NZ TRANSPORT AGENCY
WAKA KOTAHI

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2018 RESILIENCE FRAMEWORK

Transport Resilience for our Communities

Resilience is the transport system's ability to enable communities to withstand and absorb impacts of unplanned disruptive events, perform effectively during disruptions, and respond and recover functionality quickly. It requires minimising and managing the likelihood and consequences of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disruptive events, caused by natural or manmade hazards.[1]

Resilience is about being prepared, and preserving and quickly restoring access to the transport network for our customers, including Lifelines Utilities, in the face of unplanned events.[2]

PURPOSE OF THE FRAMEWORK:

The purpose of the framework is:

- to provide a clear expression of the Transport Agency's strategic approach to resilience, and
- to prioritise, guide and coordinate the Transport Agency's ongoing activity and strategic work programme to improve resilience

WHY IT MATTERS

A resilient transport system (which proactively addresses current and emergent risks) that is available for customers to use is fundamental to economic and social resilience of communities. Disruptions undermine economic growth and social well-being of communities and businesses. Resilience is critical for the availability of the national and regional transport system that carries freight and supports tourism, and that links regions to the wider transport system and markets. Poor resilience can impede critical and emergency services providing response and recovery support after significant events.

[1] Derived from and aligned with resilience definitions from the Sendai Framework for Disaster Risk Reduction, draft National Disaster Resilience Strategy (CDEM, Nov 2017) and NZTA's Four Year Excellence Horizon

[2] Simplified definition from NZTA's Resilience Business Improvement Project 2016.

EMERGING DRIVERS

Policy drivers

- Increased recognition of the need for an integrated all-of-government approach to address emerging climate change issues
- Enhancing the government's responsiveness to emergencies (the CDEM TAG review)
- Increased investment in regional economic development - $1B annual investment likely to include transport resilience projects
- Developing focus on modal-neutral transport system strategy - widening policy and investment to cover rail and ports/shipping

Operational drivers

- More frequent significant and recurring natural hazard events is increasing risk of disruptions
- A larger and more complex network exposes more assets to hazards, with more in increasingly difficult terrain
- Increasing dependence on electronic systems
- Ageing, degrading assets become less robust with time and have been built to older design requirements
- Public expectations of levels of service provided are rising, as is the risk exposure they will tolerate

KEY CHALLENGES

The following challenges impact on the Transport Agency's and sector's efforts to improve system resilience:

- Limited understanding, evidence and metrics of how disruption in different locations impacts on customers and communities well-beings and their tolerance and acceptance of risk
- Poor understanding of interdependencies within and between systems, networks and sectors.
- Poor understanding of the (changing) risk, interdependencies and efficacy of interventions to medium and low frequency large sized events on the transport system
- Assessment frameworks and discount rates serve to undermine investment in low frequency events and effective trade-offs across programme outcomes (e.g. safety vs resilience vs reliability)
- Inconsistent and non-comprehensive approaches used across the sector to assessing and responding to risk.
- Poorly co-ordinated approach across government for adapting to emergent issues, especially climate change (e.g. sea level rise).

STRATEGIC CONTEXT

Changing environment – natural hazard events and manmade disruptions are increasing in frequency and intensity reflecting climate change impacts and low frequency events patterns

