Whangārei to Done Valley Resilience Strategic Response

1 EXECUTIVE SUMMARY

1.1 Introduction

In early 2023 severe weather events caused widespread damage to State Highway 1 and detour routes between Whangārei and Dome Valley and caused road closures. This has had considerable impacts on communities and businesses who live in and move through the region which provides lifeline access between Auckland and Northland.

The SH1 corridor is the critical transport connection providing access between Auckland and all of Northland. The lack of a reliable and available transport network is a problem for the Northland region and risks worsening or entrenching the poor economic performance of the region when compared to other regions of New Zealand.

The most prominent issues caused by the 2023 weather events were slips and flooding, with the most affected areas being the Brynderwyn Hills and Dome Valley. In 2023 so far, the Brynderwyn Hills have been closed (both partial and full) for 73 days and Dome Valley has been closed for 14 days and 20 hours, both of which are now open. When SH1 is closed typically the local road detour routes also face the same resilience challenges and are also closed or have limited operational capacity. The closures of SH1 result in no alternative routes for HPMVs and long and costly detour for other vehicles. As such, the increased volumes of state highway traffic on the detour routes have resulted in damaged as they are not designed for the sustained increase in traffic volumes, particularly heavy vehicle volumes (and not resilient when facing similar weather events). The impact of resilience of the closure

The Resilience Strategic Response Programme for the Whangārei to Dome Valley corridor has been developed to increase the resilience of the transport network over time to better cope with future natural hazard events. Through the development of the response, it was identified early that there is no overall confirmed long term strategic direction for SH1 and surrounding transport network. This is seen as critical to providing the long term direction to confirm any interventions align with the strategic direction and staging to enable the right level of investment to be undertaken at the right locations. The topography, geology and other constraints highlight the difficulty of providing a long term solution without further detailed investigations. As such, the Resilience Strategic Response seeks to address the short- and medium-term resilience requirements of the strategic transport network, with the long term resilience needs to be defined as part of strategic direction for the Whangārei to Auckland corridor during the next phase of work.

1.2 Identifying the recommended programme

The recommended RSR programme has been developed with key partners and stakeholders including mana whenua and councils. The Waka Kotahi Business Case Approach principles have been applied in developing this business case using an agile approach.

With iwi/hapu partners and local council stakeholders the first workshop identified the resilience issues faced in the project study area. This informed the development of a long list of options, with over 150 options. Options were assessed using an MCA which including how well the options achieved the Economic Confidence, Improved Resilience and Lifeline Access investment objectives.

The Waka Kotahi Strategic Recovery Framework was then applied to each segment to understand the current and future resilience levels of service and performance based on the Framework. Based on this assessment two to three 'approaches' were identified for each segment.

Programmes at each segment were developed for each identified approach. This resulted in 58 Programmes across the entire study area being identified. These Programmes were then assessed against the MCA criteria.

Based on the above assessment an overall Recommended Programme across the entire area was then identified as well as an Alternative (lower cost) programme.

1.3 The recommended programme

The Recommended Programme is estimated to cost $600m - $800m over a 10-year period and has identified to deliver:

- Whangārei to Te Hana single stage business case to determine the long-term strategic direction of the corridor.
- Slip management to reduce the number of closures anticipated in both Dome Valley and the Brynderwyn Hills to maintain critical access to Northland for people and goods and maintain investor confidence.
- Upgrade of ~250km on four detour routes (Oakleigh Road/Paparoa Road, Mangawhai Road/Cove Road, SH12/SH14 and SH16/Woodcocks Road) to enable the geometric constraints to be removed and bridges to be upgraded to two-lane bridges to be suitable as alternative HPMV routes.
- A programme of preventative works to minimise the road closures along the remainder of the 100km long SH1 corridor such as stream and culvert clearing, culvert and drainage improvements to reduce flooding and road deterioration and slip management.
- Proactive and improved response measures for customers, though signage and interagency coordination and real time information.
- Implementation business case for Ara Tūhono – Warkworth to Wellsford.

The expected benefits of the RSR programme are:

- Improved resilience of the transport network to natural hazard events resulting in a reduction in number and duration of closures.
- Improved reliability of travel time which will in turn improve community access to opportunities and encourage business investment in the northland region.
- Reduced emergency response spend and faster recovery of any failures sites that do occur in the future.
- Improved safety outcomes
- Reliable connection between the Far North and the rest of the country.

