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## MIN-4218 speaking notes for Australian Select Committee

2 June 2023

Provide speaking notes to support the Minister's speech at the Australian Select Committee on the topic of severe weather events and roading resilience.

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### Waka Kotahi NZ Transport Agency's response:

#### Introduction

- Not only is New Zealand experiencing an unprecedented increase in the frequency and severity of extreme weather events, so too is the scale of damage being caused to critical parts of our transport networks.
- This damage is having a widespread impact on our country, leaving communities temporarily disconnected, disrupting freight movements and supply chains across New Zealand, as well as diverting significant resources from investment in other key parts of the network.
- This is in parallel with increasing travel demand, especially from heavy vehicles. At the same time, input costs for labour and material have substantially increased, while industry capability and capacity are constrained as we move on from the impacts of COVID-19.
- New Zealand is currently recovering from Cyclone Gabrielle, which hit much of the North Island in mid-February 2023. As part of our long-term recovery plan from this event, we are looking at how we can improve the long-term resilience of the most vulnerable parts of our network.

#### Recent significant weather events and impacts

- Over the past year or so, there have been many significant weather events which have caused major damage and disruption to regions of New Zealand, namely:
  - Tasman/Nelson/Marlborough (February, August 2022)
  - Northland (August 2022)
  - Tairāwhiti (March, July 2022, January 2023)
  - Auckland (January-February 2023)
  - Hawke's Bay (February 2023)
- Although separately, these events are not unheard of, their growing frequency and severity is notable and in excess of most climate change projections.
- Recent destructive storm events in Nelson/Marlborough, and in Northland, have highlighted the scale of damage resulting from extreme weather events and the challenges in keeping essential transport routes open for regional communities. These extreme events are happening at a regularity and scale beyond previous experience.



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- The recent Auckland rain event (27 January 2023) has been estimated as a 1 in 200-year event, which created situations and demands in excess of most asset design demands and hence the failure of many systems.
- Cyclone Gabrielle (12-15 February 2023) has exceeded this considerably, resulting in a National State of Emergency being declared with widespread damage across large parts of the North Island (costs are still being assessed).
- It is not physically nor financially realistic to seek to create a system robust enough to completely withstand all natural hazard events which may occur. Broader and more comprehensive approaches are needed, such as:
  - working with partners to provide more robust assets (to lessen the extent of damage)
  - system redundancy (to provide options for continuing to meet travel needs)
  - enhanced response plans (to stabilise the disruption as quickly as possible)
  - tailored designs (to allow graceful failure and faster reconstruction)
  - communication / information systems (to engage and enable the community to assist itself where possible).
- The scale and frequency of climate-related events is challenging the levels of service Waka Kotahi can provide and its ability to respond effectively to emergency works demands, including financially.
- The severity and frequency of extreme weather events is increasing faster than expected. This is putting already-stretched funding and resources for emergency works under additional pressure.
- The cost of state highway emergency works has grown significantly and, prior to the most recent weather events, was forecast to be \$300 million in the 2021-24 period, which is an increase of 33 percent over the 2018-21 period. This is now expected to be significantly higher.

#### **Strengthening planning and delivery to support resilience and climate change adaptation**

- Given the increasing frequency and severity of extreme weather events, we are now increasing our focus on planning and developing a more climate-resilient land transport system.
- In partnership with councils, communities, iwi/Māori, and wider government agencies, we are developing and refining our approach to reducing risk so that we are right sizing, better targeting and integrating our resilience activities and investment in the future.
- Waka Kotahi is currently developing Tiro Rangi, the Waka Kotahi Climate Adaptation Plan (published December 2022), which will help shape its approach and response to the changing climate and describe the role it will play in supporting the Government's National Adaptation Plan (August 2022) objectives for the land transport system. Arataki, its 30-year plan, is also providing a system view of what is required to support a climate-resilient land transport system.
- Arataki is being developed as a shared sector view of how we need to plan, develop, and invest in the land transport system during the next 30 years.



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- There are four strategic cases across the three affected regions:
  - Whangarei to Dome Valley
  - Coromandel
  - Tairāwhiti/Wairoa
  - Hawke's Bay.
- These are being run across 10-12 weeks through an agile methodology and will give a range of investment options to be considered.

