

# Roads Australia’s Submission to the Parliament of Australia Inquiry into Automated Mass Transit

## The Inquiry

The Minister for Cities, Urban Infrastructure and Population, the Hon Alan Tudge MP, has asked the Committee to conduct an inquiry into automated mass transit. The Inquiry will focus on road and rail mass transit systems, as well as point-to-point transport using automated vehicles to cover the ‘last mile’. In addition, the inquiry will examine the role of new energy sources, such as hydrogen power, in land-based mass transit. The Committee will inquire into and report upon current and future developments in the use of automation and new energy sources in land-based mass transit, including: *Rail mass transit; Road mass transit; Point-to-point transport using automated vehicles; and Commonwealth roles and responsibilities in the development of these technologies.*

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## 1. Summary of Roads Australia's key recommendations to the Inquiry

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- 1) *Governments should ramp-up investment in the renewal and expansion of mass public transport systems in Australia's major cities.*
  - 2) *Deliberate actions by Government are required to reduce private car use as the mode of choice for commuters in Australia's major cities.*
  - 3) *Stronger collaboration is needed between the three tiers of government to lift integration of Transport and Land Use Planning for our major cities.*
  - 4) *High level national government collaboration with State and territory Governments, industry and academia, is essential for development of long-term, people-oriented transport agendas.*
  - 5) *Better coordination of Australia's on-road autonomous vehicle trials, enabling law and regulatory processes is essential for early adoption.*
  - 6) *Governments should have more engagement on the consumer/societal acceptance of new technologies to help remove barriers to introduction.*
  - 7) *Governments need to establish the framework for access to essential data from all transport network participants, as a pre-requisite for access.*
  - 8) *State and City Governments should move urgently to develop single payment platforms for the total commuter journey.*
  - 9) *Australia has an opportunity to collaborate with Japan and Korea on fuel cell technology for use in buses and trucks and to consider the potential production of Hydrogen as a fuel for use in transport.*
  - 10) *The Transport and Infrastructure Council should re-examine the national mapping and network control approach for introduction of autonomous vehicles.*
- *Australia should urgently consider high level government collaboration with Japan on the Dynamic Mapping Platform approach.*
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Submitted by: Michael Kilgariff – CEO Roads Australia

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Ph: (03) 9821 5255 Email: [admin@roads.org.au](mailto:admin@roads.org.au)

[www.roads.org.au](http://www.roads.org.au)

Level 2, 437 St Kilda Road, Melbourne VIC 3004

## 2. Introducing Roads Australia

Roads Australia is a not-for-profit, non-political industry association whose 140+ members include all of Australia's road agencies, major contractors and consultants, motoring clubs, service providers, and relevant industry groups (a list of members is included at page 14). RA does not advance sectional interests. Instead, it serves as an indispensable focus group, bringing together road and transport agencies and industry players to engage on a range of practical and policy issues that are - at their core - about delivering the best transport outcomes for all Australians.

RA runs more than 80 events a year, ranging from policy workshops and single-table lunches with ministers and department heads to major industry networking lunches and international study visits. Our leadership development programs actively promote gender diversity and social equity issues across the sector and provide a broad platform for sharing relevant news and information.

Roads Australia has its origins in the Australian Road Federation and the Australian Road Forum, which together have represented the industry since 1952. In 2005, as the Australian Road Forum, the organisation was officially recognised by the then Federal Minister for Roads as the national peak body of road transport stakeholders. In 2008 the organisation was relaunched by the then Federal Infrastructure and Transport Minister, Anthony Albanese, as Roads Australia - a name that better reflects our province as the road industry's national stakeholder group.

## 3. Introduction to the Roads Australia Submission

In September 2018, Roads Australia, the national peak body for transport and infrastructure stakeholders, led a delegation of senior government and industry leaders on a study visit to investigate how major Asian national and city governments were developing their city transport networks to cope with population growth, livability, changing demographics and the introduction of autonomous vehicles on their networks.

The delegation was privileged to be given access to the highest-level Government and industry players in Japan, South Korea and Singapore. The full report on the study visit to be released in December 2018, offers insights into the priorities and approaches to mass transport and mobility solutions in these countries. This submission extracts key messages from the report, which we hope this will provide the committee with a platform for different thinking on how Australia manages and leverages the technologies of the 4<sup>th</sup> Industrial Revolution.

