its australia
Intelligent Transport Systems

Safe Sustainable Transport Through Technology

Industry Vision

2025

President's Foreword

In 2023, ITS Australia strongly endorsed the Federal Government's draft *Connected and Automated Vehicle Strategy and Action Plan*, supporting a nationally consistent strategy for transport technology.

With rapid technological advancements, there is an opportunity to embed a sound governance framework now, building trust and engagement across industry and the community. This will enable the sector to deliver safety and efficiency benefits both now and for future generations.

National and international projects are advancing understanding of connected, cooperative, and automated technologies while identifying pathways for their deployment. ITS Australia's *Safe Sustainable Transport Through Technology* paper highlights key issues and opportunities, along with direct calls to action for government and industry.

ITS Australia emphasises the importance of government and industry collaboration to fully leverage these technologies, preparing for vehicle automation, harnessing the benefits of vehicle connectivity, and nationally harmonising vital data for road safety and productivity. Failure to act promptly risks delaying life-saving technologies and creating a fragmented, patchwork deployment. Leadership is essential to ensure these technologies are deployed equitably across all locations and socio-economic circumstances.

Australia's *National Managed Motorways* demonstrates the value of federal support and state cooperation in delivering harmonised technologies. The *C-ITS Harmonisation and Pre-Deployment* project aims to replicate this success. Priority initiatives that require enhanced government support include:

- Building trusted national data sets for high-impact use cases, such as speed limits and road works.
- Deploying long-range communications for road safety data.
- Agreeing on first-priority operational domains for automated vehicles, focusing on public transport and freight.
- Reducing emissions by optimising existing transport assets.

With road safety targets trending in the wrong direction, Australia must leverage technology to achieve its goal of zero fatalities and serious injuries. Driver assistance technologies are already saving lives, and increased deployment will accelerate road safety, enhance network efficiency, and support sustainability goals. However, deploying these technologies requires government consideration and oversight.

ITS Australia stands ready to facilitate discussions and activities to deliver these life-saving technologies effectively. We welcome the opportunity to work closely with the Commonwealth, all state and territory governments, and industry, to advance transport technology and improve outcomes for all Australians.

Yours sincerely,

Silje Troseth

Silje Troseth
ITS Australia President

Safer Drivers, Safer Roads, Safer Vehicles

Australia is at a critical crossroads in achieving its road safety and sustainability goals and urgent action is required.

Despite the ambitious Vision Zero target, which aims for zero road deaths and serious injuries by 2050, **more than 1200 Australians are killed** and **more than 40,000 seriously injured** on our roads annually.[1]

Congestion costs are rising, and the demand for freight transport is **expected to double by 2040**.[2]

The transportation sector remains one of the **largest sources of greenhouse gas emissions**, contributing **more than a third** of the country's total output.[3]

ITS Australia, the nation's peak body for advancing intelligent transportation systems (ITS), is dedicated to creating safer, more sustainable, and efficient transport solutions through the application of technology. Established in 1992, ITS Australia has been supporting the development and deployment of advanced transport technology in Australia for over 30 years. Our vision is for a seamlessly connected transport network that moves people and goods smoothly, powered by a strong and collaborative industry that meets the needs of all Australians. We bring government and industry together to deliver an inclusive transport future that benefits all Australians.

Technology and transport ecosystems are evolving rapidly, presenting an exciting opportunity to harness emerging innovations to address the challenges facing our sector. However, these advancements can at times create uncertainty, and strong leadership is essential to navigate this changing landscape and ensure all Australians benefit.

This paper highlights the key opportunities for Australia to leverage our sophisticated transport technology ecosystem to improve transport related outcomes for all Australians. Current initiatives that need to be enhanced and expedited include:

- A national effort, led by governments, to establish robust and reliable datasets for high-impact applications, starting with foundational elements like speed limit data and roadworks information;
- National deployment of long-range communication systems for road safety data;
- Agreement among jurisdictions on priority operational domains for Automated Vehicle deployment, with a focus on addressing critical needs in areas such as public transport and freight;
- Reduction of emissions through more effective use of existing transport assets.

