




The peak body for roads within an integrated transport system

Commonwealth Budget Submission 2021-2022

January 2021



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CONTENTS

INTRODUCING ROADS AUSTRALIA.....	3
NINE KEY RECOMMENDATIONS.....	3
RECOMMENDATION 1.....	4
The Case For Economic Reform In Road-User Charging & Investment.....	4
RECOMMENDATION 2.....	6
Much Improved Collaborative Effort.....	6
RECOMMENDATION 3.....	7
Delivering Priority Infrastructure Projects.....	8
RA Procurement Reform Report.....	9
RECOMMENDATION 4.....	11
Support For State/Territory Investments In Mass Public Transport.....	11
RECOMMENDATION 5.....	13
Road Worker Safety.....	13
Road Safety.....	15
RECOMMENDATION 6.....	17
Looking Towards a Potential Hydrogen Future.....	17
RECOMMENDATION 7.....	19
Advanced Manufacturing Could Change The Landscape.....	19
RECOMMENDATION 8.....	20
Optimising The Sustainability Of Our Nation's Roads.....	20
RECOMMENDATION 9.....	22
Co-Ordinating Future Technology.....	22
RA MEMBERS.....	23

INTRODUCING ROADS AUSTRALIA

Roads Australia (RA) is the peak body for roads within an integrated transport system. RA brings industry, government and communities together to lead the evolution of Australia's roads, integrated transport and mobility.

RA welcomes the opportunity to make a submission for consideration in the formulation of the 2021-22 Commonwealth Budget.

NINE KEY RECOMMENDATIONS

RA recommends the 2021-22 Commonwealth Budget deliver:

1. Funding to accelerate the reform process in road-user charging and investment.
2. Funding for pilot, multi jurisdiction/university/industry collaborative transport research projects.
3. Funding to support collaboration between the Commonwealth, States and Territories and industry to drive infrastructure delivery and procurement reform – RA's September 2020 [Procurement Reform Report](#) should be used as an input to developing a roadmap to guide reforms.
4. Matching funding to support and accelerate state/territory investments in mass transit solutions.
5. Funding:
 - To implement a national road worker safety program and a national road worker safety awareness campaign;
 - Through the Office of Road Safety to support the AAA Reviving Road Safety policy priorities; and
 - To support the expansion of State and Territory Government regional and rural road safety infrastructure programs, including the removal where possible of high-risk level crossings in regional areas.
6. Grant funding to support and accelerate State and Territory Government, and industry initiatives that advance the National Hydrogen Strategy.
7. Funding for the establishment of a small-scale vehicle manufacturing Co-operative Research Centre.
8. Funding to facilitate a national approach to the development and operation of environmentally sustainable transport infrastructure, including the use of recycled materials in road construction.
9. Funding to fully establish and facilitate the operations of the *Office of Future Transport Technologies* over the full forward estimates period.

RECOMMENDATION 1

THE CASE FOR ECONOMIC REFORM IN ROAD-USER CHARGING AND INVESTMENT

It is imperative that we move to a more equitable and efficient road pricing and investment model. All road users should contribute according to how, where and when they travel and the impact they have on the road network.

The RA [Future Transport: Smart Cities](#)¹ 2019 international study visit report concluded that the days of traditional fuel taxes and excises are numbered. The North American government organisations visited by the RA delegation expressed concerns about shrinking fuel tax revenue and the implications for funding and maintaining infrastructure. The system of funding roads through fuel taxes in North America is similar to that in Australia – so we face the same dilemma, with little evidence that there is a solution being developed that will be equitable for all road users.

RA recommended in the report that Australian governments should urgently consider a transition away from the fuel-based road user charging system currently in play.

As Infrastructure Victoria indicated in its March 2020 publication [Good Move – Fixing Transport Congestion](#)², in 2020 the Commonwealth Government levied a fuel excise at 41.8 cents for every litre of fuel, charged as part of the price of petrol. Despite increases in the rate being charged to motorists (indexation was applied prior to 2001 and again from 2014), the Parliamentary Budget Office (PBO) reports that there has been a steady decline, as a percentage of GDP, from 1.6% in 2001/02 to around 1.0% in 2016/17³. The PBO found that increased fuel efficiency of passenger vehicles has been a significant contributor to the decline.

The PBO suggests that continued improvements in the fuel efficiency of the passenger motor vehicle fleet in Australia is likely to contribute to a further slowing of total fuel consumption, which in turn will further constrain fuel excise revenue. The report also highlighted that the uptake of electric vehicles (EVs) could further accelerate this.

Consequently, RA believes that fuel excise revenue will be increasingly inadequate to fund the required investments in, and maintenance of, Australian road networks. We are concerned that electric vehicles will make no contribution to fuel excise, and therefore to road investment, under the present system.

