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## Submission by the Centre for Automotive Safety Research

### Introduction

The Centre for Automotive Safety Research (CASR) at the University of Adelaide welcomes the opportunity to provide feedback on the 20-Year State Infrastructure Strategy Discussion Paper published by Infrastructure SA (ISA) in June 2019.

The discussion paper outlines some high level perspectives and aspirations for the State and highlights the relationship between infrastructure and economic activity and the wellbeing of South Australians although it is noted that a strategic response to road safety is largely absent.

This submission provides CASR's perspective on the discussion paper and also draws upon findings relevant to South Australia from the Inquiry into the National Road Safety Strategy 2011-2020 delivered in September 2018.

CASR is a multidisciplinary research centre which has roots in road safety research dating back to the 1960s. Staff have backgrounds in mechanical and civil engineering, psychology, health, mathematics, physics, computer science and education. Core activities include in-depth crash investigation, crash testing, statistical analysis and countermeasure evaluation.

CASR has a deed of agreement with the Department of Planning, Transport and Infrastructure (DPTI) that provides core funding for research and staff salaries. Amongst other activities, CASR frequently provides advice to the State government on road safety matters.

CASR has an ongoing research program that provides an evidence base for decision making in relation to road safety and would welcome any future opportunities to discuss or assist ISA in its activities.

## Background

It should never be overlooked that unacceptable levels of death and injury result from the use of our road transport infrastructure. While statistics and comparisons are made almost on a daily basis, what is lost from view is the drip feed of trauma that accumulates year after year, decade after decade with no meaningful end in sight. This has a burden on individuals, families, communities, emergency service personnel and health workers.

In the past 10 years SA has had 1026 fatalities, 8642 individuals admitted to hospital and 42,263 people treated at hospital. In the past 20 years these figures become 2505, 23,445 and 89,526 respectively. While there has been a long term improvement there is hardly cause for celebration with the residual trauma that remains, especially considering that much of it is preventable. How we respond today will determine the harm caused to future generations.

We should therefore not be content with constant small incremental improvements in road safety with no tangible end in sight but rather adopt a strategic focus on harm elimination and commence alignment of activities that will get us to a point where harm is virtually absent from use of the system at a nominated date in the future. Road safety knowledge has evolved considerably over the past decade and pathways to achieve zero harm and now becoming increasingly plausible over 30 year time horizons.

While there has been much improvement in road safety in past decades, there has tended to be an underpinning assumption that road user performance is key to achieving the desired safety outcomes. Therefore unrealistic expectations have been traditionally placed on education and enforcement to solve the problem outright. While such efforts are essential and need to continue, what is often missing from past perspectives is the role that infrastructure and vehicle design play in influencing the road user performance in the first place. We must accept that no matter how well trained or skilled road users are, crashes will continue to occur because the system is designed in a way that is inherently unsafe. The focus therefore needs to move away from the causes of crashes towards addressing the harm that is being done. Systemic change is needed to transform the system over time from inherently unsafe to safe. Key indicators of progress should demonstrate if the system is becoming more forgiving of predictable and repeated errors and assess to what extent users of the system can inadvertently cause harm to themselves or others. The role of infrastructure in this context needs to be acknowledged. It is also clear that infrastructure alone cannot solve the road safety problem so in the transition to zero harm, an assessment of the (safety) quality of infrastructure in the State is also an important consideration.

In quoting from the Introduction section of the discussion paper:

"ISA will provide independent advice to assist the South Australian Government to plan, identify and prioritise the delivery of major infrastructure across the State. That includes establishing clear goals and measuring outcomes over the long term from the projects or initiatives ISA supports – from reductions in travel time and healthcare waiting lists, to better support for jobseekers and businesses through apprenticeships and traineeships as well as for South Australia's vibrant cultural scene. Done right, this will support economic growth, social wellbeing and sustainable environmental management."

Safety is a critical component of infrastructure design and operation and appears to have been overlooked. Failing to manage safety considerations properly will leave a lasting legacy for the SA community for decades to come as is evidenced by the current level of trauma.

In the case of road investment, a challenge for ISA will be to achieve a more balanced perspective on where the costs and benefits of road safety accrue. The health and insurance sectors stand to be the major beneficiaries from safety gains however DPTI and local government budget lines have been the

traditional source for construction and operational funds along with SA Police. This results in gross under-funding of road safety.

We should expect that any new infrastructure facility be capable of virtually eliminating death and serious injury from use of that facility. New projects must adopt the latest philosophies in harm minimisation and should not present scenarios where death and injury are still to be expected from use of the facility. Innovative road designs are emerging that mitigate the consequence of a crash should one occur.