To maximise the impact of cooperative and connected transport, ITS Australia calls for:

- **Federal funding: to unlock and accelerate the deployment of safer and more sustainable vehicles and transport through connected, cooperative and automated technologies.**
- **National harmonisation: leadership from the Australian Government to adopt nationally harmonised data-sharing protocols and enable outcome focussed collaboration between state/territory and federal governments.**
- **Stronger partnerships: enhanced collaboration between governments and industry to make the latest technology solutions available to Australians.**

1 National Road Safety Strategy
2 Australia's Development to 2040 and Beyond
3 Reducing transport emissions

Privacy by Design

In our current technology rich landscape, data privacy must be front of mind for policy makers. A coordinated approach by all Australian governments, and industry will ensure this technology is embraced and trusted by society. A national plan should include public initiatives where the community can experience the benefits of emerging transport technologies including connected vehicles, automated vehicles, and data driven road safety initiatives.

1 Real-time, Trusted Data for Road Safety

Data is the critical lifeblood of a connected and cooperative transport network, enabling our vehicles, infrastructure and networks to communicate. Availability and shared access to high quality data on speed zones, roadworks, and level crossings is crucial and must underpin our transport future.

In Australia, work is underway to establish national access points for data exchange, define requirements for agencies to format and enhance data quality, and implement road safety pilots at state or multi-jurisdictional levels. Additionally, there are local examples of industry partnerships, supported by seed funding from government, to share harmonised and trusted transport data. Australia must build on these efforts and keep pace with the rest of the world in leveraging the benefits of data.

Europe, for example, has implemented the ambitious *Data for Road Safety initiative*, a scalable solution where any industry partner in the transportation, mobility and traffic data domain, alongside public authorities, can join and exchange safety related traffic data and information. This project led to the development of the *Safety Related Traffic Information (SRTI) Ecosystem* – a set of terms and conditions agreed to under a multi-party agreement, creating a trusted environment for data sharing. There is a real opportunity for Australia to follow the European model and develop a similar shared and trusted safety data platform.[4]

Australian drivers are calling out for accurate, relevant information about road conditions including validated speed limit and road works information.

To fully realise the potential of these technologies, Australia must establish a harmonised national system with real-time data and reliable data-sharing processes.

Governments are best placed to uplift and maintain accurate real-time data sets on core road asset features such as speed limits and road works. This requires national effort with commitment from jurisdictions to provide quality driver ready data. Federal support is necessary to support a true national approach to real-time road safety data, ensuring the benefits can be delivered consistently across the nation to all drivers.

ITS Australia calls for cross government collaboration to share the accurate, up-to-date government owned data for road safety, underpinned by:

- **A robust governance structure and agreed business model.**
- **A commitment from federal and all state/territory governments to provide quality driver ready data.**
- **A pathway to expand the inclusion of data from other trusted sources that represent suitable use cases and safety benefits.**

4 Data for Road Safety Ecosystem

ITS Australia manages the Australian Traffic Message Channel Tables on behalf of industry consortium owners via an open access agreement. This has supported the delivery of real time traffic information to consumers for over 20 years, with several changes in consortium members over this time. The original tables were developed with seed funding from government while the ongoing table maintenance is fully funded by industry partners.

2 Connected Transport Future for Australia

Cooperative Intelligent Transport Systems (C-ITS) are technologies that allow vehicles, traffic signals, and other parts of the transportation network to communicate with each other. C-ITS systems use real-time data sharing to give road users timely, relevant information based on their location and traffic conditions. These systems can provide alerts and guidance to drivers while equipping traffic operators with valuable insights, enhancing safety, reducing congestion, and improving environmental outcomes.