Currently, EVs are only a small proportion of the market, however it is a growing market with EV sales in Australia increasing by 200% according to the [Electric Vehicle Council](#)⁴. Under the [Australian Energy Market Operator](#)⁵ neutral scenario for electricity consumption, EVs are projected to represent around 19 per cent of the light vehicle fleet in Australia by 2036–37 (AEMO 2018).

The SA, NSW and VIC Governments have recently announced plans to implement road user charging for EVs in 2021⁶. RA supports a road user charge for EVs, as part of a nationally consistent move to road user charging, while recognising that there needs to be measures in place to ensure uptake of more environmentally sustainable vehicles is encouraged. RA supports continued efforts by governments across Australia to engender a more environmentally sustainable transport network by encouraging greater uptake of EVs.

It is clear the momentum for road charging reform is building – and this momentum should be harnessed to drive development of a nationally-consistent approach to road funding that strengthens links between road related revenue and road related investment.

To maintain the confidence of industry and road users, it is essential that road pricing and investment reform models are transparent and equitable for all road users.

As pointed out in the 2020 Productivity Commission Report into [National Transport Regulatory Reform](#)⁷ the model of road funding and management should seek to strengthen links between road related revenue and road related expenditure. This would help to determine road users' preferences and willingness to pay for road infrastructure services and require the adoption of well-designed institutional and governance arrangements.

RA understands that the reform process will be challenging, with potentially up to a decade of concerted collaborative effort required. However, the potential benefits to the Australian economy, and all Australians, from successful delivery of what many see as the missing link in major micro-economic reform are enormous.

So that genuine road pricing and investment reform can be implemented within the 2020-2029 decade, the Commonwealth must take the lead through the newly established National Cabinet process to ensure that the partial market reforms being proposed through [Heavy Vehicle Road Reform](#)⁸ (which proposes some form of distance pricing for heavy vehicles) does not stall - and that any road use mechanism imposed on electric vehicles be uniform across the Commonwealth and not be imposed in a piecemeal fashion⁹.

Recommendation 1 *That the Commonwealth provide sufficient funding in the 2021-22 Budget to accelerate the reform process in road user charging and investment.*

RECOMMENDATION 2

THE FUTURE TRANSPORT NEEDS OF AUSTRALIA'S GROWING POPULATION CALLS OUT FOR MUCH IMPROVED COLLABORATIVE EFFORT

All levels of government, academia and industry will have to adapt their ways of thinking and be prepared to collaborate if we are to prepare the nation for the major transport changes on the horizon.

The RA [Cities for the Future 2018](#)¹⁰ report outlined the Japanese and South Korean government's strong collaborative approach with industry and academia in developing and implementing their national transport strategies.

The collaboration theme was also prominent in the RA study visit to the USA and Canada, which is summarised in the RA [Future Transport: Smart Cities 2019](#)¹¹ report. The study visit delegation saw some very productive transport research projects in North America, where universities are more active on the transport front, engaging with industry, government and each other in ways not seen in Australia.

Universities encourage their professors to work with industry and to bring in business collaborations and partnerships, which are in turn supported by the US federal Department of Transportation (DoT). The DoT allocates around \$300 million USD annually for transport related research and development, with a pre-requisite for private-sector involvement. This seed funding is provided on condition that private partners and universities contribute the bulk of funds, with clear criteria for local and state level government involvement.

The study visit report concludes that there were many opportunities for Australia's world-class universities to be more engaged in new transport technology research and development. However, RA believes that the current funding model for Australian universities promotes competition at the expense of collaboration, creating a potential barrier to research into transport technology.

A prominent collaboration example in the United States was the [Smart Belt Coalition](#)¹². In this dynamic and proactive collaboration for the development of connected and automated vehicles in Michigan, Ohio and Pennsylvania, state governors and city mayors support the work of universities and industry at a multi-state level.

RA believes the widespread collaboration seen in North America should be fostered in Australia, enabling inherent individual strengths to be increased by greater co-operation and less competition between universities. The Federal Government funding criteria should be modified to provide seeding money for transport research which is conditional on both attracting private funds and requiring involvement of more than one university, with encouragement for more industry and state or city government involvement.

Collaboration between cities in the USA has accelerated learnings, with a focus on social impact and customer acceptance. Finding new ways to learn, develop and exchange ideas internationally can also support Australia in responding well to the opportunities that connected and automated vehicles provide. The [Memorandum of Understanding](#)¹³ between the Australian Government and the State of Michigan is a great example which should be leveraged, potentially through establishing a facility based on the [Michigan PlanetM](#)¹⁴ model in Australia.

Recommendation 2 *That the Commonwealth provide funding in the 2021-22 Budget for pilot, multi jurisdiction/university/industry collaborative transport research projects.*

RECOMMENDATION 3

DELIVERING PRIORITY INFRASTRUCTURE PROJECTS

The increasing size and complexity of the pipeline of investment in road and related transport infrastructure will require new approaches if projects are to be effectively delivered.

