CDEM Resilience Fund project application form

This form provides the minimum of information for the application; a detailed project plan should be developed to inform this application and may be attached.

Project title	Te Apiti - Manawatu Gorge Slope Movement Risk
Date of application	26 September 2017
Details on application	
Applicant	Manawatu-Wanganui CDEM Group
CDEM Group/s affected	
Other local authorities, Groups or organisations supporting this proposal	Tararua District Council, Palmerston North City Council

Project description

Executive summary

This application is for a one year project to determine the risk associated with a major slip within Te Apiti – Manawatu Gorge.

The New Zealand Transport Agency (NZTA) has closed the State Highway through the Manawatu Gorge indefinitely due to rock instability with the potential for a large slip to occur in an area known as "Kerrys Wall". NZTA estimates that the volume of material likely to come down in this area is in the order of 495,000 – 630,000 m^3; by comparison 300,000 m^3 of material came down in the 2011 slip and took 14 months to clear. Whilst the risk in the area of Kerry's Wall has been quantified in terms of size, the gorge is some 9km long with the potential for large slips to occur in other areas, particularly following a major earthquake. This could potentially result in a complete blockage of the gorge creating an extreme upstream flood risk and a down stream risk if there was an uncontrolled release of water from behind a resultant dam created by a slip.

In 2012 GNS Science completed work as a sub-consultant to MWH on slope movement through the gorge as part of a wider route assessment in the wake of the 2011 closure. Since then Beca have undertaken more recent work including detailed ground-based LiDAR monitoring of the Kerry's Slip/ Wall area.

What is now required is a review of the 2012 GNS work aligning that to the more recent MWH and Beca reports focussing more particularly on possible flood hazard effects from a major blockage of the gorge due to slope failure. This would then enable a more definitive level of risk to be confirmed.

It is proposed that GNS Science be engaged to review/update their 2012 report with the more recent information, potentially undertaking more field work underpinning the 2012 report from a highway route security context to a wider natural hazards context. The updated report would establish the current and long-term level of risk associated with slope failure within the gorge. This in turn will provide a basis to carryout flood modelling.

Challenge/opportunity

There have been a number of reports completed over recent time regarding Te Apiti – Manawatu Gorge however there is not one cohesive report that the Group can use that will help it understand the associated risk of slope failure within the gorge and to ultimately plan for accordingly. A large slip that completely blocks the gorge has the potential to cause flooding to communities upstream of the slip area with communities downstream also potentially vulnerable to an uncontrolled release of water from a failure of a resultant slip.

Whilst NZTA is currently assessing alternate roading options to ensure an east-west/west-east transport route is maintained there is a potential, until confirmed otherwise, that the resultant flood impacts from a complete blockage of the gorge may impact on alternate roading options.

Given the importance of this roading connection as identified by Central Government to support regional economy/growth, and also as noted in the Wellington Earthquake National Initial Response Plan (SP 02/17)

Version 1.1 – Key transport features (p6) it is considered vital that the potential flood impacts resulting from a major blockage of Te Apiti – Manawatu Gorge are understood.

Alignment with identified goals and objectives identified in the CDEM sector

The National Civil Defence Emergency Management Strategy sets out the overall direction for CDEM in New Zealand, this project aligns with the following goals and objectives:

Goal 1 & Objectives 1A & 1B, Goal 2 & Objectives 2A, 2B, & 2C, Goal 3 & Objectives 3B, 3C, 3D, & 3E, Goal 4 & Objective 4B.

The project is also consistent with, and aligned to the Vision & Strategic Goals of the CDEM Group:

Vision – *A Resilient Regional Community*
Strategic Goal 1: *Where possible reducing the risks from hazards to acceptable levels.*
Strategic Goal 2: *Our communities are aware of their hazardscape, are prepared and empowered to respond to and recover from an emergency.*
Strategic Goal 3: *Agencies are aligned, prepared and able to provide an effective response to an emergency.*
Strategic Goal 4: *Communities can effectively recover from an emergency.*

Dissemination of benefits to sector

This project will not only help identify the risk associated with slope failure within the gorge it will provide a platform to base flood modelling on which will in turn identify potential impacts on communities both upstream (Woodville) and downstream Ashhurst/Palmerston North). In addition to this, flood modelling will identify any impacted key lifelines infrastructure such as the State Highway network.

It is proposed that the project will be managed in 3 stages:

1. Literature review of all relevant documentation/reports associated with slope failure within the gorge;
2. Production of a report focussing on the possible associated flood hazard effects arising from slope failure within the gorge to determine level of risk;
3. Upstream flood modelling based upon the risk scenarios identified in serial 2 above;
4. Development of a response plan aligned to the risk scenarios and flood modelling outcomes.

Project design

Project manager	Ian Lowe – Manager Emergency Management Office
Other project members	Ramon Strong – Group Manager River Management Horizons Regional Council. Jon Bell – Manager Investigation & Design Horizons Regional Council. Stewart Davies – Manager Emergency Management Palmerston North City Council. Paddy Driver – Resilience Manager Tararua District Council. Manawatu-Wanganui CDEM Lifelines Advisory Group.
External providers/contractors	GNS Science

Deliverables

Milestones	Date for completion	Cost
• Scope and offer of service confirmed with contractor	• 31 December 2017	• $5,000 (Horizons costs)
• Literature review	• 31 October 2018	• $25,000
• Production of report	• 30 March 2019	• $35,000
• Flood modelling	• 30 June 2019	• $30,000 (Horizons costs)
• Development of response plan	• 2019-2020	• Group work programme

Identified risks

Risks	Suggested management
• Contractor may be denied access to	• Work with all parties to ensure cooperation.

all current documents – lack of cooperation between parties. • Contractor may experience delays in completing work due to unforeseen circumstances.	• Adjust work programme accordingly – seek extension of time to complete project.

Funding request and use	
CDEM resilience fund contribution	$60,000
Local authority/organisation contribution	$35,000 – staff time & resources to compile offer of service & complete flood modelling
Other sources of funding or support	
Budget *[Please supply spreadsheet]*	
Applies if application exceeds $100,000 over the life of the project	Do you wish to attend a hearing in support of this application? Yes ☒

Application confirmation	
Approval of Chief Executive	

CDEM Group comment

Comment The 'Gorge' is an important 'National' link to the East Coast of the country - implications for its failure stretch well beyond regional / local boundaries & as such I believe makes this project worthy of national funding support.