ACRS Submission to Inquiry into the Implications of Severe Weather Events on the National Regional, Rural and Remote Road Network

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Introduction

The Australasian College of Road Safety is the region's peak membership association for road safety with a vision of eliminating death and serious injury on the road. Our members include experts from all areas of road safety including policy makers, health and transport professionals, academics, community organisations, researchers, federal, state and local government agencies, private companies and members of the public. The purpose of the College is to support our members in their efforts to eliminate serious road trauma through knowledge sharing, professional development, networking and advocacy. Our objectives include the promotion of road safety as a critical organisational objective within government, business and the community; the promotion and advocacy of policies and practices that support harm elimination; the improvement of relative safety outcomes for vulnerable demographic and user groups within the community; the promotion of post-crash policies and practices; and the promotion of a collegiate climate amongst all those with responsibilities for and working in road safety.

The College believes that we should prevent all fatal and serious injuries on our roads; the road traffic system must be made safe for all road users; system designers should aim to prevent human error and mitigate its consequences; life and health are not exchangeable for other benefits in society; and that all College policy positions must be evidence based.

Climate change threatens human health via direct impacts and reduces road safety and engagement in healthy and safety transport choices such as cycling, walking and public transport during more frequent extreme weather. The underlying cause of climate change is excessive greenhouse gas emissions, of which the transport sector in Australia is responsible for 17%. Transport emissions have grown more than any other sector, increasing nearly 60% since 1990.(1) Climate change produces more extreme weather events and adverse weather conditions, which can cause road crashes, divert spending into infrastructure maintenance rather than safety improvements, and discourage the use of more sustainable and safer mobility options such as public transport.(2)

ACRS response to the Terms of Reference

a) Road engineering and construction standards required to enhance the resiliency of future road construction

A holistic approach should be adopted and implemented, rather than a focus on attempting to engineer road infrastructure as a sole solution. A whole of system approach considering all forms of transport should be developed to respond to shocks resulting from severe weather events to diversify the risk and most importantly, be developed with a community centric approach.

The importance of community resilience as a social construct is key to sustainable resilience. There needs to be increased effort regarding a people centric solution, including planning, design and contingency strategies. True resilience requires a change in thinking.

Systemic change for sustainable and resilient infrastructure requires collaboration between private and public sectors and communities, to develop and establish diversification. For example, access through ports may provide a better and more manageable response for isolated towns and cities on or near the coast. This would require investment in some ports to enable rescue, recovery and/or supplies to be ship based.

Additional benefits may be realised, such as defence force and customs access during normal periods to improve national security or provide more options for training exercises. Such an approach diversifies the risk and lowers the criticality of the road network as more options can be incorporated into recovery plans.

Case example: The 2023 flooding of North-West Western Australia required helicopters, defence force planes, and barges. Little infrastructure had been established to appropriately cater for these requirements. However, this illustrates the other forms of transport as an effective and quickly deployed option for community resilience, rather than a focus on road network resilience.

Transport infrastructure construction requires significant amounts of natural raw materials. The extraction, transportation, and production of these materials produces waste, consumes energy, and emits greenhouse gases. Significant benefits can be realised by findings new uses and solutions to reuse, repurpose and repair civil infrastructure. Infrastructure development or redevelopment should not undermine environmental sustainability and consequently contribute to climate change.

Road engineering and construction standards required to enhance the resiliency of future road construction should not exacerbate climate change issues or be based on humans conquering nature. For example, building roads despite the natural lay of the land, waterways, and attempting to pervert or deny what nature intends such as flood plains. Road engineering and construction standards to enhance resiliency should consider ways to reduce the risk of failure by not establishing such infrastructure in locations that set it up to fail due to the existing environmental, climatic conditions or factors which undermine its function or contribute to its premature corrosion.