Infrastructure Australia's (IA) [Australian Infrastructure Audit 2019](#)¹⁵ points out that by global standards, Australian infrastructure industry capacity and capability is relatively strong, and the efficiency of the sector is high. The Audit also points out that each decision to build or upgrade infrastructure can impact on taxpayer and user bills for generations. Conversely every dollar of public infrastructure investment can generate GDP increases that can add up to \$4 of value over the life of the asset. It is therefore essential we get these decisions right to improve the quality, affordability and access to our infrastructure.

The Infrastructure Audit shows there is considerable room for improvement in how we plan, fund and deliver infrastructure in Australia. It concludes that, while both the public and private sectors generally perform well, infrastructure projects are increasing in size and complexity, and will require new approaches if they are to be effectively delivered. The Audit emphasises that the way the public sector makes decisions, handles procurement, selects contract models and handles risk will have significant impacts on the functionality and efficiency of our infrastructure. Alongside these challenges, new demands for sustainability, resilience and security will provide opportunities to achieve better outcomes - however, this makes the planning and management of industry capacity more complex.

The importance to our industry of a strong and consistent pipeline cannot be underestimated, with the record level of current and planned investment in critical transport infrastructure providing a catalyst for strong growth in the Australia engineering and construction sector.

Australia is now making record investments in infrastructure to promote post-COVID-19 economic recovery. This means RA members are able to contemplate engaging a new graduate or apprentice entering the workforce, with the certainty that projects will be available to give them the variety of experience they require to develop into our next generation of nation builders.

The RA Capacity Policy Stream has been active in support of the Australian Government roundtables with industry to get a better understanding of the construction and procurement issues in the context of the multi-billion-dollar, decade-long, infrastructure investment pipeline. RA strongly supports the key take-out in the ensuing [Roundtable Report](#)¹⁶ commissioned by the Commonwealth - that the consequence of current, non-collaborative procurement approaches is that government is currently not maximising industry participation and competition in construction procurement. RA similarly agrees with the finding that the use of prescriptive and increasingly complex contractual approaches has seen an unsustainable transfer of risk to the private sector, impacting on broader industry profitability and its ability to invest in capacity and capability.

Each year, RA hosts an executive workshop of private and public sector leaders to discuss and steer RA's activities on key issues, with the purpose of enabling a positive impact on how Australia successfully delivers and operates its transport networks. In the 2019 [RA CEO Workshop](#)¹⁷, Industry leaders acknowledged the universality of the '8 P's' - *Proper Prior Preparation and Planning Prevents Poor Procurement and Program Outcomes*. They agreed that the roads industry needs to invest more time in preparation and planning – and stated their willingness to do so.

In accordance with state, COAG and CILF (Construction Industry Leaders Forum¹⁸) stated principles, industry leaders agreed that the industry needs a transparent pipeline of work to have certainty to make business decisions - industry cannot increase capacity without this. Part of this transparency is the early planning and sharing of project information - the pipeline serves as the catalyst for reform and investment. The CEOs confirmed RA's endorsement of the [NSW Government's 10 Point Commitment](#)¹⁹ including collaboration in contract and design, early bids on capped price with list of exclusions and Early Contractor Involvement (ECI's) / Alliances.

The Transport and Infrastructure Council (TIC) (as then existed under the COAG process) acknowledged issues raised by industry, including the importance of developing market capacity, improving procurement processes, adopting more market-responsive approaches to risk allocation and improving skills and training regimes. Commonwealth funding should be used to provide expert advice and support to accelerate the industry and government's efforts in these critical areas.

RA PROCUREMENT REFORM REPORT

Implementing the recommendations from RA's Procurement Reform Report will improve planning and design of projects, more appropriately allocate and manage risk, give a more fulfilling role to medium and smaller contractors, improve skills and capacity building and ultimately deliver enhanced benefits for the whole community.

Following the above activities, RA [convened a major workshop](#)²⁰ in Melbourne on 5 March 2020. Participants agreed that there were significant opportunities for improvement in major project procurement processes that must be addressed if governments are to get best value for money, and industry is to get the best use of its capital and people.

Subsequently, in September 2020, RA released the [Procurement Reform Report](#)²¹, which identified solutions to the significant procurement issues being encountered by government and industry.

The Report contains 21 recommendations to address the major procurement challenges being experienced across Australia, and clearly sets out key areas where governments and industry need to work together and take action.

It brings together perspectives from a wide spectrum of national and regional industry participants including engineering and design consulting firms, project managers, legal and commercial advisors, government agencies, and construction and related services companies.