It would be beneficial for ISA to engage in the following to achieve a more comprehensive strategic perspective on infrastructure provision:

- Application of the Austroads Safety System Assessment Framework (SSAF) to all road transport related projects (Austroads, 2016)
- The adoption of network risk rating frameworks including those of iRAP (AusRAP) or Austroads (ANRAM)
- Review and monitoring of completed projects to ensure that virtual harm elimination is being achieved and confirm that outdated practices are not perpetuating safety problems
- Make tackling the burden of deaths and serious injuries from road use a part of the economic discussion for the State
- Adopt KPIs that reflect the status of gaps in the road transport system and how consequence is being addressed rather than a focus merely on crash statistics and causation

### The Inquiry into the National Road Safety Strategy 2011-2020

The director of CASR was privileged to co-chair an inquiry into the National Road Safety Strategy with Dr John Crozier from the Royal Australasian College of Surgeons. Official advisors to the inquiry were Lauchlan McIntosh (currently Chair of Global NCAP) and Robert McInerney, CEO of the International Road Assessment Program (iRAP). (Woolley et al, 2018)

Although having a national focus, many of the findings are relevant to South Australia and key items are highlighted here. The major findings from the inquiry were as follows:

- **Implementation failure** – the adopted Safe System approach that underpins the strategy had failed to be sufficiently operationalised in organisations during the life of the strategy
- **Lack of a harm elimination agenda** – sub-optimal solutions were being obtained because opportunities to address the harm being done do not receive a specific focus. Crash consequence also needs to be added to infrastructure design and operation processes. There was an overall lack of developed capacity for organisations to pursue the agenda.
- **Leadership** – leadership on the harm elimination agenda was largely absent and a “coping” rather than “fixing” mindset prevailed. This has led to being content with small incremental gains and a perception that we are ‘doing as much as we can with what we have got’, rather than a structured assessment if our response is taking us on a trajectory towards zero harm.
- **Stimulus and Scale** – Road safety efforts are generally small relative to the overall size of the problem. Limitations of current approaches need to be acknowledged and a longer term management strategy pursued that seeks to address gaps in the system and one that also deals with consequence.

Twelve recommendations were made and are discussed here in the SA context.

**1. Create strong national leadership by appointing a Cabinet minister with specific multi-agency responsibility to address the hidden epidemic of road trauma including its impact on the health system.**

South Australia has a dedicated Minister for Road Safety and there is much overlap with the Transport portfolio. The challenge is to coordinate a holistic approach and ensure that the road safety response is broadly adopted across several government portfolios and not just left to transport and emergency services. At present it is not clear how government intends to achieve this.

ISA can play a role in linking investment objectives with a strategic approach towards harm elimination.

**2. Establish a national road safety entity reporting to the Cabinet minister with responsibility for road safety.**

The capacity for the public service and the roads sector to pursue a harm elimination agenda should not be under-estimated and a focus is required on ensuring the necessary capability is grown and nurtured. An understanding of how past practices are no longer sufficient to deliver the desired step change needs to exist. Business as usual will not result in any safety performance gains in road safety.

**3. Commit to a minimum \$3 billion a year road safety fund.**

The government has done well to leverage Commonwealth funding for road infrastructure projects. The injection of State and Commonwealth investment will no doubt result in safety improvements on those sections of road. It is essential however that best practice approaches supporting principles of harm elimination are adopted and outdated practices not be adopted.

The inquiry found strong evidence that demonstrated that much of the large infrastructure investment decisions were dominated by productivity and mobility objectives whereby it was assumed safety would also be improved.

The July 2018 infrastructure priority list published by the Australian Government and Infrastructure Australia lists 14 high priority projects and 84 high priority initiatives. Categories for these projects include urban congestion, national connectivity, opportunity for growth, corridor preservation, remote infrastructure, water security, waste water treatment, resilience, and efficient markets. There is no focus on safer road infrastructure. It is imperative that ISA does not also replicate this situation (Woolley et al 2018, p64).

**4. Set a vision zero target for 2050 with an interim target of vision zero for all major capital city CBD areas, and high-volume highways by 2030.**

Leading road safety jurisdictions are now adopting target dates in which fatal and serious injuries from use of the road system might be eliminated. It is important to undertake the modelling, analysis and strategic planning to identify pathways to harm elimination. The state should be clear on how it can move from coping to fixing the road safety problem. Gaps in system performance need to be better understood and a long term strategy capable of delivering the necessary step change in safety performance be formulated.

It is now feasible that elimination targets can be adopted for parts of the road transport system:

- No fatalities or serious injuries in the Adelaide CBD, high pedestrian activity areas, school zones or on roads of strategic significance by 2030
- No fatalities or serious injuries in population centres and selected rural corridors by 2040
- No fatalities or serious injuries on the road system by 2050

Many parts of the system are already operating at or near zero harm. Knowledge on practices that align with harm minimisation has grown significantly over the past decade and over the coming years disruption in the transport sector regarding technology, mobility as a service and the way in which transport infrastructure is operated all provide opportunities for step changes in road safety performance.

ISA can play a role in guiding some of these strategic responses and connecting with safety performance of the system.

#### **5. Establish and commit to key performance indicators in time for the next strategy that measure and report how harm can be eliminated in the system, and that are published annually.**

South Australia will need to develop its next road safety strategy and action plans. It is essential that a strategic approach be taken towards the elimination of harm at a nominated time in the future – 2050 appears an accepted timeframe in other jurisdictions.

