



NSW Government response

Inquiry into Transport Technology Sector

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NSW Government response to recommendations

Recommendation 1

That Transport for NSW continue to promote local research and development partnerships with industry stakeholders to provide advanced Mobility as a Service transport solutions.

NSW Government response

Support

Transport for NSW is transforming the customer's end-to-end journey experience, including multi-modal journeys, focusing on customers' needs, preferences and using technology, data analytics and partnerships to deliver for our diverse customers and better connect their lives.

Transport for NSW will deliver world leading Mobility as a Service (MaaS) choices and convenience with technologies that offer seamless and personalised journeys across all modes. Connecting more services and building partnerships with more service providers, Transport for NSW will build the platform for a more personalised MaaS experience.

Transport for NSW will be embarking on a MaaS trial in 2022, partnering with private mobility service providers to deliver an integrated, end-to-end mobility experience for participating customers. The trial will seek to learn more about demand management, technology, policy, regulatory, commercial and customer experience aspects of delivering the capability, now and into the future.

The trial will inform the strategic actions required to deliver an integrated multi modal mobility system that facilitates a step change in customer experience and access to transport by creating smoother end to end customer journeys.

Recommendation 2

That Transport for NSW undertake further investment and trialling of automated vehicle services to develop more universal options for integration in first and last mile service solutions, with consideration for how this may assist the elderly.

NSW Government response

Support

Transport for NSW recognises that customers and communities rely on transport each day, and that there is potential for new transport technology and services to provide increased mobility and safety for the elderly. Mobility is particularly important to support access to essential health and social services as well as maintain connections to family.

Transport for NSW is improving first and last mile transport options, including walking and cycling, as well as exploring emerging micro-mobility modes such as electric scooters. Enabling these to be used safely will require planning changes, infrastructure investment, and optimisation of interchanges.

In addition to the potential benefits of automated vehicle services, Transport for NSW continues to improve other service options such as on-demand and point to point transport, which include door to door connections, providing a seamless end-to-end journey for people with mobility constraints.

In 2018, Transport for NSW partnered with Busways, Coffs Harbour City Council, vehicle manufacturer EasyMile, and app developer Via, to operate phase 2 of the BusBot shared automated vehicle trial at Marian Grove Retirement Village. This provided valuable insight into how the vehicle met various mobility needs, how an older community interacts with technology and how the community accepted driverless vehicle technology.

Transport for NSW will continue to engage with disability and ageing advocacy groups through its Accessible Transport Advisory Committee (ATAC) and local community groups, to further the development and trial of service solutions that utilise connected and automated vehicles. This will ensure solutions improve mobility and accessibility across the customer journey and the transport system overall.

Transport for NSW is also working with industry to explore the feasibility of first and last mile AV Rideshare services to improve mobility for customers.

In 2019, Transport for NSW purchased the old Cudal Airport and converted it to the Future Mobility Testing and Research Centre. The Centre tests and evaluates new technologies in a controlled, safe environment to ensure NSW is ready to integrate future technology such as connected and automated vehicles (CAVs), and zero emission vehicles. Potential first and last mile solutions can be tested at the facility, providing safety and systems assurance before they are integrated into our road network. First and last mile CAV have been noted as potential solutions to improve access to the elderly for social connections, shopping or assisted trips, or increased confidence in inclement weather or night-time. Further, the Centre hosts a range of equipment including impact “dummies” that can simulate different types of vulnerable road users including elderly with wheelchairs or mobility scooters.

Transport for NSW is developing a CAV Readiness Strategy and trial program to support the ambition for NSW to be a world-leading adopter of CAVs set out in the Future Transport Technology Roadmap 2021-2024. The Strategy and associated program will set the strategic direction and establish several initiatives to support collaboration with industry, academia and customers to build readiness for the adoption of CAV technology in NSW.

Recommendation 3

That Transport for NSW ensure that data collected for the development and delivery of transport technology services appropriately balance service delivery with the privacy of customer data.