The main issues identified are:

1. The **process for risk definition and allocation**, particularly on large projects.
2. The **size and complexity of projects** has increased significantly and as a result, small to medium contractors are unable to effectively participate.
3. Governments do not lay out a **long-term pipeline of work** so that companies can invest and gear up.
4. The **time available during procurement** is often not long enough to allow for sufficient risk assessment.

5. The **time available during the design phase** for most big projects is often not adequate for design firms to innovate or explore better engineering solutions.
6. Current **procurement models which apply 'hard edged' risk transfer** can often result in significant and complex legal disputes which ultimately create a lose-lose scenario.
7. **Governments do not engage with industry early enough** in the design stage.
8. **State and territory education systems and the Federal immigration model are not coping** with the increased demand for skilled labour and industry does not do enough to encourage women and people from diverse backgrounds into the industry.

Given the scale of infrastructure investment currently being undertaken and the COVID-19-related economic challenges confronting all governments, RA believes now is the ideal time to implement the recommendations contained in this Report.

RA is continuing to engage with Ministers and key departmental leaders across all jurisdictions to discuss the contents of the Report, and how its recommendations can assist Ministers to secure collaborative-based approaches to procurement and risk allocation.

***Recommendation 3** That the Commonwealth provide funding in the 2021-22 Budget to support collaboration between the Commonwealth, States and Territories and industry to deliver infrastructure delivery and procurement reform – RA's Procurement Reform Report should be used as an input to developing a roadmap to guide reforms.*

RECOMMENDATION 4

SUPPORT FOR STATE/TERRITORY INVESTMENTS IN MASS PUBLIC TRANSPORT

Strategic investment by state governments in suburban rail is already high on the 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 in each city by 2050.

Delivery of equitable transport solutions to meet the demands of rapidly growing Australian cities presents huge challenges for our governments and societies. The RA [Cities for the Future 2018](#)²² study visit report offered insights into the strategic approach to mass transport and mobility challenges in major Asian city transport networks.

The report highlighted that Australia can learn from our regional neighbours, where public transport thinking, investment and culture has dominated the strategic agenda in major Asian cities for generations. Today they have modern, strongly interconnected transport networks, with high frequency, fast, affordable, safe and reliable services. In contrast, Australia's major city rail networks, with foundations in the 19th century, have struggled to provide the interconnectivity, frequency, speed and reliability required to make them attractive as the commuter mode of choice. Lack of connectivity detracts from the unique advantages that our cities have in their transport mix, such as Sydney's ferries and Melbourne's trams.

Despite the support by Federal, State and Territory governments for public transport investment over the past decade, the challenge ahead is neither easy nor short-term.

Recent policy webinars conducted by RA noted the impact COVID-19 has had on transport demand, including the challenges and opportunities presented by the pandemic. One webinar highlighted that transport demand has been significantly altered during the pandemic, as a result of working from home directives, and this has had "an unintended positive consequence" of reducing transport congestion and crowding²³. Our corresponding Policy Insights piece is available [here](#).

A second webinar focused on the transition to a "new normal" on public transport with progressive easing of restrictions and a range of precautions and monitoring in place (such as social distancing which limits capacity) with the potential for further lockdowns if needed²⁴. Refer to our [Policy Insights](#) for further detail.

A recurring theme throughout the webinars was the increase in active transport (walking and cycling), with these modes now seen as more important by Australians as a result of COVID-19²⁵. There is the opportunity to harness and maintain this mode-shift over the long-term, as well as better integrate active transport with public transport as part of a truly integrated and multi-modal network. However, this means complementary active transport solutions must proactively be considered when developing and funding transport infrastructure as highlighted in our third webinar addressing these issues. Refer to the [Policy Insights piece for further details](#).

That said, after a short COVID-19-imposed pause, Australia's population will continue to grow and so will the need for appropriate mass public transport solutions.

Recognising that solutions will require multi-generational thinking, RA is therefore heartened by the significant number of projects and potential infrastructure solutions identified in IA's [Infrastructure Priority 2020 List](#)²⁶ including the high priority project Brisbane Metro, priority projects Gold Coast light rail, increased trains in Sydney and METRONET improvements in Perth. It is also pleasing to see the role of active transport recognised with initiatives listed for Sydney, Melbourne and Brisbane to Gold Coast.

As IA has noted in the past, congestion not only has significant consequences for our national economy, it also has direct impacts on communities, reducing people's access to education, health services, employment and other opportunities.

Looking towards 2050, rapidly growing Australian cities will need massive investment in the renewal and expansion of their public transport systems to maintain the liveability we cherish. The listed projects will go some way to address the need for frequent and accessible public transport to reduce congestion and maintain the liveability of Australian cities.

Recommendation 4 That the Commonwealth provide matching funds in the 2021-22 Budget to support and accelerate state jurisdiction investments in mass transit solutions.