As ITS technology evolves, C-ITS has the potential to advance road safety and environmental goals set by Commonwealth, state, and territory governments. These benefits have been proven both in Australia and internationally in trials and real-world deployments. Examples include *C-Roads* aligned initiatives and the *Data for Road Safety program* in Europe, along with deployments in Georgia and Utah in the United States. Together, these examples highlight how effective data sharing can lead to safer and more efficient transport networks.

The ITS Australia led research project with University of Melbourne, Connectivity in C-ITS, revealed that connected vehicle technology can impact crashes by up to 78%, with real potential to reduce road trauma and the death toll.

Similarly, eCall is a well-established in-vehicle feature in the EU which automatically makes a free emergency call if your vehicle is involved in a serious road accident. There is real potential to leverage these Automatic Crash Notification technologies in Australia. We commend the government's investigation through Austroads to investigate opportunities for their use in Australia and encourage the deployment of these technologies.

Australia is already on the journey to a connected transport future with a number of significant trials and initiatives paving the way. Running from September 2020 for 12 months, the *Connected Automated Vehicle Initiative* (CAVI) in Queensland involved around 350 public participants using retrofitted connected technology in their vehicles for nine months, supported by 29 connected roadside stations at traffic lights, sending relevant road safety messages to drivers about signal timings, speed limits, road works, and road hazards. Drivers embraced the technology, in particular trusting and endorsing the in-vehicle speed warnings that delivered real-time information about active, static or variable speed limits. Overall, participants rated all use cases between 7 and 9 out of 10,[5] reflecting confidence in the technology.

Benefits Beyond Our Cities

In regional areas, speeding contributes to 25% of serious or fatal crashes—twice the rate in cities—due to limited awareness of speed limits and road conditions, which could be mitigated by in-vehicle messaging systems providing essential information.

Accurate real-time data could also address other risks, such as fatigue (linked to 20% of regional crashes) through to rest area updates, and the dangers of overtaking vehicles, by notifying drivers of upcoming overtaking opportunities.

5 Ipswich Connected Vehicle Pilot Summary

ITS Australia is currently working with Federal and state governments on a major project testing real-world applications in the *C-ITS National Harmonisation and Pre-Deployment* research project, a template for cross jurisdictional collaboration. Delivered through iMOVE Australia with research partners at the University of Melbourne, the research enjoys the support of five state/territory governments and the Commonwealth, all committed to a nationally consistent C-ITS future. Testing C-ITS technologies at scale in a live, on-road network environment enables project participants to gather rich data on implementation considerations and test the effectiveness of connected vehicles and traffic management in an operational environment.

These crucial research projects are building a foundational evidence-base to help guide nationally consistent deployments of cooperative and connected transport technology in Australia that will save lives, avoid lifelong injuries from road trauma and form part of our transport decarbonisation plan.

ITS Australia calls for a nationally harmonised pathway for deploying connected vehicle technologies for all Australians, including:

- **An Australian Security Credential Management System, giving confidence and security for the Australia community.**
- **A cross-agency undertaking to consider the complex impacts of automated and connected vehicles including privacy, cyber-security, telecommunications.**
- **Federal leadership and investment to support this national approach.**

