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# Toward More Resilient Infrastructure: A New Zealand Perspective



**Dave Brunson**

*db@kestrel.co.nz*

**ADB Virtual Dialogues on Resilient Infrastructure**

21 October 2020

# The Three Key Elements of Infrastructure Resilience

1. Robust physical assets with alternative routes for key networks
2. Effective relationships (pre- and post-event)
3. End-users with appropriate backup arrangements

# Infrastructure Resilience in Practice



- The focus in New Zealand is on collaborative inter-agency arrangements to share knowledge and expertise
- And identifying mitigation opportunities across infrastructure providers
  - this enables common (or shared) risks to be addressed
- This builds relationships that can also be drawn upon in the rebuild phase following a disaster
  - both organisational and individual relationships

# Recent Earthquake Impacts



## Canterbury Earthquakes 2011 land and housing impacts:

- 8,000 residential properties red zoned (4% of total residential properties)



## Kaikoura Earthquake 2016 national infrastructure impacts:

- Main arterial highway and rail link cut for more than a year





## 1. Technical

- **Highway and rail networks** - replacement bridges designed to current standards (ie. also achieving asset renewal)
- **Residential wastewater networks** - the use of holding tanks at individual properties, pumping into street mains
- **Telecommunication networks** - increasing the size of fuel storage tanks for the standby power generators of telco exchanges.



## **2. Organisational/ Contractual**

- Central and local government recognised the need for an approach that is less controlling than customary contracts
- Also, contractors recognised the delivery benefits to them in joining forces
- This led to the solution of an incentivised alliance involving funders (government), network owners and contractors
- This has emphasised the importance of relationships and collaboration to take common mitigation opportunities in 'everyday' infrastructure resilience planning



# Thank You!



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