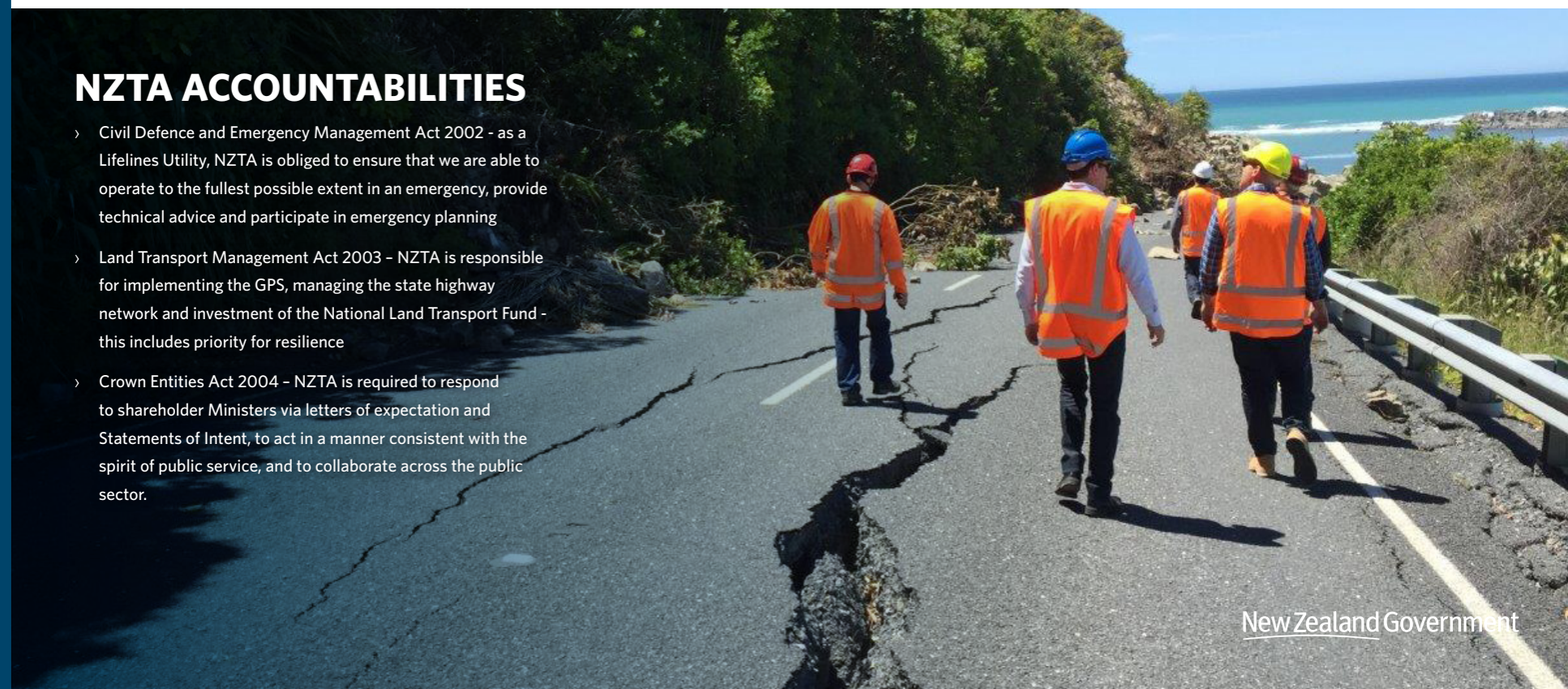
Policy environment – resilience profile and importance is growing in many strategic policy documents e.g. GPS, Agency SoI, and LTV, including expanding recognition of social and economic impact focus

Partner activity - Other Government agencies, Lifelines and local authorities are increasingly addressing resilience issues and have initiatives underway, e.g. MoT "Transport Sector Resilience Strategy" and Lifelines "National Vulnerability Assessment"

Agency role - Recognised as well-resourced leader with many levers for proactively enhancing system and community resilience, e.g. NLTP investment, GPS implementation, advocacy/ advice, engagement in RMA processes. Other activities include asset management and improvements, organisational and emergency response planning, business case tools, and engagement with partner initiatives.

NZTA ACCOUNTABILITIES

- Civil Defence and Emergency Management Act 2002 - as a Lifelines Utility, NZTA is obliged to ensure that we are able to operate to the fullest possible extent in an emergency, provide technical advice and participate in emergency planning
- Land Transport Management Act 2003 – NZTA is responsible for implementing the GPS, managing the state highway network and investment of the National Land Transport Fund - this includes priority for resilience
- Crown Entities Act 2004 – NZTA is required to respond to shareholder Ministers via letters of expectation and Statements of Intent, to act in a manner consistent with the spirit of public service, and to collaborate across the public sector.



OUTCOMES

What the Agency aims to achieve, in collaboration with the sector; what does success look like?

- Through collaboration with key partners, we have a shared understanding of communities' acceptance of risk and tolerance of system disruptions
- Communities are less exposed to, and better prepared to deal with, the economic, physical, social, cultural and environmental impacts of risks and shocks from natural hazards and other disruptive events

Objectives

Reduction of risk

» Users and stakeholders have timely information about risks and disruptions

» Collaborate with partner organisations to assist vulnerable communities to plan, avoid and mitigate priority risks, including climate change risks

» Through proactive system development and planning, minimise or avoid high risk locations, or if unavoidable, design to avoid catastrophic failures.

» Provide information and technology in timely way to reduce risk and disruptions to communities and manage expectations

» Improve robustness and appropriate redundancy of the multi-modal system, including alternate routes, especially at the most critical points

Readiness

» Planning, investment and management of multi-modal transport system is informed by latest hazard risk and response effectiveness information

» Investment frameworks support a wider view of both "value" in considering Value for Money (social, cultural, environmental and economic impacts) and strategic responses to the full range of disruptive events within the context of regional development.

» Support communities to understand the interdependency of transport and other systems that underpin their resilience, to be better prepared for and to recover quickly from disruptive events

» Collaborate across government, Lifeline Utilities and transport sector to identify, integrate and focus effort on priority issues and opportunities.