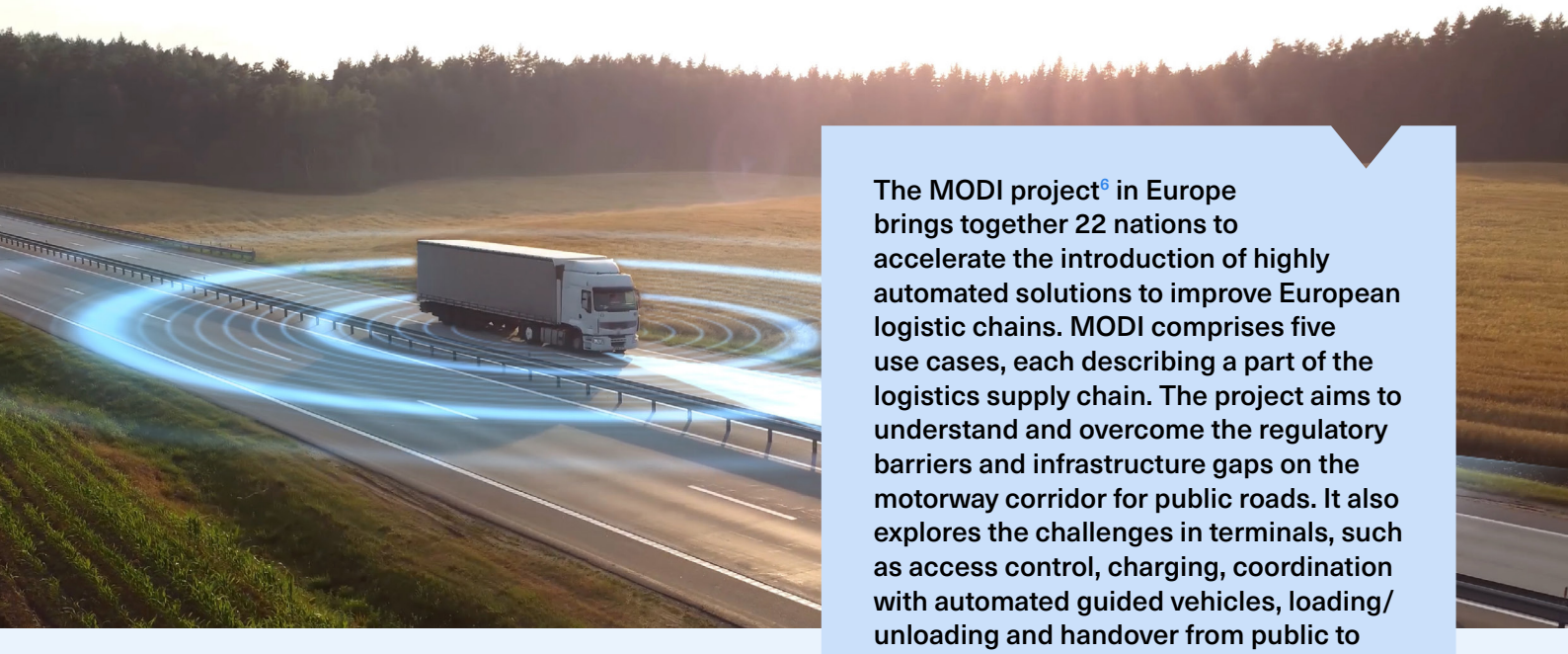
Unpacking C-ITS Benefits for Drivers

C-ITS delivers real-time safety messages, helping drivers make better choices and avoid crashes, including:

- **Emergency Braking Alerts:** Warns drivers of vehicles braking hard ahead.
- **Speed Warnings:** Notifies drivers of variable speed limits and alerts them if speeding.
- **Turning Alerts for Cyclists and Pedestrians:** Warns drivers of pedestrians or bicycles crossing at intersections.
- **Roadworks Alerts:** Provides advance notice of roadworks, allowing drivers to slow down or change lanes.
- **Hazard Warnings:** Alerts drivers to hazards like water on the road, closures, or crashes.

These examples show how C-ITS can enhance safety for all road users—from drivers and passengers to pedestrians and road workers.

Findings from CAVI pilot demonstrated the potential to reduce crashes by up to 20% when cooperative intelligent transport systems cover 100% per cent of the road network.



The MODI project[6] in Europe brings together 22 nations to accelerate the introduction of highly automated solutions to improve European logistic chains. MODI comprises five use cases, each describing a part of the logistics supply chain. The project aims to understand and overcome the regulatory barriers and infrastructure gaps on the motorway corridor for public roads. It also explores the challenges in terminals, such as access control, charging, coordination with automated guided vehicles, loading/unloading and handover from public to confined areas.