NSW Government response

Support

Transport for NSW is committed to harnessing data that can improve customer journeys. As technology evolves and innovation constantly expands the sources of data, greater sharing of data will help better plan the transport network, maximise customer safety, promote a seamless end-to-end customer journey, reduce emissions, and improve customer experience. Our aspiration is to have safe and relevant real-time information accessible to our customers through multiple channels, informing decisions on their travel options.

Balanced against the value of transport data are the sensitive and privacy considerations associated with its collection, storage, and use. Transport for NSW is developing an Enterprise Data Governance and Management framework which will provide the guidelines and standards for the protection and treatment of data across the Transport Cluster.

Transport for NSW recognises the importance of ensuring the privacy of customer data and continues to work with the NSW Privacy Commissioner on all matters relating to data and privacy in the development of transport technology.

Transport for NSW appropriately balances the use and privacy of end-to-end customer journey (multimodal mobility) data to enable better customer outcomes. Transport for NSW combines several data sources to create de-identified information and insights which are then democratised to our customers, internal staff, operations centres, and operators for better decision making. To ensure appropriate use of the data insights, Transport for NSW ensures controls are in place to mitigate risk of misinterpretation, inappropriate on-sharing and re-identification risk. These include education, intuitive design, and aggregation of data.

Recommendation 4

That Transport for NSW consult with road user advocates, such as Bicycle NSW and Motorcycle Council of NSW, to address their concerns raised during this inquiry and encourage better integration of first and last mile services in journey planning technology.

NSW Government response

Support

First and last mile play an important part of the connected end-to-end customer journey across all customer profiles.

Transport for NSW regularly consults with relevant key stakeholders, including road user representatives such as Bicycle NSW, through a range of both planning and project processes. These processes and stakeholder consultations aim to both inform and obtain an understanding of issues and outcomes, and to integrate cycling in the network as both a single mode end-to-end journey option and as a first and last mile solution for multi-modal journeys. Transport for NSW remains committed to consulting with these stakeholders in the future.

Transport for NSW has consulted with stakeholders during the development of:

- Transport projects, strategies and plans, most recently the Future Transport Strategy 2056 and Sydney Gateway.
- Pilot schemes to test products such as the Bikes on Buses in the Bush trial in Queanbeyan and Yass.
- Active transport trip planning (including walking and bike riding).

In order to address stakeholder concerns, the Cities and Active Transport Division within Transport for NSW is rolling out solutions to capture current walking and cycling volumes as well as tapping into social media and digital channels to hear what customers are saying. For each new cycleway and pedestrian walkway, the plan is to install a smart camera to detect usage and to assist in integrated journey planning. A Voice of Customer solution is also being rolled out to capture Active Transport customer sentiment across a suburb, LGA or region. This always on and real-time solution will allow Transport for NSW to respond promptly to concerns raised by customers or road user advocates.

Transport for NSW also consults with road user advocates through forums such as the Road Safety Advisory Committee and will continue to do so as part of the NSW Government's 2026 Road Safety Action Plan.

Recommendation 5

That Transport for NSW further research and examine technology solutions to enhance safety on regional and rural roads.

NSW Government response

Support

Transport for NSW supports and advocates on many road safety technologies, and continues to focus on our Towards Zero target of zero deaths and serious injuries on NSW roads by 2056.

The Future Mobility team has been trialling new vehicle technologies and shared mobility solutions, including automated and connected shuttles within Armidale and Coffs Harbour, gathering insights into the safety case for adopting automated vehicle technologies. In addition, Transport for NSW has a current world-first autonomous vehicle trial in regional NSW, called the Dubbo Ute. The Dubbo Ute is a Ford Ranger Ute that has been converted to an autonomous vehicle by our partner Conigital. The purpose of the trial is to understand how automated vehicle technology could provide safety improvements and improved transport services to our regional and rural areas.

