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Committee Chair
House of Representatives Standing Committee on
Regional Development, Infrastructure and Transport
PO Box 6021
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Dear Committee Chair

The Tasmanian Government welcomes the opportunity to lodge a submission to the House of Representatives Standing Committee on Regional Development, Infrastructure and Transport inquiry into the implications of severe weather events on the national, regional, rural and remote road network.

The Tasmanian Government notes the importance and relevance of this inquiry in terms of consultation and the opportunity to provide input into broader initiatives and inquiries under way regarding severe weather events and transport infrastructure at a national level. Clearly, recent severe weather events have had a significant impact on parts of Australia and enhancing the resilience of our infrastructure is critical importance in ensuring transport linkages remain open.

Extreme weather events are projected to become more frequent and intense under a changing climate.

The Tasmanian Government is responsible for over 3,700 kilometres of roads, 1,300 bridges and major structures and 9,500 hectares of land, as well as traffic signals, signage, and electronic traffic management systems. The replacement value of this infrastructure is approximately \$6.8 billion. It provides an essential service to the community and visitors by enabling access to employment, education, services, economic prosperity and social participation.

Damage to transport infrastructure from extreme weather events inhibits the free movement of passengers and freight, increases costs for businesses and households, and increases costs to all levels of government to repair or replace damaged infrastructure.

Recent extreme weather events, including the October 2022 flooding around Tasmania, have highlighted the need to consider the resilience of the State's transport system to withstand extreme weather events alongside other important factors in the development and maintenance of transport infrastructure.

As required by the Climate Change (State Action) Act 2008, the Tasmanian Government is undertaking an Emission Reduction and Resilience Plan for the transport sector and a Statewide Climate Change Risk Assessment. These projects will assist the government to identify actions that will build resilience of the transport sector to the impacts of climate change.

The Tasmanian Government maintains the State Road and Bridge Emergency Management Plan produced under the authority of the Emergency Management Act 2006 and the Roads and Jetties Act 1935. The plan describes the roles and responsibilities, governance and coordination arrangements for emergency management relating to the State Road Network across the four areas of prevention, preparedness, response and recovery. Prevention and mitigation activities work towards eliminating or reducing the impact of a hazard and increasing the resilience of an affected community to recover from the consequences of a hazard. Prevention and mitigation focuses on:

- regular review and update of the Emergency Risk Register to capture new or emerging risks, consider adequacy of controls and prioritise any actions;
- consideration of land use planning principles so that risks relating to location are accounted for at the planning and development stage;
- utilising contemporary engineering design standards so that infrastructure is built to withstand specific hazards;
- implementation of infrastructure asset management: planning, inspection and maintenance arrangements so that assets are managed to meet a defined level of service, while acknowledging risks;
- liaising with emergency management partners to better understand risks relating to particular locations and hazards; and
- provision of arrangements for rapid response to events across the state, as well as alternative infrastructure arrangements to mitigate the consequences of events.

In addition, the Tasmanian Government, in partnership with industry and local road managers, and in consultation with the Australian Defence Force, has developed a Heavy Vehicle Access Management System that assists in ensuring vehicles can be safely and appropriately routed to emergency locations, providing access permissions and conditions in real time, on demand with 24/7 availability, for a significant majority of the State and local road network in Tasmania.

Road engineering and construction standards required to enhance the resilience of future road construction:

There are a number of challenges and opportunities facing road authorities, and many road construction standards have changed very little over recent times. One of the key issues facing jurisdictions may be that if standards change to enhance the resilience of future road construction, funding levels will also need to change, and this may not be sustainable. Transport infrastructure has a long life and this also means that across networks there are many different standards on the network at any one time, particularly in the case of bridges, which may have been built over 100 years ago.

For new construction, it is particularly important that resilience is considered, but current design standards generally consider existing severe weather event patterns and likelihood, and existing settlement patterns, meaning that infrastructure may not necessarily be fit for purpose into the future.

Construction specifications and standards rely on data like the annual exceedance probability or average reoccurrence interval to determine appropriate treatments for infrastructure like pipe sizes, however some of the more recent severe weather events have been outside what is expected.

It is possible that enhancing infrastructure standards for some of the less expensive pieces of infrastructure in new construction could have a positive impact more broadly on the network. The cost of providing a larger pipe for a culvert during a road construction project is relatively small compared to the benefit that may be achieved.

Currently, drainage infrastructure standards mean that infrastructure is often only constructed to account for a one in 20 year event but increasing this may have a significant impact. Additional information on the cost-benefit analysis of increasing certain design standards for new construction projects to increase resilience, as well as whether there are any other impacts from changing design standards, may help inform road agencies on which higher standards to invest in to make higher risk sites more resilient within the funding available.

In response to recent severe weather events, the Tasmanian Government has considered improved resilience when rebuilding damaged infrastructure to provide additional protection in the future. This has particularly included improved drainage by increasing culvert sizes where existing culverts have failed. There have also been improvements in monitoring and preventative measures related to landslip and rockfall, as well as some pre-emptive removal of rocks in areas where rockfalls have occurred. These measures assist in removing hazards, resulting in reduced risks and improved resilience for the transport network.

It may also be beneficial to consider whether Geoscience Australia's Rainfall and Runoff Guidelines could be further enhanced to enable improved risk mitigation and resilience.

