Annual Review as at December 2021 – National Land Transport Technology Action Plan 2020-23

Related actions:

Related actions are projects being progressed outside of the direct responsibility of the National Land Transport Technology Action Plan Working Group. Their reporting in this document summarises their progress. 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.

						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.			Changes in the projected availability of highly automated vehicles in Australia have extended the timelines for actions under 1.1.	This item captures 1.1A, 1.1B and 1.1C
	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 to introduce an Australian Design Rule (ADR) and other mechanisms under the <i>Road Vehicle Standards Act 2018</i> to regulate automated driving systems when they are first supplied to Australia. Public consultation on ADR 90/01 was completed in June 2021, and the Commonwealth is progressing next steps in consultation with the NTC and states and territories.
	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 May 2021, Infrastructure and Transport Ministers <u>agreed a roadmap</u> for implementing a national safety framework for automated vehicles, with the aim of having national regulatory arrangements in place by 2026. The Commonwealth, state and territory governments and the National Transport Commission (NTC) have developed advice on a nationally consistent regulatory approach for an automated vehicle safety law and national in-service safety regulator, to support Infrastructure and Transport Ministers' consideration in February 2022 ¹ of <u>a preferred legislative approach</u> .
	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 Heads of Motor Accident and Injury Schemes commissioned a report that examines the compulsory third party insurance schemes in each state and territory. The report makes recommendations around what changes need to be made to enable insurers to recover the costs of accidents from automated driving system entities. The Board of Treasurers is expected to consider issues related to motor accident injury insurance at its February 2022 meeting.
	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 onroad 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		The testing phases of the project were carried out in 2020 and 2021, with the pilot formally conducted during 2021. A report on the technical elements of the project was delivered in October 2021 and the final project report was delivered in December 2021. The final report informs decision-making on forward national policy for vehicle communications security, particularly towards an options analysis to consider the feasibility of a larger-scale SCMS pilot. This activity continues Action 6 of the 2016-2019 National Land Transport Technology Action Plan.
	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 of Automated 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		Following on from its review of the guidelines, the NTC has consolidated information for trial applicants, developed a new online information hub, established best practice for trials, and is examining the process for potential cross-border trials. The NTC also held two interjurisdictional workshops on automated vehicle trials best practices and cross border applications in the first half of 2021. An update will be provided to Infrastructure and Transport Ministers at their February 2022 meeting. Jurisdictions are continuing to scope opportunities for larger scale trials.

¹ 16th ITMM communique 11 February 2022 - https://www.infrastructure.gov.au/sites/default/files/documents/16th itmm communique 11 february 2022.pdf

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.

A priority area of the NRSS is to pursue technological improvements and uptake of safer vehicles. This includes a commitment to implementing priority vehicle safety standards through the Australian Design Rules (ADRs) as soon as possible, and to promote market uptake of new vehicle safety features and technologies. The NRSS also prioritises the implementation of new regulatory requirements for vehicles with automated driving systems to facilitate their safe deployment.

The National Road Safety Action Plan 2021-25 is under development in consultation with state, territory, local governments and key stakeholders.

The Road Safety Innovation Fund, running for 4 years from 2019-20, targets innovative projects designed to reduce the number of deaths and serious injuries on Australian roads and to help create a safe and sustainable road transport system.

The Commonwealth is also working to facilitate consideration of relevant technologies and innovations in the deployment of new vehicle safety regulations, including through engagement in the United Nations World Forum for the Harmonization of Vehicle Regulations (WP29).

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

This action was delayed due to the COVID-19 pandemic, but work has since resumed. Work under key priority 4.1 (a study of C-ITS deployment models and their costs and benefits) will assist with progressing key priority 2.1.