3 Accelerating Automated Solutions

Around the globe, connected and automated transport solutions are increasingly being used to complement existing transportation. Australia has led the way in transport automation in ports, agriculture and mining, and efforts are underway to develop the regulatory framework to support the widespread deployment of automated vehicles in Australia, there is a serious need to ensure that the regulatory framework supports safe and effective applications while not hindering deployment.

To fully realise potential benefits of automated vehicles, there will need to be integrated approach with connected transport solutions. Connected transport deployments are well placed to support freight productivity and safety and should be considered as a complement to automation. As automated transport technologies become more visible around the globe, our community will expect Australia to be a fast follower in bringing the flexibility and benefits of this technology.

ITS Australia endorses the current review of existing commonwealth and state laws to ensure they are appropriate for connected and automated vehicles, alongside the complementary development of the Automated Vehicle Safety Laws. To accompany this, coordinated work between governments at all levels is required to make Australia a competitive and viable marketplace for international investment by automated vehicle manufacturers and technology providers.

Given the challenges facing the freight and heavy vehicle sector, including an ageing workforce and an uncertain pipeline of new talent, there are significant opportunities to create an exciting and future-ready employment landscape—beyond just safety and efficiency gains. Australia is already seeing impressive innovation in the mining and agricultural sectors, but we need support to transition these advancements from closed-road environments to public highways safely and efficiently, unlocking their full potential.

ITS Australia calls for a pragmatic approach to automated transport solutions in Australia by:

- **Targeting deployment for key use cases that make economic sense and complement societal expectations for safe transport and that strike a balance between safety and availability to market as level 2+ and level 3 solutions are approved in other markets.**
- **Prioritising the freight sector as a key opportunity to improve productivity and optimise capacity on existing infrastructure.**
- **Nationally agreed initial deployment locations, giving industry confidence to implement proven use cases.**

6 The MODI project

4 Decarbonised

ITS Australia support the ClimateWorks[7] recommended approach, which advocates for a diverse range of approaches to reducing transport emissions:

- **avoid** transport where this is practical
- **shift** to a more sustainably efficient modes
- **improve** by changing to a zero or low emission vehicle

There is significant potential to go further, with ITS technology presenting a substantial opportunity to improve the overall efficiency of our transport networks, delivering both emissions reductions and productivity gains.

Leveraging ITS for decarbonisation

C-Roads is a wide scale deployment of cooperative transport technology in Europe (Australia is also a partner in this project) that has proven efficiency benefits that can lead to emissions reductions including:

- 40% reduction in stops at red lights
- Smoother acceleration and more uniform driving speeds
- Energy savings of up to 30% from a trial in Dresden that leveraged data to provide priority services for public transport.

The recent world-first research – *Integrated connected data for safer more efficient traffic management operations* by the University of Melbourne in partnership with state transport agencies, ITS Australia and iMOVE has showcased how effective data sharing can provide real-world and immediate congestion benefits for network operators, as well as contributing to sustainability goals. For example, signal priority models designed for pedestrians and public transport can increase throughput by 5-10% when focusing on the movement of individuals rather than vehicles. This approach allows network managers to fine-tune traffic priorities, optimising the flow of people.

Additionally, new models enhanced with high-resolution connected vehicle data have outperformed traditional signal control methods, reducing average vehicle travel times and queue lengths by up to 10-15%. These findings are just two highlights from the study, with the full research report set to be published soon.

ITS Australia calls for emissions reduction to be a significant ambition of future transport technology policy, underpinned by:

- **Ongoing research to identify further sustainability benefits from innovative transport technology applications.**
- **Identification of specific use cases to reduce congestion and emissions and support real-world trials to test model findings.**

7 Decarbonising Australia's transport sector: Diverse solutions for a credible emissions reduction plan

5 Activating Future Mobility

Enabling future mobility multi-modal solutions through the application of new technologies will support seamless, interconnected journeys and improve transport accessibility for the community, while also contribute to reducing both congestion and emissions.