The Infrastructure Sustainability Council approach regarding projects, sustainability and resilience brings in the context of each region and community, in a framework which could be reviewed and adapted:

- What the asset needs to be and provide should be context driven such as the community it is in, and the life expected from the asset; and
- Standards should be to build to meet the needs of the relevant community, such as recovery time and criticality of the infrastructure, similar to business continuity planning.(3)

The Infrastructure Sustainability Council rating scheme is a comprehensive rating system for:

"…evaluating economic, social and environmental performance of infrastructure across the planning, design, construction and operational phases of infrastructure assets. The scheme can assess the sustainability performance of infrastructure at the individual assets levels, for portfolios or networks, or even at a regional scale".(4)

This existing scheme should be leveraged to enhance resiliency of road engineering and construction standards, within the Sustainability Council ethos that "solutions both relate to the unique context in which they are applied and mobilise localised resources, action and engagement".

b) Identification of climate resilient corridors suitable for future road construction projects

Climate resilience for transport requires a broader scope than just roads. The focus needs to shift to one of community resilience, which would include identification of resilient corridors suitable for multi-modal rescue, recovery and support to reduce the risk of shocks and stressors resulting from severe weather events and climate change. The solutions will be more complex than simply building more roads.

Case study: The railway line that links South Australia to Western Australia (Adelaide to Perth) has a different alignment to the Eyre Highway. It is very possible that if one or the other are impassable, the other may still be operating. Resilience needs to take account of using all available modes and understand capacity constraints and whether this needs to be considered. Is an additional railway line, capable of carriage of goods and people, an effective way of enhancing resilience for Eyre Highway if there is flooding or bush fires closing the road?

With climate change increasing severe weather events, truly climate resilient corridors are improbable. We must reduce the risks associated with climate change by addressing the causes contributing factors, including within the transport sector. The First Annual Progress Report, November 2022, provided by the Australian Government Climate Change Authority notes that "to drive emissions reductions…more attention is now required in the transport and agricultural sectors".(5)

Demonstrable commitment is required to existing approaches, such as the Australian Government's National Climate Resilience and Adaptation Strategy 2021-2025,(6) while continually seeking opportunities to improve. One objective stated in the Strategy is to "drive investment and action through collaboration". The Inquiry's focus on roads detracts from a collaborative approach which would be consistent with the stated objectives in that Strategy.

The Australian Government has legislated a net zero by 2050 target and a 2030 target to reduce emissions by 43% below 2005 levels.(7) An inquiry into how the transport sector can contribute to the achievement of these targets, including identifying priority areas for change would be more beneficial that identifying options for construction of roads (construction activities that ultimately contribute to climate change) and supporting activities that are emission intensive at this time.

The First Annual Progress report notes the need for 'moving faster and across all sectors of the economy to achieve our targets…[and] a big shift in the momentum of emissions reductions. It is also noted the report states that "Australia should strengthen adaptation and resilience efforts", consistent with the spirit of this Inquiry.

c) Opportunities to enhance road resilience through the use of waterproof products in road construction

Being waterproof is limited to flood events. Recent history highlights that flooding is not the only event that needs to be considered. Fire also destroys road infrastructure and requires innovation for more resilient materials. Further, the loss of infrastructure such as bridges to flood, fire or any other potential threat, is more problematic and time consuming to replace. Investment in research and development for more resilient materials should firstly focus on components that are more difficult to replace and take longer to provide an alternative. A damaged sealed road can be substituted with an unsealed road; replacing a bridge is not as easy.

Resilience can also be established through design, not just materials. For example, bridges that can be constructed to minimise resistance to flood waters, including potentially dropping or folding down of side barriers, could be explored. This may be considered a "Break Quick-Fix Quick" designing approach for infrastructure that 'changes form' to be more resilient. Flood ways are already constructed on many rural roads that allow water to pass through at certain times of the year without damaging the main construction.

Although they may become impassable during that time, there are relatively quick to recover when water levels recede.