RECOMMENDATION 5

ROAD WORKER SAFETY

The unprecedented scale of the national road and related infrastructure pipeline brings with it increased need for works to be carried out in an active traffic environment – increasing the risks faced by road workers.

RA's July 2019 [Roadworker Safety Workshop](#)²⁷ brought together more than 60 industry leaders to consider how best to manage the risks posed to road workers (considered as vulnerable road users), while providing a safe road environment for all road users.

Key themes from the workshop included: raising the credibility and respect for road workers; improving public social awareness and driver compliance behaviour at work sites; a collaborative role for government and industry to improve awareness/education; concern that the low tolerance of occupational health and safety risks generally does not flow through to our standards for road workers; the need for regulatory change to improve pre-qualification standards; and opportunities to improve uptake of technology and innovation to remove road workers from danger.

The RA [Future Transport: Smart Cities 2019](#)²⁸ report highlighted that like Australia, USA road safety statistics are trending negatively after years of consistent decreases in fatalities and serious injuries. The American Road and Transportation Builders Association (ARTBA) indicated that roadwork zones in the USA account for 15,000 road worker injuries and 135 road worker deaths. ARTBA's aim was to head towards zero deaths through their Safety Certification for [Transportation Project Professionals Program](#)²⁹. This on-line safety centre has a focus on training candidates to attain the skills to identify temporary traffic control occupational, health and safety hazards, and to develop a safety planning culture and climate, with thorough incident investigation.

While Australia appears more advanced in its application of the safe system approach to road safety and traffic management around roadwork sites, the RA report recommended that Australian authorities should take a close interest in the ARTBA Program. Following these activities, RA established a Road Worker Safety Working Group (RWSWG) with the objective of raising safety standards among traffic management and road workers. The RWSWG is an initiative that arose from the recognition by the RA Board that our organisation should take a leading role in ensuring the safety of our road worker community.

The RWSWG is currently focussed on several strategic issues, including (but not limited to) reforms to the procurement process and pre-qualification requirements. However, RA recognises that without access to reliable data on fatalities and injuries specific to this group of road users, it is difficult to accurately measure the impact of policy initiatives designed to resolve the issue.

As such, RA encourages the Office of Road Safety's National Road Safety Data Hub to include data on road worker safety, which is currently not specifically measured. As part of this process, we would suggest that the Office of Road Safety consult with Safe Work Australia, as well as other relevant industry and government stakeholders.

Over 90 industry leaders attended a subsequent RA webinar held during [November 2020](#)³⁰ to hear Australian and international speakers emphasise the importance of sharing safety data and examples of road safety best practice. Something particularly emphasised was the importance of introducing high quality, consistent and structured training around road worker safety issues for industry participants.

One specific observation made was the noticeable difference between Australia, where road safety workers are casually employed, compared to the UK, where traffic management was considered a safety-critical and respectable career.

That said, Austroads' work in unifying standards to improve the safety and efficiency of temporary traffic management on road sites and to develop cross-jurisdictional consistency in qualifications for road workers in Australia was recognised.

[Austroads](#)³¹ has acknowledged that working on roads and roadsides poses significant risks to workers and motorists, through changed roadway conditions, disrupted traffic flow, limited working space and movement of construction and public vehicles in close proximity to workers and worksites. A four-part Austroads project is underway to facilitate the introduction of a harmonised approach to temporary traffic control at road worksites across Australia. As part of this process, RA has made a [submission](#) on a proposed temporary traffic management training framework and prequalification scheme³².

RA believes that this project will need to be supported by broad public awareness-building and industry-wide training and compliance monitoring.

To contribute to these aims, it is recommended that funding be allocated to:

- evaluate the ARTBA's *Safety Certification for Transportation Project Professionals Program*;
- support implementation of a national road worker safety training program;
- capture and analyse statistics on road worker safety; and
- further develop and expand nationally the [Traffic Management Association of Australia](#)³³ (TMAA) public campaign highlighting road worker safety awareness.

This would also be consistent with one of the stated themes ('Safe Road Use') for the next National Road Safety Strategy, as outlined by TIC (now replaced by the infrastructure and Transport Ministers' Meeting) in its [Communiqué](#)³⁴ dated 22 November 2019.

Recommendation 5.1 That the Commonwealth provide funding in the 2021-22 Budget to implement a national road worker safety program and a national road worker safety awareness campaign.

ROAD SAFETY

The Federal Government should strongly link infrastructure funding to road safety outcomes to combat Australia's rising road toll.

In 2019, the Australian Automobile Association (AAA) brought together twenty-three national and state organisations to develop the [Reviving Road Safety](#)³⁵ policy priorities document, calling for urgent Federal Government action to combat Australia's rising road toll.

The AAA has undertaken extensive consultation with a wide range of experts and organisations. There is a consensus that the Australian Government can make the nation's roads safer by using its powers and responsibilities in several crucial ways.