The next decades will see our major cities growing rapidly, presenting huge challenges for governments and societies in delivery of equitable transport solutions. In Australia, we can learn from Governments in our region who have markedly different approaches to integration of transport strategy and land use planning, smart infrastructure and technology delivery, transport investment priorities and customer focused mobility solutions. This submission outlines some of our findings that Roads Australia believes will be useful to the Inquiry.

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*The contrast between transport mode choices in these cities compared to Australia is stark. Public transport thinking, investment and culture has dominated the strategic agenda for generations.*

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#### 4. Mass public transport is the mode of choice in our neighbouring cities

The *Tokyo Metropolitan Government* is strongly focused on building capacity and resilience in the city's public transport systems to accommodate the rapid growth in foreign visitors to Tokyo (up to 13 million in 2017, a 250% increase in the past decade).

The positive public transport culture in Tokyo, built over many decades since the underground rail network began its rapid expansion in the 1950's, has a strong influence on transport mode investment priorities for the city government. Passenger transport statistics for Tokyo would be the envy of most city governments around the world, with the indicative breakdown of mode share 51% public transport, 37% cycling/walking and only 12% private car use.

With evident similarities to Japan, the *Seoul Metropolitan Government* agenda is strongly focused on mass passenger transport systems. The city government is responsible for transportation services covering Seoul and the Greater Metropolitan area, for a population of 26.2 million people.

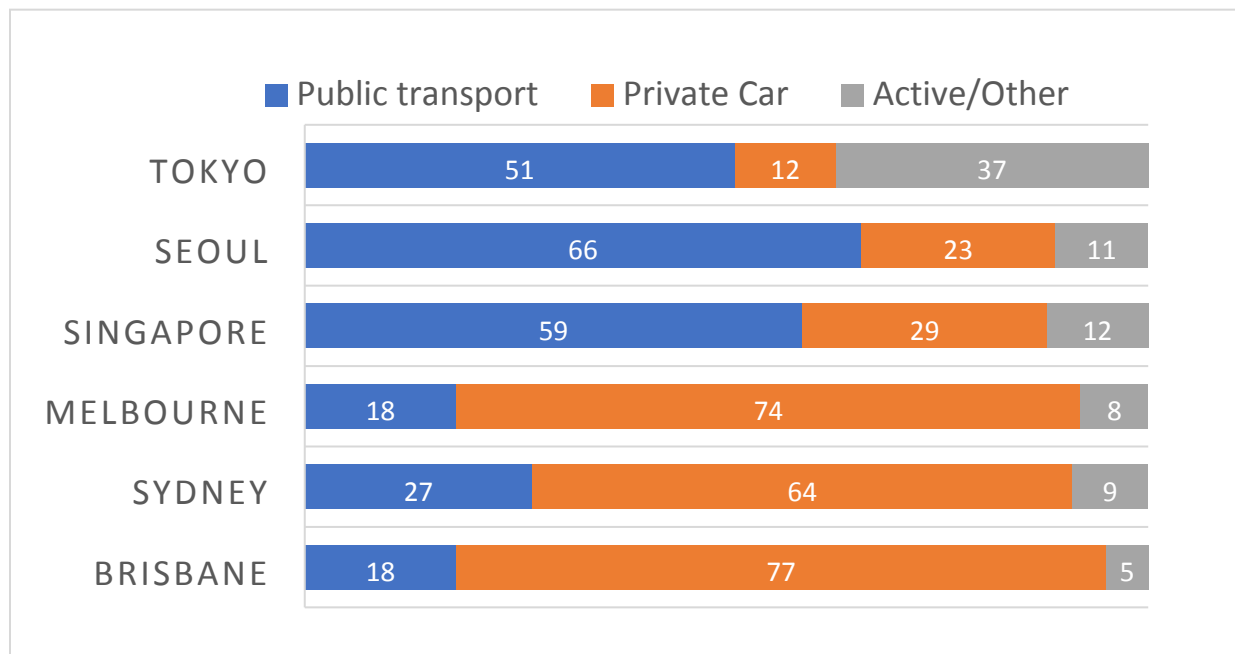
Seoul has responded to heavy traffic congestion experienced in the 1990s, with a Beyond 2000 strategy focused on moving from the car to public and active transport modes. They firmly believe that building new road infrastructure in the past did not improve congestion in the long-term and have an ongoing concern about vehicle contribution to the city's air pollution challenge.