While road casualty statistics are important, greater emphasis needs to be placed on intermediate measures that describe system performance. There are many mature tools and frameworks available

We suspect the community would appreciate greater transparency regarding the status and quality of the SA road network. The AusRAP road rating scores are an established way for communicating this. ANRAM is another system encouraged by Austroads. As the decades pass by, these systems have yet to be utilised in meaningful ways to facilitate strategic discussions on the quality of the road network and what a long term management approach might look like with the community.

ISA needs to become literate and conversant with these assessment tools.

#### **6. Undertake a National Road Safety Governance Review by March 2019.**

The current consultation on the SA Infrastructure Strategy is an attempt to engage stakeholders around a more holistic approach to Infrastructure planning and investment. The same needs to be done regarding the level of harm in the State resulting from use of transport infrastructure and should be added to the ISA scope.

#### **7. Implement rapid deployment and accelerated uptake of proven vehicle safety technologies and innovation.**

We anticipate that ISA would consider this as part of their infrastructure considerations in relation to evolving advance driver assistance systems (ADAS) and driverless vehicle technology.

#### **8. Accelerate the adoption of speed management initiatives that support harm elimination.**

Of all the options available regarding road safety, the adoption of speed management initiatives presents one of the most effective pathways to harm reduction. This is not only about enforcement activity (which is essential), it is about operating the road system at speeds that are matched to the quality of the infrastructure. The gaps in the system are significant and more survivable operating speeds would see more people walk away from crashes. Voluntary compliance schemes and the innovative use of emerging technologies (eg reductions in speeds at intersections when cars are detected on side roads) provide examples of alternative methods for tackling the problems.

## **9. Invest in road safety focused infrastructure, safe system and mobility partnerships with state, territory and local governments that accelerate the elimination of high-risk roads.**

ISA should consider strategic opportunities to eliminate high risk roads on the network. Building capacity through partnerships at all three levels of government will be essential to nurture capacity to pursue the necessary performance improvement in road safety.

Under Recommendation 9 in the Inquiry, the following were suggested (Woolley et al 2018, p62):

- Ensure the Infrastructure Australia audit for 2019 includes a compilation of all AusRAP and Australian National Risk Assessment Model (ANRAM) data, and that it is fully calibrated to identify high-return investment priorities.
- Establish and resource an AusRAP national partnership similar to the established ANCAP partnership for new car assessments. This should link closely with the National Road Safety Observatory, Infrastructure Australia and the Local Government Safer Roads Fund to ensure transparent and cost-effective investment in safer road infrastructure and speed management.
- Build on the National Road Safety Action Plan 2018–2020 for 90% of travel on National Highways to be 3-star or better, and 80% of travel on state roads to be 3-star or better by 2020. Identify priority roads for dedicated and targeted road funding partnerships with the relevant jurisdictions.
- Establish a Safer Roads Fund for local government that targets the 100 highest risk sections of road each year (based on risk mapping of crashes per kilometre travelled) and supports implementation of corridor safety plans as identified in the 2018–2020 National Road Safety Action Plan.

## **10 . Make road safety a genuine part of business as usual within Commonwealth, state, territory and local government.**

ISA needs to ensure that best practice in road design and operation is being adopted. There are various tools and frameworks available that can be of benefit.

## **11. Resource key road safety enablers and road safety innovation initiatives.**

Given the disruption that is likely to occur in transport over the next two decades, creating a climate for innovation is regarded as essential to maximise benefits. Ideally the strategic plan will identify ways in which innovative solutions can be attempted and learnings become part of a feedback loop. Support for ongoing research and understanding benefits and disbenefits of system changes will be essential to identify efficient pathways for future implementation.

ISA could champion these perspectives in its considerations.

## **12. Implement life-saving partnerships with countries in the Indo-Pacific and globally as appropriate to reduce road trauma.**

The infrastructure sector in SA can play a key role in assisting other countries. Such interactions also help to build and reinforce capability within the State.

## Conclusion

A specific focus on road safety and harm elimination is absent from the discussion paper. Many of the findings of the Inquiry into The National Road Safety Strategy are relevant to ISA and South Australia and should be taken into account when considering the strategic approach to infrastructure. A connection between the next State Road Safety Strategy and ISA also needs to be considered. There are many tools and frameworks that ISA could adopt to assist with assessing the safety quality of road infrastructure. Strategic support for innovation and maintaining capability also requires consideration, especially in relation to the significant problem of harm occurring from use of the infrastructure.

Innovation will be a key factor if SA is to be successful. Low cost treatments for deployment in regional areas must be explored. Ideally, collaborative projects at all three levels of government should be pursued to solve widespread safety issues and also build capacity in the safety management of the road system. Private/Public Partnerships (PPP) are also capable of realizing innovative solutions providing the harm elimination criteria is made explicit up front.

Road safety is a hidden epidemic - having ISA adopt a more strategic response to this can alter the extent of harm incurred by future generations.

## References

Woolley, J, Crozier, J, McIntosh L and McInerney, R (2018). *Inquiry into the National Road Safety Strategy 2011-2020*. Independently published. Available online at <https://www.roadsafety.gov.au/>

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Austrroads (2016) Safe Systems Assessment Framework. AP-R509-16 Austrroads, Sydney.

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