RA supports the four broad priorities in the policy and calls on the government to:

1. Continue to support the development of a National Road Safety Data Hub within the Office of Road Safety, delivering a coordinated approach to the collection and analysis of road infrastructure safety data to inform future policy and investments.
2. Link infrastructure funding to road safety outcomes, and use incentive payments to ensure road funding proposals are tied to safety standards.
3. Encourage the uptake of safer vehicles and work towards targets to lower the average age of Australia's vehicle fleet.
4. Ensure the new Office of Road Safety has genuine authority to oversee the development and progress of the next National Road Safety Strategy, which will take effect from 2021.

We acknowledge work has begun in some of these areas, through the Office of Road Safety, and commend the Federal Government on this. Furthermore, it is anticipated that these priority areas would be consistent with the three stated themes (Safe Roads, Safe Vehicles, Safe Road Use) anticipated for the next National Road Safety Strategy, as described by (TIC) in their November 2019 communique. It is critical to ensure sustained and ongoing funding for the Office of Road Safety is provided to enable delivery of these priorities.

Recommendation 5.2 That the Commonwealth provide funding in the 2021-22 Budget through the Office of Road Safety to support the AAA Reviving Road Safety policy priorities.

Increased national support for the expansion of regional and rural safety through implementation of proven low-cost infrastructure solutions can have a high impact on regional road safety outcome.

Despite making up only 17% of the nation's population, it is estimated that deaths on regional roads account for two in every three of the lives lost nationally. While driver behaviour and vehicle design have a role to play in improving safety, relatively low-cost infrastructure treatments can be an effective and efficient way to reduce the number or impact of crashes. These treatments can be especially helpful in reducing run-off-road and head-on crashes.

RA welcomes the recent federal funding announcements in June and July 2020 relating to road safety infrastructure, as part of the \$1.5 billion nationwide infrastructure package, including \$500 million for targeted road safety works. RA has been supporting increased federal funding for low-cost road safety treatments for some time, so it is encouraging to see these types of treatments being supported, including shoulder widening or sealing and audio-tactile line markings.

RA has continued to engage with road safety experts and road managers on this important issue, most recently through a Regional Road Infrastructure webinar attended by over 120 participants on [8 July 2020](#)³⁶.

Research presented by Transport for NSW (TfNSW) during this webinar showed the effectiveness of several road safety treatments, including:

- Full containment (roadside and median barriers): 90-95% reduction in head-on FSIs; 90-95% reduction in run-off-road FSIs; and 50-75% reduction in FSIs across all crash types;
- Median barrier only: 90-95% reduction in head-on FSIs;
- Roadside barriers: 90-95% reduction in run-off-road FSIs;
- Wide centreline: 50% reduction in head-on crashes; and 20-25% reduction in run-off-road crashes; and
- Audio-tactile line marking: 20-25% reduction in run-off-road crashes; and 25% reduction in head-on crashes.

RA supports continued and accelerated investment in these proven, relatively low cost, road safety initiatives, and related projects being implemented in all States and Territories.

In a related matter, it is noted the Office of the National Rail Safety Regulator (ONRSR) is developing a National Level Crossing Portal, by providing any additional resourcing or support needed to streamline the completion of the project and secure the necessary jurisdictional data.

Once completed, it is recommended that the Commonwealth Government work with industry and the detailed data available within the portal to develop a prioritised national list of level crossing removal projects, particularly focussing on high-risk crossings in regional areas. The data available through this historic initiative will, for the first time, allow for a truly data driven approach to improving the rail and road safety outcomes across the country related to level crossings.

Recommendation 5.3 That the Commonwealth provide increased funding in the 2021-22 Budget to support the expansion of State and Territory Government regional and rural road safety infrastructure programs, including the removal where possible of high-risk level crossings in regional areas.

RECOMMENDATION 6

LOOKING TOWARDS A POTENTIAL HYDROGEN FUTURE

Australia can be a leader in hydrogen fuel development and production - the National Hydrogen Strategy is our opportunity to ensure we are positioned to grasp this opportunity.

The RA [Future Transport: Smart Cities 2019](#)³⁷ report highlights that the momentum for hydrogen fuel cell vehicles is building in the US and Canada. There are over 5,000 Toyota and 1,000 Honda fuel cell family cars already on the road in the USA. While fuel station infrastructure has been recognised as an impediment to growth, the state of California alone is spending more than 2.5 billion USD in clean energy funds to accelerate sales of hydrogen and battery vehicles, including 900 million USD earmarked to complete 200 hydrogen stations and 250,000 charging stations by 2025.

A global initiative of leading energy, transport and industry companies, the [Hydrogen Council](#)³⁸, was launched at the Davos World Economic Forum 2017. This growing coalition of CEOs has ambitions to accelerate significant investment in the development and commercialisation of the hydrogen and fuel cell sectors. It encourages key stakeholders and policy makers to increase their backing of hydrogen as part of the future energy mix.