The combined impact of limited road expansion for the past two decades, and investment in a world class subway system integrated with city and suburban bus services, has seen indicative mode share of public transport in Seoul grow significantly to around 66% (including taxis at 7%), with private cars at 23% of all journeys.

As a unique city state, *Singapore* has developed a similarly unique approach to urban transport that has lessons for many growing cities around the world. The very densely populated city of 5.6m people has little room for expansion. The first striking statistic is that the scale of the road expressway network in kilometres is exceeded by the size of the Mass Rapid Transit network.

A strong focus on mass public transport system investment, combined with a "car lite" policy sees public transport dominate as a mode of choice. Indicative mode shares for Singapore are 59% public transport and 29% private car use. Peak-hour public transport use is even higher, reaching 67% in 2017, with a 2030 target of 75%.

The contrast with Australia is stark with the private cars dominating. The following graph shows the indicative transport mode shares compared to our near neighbours:



As we look towards 2050, with rapid growth predicted, Australian cities will need massive investment in the renewal and expansion of our public transport systems to maintain the livability we cherish. This is not an easy or short-term challenge. It has been heartening to see the emerging support by state and federal governments for public transport investment, particularly over the past decade. The challenge we face is generational in magnitude.

Our city neighbours have been building their metropolitan rail networks, as core interconnectors, only since they emerged from the devastation of the mid- 20<sup>th</sup> Century global conflicts. They are modern, strongly interconnected grid networks, with high frequency, fast, affordable, safe and reliable services. These networks are being continually upgraded and rapidly expanded, for example Singapore expects to add a further 75% to line length in the MRT network by 2030.

In Australia’s major cities, our city rail networks have their foundation in the 19th century. These essentially radial, suburban to city centre connectors, do not have the interconnectivity, frequency, speed and reliability of services to make them attractive as the commuter mode of choice. The

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*Strategic investment by State governments in suburban rail is already high on the forward agenda. The reality is we will need exponential investment to cope with the expected population growth that could see Melbourne and Sydney reach 8 million people by 2050.*

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lack of connectivity detracts from the unique advantages that our cities, such as Sydney (Ferries) and Melbourne (Trams), already have in their transport mix.

## 5. Australian Cities of the future need to have much less reliance on

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*In parallel with rapid upgrade in the mass public transport systems, Australian governments need to put more effort into actively discouraging private car use in the overall journey mix over time.*

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### Private car travel

*Singapore* is the most extreme approach to minimising car usage, with a car-lite policy that severely limits the number of privately-owned vehicles in the country. While many countries have implied cross subsidies between private and public transport, in Singapore it is explicit government policy to generate revenues from car owners to fund public transport capital investment. The results have been outstanding - while over the past ten years Singapore has seen a population increase of around 16% (4.84m to 5.61m), vehicle growth has been around half that level, with an almost negligible increase over the past 5 years.

*Tokyo*, with the lowest percentage car usage of all, relies on continued investment in the subway train network to reduce passenger congestion and improve frequency. Their target is a 2 to 3 minute wait time and proximity of within 10 minutes' walk from stations for the majority of residents. Improved access for elderly and disabled passengers has been a strong focus, with elevator installation at 93% of the 755 metro stations completed by 2017. Safety investment, through installation of platform screen doors is also a continuing investment program. Rail investment has been backed up by the development of Bus Rapid Transit services and conversion of the commuter bus fleet to step-less low floor access across the fleet.

In *Seoul*, there has been significant expansion of median Bus-Only lanes across the city (155km by 2020), aimed at further improving transit times and reliability. Continued expansion of the urban rail network aims to reduce travel times by a further 10% and road congestion by 15%. Overall, the Seoul Metropolitan Government has an ambitious target of increasing public transport usage to 75% of total journeys. We saw strong evidence in the three cities we visited of the benefits

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*Australia has a challenge ahead. Our reliance on private car ownership threatens the enviable high livability rankings that our major cities currently hold. The strategic thinking on how this can be achieved and the necessary engagement with all Australians in the change process, needs to have the highest possible focus by all governments. Much stronger collaboration is needed between our tiers of*

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integration of land use and transport planning – with public transport connections often the lead development in new residential or urban renewal projects.



