nzsee
NEW ZEALAND SOCIETY FOR EARTHQUAKE ENGINEERING

[redacted]

PO Box 2193
Wellington 6140
New Zealand

2 July 2021

New Zealand Infrastructure Commission

Wellington

By electronic submission to: https://survey.publicvoice.co.nz/s3/He-Tuapapa-ki-te-ora

Submission on "Infrastructure for a Better Future"

Overview

The New Zealand Society for Earthquake Engineering has a core objective of enhancing the resilience of New Zealand to earthquakes and other hazards.

We welcome the importance given to the resilience of infrastructure in its *Aotearoa New Zealand Infrastructure Strategy Consultation Document* of May 2021.

The resilience of infrastructure is critical for the wellbeing of New Zealand. We therefore recommend that resilience is identified as a priority for both the planning and development of new infrastructure as well as enhancing and operating existing infrastructure in the face of earthquakes and other natural hazards as well as the effects of climate change.

We understand Engineering New Zealand is also providing a submission and is also supportive of the need to prioritise resilience in the infrastructure strategy.

Current status

Currently the importance given to the resilience of infrastructure is patchy and varies over time.

Enhancing resilience to natural perils and climate change cannot be achieved in a short timeframe, and therefore requires a consistent and sustained strategy over a long period of time.

Resilience considerations which found impetus from the lifelines studies have led to various levels of resilience assessments and in some cases strategies. However, implementation of these have been ad hoc, for want of a consistent policy directive from government. Resilience is considered in the assessment of some new infrastructure projects, but often is given a low weighting resulting in such considerations becoming inconsequential or lost during procurement and implementation of projects.

Experience has shown that ad hoc investment without an umbrella of governance/strategy is ineffective due to network interdependencies and does not achieve resilient outcomes and return on investment. Resilience strategies and business cases for enhancing the resilience of existing infrastructure languish for lack of leadership and support.

Infrastructure Commission and Strategy

We welcome the formation of the Infrastructure Commission, and its initiative to develop a strategy on infrastructure for a better future. Such an initiative could provide a consistent strategy for building and enhancing New Zealand's infrastructure to meet our current and future needs.

Resilience of Infrastructure

Recent natural hazard events such as the 2010-2011 Canterbury earthquakes, the 2016 Kaikoura earthquake and numerous storm events (including that in Ashburton last month) highlight the vulnerability of our infrastructure, and the need to enhance the resilience of our infrastructure (and built environment as a whole).

We therefore are heartened to note that the consultation document highlights (page 12, 43, 69) the need to:

- Prepare infrastructure for climate change
- Ensure security and resilience of critical infrastructure.

Clearly some investment in understanding and enhancing the resilience of existing infrastructure is required. It is often assumed that resilience will require a lot of additional investment in the development of new projects. However, a focus on resilience from the outset in the siting, planning and development of new infrastructure, would mean that resilience does not necessarily need to cost a lot more, and sometimes not at all.

We suggest that Resilience to climate change effects as well as other natural and anthropogenic hazards such as earthquakes, tsunami, storms, floods etc, is given priority in the Infrastructure Commission's strategy, and actions be taken to recommend this as a core criterion for the siting, planning and development of new infrastructure as well as enhancing and operating existing infrastructure. The resilience of existing and new infrastructure should be considered holistically to achieve a system that is resilient to the perils that we face. If importance is given to such a policy, this would bring the required focus to the achievement of resilience from early stages of infrastructure being conceived, planned and developed.

Land Use Planning

Natural hazards are exacerbated by location and land characteristics (eg proximity to coast, low lying land prone to flooding or land subject to landslides or earthquake induced liquefaction). Clearly prudent land use is critical to ensure that new development is located so as to not exacerbate the already existing hazards to communities and to infrastructure that is required to service the communities.

It is therefore also important that land use and the siting of "lead infrastructure" is planned in a way to encourage development that enhances the resilience of communities to earthquake and other natural hazards as well as climate change impacts.

Participation

As an organisation with its primary purpose being to enhance the resilience of New Zealand, we would be keen to be kept informed of developments of the Infrastructure Strategy and would be willing to engage with the Commission to provide further contribution to this important process.

We would be happy to discuss our submission with you, if that would be of value.

Regards

Management Committee Member
National Technical Director, Resilience and Geotechnics at WSP

President