The Hydrogen Council's [Hydrogen Scaling Up](#)³⁹ report sees the hydrogen economy as a central pillar of the energy transformation required to limit global warming. The report proposes that the transportation sector, through hydrogen-powered fuel cell electric vehicles (FCEVs), could combine with battery EVs to achieve a deep decarbonisation of all transportation segments. It believes FCEVs are best suited for long-range, heavier payload applications where trucks and buses alone could potentially achieve more than 30 per cent of hydrogen's total transport sector CO2 abatement potential. The report predicts that by 2030, one in 12 cars in Germany, Japan, South Korea, and California will be powered by hydrogen - resulting in 10 to 15 million cars and 500,000 trucks worldwide potentially powered by hydrogen. The Hydrogen Council vision for 2050 sees up to 400 million passenger vehicles (~25 per cent), 5 million trucks (~30 per cent), and more than 15 million buses (~25 per cent) running on hydrogen, worldwide.

A [Future of Hydrogen – Seizing today's opportunities](#)⁴⁰ report, prepared by the International Energy Agency for the recent G20 meeting in Japan, highlighted 2019 as a critical year for hydrogen. With unprecedented momentum around the world, the report predicts that hydrogen is finally on a path to fulfilling its longstanding potential as a clean energy solution.

To this end, RA strongly supports Australia's significantly accelerated consideration of hydrogen for transport opportunities through the COAG Energy Council National Hydrogen Strategy development, [Hydrogen for Transport](#)⁴¹ working group. The momentum is also building through recent significant hydrogen initiatives by state and territory governments, including announcements of industry hubs across Australia to bring together companies working on new hydrogen technology across all areas of the supply chain in order to drive business growth and innovation.

RA hosted a webinar in [December 2020](#)⁴² to promote the future role of hydrogen fuel cell technology in Australia's public transport. Featuring international experts, this webinar looked at whether hydrogen fuel cell buses will be embraced in Australia. The discussion also addressed the importance of looking beyond just tailpipe emissions, and using renewables to generate green hydrogen to achieve low / zero emissions. The session also explored whether Australia is likely to embrace hydrogen in other forms of public transport.

Recommendation 6 *That the Commonwealth allocate grant funds in the 2021-22 Budget to support and accelerate state and territory government, and industry initiatives that advance the National Hydrogen Strategy.*

RECOMMENDATION 7

ADVANCED MANUFACTURING COULD CHANGE THE LANDSCAPE

Micro-factories and small scale “bespoke” production techniques could see new vehicle technologies produced in Australia.

A case study in the RA [Future Transport: Smart Cities 2019](#) report highlighted the development by the [Local Motors Company](#)⁴³, of Olli, a crowd-sourced 3D printed, electric and automated shuttle. This vehicle is made from recycled, low-grade thermoplastic reinforced with carbon fibre and is already registered to operate in road trials in the US state of Maryland.

While testing on this autonomous shuttle is still a work in progress, the key observation by the RA delegation was that new business models, such as the Local Motors approach, could be a major disrupter to traditional vehicle manufacturing. Local Motors designs bespoke mobility vehicles, to meet community needs, which can be printed and constructed using a 3D printer in 44 hours in local micro-factories. The company believes it is conducting world-leading research into material strength and structures and anticipates opening between 50 and 100 micro-factories in the next decade. Each factory costs approximately USD\$20 million to build – a fraction of traditional automotive manufacturing plant costs.

RA believes that the “Olli” case study points to a significant pending disruption to traditional vehicle manufacturing scale and delivery timing. There is an opportunity for micro-factories and small scale “bespoke” production techniques producing new vehicle technologies in Australia.

The RA report recommended that the Federal Government should develop a business case for the establishment of a small-scale vehicle manufacturing Co-operative Research Centre (CRC) in Australia to explore this exciting opportunity. This could potentially see the establishment of a pilot micro-factory by the CRC.

Recommendation 7 That the Commonwealth allocate funds in the 2021-22 Budget for the establishment of a small-scale vehicle manufacturing Co-operative Research Centre.

RECOMMENDATION 8

OPTIMISING THE SUSTAINABILITY OF OUR NATION'S ROADS

The Infrastructure and Transport Ministers' Meetings should facilitate discussion with all governments on the need for a national approach to the development and operation of environmentally transport infrastructure, including the use of recycled materials in road construction.

RA strongly supports the announcement by the [Prime Minister](#)⁴⁴ on the steps toward a cleaner environment through a \$20 million commitment for innovative projects to grow our domestic recycling industry and recognises the re-emphasis of recycling as a priority area in the Government's manufacturing strategy in his first public speech in [2021](#)⁴⁵.