## 6. Be Aligned or be Behind

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*High level national government collaboration with industry and academia informs the transport agenda for our neighbours. We strongly encourage the Australian government to take the role as lead collaborator in development of long-term, people-oriented transport outcomes.*

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The *Japanese Government* has a strong collaborative approach with Industry and Academia, through the Cross-Ministerial Strategic Innovation Promotion Program (SIP). Established and funded by the Bureau of Science, Technology and Innovation within the Cabinet Office, the program is entering the second phase of a planned 10-year program. Transport has a high focus, with Automated Driving Systems one of the 12 strategic SIP themes.

A key characteristic of SIP is the appointment of lead project directors from Industry and Academia, rather than Government, which sets a very strong tone from the top in fostering collaboration. The SIP Automated Driving Systems program (SIP-adus) is headed up by a senior Toyota Motor Corporation Executive. Key sub-elements of the program are focused on R&D and implementation testing in key areas, including: Dynamic Mapping; Human Machine Interface; Cyber Security; Pedestrian Accident Reduction and Next Generation Transport.

In addition to the social objectives of the program, SIP-adus has a strong commercial purpose. Automotive manufacturing industry employs 5.29 million people in Japan and generates 53 Trillion Yen in product sales annually. The program aims to facilitate the creation of new associated future industries, including vehicle sensor equipment, communications devices and digital infrastructure for the local and world markets.

Through the Korea Transport Institute (KOTI), the *South Korean Government* also has a strong research-based approach to transportation policy. The national government “people oriented” transport policy, through the work of KOTI, follows the message we heard from the Seoul Metropolitan Government, who put citizens at the centre of transportation planning.

KOTI has a strong focus on Transport Research for the “4th Industrial Revolution” with a wide remit to connect South Korea with, and contribute to, global transport research and policy initiatives. Current KOTI activities are focused on field oriented and data driven research in big data technology, autonomous vehicles, unmanned aerial vehicles, new age logistics and smart mobility. With nearly 300 highly credentialled academic staff, KOTI coordinates research and policy development for Government.



In 1996 the *Singapore Government* launched its “World Class Land Transport System” agenda. This rapidly implemented strategy integrated Land Use and Transport Planning with strategic road and public transport investment, with a strong demand management focus. The strategy included establishment of a world first Electronic Road Pricing (ERP) system and curtailment of car ownership through the Certificate of Entitlement process.

Singapore’s Land Transport Authority (LTA) has maintained this integrated approach throughout successive strategic plans resulting in the strongest integration of Land Use and Transport planning of all the cities we visited. With a striking ratio of land under roads (12%) almost equaling the residential building footprint (14%); Singapore has embarked on a “reclaim urban space” strategy. This includes the current 21.5km North-South expressway project, where much of the existing road corridor is being moved underground. The project provides: dedicated Bus-Lanes in the tunnels; at grade public bus connections; cyclist and pedestrian facilities; and a predicted 30-minute reduction in travelling time from North to City Centre.

In Australia, while we acknowledge the challenges set by our federation, there are many areas where our current state by state approach to strategic transport planning will leave us behind our neighbours. There are many academic institutions working on these important issues, however stronger collaboration and strategic support at the Federal Government level is needed to focus

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*Expanding the national focus on our growing cities, already commenced through the “City Deal” process, is strongly recommended. In this process, our major city Governments need to be at the table, however as a precondition they should be encouraged to cast a wider net - collaborating or combining with suburban local governments to harmonise a “whole of city” approach.*

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and leverage their efforts.

## 7. Use the Quiet before the Storm

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*Good preparation by our neighbours is likely to lead to early adoption of autonomous technologies and rapid roll-out of driverless functions from 2025 onwards.*

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In all cases, a strongly coordinated development of network control technologies and mapping systems is the key. It is not too late for Australia to rethink our current approach and take a big step forward through strategic alliance with one of our key international trading partners.