Austroads has several projects which are also expected to feed into this item: Guidance for road agencies on supporting cloud connected users (FDI6304), Connected vehicle and road agency data exchange (FCA6314), Understanding the benefits and costs of providing a minimum physical infrastructure standard for the operation of automated driving (FPI6258), and joint foundational research into the potential role of 5G in vehicle and infrastructure connectivity in collaboration with iMOVE CRC and the Commonwealth Department of Infrastructure, Regional Development, and Communications (DITRDC) (FCA6339).

Guidance will also need to consider the impacts of COVID-19 on infrastructure provision and use of transport.

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

The LZEV Working Group comprises Commonwealth and state and territory government members, who each lead actions under the work program to address the barriers to the uptake of LZEVs.

The program of work was developed through the LZEV Working Group and agreed by ITMM in June 2020. It includes actions to: support infrastructure development, reduce upfront costs, increase model availability, and educate and improve awareness of consumers of the benefits of shifting to low emission vehicles, while acknowledging the need for a market-based response.

Progress has been made by the working group to implement several initiatives, including to encourage the uptake of LZEVs in government fleets, development of national guidance on LZEV infrastructure installation and signage, investigation of LZEV interoperability and datasharing scenarios, and the roll out of amendments to the *Australian Light Vehicle Standards Rules 2018* requiring LZEVs to be identified by markings on a number plate.

The LZEV Working Group continues to provide updates at ITMM meetings.



2.1

1.4

Related

action



Disruption and Change 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

A variety of steps and initiatives are supporting this action:

- The NTC has established the National Vehicle Data Working Group, a joint industrygovernment working group on vehicle-generated data. Industry and government cochairs have been appointed, and the first meeting was held in October 2021. The working group will have an initial two-year term to late 2023, with meetings to be held quarterly. A range of use cases will be developed.
- In May 2021 the Commonwealth announced funding for the National Freight Data Hub. The Hub is intended to provide high quality, easily accessible data to make sure the freight sector is as efficient, safe, productive and resilient as possible.
- Austroads is carrying out projects on Road authority data for connected and automated vehicles (FDI6216), Guidance for road agencies supporting cloud connected road users (FDI6304), Understanding the benefits and costs of providing a minimum physical infrastructure standard for the operation of automated driving (FPI6258), as well as a new project on Connected vehicle and road agency data exchange (FCA6314).
- NSW is testing a data exchange platform to exchange data with freight operators and collect telematics data. It is also finalising industry partnerships aiming to explore the vehicle as a sensor concept.
- WA is commencing trials on 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

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 shortrange communications and cellular technologies. A greater understanding of business and assurance models for deployment in Australia and their costbenefit for industry and government will support effective regulatory and investment decision-making.

Commonwealth

Early 2021

This action was delayed due to the COVID-19 pandemic, but work has since resumed.

The Commonwealth Department of Infrastructure, Transport, Regional Development and Communications (DITRDC), the Queensland Department of Transport and Main Roads, Transport for NSW and Austroads are working together on a joint consultancy project examining the costs and benefits of C-ITS deployment models with a view to informing policy and investment decision making by Australian governments.

Consultants WSP were engaged for the project in early 2021. They are producing a report to provide advice on the current and future capability of C-ITS to deliver beneficial outcomes for Australians and relevant considerations for governments regarding the various models for deployment.

The project will be completed in the first half of 2022. 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.

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

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
- 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 Ongoing territories



The National Freight and Supply Chain Strategy sets an agenda for coordinated and wellplanned government and industry action across all freight modes to 2040 and beyond. Relevant initiatives under the National Freight and Supply Chain Strategy include:

- 1.3 Identify and support digital infrastructure and communication services necessary for improved and innovative supply chains
- 2.1 Adopt and implement national and global standards, and support common platforms, to reduce transaction costs and support interoperability along supply
- 2.3 Facilitate new and innovative technologies that improve freight outcomes and understand the deployment, skills and workforce requirements for operators and infrastructure
- 4.1 Develop an evidence-based view of key freight flows and supply chains and their comparative performance to drive improved government and industry decision-making, investment and operations.