Many successful trials of recycled materials in road construction have been conducted in Australia over recent years. One such example is the [Paving The Way](#)⁴⁶ initiative of the Southern Sydney Regional Organisation of Councils, which aims to use nearly 100 million glass containers that might otherwise end up as landfill as road base. RA is keen to see the full realisation of the benefits of these trials, which have generated significant experience within industry and state road and transport agencies to be drawn on. A statement by the [Australian Council of Recycling](#)⁴⁷ (ACOR) highlights the potential opportunities, based on independent research, to use recycled material in road construction.

RA and the Australian Road Research Board (ARRB) held a Roundtable in 2019 on the use of recycled materials. The key message from Roundtable participants was the need to review all current standards and specifications, to facilitate the widespread use of recycled materials in roads in Australia.

There was strong support for a coordinated and collaborative approach from industry, key stakeholders and governments take this opportunity forward. The Roundtable recognised that supporting additional research, testing, and data will be required give governments confidence to optimise the use of recycled content materials in road projects.

However, the opportunity to harness recycled materials and build greater sustainability in infrastructure should not be limited to road construction. According to ClimateWorks Australia [Reshaping Infrastructure for a Net Zero Emissions Future](#)⁴⁸ report around 70% of Australia's greenhouse gas emissions are either directly attributable to, or influenced by, infrastructure, whilst 10% of Australia's carbon footprint was attributable to 'engineering construction'⁴⁹.

The ClimateWorks Australia report acknowledges that while infrastructure assets themselves have no control over vehicle emissions, or how the energy for vehicles is produced, there is potential for the infrastructure to support the uptake of low and zero emissions transport (such as investment in public transport and active transport as per Recommendation 4).

To encourage greater sustainability in transport infrastructure, RA will shortly commence a project exploring best practice in the development and operation of environmentally sustainable transport infrastructure. We expect this will provide governments and industry with examples of sustainability excellence in transport projects from Australia and internationally.

That said, RA believes the Commonwealth Government can take a lead role in this process. ITTM should facilitate discussion with all governments on the need for a national approach to the development and operation of environmentally sustainable transport infrastructure including the use of recycled materials in road construction.

A key outcome should be endorsement of the need for national guidelines and specifications on use of recycled materials in roads and support for funding to progress this work.

Recommendation 8 *That the Commonwealth allocate funds in the 2021-22 Budget to facilitate a national approach to the development and operation of environmentally sustainable transport infrastructure including the use of recycled materials in road construction.*

RECOMMENDATION 9

CO-ORDINATING FUTURE TECHNOLOGY

RA welcomes the announcement in October 2018 of the Federal Government's decision to establish an Office of Future Transport Technologies – to provide the strategic leadership necessary to facilitate the operation of automated vehicles and other transport innovations in Australia.

RA believes that Australia's productivity and road safety outcomes can be strongly improved by the introduction of autonomous vehicles, firstly in the heavy vehicle freight sector, then through the light vehicle fleet with driverless capability. However, we remain concerned that the lack of a nationally coordinated and integrated system, ambivalent to jurisdiction borders, will delay these benefits - potentially for many years.

Better coordination of Australia's autonomous vehicle trials, enabling law and regulatory processes is therefore essential. Our governments should be acting collectively and engaging on strategies to help remove consumer and societal barriers to the introduction of new autonomous driving technologies.

RA believes the Office of Future Transport Technologies can play a pivotal role in avoiding a potentially fragmented approach to automated vehicle introduction through uncoordinated, state-by-state approaches. It is incongruous that our national highway system could see markedly different network control and management systems in place given that vehicles routinely traverse state and territory borders. Alternatively, we could be faced with the dilemma of accepting staggered jurisdictional implementation or significant delays until all states and territories have adequate systems in place.

The Department of Infrastructure, Transport, Cities and Regional Development [fact sheet on Automated Vehicles](#)⁵⁰ acknowledges that there are differing views about when developments in automotive technology will enable more sophisticated automated vehicles to be ready for use on our roads. There is further uncertainty about when these vehicles will be commercially available in Australia, and when they may represent a significant component of our vehicle fleet. However, while noting this uncertainty, Australia's transport ministers have agreed to a phased reform program to enable Level 3 'conditionally automated' vehicles to operate safely and legally on our roads by 2020.

The Office of Future Transport Technologies can assist in delivering the government's immediate and long-term objectives for transition to an automated vehicle future for all Australians. It is therefore critical that the Office of Future Technologies is properly funded so it can attract the technical skills necessary to allow the Australian Government to provide leadership for the uptake of automated vehicles in a uniform manner across the country.

Recommendation 9 *That the Commonwealth allocate funds in the 2021-22 Budget to fully establish and facilitate the operations of the Office of Future Transport Technologies over the full forward estimates period.*

RA MEMBERS





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