In *Japan*, the public transport emphasis and the conservative risk adverse culture, gives the impression that there is less attention on the potential benefits and impacts of autonomous vehicles within the Tokyo city system. However, recently a major Toyota sponsored trial of driverless taxis commenced in Tokyo. It was also acknowledged that the 5000 strong bus fleet in Tokyo could provide a great platform for the first major move into driverless operations.

The recent joint venture between Toyota and SoftBank is a potential pathway for Tokyo to bypass driver-based Mobility as a Service (MaaS) systems. They propose to move directly into driverless technology, with plans to deploy on-demand transportation services and corporate shuttles in 2019, progressing to autonomous MaaS battery-electric fleets by the mid-2020s.

In a genuine collaborative effort, individual Japanese industry and university organisations have put aside competitive constraints for the universal benefits to Japanese society and the economy. There is little doubt that the ambitious targets for autonomous vehicle introduction in Japan will be achieved, including: unmanned autonomous driving transport services in specified areas by 2020; fully automated driving of trucks on expressways from 2025; level 4 fully automated private vehicles on expressways, circa 2025; and level 2 or higher automated driving of buses on expressways from 2022.

*South Korea's* automotive testing and approvals authority KATECH has responsibility for coordinating autonomous and connected vehicle (CAV) introduction. The long history of CAV development in the country goes back to light vehicle platooning tests in 1998. The South Korean Government timetable for introduction of automated and connected vehicles is progressing with many on-road trials, including driverless shuttle deployment within 2-3 years.

Required changes to road laws and achieving public acceptance of driverless vehicles are key impediments currently being addressed in parallel to the technology trials. However, the extent of collaboration with the South Korean automobile industry, high quality research and testing facilities and the Government's clear safety and air quality agenda, makes a 2025 indicative target for driverless vehicles on significant parts of the South Korean national road network very feasible.

Singapore's "car-lite" emphasis has not taken away from consideration of the future benefits and challenges of the introduction of autonomous vehicles. Prime Minister Lee Hsien Loong's "Smart

Nation” platform encourages smart thinking to address Singapore’s demographic challenges. Singapore has a projected 30% population growth to 6.9 million, with one in four Singaporeans to be over 65, by 2030. Autonomous vehicles could have a dramatic impact on connectivity and road safety outcomes, in a city with one of the highest population densities in the world.

The Singaporean Government has not committed publicly to an autonomous vehicle introduction timetable. AV trials in Singapore have a strong focus on safety, with an autonomous future for taxis and buses high on the agenda. LTA’s Smart City Transport & Infrastructure Technology approach will integrate new vehicle technologies, building on their existing advanced planning systems. They also recognise that law makers need to be increasingly nimble to keep pace with emerging technology. A focus on taxis and buses also allows the government to retain control of trials and implementation timetables.

The government officials we visited all placed a high emphasis on gaining a better understanding of community acceptance of autonomous technologies on the road networks. There is also a strong safety-first approach, where staged and well-coordinated on-road trials have a

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*Better coordination of Australia’s autonomous vehicle trials, enabling law and regulatory processes, is essential if we are to keep up. Our governments should be acting collectively and engaging now on strategies to help remove consumer/societal barriers to the introduction of new autonomous driving technologies.*

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government-controlled technology system safety-net.

7.1 The control of road network operating technologies is markedly different to Australia’s approach.

The approach to the development of systems to support the introduction of autonomous technologies in western countries has been dependent on individual proprietary mapping systems, such as Google and vehicle manufacturers systems, to support vehicle automation and connectivity.

*Japan* has an alternative approach, establishing the *Dynamic Mapping Platform* as their core vehicle management and control safety net. This combination of satellite and cadastral mapping systems has the potential to be much more precise and more efficient than collective proprietary systems. To operate in Japan, vehicles must be compliant with the DMP. The approach offers significant safety and security measures, with future network asset management and road user charging options that will be more difficult to achieve under the alternative approaches.

In *South Korea* the anticipated overall connected and autonomous management systems are to be government controlled. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is funding the development of the Advanced Systems for Automated Driving (C-AHS). This includes development of precision dynamic mapping, GPS communications and real-time road traffic information collection systems. The C-AHS program also incorporates investigations into required improvements in road structures, for precise positioning and sensor perception improvement, and improving road structure construction specifications to facilitate autonomous vehicle driving.