The Commonwealth and states and territories each lead initiatives under the Strategy. As part of this, a new Supply Chain Benchmarking Dashboard was publicly launched by the Deputy Prime Minister on 15 October 2021. Developed by the CSIRO, the Dashboard models

					Australian supply chains and provides a comprehensive set of benchmarks to assist performance evaluation and comparison.
					To find out more about other progress being made, visit the Freight Australia website at: https://www.freightaustralia.gov.au/
	Investigate the role of governments in Mobility as a Service (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.	Queensland is taking steps to develop MaaS, endorsing a business model that would see the Queensland government become a MaaS operator and encourage private MaaS operators into the market.
					A real world trial of MaaS has been launched in South East Queensland. The trial is co-led by the Queensland Department of Transport and Main Roads (TMR) and the University of Queensland as part of an iMOVE Cooperative Research Centre program. In July 2021 TMR commenced a MaaS and mobility program.
					NSW is also considering MaaS as it looks to establish the next generation of its CAV program and further develop its Cudal testing facility.
5.2					WA is in the early stages of preparations for MaaS, focusing on public transport optimisation, participation in research (e.g. journey planner research via the Planning and Transport Research Centre) and delivery of multi-modal transport trials. WA is also commissioning research into transport disadvantage.
					Industry is also actively involved in consideration of MaaS issues. The MaaS National Reference Committee is led by 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.
	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	Not yet decided	0	Forecasting of automated vehicles (AV) uptake in Australia has been undertaken by Austroads and the Bureau of Infrastructure and Transport Research Economics (BITRE) in the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications (DITRDC).
5.3					Austroads released its Future Vehicles 2030 forecast in 2020, and an updated addendum reaching to 2031 in September 2021. The updated forecast indicates a delay in the expected first availability and adoption of AVs, with rapid uptake scenarios for highly automated vehicles showing 2023 to 2025, and slow uptake scenarios now beyond 2031.
					BITRE published its forecast in December 2021, revealing its best case scenario that fully automated vehicles will be commercially available from 2031 and the share of AVs in the light vehicle fleet will reach around 30 per cent by 2050 and 80 per cent by 2070.
					There will be opportunities to carry out more detailed work on competition impacts in the future, once uptake of AVs increases in Australia.

Ongoing actions from 2016-19 Action Plan

#		Action Item	Lead (as indicated in 2016-19 Action Plan)	Original 2016 Timing	Status	Comments
2	<u>!</u>	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 is underway on complex issues such as road operations, pavement markings for machine vision and driver education.	Austroads	Late 2017	Ongoing	Austroads' project investigating a minimum physical infrastructure standard for the operation of automated driving (FPI6258) is due to be completed in March 2022, and is intended to support future deployment decisions.
Plan 2016-19	•	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 trialling is a key exercise to inform further analysis sought through key priority 2.1.	ITSOC	2016-19	Ongoing	Austroads' project on Consistent evaluation and reporting of automated vehicle trials (FCA6347) will support consistent evaluation and reporting, knowledge sharing and comparison. Trials and research also continue to progress, including in the cross-border context. For example, technology from Queensland's Cooperative and Automated Vehicle Initiative (CAVI) trial is being included in elements of the Australian Integrated Multimodal EcoSystem (AIMES) testbed in Melbourne (Victoria) and in the Cooperative Intelligent Transport Initiative (CITI) trial in Wollongong (NSW). In late 2020, Transport for NSW launched the Cudal future mobility testing facility in regional NSW. The facility provides simulated, open road and junctions for technicians to test technologies such as Autonomous Emergency Braking, Lane Keep Assist and Speed Assist Systems. The "Strategies to support C-ITS deployment models" consultancy being carried out under key priority 4.1 will also support this item.
Action Plan 2	ı	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	Ongoing	Technological developments in C-ITS have evolved rapidly since the publication of the 2016 Action Plan. A nationally coordinated approach will help provide greater certainty to industry on potential deployment methods and timeframes, as will 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 Future Vehicles and Technology (FVaT) program with outputs from key priority 4.1 of the National Land Transport Technology Action Plan 2020-23 being a key contribution to informing this work.
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	Ongoing	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. In the meantime, radiofrequency spectrum in the 5.9 GHz band (a frequency range which has been identified by the ITS community as a suitable option for future ITS applications), has been made available for use by ITS in Australia through the Australian Communications and Media Authority's issuing of the <i>Radiocommunications (Intelligent Transport Systems) Class Licence 2017.</i>
6	5	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	ITSOC/ Austroads	Mid 2018	Ongoing	Work on this action is continuing through key priority 1.2 of the National Land Transport Technology Action Plan 2020-23. Building on this, initial work is being undertaken by the Commonwealth on the best and most appropriate Australia-wide security solution for vehicle-to-everything (V2X) communications.