Decarbonising the transport sector through Transitioning our vehicles from internal combustion engines to low or zero emission vehicles will not alone solve the transport sectors decarbonisation challenges. Enabling people to choose more sustainable public and active transport will have a more beneficial impact in the short and long term. More research such as the current *Behavioural Change for Sustainable Transport* project is crucial to better understanding how policy can be shaped to support a shift to more efficient modes. To achieve this, we need to understand how policy and infrastructure actions can make that transition work for cities and communities across Australia.

Federal involvement is crucial to support harmonisation of mobility data to enable the efficient deployment of tailored seamless transport systems for Australia.

6 Properly Resourced and Funded

It is well documented that the move to low and zero emission vehicles is reducing the fuel excise income for governments globally. Connected technology creates the pathway to consider new approaches for transport pricing that in many instances have been embraced by the communities where they have been deployed.

ITS Australia and our members are well placed to discuss proven technology options and deployment pathways to support transport funding for Australia.

Our Road to a Thriving Transport Ecosystem

Against the backdrop of road safety targets that are trending in the wrong direction, we must as a nation, leverage technology to realise our long-term goal of zero fatal and serious injuries.

We know driver assistance technologies are saving lives on Australian roads now and with increased deployment can fast track our road safety ambitions, while also enhancing network efficiency and supporting sustainability goals.

Australia's ITS sector is well respected globally with a strong track record of national and international partnerships to deploy Australian-made products and technology. Australia has been a global leader in deploying transport technology such as dynamic speed zones, multi lane free flow, ramp metering, electronic tolling and managed motorways that enhance road safety and efficiency.

With many countries now investing in large-scale C-ITS projects, now is the time for Australia to deliver similar investment alongside a nationally coordinated plan to establish Australia as a leader in automated and connected transport, building on our impressive legacy.

Government leadership and oversight must drive the adoption and harmonisation of connected and cooperative Intelligent Transport Systems. Enhancing the existing collaboration between government and industry through a harmonised national system with reliable real-time sharing processes can build a safer, more sustainable, and efficient transport future.

Our industry stands ready to work with government and to bring the best of industry to deliver these life-saving technologies, which can not only support our safety and sustainability goals but encourage further international investment in Australian technology. As the respected peak body for the transport technology sector, ITS Australia is well placed to facilitate these discussions and activities.

To maximise the impact of cooperative and connected transport, ITS Australia calls for:

- **Federal funding: enhanced investment in research and development and funding for state-based C-ITS initiatives.**
- **National harmonisation: leadership from the Australian Government to adopt nationally harmonised data-sharing protocols and ongoing collaboration between state/territory and federal governments.**
- **Stronger partnerships: enhanced collaboration between governments and industry and strategic planning to position Australia as a global leader in transportation technology.**

Together, these efforts can help Australia achieve Vision Zero and build a safer, more sustainable, and efficient transport network for future generations.

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Intelligent Transport Systems

About ITS Australia

ITS Australia is the peak body for advanced transport technology in Australia supporting the delivery of safer, more efficient, sustainable transport solutions. Representing our industry for over 30 years we are locally and internationally recognised as a leader in our field.

We inspire, guide and support the application of ITS across smart transport infrastructure, connected and automated transport, and intelligent mobility. We connect a thriving Australian ITS ecosystem and inspire extraordinary achievements through cooperative collaboration.

We are the largest single gathering of industry, government and academia dedicated to the research, development and deployment of ITS technologies in Australia.

Our Vision

Transport is safe, sustainable, productive and accessible through the application of technology.

Our Mission

Shaping future transport by leading and inspiring our industry. We champion Australian expertise, foster global opportunities, and nurture a resilient and vibrant transport sector now and into the future.

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