Transport for NSW has established a major new vehicle testing facility in Central Western NSW that will test automated safety features and connectivity with road infrastructure. The Future Mobility Testing and Research Centre in Cudal operates as proving ground for testing the performance and safety of vehicles and other transport technology on our network. The location of the centre is unique, allowing Transport for NSW to test technologies specific to regional areas, for example, animal detection and collisions, or railroad crossings. Transport for NSW is investigating the development of this facility to allow Australia-first and world-leading future mobility testing and research.

The National Road Safety Strategy 2021-30, released in December 2021, includes a commitment to prioritise and adopt proven technological improvements for all vehicles through new Australian Design Rules as quickly as possible. In consultation with the Commonwealth, Transport for NSW continues to support and advocate the mandatory introduction of life-saving vehicle technologies, including lane keep assist systems, which will significantly improve safety on rural and regional roads

Transport for NSW has a dedicated road safety technology team which tests and develops a range of technologies aimed at enhancing the safety of rural and regional road users. This includes the Speed Adviser smartphone application, Cooperative Intelligent Transport Systems, satellite-based emergency roadside phones and driver fatigue detection systems.

To enhance customer communication during winter, Transport has installed portable Variable Message Signs (VMS) at key locations in the West and North Region. These signs are used during weather events to provide messaging on road conditions which may impact safety, such as when snow and ice is impacting the road. Transport for NSW is examining the possibility of installing permanent VMS in similar locations to enhance safety communications to customers all year round.

Recommendation 6

That Transport for NSW involve women's advocacy groups in the consultation stage for improving traveller access and safety through technology, including journey planning.

NSW Government response

Support

The NSW Government acknowledges the benefits of ongoing consultation with stakeholders and communities, and will examine the most appropriate governance structure and partnership arrangements to formally include representatives from women's advocacy groups to enable their expertise.

This is expected to include consideration of lessons and opportunities from existing arrangements across NSW Government (e.g., those in place for disability access), and the establishment of a dedicated role for Women's Transport Safety strategy.

The role will build networks across the public sector, advocacy groups and other key stakeholders, to enable open collaboration and co-design while effectively influencing and advocating on behalf of Transport for NSW.

Transport for NSW's Security Crisis and Emergency Management (SCEM) branch has met with domestic violence victim advocates and welcomes the opportunity to further women's safety from a security perspective.

SCEM takes the issue of women's security on public transport very seriously and continues to work towards fostering positive behavioural changes that help ensure the public transport network is as safe as reasonably possible. This includes exploring both technical and physical security improvements.

The Transport Connected Bus (TCB) Program provides improvements to both safety and access for customers across regional NSW. Journey planning is already available for those regions that have gone live with TCB and customers can view trips in near real time on the Transport for NSW website and in travel apps.

Recommendation 7

That Transport for NSW address the issue of women's safety by balancing technology solutions and physical support, including analysing safety data collected by She's A Crowd to inform staffing and infrastructure changes to transport service networks.

NSW Government response

Support

Research into women's safety revealed that women and girls do not always feel safe travelling at night. Customer safety is a priority for Transport for NSW, and the NSW Government is focused on making women feel, and be, safer when travelling on public transport across our State.

Transport for NSW is drawing upon research related to Gender-Sensitive Placemaking by XYX Lab, a design research team from Monash University whose work focuses on gender, safety and urban space. The Victorian Government recently commissioned XYX Lab for the TramLab project, which looked at ways to improve the safety of women and girls on public transport. One project output is the Gender-Sensitive Placemaking Toolkit, which provides practical guidance and direction for government and industry on how to reduce fear and risk for vulnerable people within the built environment through the design process. That data was highly influential in instigating policy action, including the Greater Sydney Commission's Women's Safety Charter, of which Transport for NSW is a founding partner and co-author.

Transport for NSW is also currently developing a comprehensive multimodal security incident reporting system, Program VANGUARD, to draw together numerous single-mode security incident reports into a coherent cross-cluster incident reporting and data visualisation tool.