With no local automotive manufacturing, Singapore has limited ability to influence autonomous vehicle technology. However, their next generation ERP II system, which is expected to be commissioned by 2020, will provide an integrated technology and transport management platform. ERP II will use a Global Navigation Satellite System (GNSS), paving the way for the possibility of dynamic autonomous vehicle management.

Australia's state-by-state approach to AV introduction, while supported by National Transport Commission's regulatory advice, could see a fragmented approach to AV introduction. It is incongruous that our national highway system could see markedly different network control and management systems in place as vehicles transverse state and territory borders. We could be faced with the dilemma of accepting a significant delay to AV introduction until all states and territories have adequate systems in place; or staggered jurisdiction implementation.

Australia's productivity and road safety outcomes can be strongly improved by the introduction of autonomous vehicles, initially in the heavy freight sector then through the light vehicle fleet with driverless capability. The lack of a nationally coordinated and integrated system, ambivalent to

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*The concept of Japan's integrated Dynamic Mapping Platform could lead other countries to question the logic and long-term effectiveness of their current approach – Australia should urgently consider the potential for high level government collaboration with Japan on this approach.*

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jurisdiction borders, will delay these benefits, potentially for many years.

## 8. “Big Data” changes the Paradigm

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*Coordinated transport data control & management has a high strategic focus in the countries we visited. While city governments have a focus on public transport, they are building strong capability in collecting data on the total end to end customer journey.*

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The *Seoul Metropolitan Government’s* strategic human-oriented transportation system is well advanced, with the potential to make them a benchmark for other mega cities to follow. The Seoul electronic payment *Transit Card* is a multi-mode total journey system that can be used on buses, subways, taxis, railways and for expressway tolls, with parking soon to be incorporated. Managed by central Transportation Management Centre, the Card provides input to real time traffic management and information flow, which together with other traffic “big data” analytics helps to develop long-term transportation policy and investment priorities.

In *Singapore*, movement towards multi-modal travel on a single platform is also well advanced. The ERP stored value cash card has already been extended for use in car parking, with a strong possibility that this can be extended for use on the city’s extensive public transport network.

There is no doubt that demand management of commuting choices in the future will be enhanced by integrated charging systems. The message from all the city governments we visited was that integrated management of investment, demand and pricing of multi-mode transport in the future will need access to “big data”.

The approach in Japan, South Korea and Singapore enables central management and collection of road use data across their road networks with the ability to link to other transport data sets. While direct road user charging was most evident in Singapore, the availability of individual vehicle travel data has the potential to be used in future road user charging regimes. In Australia, the missing link in the future could be the road user travel data that will be essential to understanding and influencing customer travel patterns. We encourage state and city governments to extend the development of their public transport travel cards to incorporate the total commuter journey.

For Australia to harness the important road transport travel data provided by autonomous vehicles in the future, we must consider mandating access to all transport network data as a pre-requisite for participation of these vehicles on the network. While there is no current agenda in Australia to move from the fuel excise system towards a more equitable road user charging system, there can be no doubt that access to vehicle travel data will be essential for any alternative system.

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*The strong message for Australia is that access to data for all transport modes will be essential for managing demand and delivering customer focused services across an expanding range of mode choices.*

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*Electric Vehicle introduction is strongly supported by manufacturers and governments in Japan and South Korea. While this is understandable given the importance of the international export markets for these countries, they may be seen internally as a stepping stone to a Hydrogen Fuel Cell powered future.*

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## 9. Look for stepping Stones

*Japan* is at the forefront of hybrid and EV development in the world. Despite the significant investment in both technologies by the private OEMs, the Japanese government sees the investment in electric vehicle technology as a stepping stone to their strategic goal of introducing Fuel Cell (hydrogen) powered vehicles into Japan. A Japanese world after 2025, where trucks and buses are running autonomously could also see their electric drive systems being powered by hydrogen as fuel cells are mass produced.

*South Korea* is also at the forefront of hybrid and EV development in the world, with Hyundai vehicles winning both the Hybrid and EV awards for best in class in recent years. Despite the significant investment in both technologies by the private OEMs, the South Korean government has established their strategic goal of introducing Fuel Cell (hydrogen) powered buses with large trials of Fuel Cell powered buses underway.