» Prepare for unplanned events (the right systems, processes and accountabilities) including emergency response plans, drills and business continuity plans

Response

» Respond safely and quickly to disruptions, minimising social and economic impacts, and providing regular and effective communications to the community

» Fully participate and meet obligations in declared Civil Emergencies

Recovery

» Help communities reconnect and then 'build back better' after significant disruptive events

» With key partners, manage community recovery expectations

» Provide regular and educational communications to affected communities post-event

Indicative Targets

» Substantially reduce the number of people affected from significant social impacts through network disruptions by 2024

» Reduce direct economic losses of unplanned disruptions in relation to gross domestic product (GDP) by 2024

» Network availability increasingly meets Customer Levels of Service for frequency and duration of outage

» Organisational preparedness demonstrated through current Business Continuity Plans (BCP's), Incident Management Plans, Emergency Response Plans, sufficient resource capacity and active Drills programme (Readiness and response)

» Substantially enhance engagement and cooperation to partners and key stakeholders to improve risk understanding and preparation (Risk reduction and readiness)

» Substantially increase the availability of and access to multi- hazard references, tools, systems and disaster risk information and assessments to partners and community by 2021 (Risk reduction)

Approach

» Adopt a multi-modal/one network system's approach, recognising the interdependence within the transport sector, across Lifelines utility networks and other national supply agencies

» Look at "beyond-design" events (consider consequences of and responses to events bigger than design level)

» Design and manage infrastructure and systems according to 'remain functioning' principle, and by sharing innovations and knowledge, support partners to replicate approach

» Increase overall recovery capacity of communities (and thus their speed of recovery) by improving social, institutional and financial capital to reduce long-term impact of events

» Retain and promote flexibility, adaptability and continuous improvement options in decisions, activities and asset design to cope with uncertainty and changes over time

» Align with and collaborate on Government policy and commitments (e.g. Sendai)

» Proactively promote and enable shared and integrated responses and collaboration between central Government agencies, sectors and stakeholders as appropriate

» Decision-making and engagement to be inclusive and informed regarding the nature, tolerance and acceptance of risk, wider "value" and value for money, and the consequences and benefits

» Address underlying risk factors pro-actively and cost-effectively through appropriate strategic responses (hierarchy of interventions), balancing investment versus relying primarily on post-event response and recovery

» Transparency through regular reporting and monitoring

Response Dimensions

Knowledge

Improve risk information/ knowledge; quantify impacts of social and economic impacts; understand impact on customers and communities; 'vulnerability maps' of hazards and stressors; understanding critical journeys (from a customer perspective); increase understanding and effectiveness of preventative maintenance

Investment

Improve information to prioritise and influence investment; develop investment frameworks to support a wider view of "value" (social, cultural, environmental and economic impacts) as part of Value for Money which provides for strategic responses to a full range of disruptive events and local contexts

Asset/Infrastructural

Critical assets located and/or designed to increase robustness, and provide appropriate system redundancy

Operational

Preparedness via emergency response plans; provision of real time customer information; adaptive and responsive real time network management; maintain back-up plans (BCP's) to function through disruptions

Organisational

Improved organisational continuity and adaptation to disruptive events, including building resilience into culture and increased staff capability and capacity

Leadership

Cross government collaboration and cross sector leadership through identifying inter-dependencies and opportunities, knowledge/tool sharing, incentives and partner engagement/ participation, advocacy, open data and engaging with land-use planning to avoid poor resilience outcomes

Collaborative and integrated

Working with policy and delivery partners to identify the best responses for different issues and areas to improve overall system resilience; known 'plan Bs' for identified high impact risks.

Communication and engagement

Effective alliances and community engagement strategies; work with communities to convey a vision of effective resilience preparedness, to improve preparedness, responses and understanding of risk

Key Workstreams

Planning and Risk Prioritisation

» map network/system interdependencies and community vulnerabilities

» enhance data gathering and system monitoring, and exchange data and information with partners

» explore what customers value in resilience, to inform valuing of impacts and benefits

» align with transport sector and emergency management sector priorities

» overlay future risk e.g. climate change

» agree top risks that need managing

Investment decision-making

» develop resilience benefits and social/ cultural/ environmental impacts methodology in IAF/EEM, especially for low frequency major hazards and "too-important to fail" situations

» enable funding of inter-modal activities (e.g. shipping and rail) and technological innovations that enhance resilience

» enable community resilience programmes through a range of funding mechanisms, such as NLTP and PGF

Delivery of activities

» update national resilience business cases, to deliver LTSV, GPS and PGF goals

» prioritise resilience as part of regional economic development in GPS/IAF/NLTP and PGF

» promote and enable larger resilience works investment programmes

Governance and role

» establish governance structure, key roles and teams to oversee framework delivery

» develop KPIs/measure and integrate into reporting to board

» Maintain and promote BCP approach

External engagement and leadership

» advocate resilience objectives through planning system

» engage in community resilience and lifeline programmes; support economic, social and environmental goals, not just transport

» prioritise 2-3 other regions to apply Wellington Lifeline regional plan approach

» engage with communities to establish their tolerance and expectations of risk and promote resilience preparedness

» engage with key resilience work of partners