Transport for NSW will consider options to further enhance collection of safety data across modes of transport and investigate ways to develop better data tools and resources over the longer term to inform safety initiatives. Transport for NSW would be interested to review safety data collected by She's A Crowd and explore security improvements both with the Vanguard data, and the Bureau of Crime Statistics and Research, as well as industry partners.

Recommendation 8

That Transport for NSW recognise the important role that frontline public transport staff play as contact points and to improve travellers' sense of safety, particularly after dark, and consider these factors when staffing public transport and stations.

NSW Government response

Support in principle

Transport for NSW welcomes any opportunity to discuss safety and security, such as the extensive and detailed collaborations with the NSW Police Force on a range of security matters including security training and public information campaigns like *If You See Something Say Something* (IYSSSS).

Crime Prevention Through Environmental Design (CPTED) treatments are available for public transport. Transport for NSW works towards ensuring that security design considerations are incorporated into both upgrades of the existing network and for the major new works being delivered as part of the record \$71.5 billion of new investment in roads and transport infrastructure.

These physical and technical security design improvements include the upgrade and expansion of closed-circuit television (CCTV), Help Points, lighting, fencing and other security measures for transport interchanges, wharves, stations and bus stops, as well as the rollout of CCTV and other security features on railway rollingstock, and bus, ferry and light rail fleets.

Recommendation 9

That Transport for NSW continue to encourage technology development and collaboration opportunities that promote women's safety and traveller safety more broadly, including enhancing real-time data of incidents.

NSW Government response

Support

Transport for NSW is committed to collaborating with other government agencies, local councils and industry to work on solutions to make our city safer for women. Action is being taken through a number of initiatives, including the Safety after Dark challenge and the Greater Sydney Women's Safety Charter. These initiatives are designed to build partnerships with local council and industry to make positive change towards safer cities of the future.

Transport technology programs are valuable tools for supporting late-night transport choices and safety, mobility planning, parking options and safe end-of-trip connections. Transport will continue to develop solutions such as our Safety After Dark program, which includes work with the University of Wollongong to develop an artificial intelligence algorithm to detect threatening behaviours on the network. Building on this work, Transport for NSW has engaged with the iMOVE Cooperative Research Centre and the Department of Transport Victoria to deliver a project that will assess the opportunity of automated detection technologies to provide timely and accurate notification and reporting of antisocial behaviour for State Transit agencies, with a focus on women's safety.

The Transport for NSW Security Crisis and Emergency Management (SCEM) branch is also actively involved with the academic sector on research into improved safety and security, including with the Designing Out Crime Research Centre. SCEM is developing Vanguard as a multimodal security incident system to improve understanding of the security environment across all modes.

Vanguard will assist in understanding crime and security incidents, including for women's safety, in ways that can provide insights into improved decision making around security, law enforcement, policy, technical standards and funding priorities. Leveraging data and technology solutions will enhance the ability to identify hot spots and types of safety issues. Real-time data allows for proactive response in a timely manner as well as the ability to develop predictive tools and information channels for our customers to communicate on safety topics. Transport for NSW has a diverse environment, infrastructure and staffing levels so a combination and integrated method with other government agencies may need to be considered.

Recommendation 10

That Transport for NSW apply a whole-of-journey approach when developing transport technology and related applications to ensure equitable access for people with disability.

NSW Government response

Support

Transport for NSW places great importance in the need for equitable services that allow people with disability to travel as conveniently and seamlessly as possible.

The Future Transport Technology Roadmap (FTTR) demonstrates a range of technology initiatives to improve accessibility including Transport Connected Buses, on demand transport and MaaS integration with third party mobility providers. Transport for NSW will continue to work with Vision Australia, Disability Council of NSW, Guide Dogs NSW, other members of the ATAC, and operators to understand customer needs, including staffing, in the context of emerging transport technology.