Based on the expected benefits and cost range for the programme the benefit cost ratio is estimated to be 0.6–0.8 based on the high and lower cost estimate. With wider economic benefits the BCR is estimated at 0.7–0.9. As stated in the economic case, the economic analysis is considered conservative, meaning there could be additional benefits that could be realised.

An alternative programme has also been developed which could be considered if funding allocations are unable to deliver the full recommended programme. Costing $400m – $500m the alternative programme has the down sides of delivering a less resilient roading network and greater inefficiencies when recovering and restore future access.

1.4 Delivering the programme

The programme delivery is designed to address the corridor sections and resilience issues based on the consequence and the impact of risk and is recommended to take place over a 10-year period. It is expected that further investigations will be required for more complex components, such as corridor section DBCs to investigate options and prioritise levels of investment across the corridors accordingly to achieve the resilience LOS as set out in the recommended programme. Whilst this is being completed, prevention works can be undertaken to help improve network resilience and personal safety in immediate term.

The highest priority sections for resilience upgrade works are Brynderwyn Hills and Dome Valley sections of SH1, and Paparoa-Oakleigh Road and SH16/Woodcocks Road detour routes.

It is expected that a standard delivery model utilising Design and Construct (D&C) and/or traditional procurement arrangements will be used. The delivery model is still to be determined and will depend on the extent of funding made available.

Longer term and more complex works such as the two business cases will be procured through the standard approach to refine the long-term strategic direction for the corridor. The approach for delivering the longer-term works will be develop through these business case projects.

1.5 Managing programme risks

There are several programme risks which are outlined in more detail in various sections of this business case. As noted this business case was completed using an agile approach within 12 weeks. The 12-week approach, while robust, means that there are several uncertainties, assumptions, and risks that will need to be managed through delivery. These are documented throughout the business case. Some of the key risks to manage are:

- The programme may not meet community aspirations for resilient access and the inclusion of additional roading improvements such as new offline alignments, corner realignment, and passing lane facilities. Only targeted engagement has been undertaken in order to meet the required timeframes. Waka Kotahi will continue to work with partners and communities to help increase understanding of the trade-offs that have been made and why.
- The cost estimates are indicative and based on a desktop analysis. As more detailed site by site analysis takes place the costs will conform to normal Waka Kotahi cost estimation practices. For the longer term works, refined cost estimates will be developed through the Whangārei to Te Hana SSBC.
- Market capacity and capability is becoming thin as other regions also look for qualified contractors to undertake repair and remediation works throughout the North Island. Waka Kotahi will develop forward work programmes to help provide greater certainty and work with central government partners to help upskill local second and third tier contractor to support the delivery.
- There is a reputational risk of a perception of sunk costs, particularly where resilience improvement works are proposed on sections which may be affected by the long-term strategy. To ensure all works align with the long-term strategy, the Whangārei to Ta Hana is proposed to proceed early in the programme at pace. This will minimise rework or abortive work in the short to medium term.
- The extent of funding allocation which will be made available for this programme is currently unknown, as is the assurance processes that will apply to the funding. This risk may need to be managed by triaging the sites within the recommended programme to

reduce the total cost, and/or adapting the implementation process to meet assurance requirements.

The management of these and other risks is outlined in more detail within the business case. The project steering group will hold accountability for these risks, while the project team will be responsible.

1.6 Next steps

Once approval has been gained, the project team will focus on setting the programme up for delivery. The key steps for delivering the programme are:

- Secure funding via MoT and Treasury assurance processes from the National Resilience Plan.
- Continue to engage and work with iwi and hapū representatives and where necessary refine the programme as required
- Continue to work with local councils to refine the programme and delivery arrangements as required
- Set up the processes necessary to enable block funding to deliver the programme.
- Scope and procure the business case work to define the long-term strategy of the corridor.
- Develop a detailed programme plan to identify works:
    - Can be started as soon as possible (the majority of the programme), subject to funding
    - That require design prior to construction
    - That require additional investigations to identify the optimal option.
- Set up the programme and project resources required to support delivery.