Ongoing actions from 2016-19 Action Plan

	through key priorities 1.2 and 4.1 of the National Land Transport Technology Action Plan 2020-23.				
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	Commonwealth		Action complete, with further work ongoing	Geoscience's Satellite Based Augmentation System (SBAS) has been officially named the Southern Positioning Augmentation Network (SouthPAN). SouthPAN will be the first SBAS in the Southern Hemisphere, and will augment standard positioning capability provided by GPS and Galileo across all of Australia and New Zealand, improving the accuracy of positioning from 5-10 metres to 10 centimetres without the need for mobile or internet coverage. The procurement phase for SouthPAN is currently underway, with initial signals to be provided progressively and a fully-operational and certified system in place by 2025.
	System and a national ground station network to enhance Australian geo-positioning.				
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	All jurisdictions	2016-19	Ongoing	In addition to ongoing work through key priority 3.1 , a variety of initiatives are supporting an enabling environment for this objective. Whole of Government initiatives include data champions, the Australian data strategy, and initiatives under the intergovernmental agreement on data sharing between jurisdictions.
	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.				NSW is reviewing current pilots and the ability to publicly release data from pilots. The new Cudal testing facility is also expected to provide opportunities to release testing data.
					The ACT Digital Strategy (2020) sets out how the ACT will harness digital and technology opportunities to support a more connected Canberra. The ACT Government Open Data Portal supports accessible and shareable data from the ACT. The ACT also has ACTmapi, a geospatial platform that houses open data such as cadastral, asset, infrastructure environment and transport to support spatial analysis and infrastructure investment decisions.
					The NTC's newly established National Vehicle Data Working Group will also support this action by leading the development of the vision and principles for the future exchange of vehicle and road operator data. Vehicle generated data has the potential to enhance network operations, investment, maintenance, planning and road safety.
9	Explore options to increase the takeup of telematics and other technologies for regulatory and revenue collection purposes	ITSOC		Action complete, with further work	Technologies (including telematics) for regulatory and safety purposes is a key stream of the NTC's review of the Heavy Vehicle National Law.
	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.			ongoing	The Commonwealth National Heavy Vehicle Charging Pilot is an industry partnership testing potential direct road user charging options for heavy vehicles. Phase 3 of the next on-road trial will test the feasibility of telematics in collecting heavy vehicle data to support a more efficient and direct way of collecting road user charges. Phase 3 is looking to commence in 2022.
13	Investigate the costs, benefits and possible deployment models for automatic crash notifications	ITSOC/ Austroads/		Action complete, with further work	Australia's Triple Zero systems are not currently able to receive the data from an eCall alert. There may be opportunities to flag eCall in the future upgrades pathway of the Triple Zero Technology Roadmap, subject to completion of other
	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.	Commonwealth		ongoing	immediate priorities such as enabling SMS to Triple Zero. Several states, including NSW and VIC, have indicated support for the introduction of automatic crash notification technology.

Complete actions: 1, 7, 9, 10, 11, 13, 14

Revised action: 12