Transport for NSW has delivered valuable customer technologies to help specific customer groups in planning and booking travel across NSW. For example, it is now easier for customers with disability and mobility impairments to access trip planning services and plan for more accessible journeys through transportnsw.info and the Opal Travel app, which have been designed to be accessible and are fully compliant with the Web Content Accessibility Guidelines (WCAG). Transport has also developed a voice command service via the Transport Bot virtual assistant powered by artificial intelligence that can answer many common questions through Facebook Messenger, Amazon Alexa and Google Assistant. This delivers real-time service information, route maps, and information on mobility aids and travelling with assistance animals.

To further help people with disability, Transport for NSW is introducing a smartcard to replace the paper docket system for the Taxi Transport Subsidy Scheme. It is also delivering a new centralised booking service for wheelchair accessible taxis, with an associated app for taxi drivers to receive bookings. The booking service already accepts phone and online bookings and will soon offer more options with voice-activated bookings, digital assistants, and apps to assist customers save preferences and track their taxi.

In response to the Second Review of the Disability Standards for Accessible Public Transport, the Australian Government published *The Whole Journey: A guide for thinking beyond compliance to create accessible public transport journeys*. The Guide highlights the benefit of ensuring outcomes for people with disability are considered at the start of transport planning processes. It encourages universal and human-centred design that goes beyond compliance as a minimum standard when designing new technology, infrastructure, and services. The Guide's principles are already embedded within business requirements for major infrastructure and fleet delivery programs. Key messages related to technology and applications from the Guide will be considered during the development of the new Transport for NSW Disability Inclusion Action Plan (2023 to 2027).

Recommendation 11

That Transport for NSW ensure that disability advocacy groups are involved at the consultation and planning stage for the development of transport technology to improve traveller access and safety, including journey planning.

NSW Government response

Support

Transport for NSW regularly engages with disability and ageing organisations through its ATAC on technology solutions and consults with a wide range of users, including people with disability, to test new technology solutions to ensure they are accessible for customers.

Building on the success of the current Transport for NSW Disability Inclusion Plan (2018-2022), work has commenced to develop the new Transport for NSW Disability Inclusion Action Plan (2023-2027). The new Plan will strengthen the mechanisms for early and continued engagement with people with disability and advocacy groups in the planning and design of transport infrastructure and services, including transport technology. Further, development of a strategy for enhancing workforce capability and practice regarding disability awareness has commenced. Transport for NSW will explore how messaging regarding improved outcomes through customer participation in transport related design and implementation can be incorporated into staff training and messaging across the business.

Transport for NSW is currently investing in uplifting the disability customer experience and investing in Travel Training and Integrated Ticketing. Although still in its development phase, work is being undertaken on a strategy focused on our customers with a disability and how it may uplift their customer experience. As initiatives are identified and progressed, it is envisioned that advocacy groups will play an important role in any build that is required in delivering the uplift outcome.

Travel Training focuses on promoting the independent and safe use of public transport for customers who are transport disadvantaged including people with disabilities, older people, culturally and linguistically diverse communities and students. Through the Travel Training Innovation Challenge, Pricewaterhouse Coopers (PwC) and Olinga were engaged to develop a travel training solution that will improve customer confidence in the use of public transport.

Olinga has built a self-contained and learner-centric website, Get on Public Transport (www.getonpt.com.au), with tailored content for customers with disabilities and older people including those with vision and hearing impairment. The information on this new website is current and interactive allowing customers to adapt to different situations such as disruptions during their trip or to create alternative plans for their trip.

To ensure an effective solution, Transport for NSW consulted with a number of groups representing a range of customers throughout the development process including:

- the Council on the Ageing of the Aged (COTA)
- the Combined Pensioners and Superannuants Association (CPSA)
- Accessible Transport Advisable Committee (ATAC) member organisations
- Guide Dogs Australia
- Assisted School Travel Program (ASTP)

- Dr Desirée Gallimore from Travel Training Solutions
- Kristine Pedler from Living Skills Training

Transport for NSW is also introducing a smartcard to replace the paper docket system for the Taxi Transport Subsidy Scheme. To support the planning and delivery of the transition, an external stakeholder working group was formed. Members of ATAC were invited to submit an expression of interest to participate in the working group, with four representatives from various disability sectors invited to sit on the forum. Insights and feedback from the working group is sought on the approach and design elements of the project. This partnership has been instrumental in maintaining two-way communications and efficiently addressing any concerns raised between the delivery team and disability group representatives on the panel.