Like Japan, South Korea intends to move to a fully Hydrogen powered fleet, as Fuel Cells are mass produced, and both countries are focused on a future where they produce their own transport fuel through the manufacture of Hydrogen.

A recent announcement that New Zealand and Japan are working together to transition away from a reliance on fossil fuels is an interesting development. New Zealand has signed a Memorandum of Cooperation on hydrogen with Japan that helps signal New Zealand's interest in working in partnership with Japan to develop hydrogen technology.

Projections show that there will be a significant impact on the electricity grid and demand in Australia as use of Electric Vehicles grows. Hydrogen production could potentially offset this

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*As a potential producer of Hydrogen for our transport fuel needs in the future, Australia should take the opportunity to collaborate with Japan and/or South Korea as Hydrogen Fuel Cell technology develops.*

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pressure on the distributed electricity grid, with heavy transport the likely first adopter.



## Roads Australia Members 2018

3M Transportation Safety Division	Engineers Australia	RACNT
AAA (Australian Automobile Association)	Exner Group	RACT
Acciona	Ferrovial Agroman	RACQ
ACRS	FKG Group	RACV
Advisian	Fluor	RACWA
AECOM	Fulton Hogan	Rail Projects Victoria
Agonis Group	Fusion Advisory	Redflex Traffic Systems
Allroad Group	Georgiou Group	Rider Levett Bucknall
Altus Traffic	GHD	Rizzani de Eccher
Amey	Golder Associates	Road Freight NSW
Arcadis Australia Pacific	GTA Consultants	Roadmarking Industry Association of Australia
ARRB Group	Hatch	Roads & Maritime Services NSW
Arup	HDR	Rocla Pty Ltd
Ashurst Australia	Highway Care	RPS Advisory Services
Aurecon	HKA	Salini Impregilo
Australian Automotive Research Centre (AARC) part of the Linfox Property Group	Holcim (Australia) Pty Ltd	Samsung C&T
Australian Asphalt Pavement Association	Ingal Civil Products	Seymour Whyte Construction
Australian Caravan Industry Association	ISCA	SICE
Australian Construction Products	Jacobs	SLR Consulting
Australian Constructors Association	Liberty OneSteel	SMEC Australia
Austrroads	John Holland	Stantec
Beca	Kapsch	Sydney Motorway Corporation
Bechtel Infrastructure	KBR	The Boylan Group
BG&E	KHSA Limited	The NRMA
BIS Oxford Economics	Komatsu Australia	The WorkPac Group
Boral Australia	Laing O'Rourke	Tonkin & Taylor
BMD Group	Lendlease Engineering	Tonkin Consulting
Bouygues Construction Australia	Lendlease Services	Tracey Brunstrom & Hammond
Broadspectrum	Level Crossing Removal Authority	Transmax
Building Queensland	LGAQ	Transport Canberra & City Services
Burton Contractors	Main Roads WA	Transport Certification Australia (TCA)
Cardno	McConnell Dowell	Transport for NSW
CCF (National)	MIEngineers	Transurban
Cement, Concrete & Aggregates Australia	Monash University	TSA Management
Civilex Victoria	Mott MacDonald	Turnbull Engineering
Clayton Utz	Multiplex	Ventia
Clough	National Transport Commission	VicRoads
Coffey	Netflow	Victorian Transport Association
Colas Australia	North East Link	Viva Energy
CPB Contractors	North Projects	Ward Civil
CPEE	Office of Projects Victoria	WBHO
D'Artagnan Consulting	Pitt & Sherry	Weddin Shire Council
Decmil Group	Plenary Group	Western Distributor Authority
Department of Infrastructure, NT	Professionals Australia	Whittlesea City Council
Department of State Growth, Tasmania	Project Support	WSP
Department of Transport, NT	Queensland Transport & Main Roads	WT Partnership
DM Roads	Q-Free Australia	Wyndham City Council
Downer	RAA	Zitron Australia
Donald Cant Watts Corke (Infrastructure)	RACA	
DPTI South Australia		
Ducere Business School		
EastLink		
Egis Projects		