There must be careful attention to year-round use and potential crash risks of any new or improved roads, and when selecting appropriate 'climate-proof' materials and infrastructure. For example, paving unsealed roads or constructing new roads needs to consider those roads being used by pedestrians, cyclists, motorcyclists and other vulnerable road users, in addition to passenger vehicle and heavy vehicle traffic. Ensuring skid resistant surfaces is particularly important for reducing heavy vehicle and motorcycle loss-of-control crashes. Motorcyclists can also be severely injured on road surfaces that are highly abrasive. Expert assessment of likely road use by all road users and key considerations for safety must be factored into all plans for new and upgraded road projects, including the materials used, not only resilience to extreme weather conditions.

d) The Commonwealth's role in road resilience planning

The Australian Government 'Critical Infrastructure Resilience Strategy" Plan 2015, stated the aim of "the continued operation of critical infrastructure in the face of all hazards".(8) Further it states:

- The first objective is for critical infrastructure owners and operators to be effective in managing reasonably foreseeable risks to the continuity of their operations, through a mature, risk-based approach.
- The second objective is for critical infrastructure owners and operators to be effective in managing unforeseen risks to the continuity of their operations through an organisational resilience approach.

'Critical infrastructure' is defined as "those physical facilities, supply chains, information technologies and communication networks which, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact the social or economic wellbeing of the nation or affect Australia's ability to conduct national defence and ensure national security".

The current inquiry should ascertain to what extent the Commonwealth has delivered in relation to this Plan, or what has been learnt from the implementation, successes or shortcomings in respect to delivering against the stated aim. Whilst this document is broader than the road network, transport is "physical facilities, supply chains...which, [when]…destroyed, degraded or rendered unavailable for an extended period…significantly impact the social or economic wellbeing of the nation…". During the past few years this has been demonstrated repeatedly throughout Australia.

The Australian Government's October 2021 whole-of-economy Long Term Emissions Reduction Plan sets out Australia's approach to achieving emissions reductions.(9) It is stated that this plan compliments national policies and programs to help Australia respond to climate change, and the Annual Climate Change Statement is produced to provide the community with a progress report. The first report from November 2022 highlights the necessity for action – "our 2030 target for emissions reductions of 43 per cent below 2005 levels is only 85 months away, we need an elevated sense of urgency to address these challenges".(10)

The Commonwealth has a significant role to play in planning, preparation and delivery of strategies and projects to improve national resilience. Notably, this should not reinforce a silo approach based on nature of infrastructure, such as road network, separate to rail network, separate to marine transport. The

Commonwealth has the role of working across such sectors and diversifying resilience measures, and critically, driving efforts to reduce the factors contributing to climate change.

e) Other related issues

The Department of Industry, Science, Energy and Resources reported in 2021 that a one per cent decline in Australia's transport sector emissions during 2021-22 resulted from the COVID-19 pandemic.(11) The First Annual Progress Report states:

- A decline in transport emissions is not expected to continue without significant policy, behavioural or technological change;
- The stationery energy sector is projected to be the largest single sector source of emissions by 2030, followed by the transport sector;
- Transport emissions not covered by the Safeguard Mechanism are projected to increase to 2030 [the majority of transport emissions are not covered by the Safeguard Mechanism].(5)

These extracts, and many other statements in the First Annual Progress Report highlight the need to focus on reducing the transport sector's contribution to climate change, rather than roads being built to exacerbate its contribution. The report does discuss the provision of a framework, which amongst other things should "integrate economic development planning with emissions reduction and climate resilience policies".

Conclusion and Recommendations

The ACRS appreciates the opportunity to make this submission and contribute to improving the climate resilience and safety of our transport system. We are particularly keen to highlight:

- The road network is one part of a system and should not be considered in isolation.
- Planning and implementation of strategies to increase the resilience should include redesigning the transport system, including roads that are not four wheel centric, but also consider, for example, pedestrians, motorcyclists and other personal mobility modes of transport.
- People are the users of the system and should be included in the efforts to build capacity and capability to adapt or respond to stressors and shocks.
- Efforts to increase resilience, including through alternative construction methods and materials, must consider the safety implications for all road users.

Please do not hesitate to contact me if you need any further information.

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3 March 2023

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