Recommendation 12

That, in order to enhance pedestrian safety, Transport for NSW investigate whether restrictions should be placed on using e-scooters and e-bikes on footpaths, including whether speed limits should be implemented for these vehicles.

NSW Government response

Support

E-scooters are currently prohibited for use on roads and road-related areas, including footpaths. All bicycles, including e-bikes, are not permitted on footpaths except under limited circumstances.

On 28 November 2021, the then Minister for Transport and Roads announced that NSW will undertake an e-scooter trial in 2022. E-scooters can offer increased mobility choice as well as contribute to 'first and last' mile connections to public transport journeys. Transport for NSW is currently investigating how e-scooters can fit into our transport network.

An important part of this process will be to identify suitable locations and requirements to support the safe integration of this technology into the road network. Transport for NSW is investigating what restrictions should be placed on using e-scooters, including speed limits.

The trial will build on advice and recommendations from the previous Electric Scooter Advisory Group, which was comprised of a range of NSW Government, community, industry and local government representatives.

Through the trial these benefits will be balanced with the need to minimise the risks for other roads users, such as pedestrians, which is paramount.

Recommendation 13

That Transport for NSW examine the regulatory and policy implications of connected and automated vehicles for personal injury liability and develop a plan to address any shortcomings in the current regulatory framework.

NSW Government response

Support in Principle

The NSW Government embraces technology and innovation which has the potential to revolutionise the way we live and travel, and, in doing so, is committed to ensuring the safety of customers across the whole transport system.

Transport for NSW continues to work closely with national groups, including the National Transport Commission (NTC), on the development of a national end-to-end regulatory framework for CAV technology. This includes reforms to motor accident injury insurance (MAII).

As part of the NTC-led national reforms, Transport Ministers have agreed on a national approach that requires existing MAII schemes to provide cover for injuries and deaths that result from CAV crashes. This national approach needs to be considered and agreed by ministers with primary responsibility for MAII schemes. In NSW, the Minister for Customer Service has primary responsibility.

Transport for NSW will continue to engage with the State Insurance Regulatory Authority, which is responsible for Compulsory Third Party (CTP) insurance, to ensure CAVs are safely introduced onto NSW roads.

Recommendation 14

That Transport for NSW prioritise pedestrian detection and safety in the development of connected and automated vehicle technology, rules and regulations.

NSW Government response

Support in principle

Transport for NSW continues to work closely with national groups, including the NTC and Austroads, to support the safe deployment of CAVs in Australia. Transport for NSW is participating in the development of a national end-to-end regulatory framework for CAV technology, which is led by the NTC. A key aspect of this work is the safe operation of CAVs on Australian roads, which includes pedestrian safety.

Transport for NSW continues to support and advocate the mandatory introduction of life-saving vehicle technologies, including technologies that can detect pedestrians outside the vehicle, which will significantly improve the safety of pedestrians. A new vehicle testing facility has been established at Cudal in Central Western NSW as a regional facility for testing connected and automated vehicles and related technologies.

In June 2020, then Transport Ministers endorsed a national in-service Automated Vehicle Safety Law (AVSL). This establishes a general safety duty on the entities responsible for the automated driving systems (ADS). The AVSL will complement existing state and territory regulation of human drivers. An in-service regulator will be established to ensure regulated parties assure the safety of an ADS over its lifecycle.

In addition, under the *Road Vehicle Standards Act 2018* (Cth), companies that bring vehicles with an automated driving system to Australia must meet 11 safety criteria, demonstrating how they will manage safety risks before the vehicle is supplied into the Australian market. This will ensure that an automated driving system will comply with relevant road laws as well as be able to interact safely with other road users, including those who are vulnerable, such as pedestrians and cyclists.