## Resilience Programme

- Waka Kotahi has developed a Resilience Framework to prioritise, guide and coordinate its approach to climate resilience including its asset management activity and strategic work programme to improve resilience. The Waka Kotahi resilience effort is focused on four objectives:
  - Reduction – recognising a changing risk-scape from climate change, proactive system management to minimise or avoid likelihood (e.g., reduce exposure such as prioritise or avoid high-risk locations) and minimise consequences such as increase robustness or provide redundancy, and where unavoidable, then design to avoid catastrophic failures
  - Readiness – identifying risk and preparing capability, resources and operations for unplanned events including exercises
  - Response - responding safely and quickly (and potentially in anticipation) to disruptions to minimise social and economic impacts and stabilise/control risk to life and property, in collaboration with emergency management partners when appropriate
  - Recovery – helping communities reconnect and re-establish previous services provided by the transport system.
- In May 2020, the Waka Kotahi Board approved the National Resilience Programme Business Case, which rates some 380 identified risks to the land transport system from natural hazards (including climate change-related risks) and recommends multiple system responses.
- This includes better integration of its maintenance and operation and improvement activities across all aspects of resilience (reduce, readiness, response, recovery). This has been used to develop prioritised projects for the capital works programme in a transparent and objective manner.

## Investment and climate scenarios

- As part of informing decisions about future funding needs, we are developing a range of investment and climate scenarios for our continuous programmes. A key finding in our scenario development work is that we will need to spend more in the short-term to save more in the long-term.
- We need to bring forward a significant amount of funding to improve the underlying condition of the network if we are to reduce the potential for increasingly expensive disruptions, particularly emergency works, in the future.



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- This is not about spending more overall but addressing strategic weaknesses at critical locations in the network. Doing so will deliver greater resilience to climate change impacts and more sustainable maintenance expenditure in the future.

## **Maintenance and renewal activities**

### *Overview of current maintenance and renewal activities*

- Waka Kotahi capital projects, maintenance and renewals activities are delivered in line with design standards and guidelines that are updated over time to reflect changes in demand, technologies, and external drivers such as changing climate patterns.
- The standards are generally not prescriptive of the asset physical attributes but are based on design demands/levels of service throughout the life of the asset, e.g., a culvert to convey a 1:25 year storm flow or a bridge to withstand a 1:1000 year earthquake.
- However, it should be recognised, for example, that the actual storm flow for a 1:25 year storm will be different in the future in contrast to today. For this reason, it is not just about renewing assets 'like for like' – replacement bridges and culverts are built to withstand the latest future year climate forecasts for their anticipated life.
- In this way, Waka Kotahi aims to maintain levels of service throughout the asset's life into the future (fit for future purpose) as a standard concept of its asset renewals.
- Because of the increasing frequency of extreme weather events, Waka Kotahi has put considerable resource and focus into improving its emergency response processes over the past five years and are recognised for providing an outstanding response to emergency events.
- Under the current funding cycle (2021-24), we have budgeted \$480m for Emergency (response and recovery) Works on state highways and local roads.

### *Work underway to strengthen our approach to maintenance and renewals*

- We continue to research improved practices and identify improvement opportunities to lift our transport systems resilience; these require additional investment to realise long-term gains. For example, in selected test locations, Waka Kotahi has trialled using epoxy modified road surfaces at twice the conventional treatment cost for four times the service life and using structural pavements instead of un-bound gravel pavements for three to four times the cost but two to four times the service life, and 25-35 percent less traffic disruption from roadworks.
- The Road Efficiency Group (REG), a collaboration between Local Government New Zealand (LGNZ) and Waka Kotahi, is working to lift asset management capability and efficiency across the sector. This group has developed and implemented the One Network Framework, at road classification system that has been used to differentiate service levels and provide a basis for comparative analysis of costs and impacts of road investment.



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### Strategic planning

- Waka Kotahi is working on a series of Resilience Strategic Recovery plans for four regions significantly affected by Cyclone Gabrielle to get a strategic view of the current and possible future state of the transport networks, both for state highways and the connections into local roads.
- These plans will be used to help inform decisions and funding for the recovery. As this is a collaborative piece of work, it will capture a broad view of how people use the transport network and what they need from it, and what future desired levels of service are needed for resilience, safety and efficient freight movement.

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