Identification of climate resilient corridors suitable for future road construction projects:

The Tasmanian Government is identifying how future road construction projects can be more resilient to climate change impacts.

Future State Road improvement projects in Tasmania are now identified through the development of Corridor Strategies for each of our State Roads. The process for developing these Corridor Strategies requires an examination of impacts from severe weather events previously experienced, as well as documenting the expected future changes. Severe weather and related events that are now being considered as part of these Corridor Strategies include rainfall, flooding, coastal inundation, temperature, bushfires and biodiversity. A recent example of a Corridor Strategy discussing these future challenges as well as mitigations for the relevant road network is the Bass Highway - Launceston to Devonport Corridor Strategy (2022).

In addition, planning work for State Roads along Tasmania's coastlines have started to identify road sections susceptible to rising sea levels and coastal erosion. Examples of this include the Bass Highway – Cooe to Wynyard Planning Study (2019), which identified the current realignment construction project to improve safety included relocating the highway slightly inland away from existing areas of coastal erosion, as well as the Bass Highway - Wynyard to Marrawah Corridor Strategy (2020), which identified inland highway realignment routes for future consideration.

Road and bridge designs for coastal regions of Tasmania are also considering potential increases in sea levels and coastal inundation. For example, the new Cam River Bridge, which is currently under construction, has been designed to withstand higher flood levels than the current bridge, and the design for new Midway Point and Sorell Causeways for the Tasman Highway is also accounting for increased resilience.

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

The Tasmanian Government notes that in more recent times, there has been a transition to higher usage of more robust sealing products, such as polymers and crumbed rubber, which have improved waterproofing and crack reduction properties in comparison to conventional seals.

A portion of our pavement rehabilitation sites involve some form of stabilisation, which has the advantage of decreasing moisture susceptibility that weakens the pavement.

In addition to the use of waterproof products, a number of projects are being undertaken to provide future resilience against significant rainfall events. Land stability projects are being undertaken, which typically involve the provision of retaining structures, to improve road embankment stability where the potential for pavement slips have been identified. Increased scour protection is also being installed to increase resilience against significant rainfall events.

These treatments are undertaken across the network, not just within specific flood repair sites and are primarily driven by pavement condition and viable treatment options, and result in improved waterproofing and resilience.

The Commonwealth's role in road resilience planning:

Most technical work for assessing resilience, such as flood modelling, is developed by consultancies with proprietary software. It may be beneficial for the Australian Government to consider providing advice on relevant inputs to this modelling so that the level of road resilience achieved on projects is standardised across the States.

In addition, there are currently multiple data gaps that present a barrier to understanding and building resilience in road networks that allows for supply chains to remain uninterrupted. Data is not collected, shared or consistent enough to be usable by decision makings, and improving these data provisions can provide a better holistic understanding of the freight network - the different characteristics of the network (such as intermodals and connecting infrastructure) and needs across Tasmania and Australia to ensure the entire road network is able to evolve and adapt to disruptions and remain resilient.

The Australian Government should consider establishing requirements for industry to share data when they utilise public roads such as national highways. Another consideration is the Australian Government's role to establish better collection and analysis of data assessing the exposure of key freight routes to natural disasters and the impacts of climate change, including the use of the National Freight Data Hub.

Related issues:

There are several others issues to note in relation to implications of severe weather events on the national road network as follows:

Road maintenance:

While standards to enhance the resilience of future road construction are important in light of recent weather events, appropriate maintenance for existing road networks must also be considered. Developing new road standards will not have a significant impact if jurisdictions cannot afford to maintain and renew their existing assets to acceptable levels of service. Certainty over future road and bridge maintenance funding is a major concern for all jurisdictions, along with significant cost increases in labour and materials, especially in regional and remote areas including Tasmania.

Road pavement lifespans are between 40 and 60 years and asset maintenance is central to sustainability and resilience as up to 80 per cent of the lifecycle cost of road infrastructure assets may be expended post construction, for operations and maintenance. The Tasmanian Government's asset management plans indicate that road maintenance has not historically been funded to a level that has allowed for all maintenance and renewal to be carried out as necessary to maintain the condition of the road asset.

From 2023-24 additional funding has been secured for maintenance through the forward estimates, however there are major risks associated with a lack of long-term sustainable funding levels, and the adequacy of these funds may also be at risk if we continue to experience more frequent severe weather events across Australia.

Heavy vehicle access:

Class I heavy vehicle fleet, being Over Size Over Mass and Special Purpose Vehicles together with the Australian Defence Force Land 121 fleet, are involved in emergency management and disaster recovery operations. It is important that these heavy vehicle activities are able to traverse the road network safely and efficiently and, particularly, without damaging critical road and bridge infrastructure during these times.

The resilience of the available road transport network as a whole in the event of an emergency is essential to the successful management of disaster recovery operations and activities to ensure community and economic recovery following any such event. Heavy vehicles are a key resource both during and immediately after such events, and therefore understanding the impact and maintaining access across the road network (which may be a reduced network at times if damage has occurred) is considered essential.

Thank you for the opportunity to provide a submission and I look forward to the Committee's findings in due course.

Yours sincerely



Michael Ferguson MP
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Minister for Infrastructure and Transport