in March 2018, and continues to work with key stakeholders on implementing the report's recommendations.	ITSOC		Action complete, with further work ongoing	Phase 3 of the National Heavy Vehicle Charging Pilot's Large Scale Trial will test the feasibility of a direct road user charging model using data collected via telematics devices. The Commonwealth is currently undertaking a procurement process for telematics and data services to support Phase 3. Further details including information on how the charging model works in Phase 3 can be found here. NSW made the telematics-based Farm Gate Access program permanent in 2022 following the success of the pilot project. Further information is available at: https://roads-waterways.transport.nsw.gov.au/business-industry/heavy-vehicles/farm-gate-access/index.html NSW has explored other options to increase the take-up of telematics and other technologies through extensive engagement with industry as part of the review of NSW's Heavy Vehicle Access Policy Framework, recognising the potential for telematics and technology to enable a step-change in access networks while also supporting informed network management and maintenance. The new draft Heavy Vehicle Access Policy Framework is now being finalised.
13	**Investigate the costs, benefits and possible deployment models for automatic crash notifications** This project, led by the Commonwealth, analysed a range of potential deployment models for automatic crash notification systems. These systems are designed to provide emergency services with timely and accurate location data of a vehicle in a serious crash situation. This work will inform possible future deployment arrangements.	ITSOC/ Austroads/ Commonwealth		Action complete, with further work ongoing	Australia's Triple Zero systems are not currently able to receive the data from an eCall alert. There may be opportunities to include eCall in the ongoing development of Next Generation Triple Zero services or to consider other paths to promote eCall in Australia. Further work may be considered in the context of the next (2024-2027) Action Plan.

Complete actions: 1, 7, 9, 10, 11, 13, 14 (3, 4, 5, and 8 completed in 2022)

Revised action: 12