

# Examples of emergency works and improvement activities

## Overview

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**Introduction** Here are some examples of Emergency and Improvements activities.

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# SH73: Kelly's Creek Aggradation

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Event image



**What happened**

There was a single storm event. Heavy rainfall caused the river to rise and debris to flow in Kelly's Creek.

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**Consequence**

The aggradation filled the river bed and banked up under the state highway bridge.

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**Proposed action**

Stream clearing work was required to prevent the bridge blocking and the river overtopping the road.

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**Outcome**

SH73: Kelly's Creek Aggradation was accepted as Emergency Works. While this damage was caused by aggradation, it was funded as emergency work given that most of the aggradation occurred as the result of a single storm event and the freeboard was reduced to almost zero. The NZ Transport Agency also recommended that maintenance budgets allowed for regular maintenance of these types of waterways (i.e. shingle fans) to ensure the initially designed waterway area is maintained. The same applies for degradation and scour, where planned preventative maintenance may be required to protect bridge abutments and foundations from a situation that has accumulated over time.

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# SH82: Waihao Forks Bridge

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## Event image



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## What happened

There was a significant storm event with heavy rainfall. Four to five times the average June monthly rainfall (one third of the annual average) fell in South Canterbury catchments during a significant storm event.

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## Consequence

High river flows brought flood debris down the Waihao River, stacking up against bridges and blocking waterways. Two structures were inundated by floodwaters, requiring sections of the highway to closer for hours while contractors worked to clear the debris pile and relieve pressure on the bridge's substructure.

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## Proposed action

In the first instance, immediate emergency works response to prevent further debris build up on the piers during the storm event. Action needed to remove debris and to relieve pressure on the bridge's substructure.

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## SH82: Waihao Forks Bridge, Continued

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### Outcome

SH82: Waihao Forks Bridge was accepted as emergency work. This qualified for an immediate emergency works response to prevent further debris build up on the piers during the storm event. Removal of debris after the event was also eligible for emergency works funding as debris build-up resulted from a single storm event and presented a threat to the bridge's structure. The NZ Transport Agency also advised that maintenance budgets should allow for regular removal of debris after the river 'freshes' to maintain the waterway and remove water pressure on the structure.

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# SH73: Griffin Creek debris flow washout

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Event image



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**What happened**

There was a heavy rainfall event, followed by a number of heavy rainfall events after the initial event.

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**Consequence**

This heavy rainfall caused a slip above the state highway bridge at Griffins Creek which produced a major debris flow that filled the channel upstream of the bridge. The river then overtopped and scoured out the stop-bank and washed out approximately 60m of the highway. A number of heavy rainfall events after the initial event resulted in additional debris filling the channel.

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**Proposed action**

The contractor applied for emergency works funding to repair the highway and to reinstate, raise, and extend the stop-bank to prevent future overflows and washouts.

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**Outcome**

SH73: Griffin Creek debris flow and washout was partially accepted as emergency work. In this case, only the immediate storm works and road reinstatement were eligible for emergency work funding. Additional work to raise and extend the stop bank was eligible for resilience funding.

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## SH3: Mangaotaki North guardrail slip

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### Event image



### What happened

An under-slip occurred on the shoulder on SH3 following a rain event in March 2013. The slip undermined the integrity of the existing guardrail over a 20m section.

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### Consequence

There was no consequent restriction of the traffic lane on the carriageway. It also did not pose an immediate threat to the road structure. No immediate threat to customer safety.

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### Proposed action

The contractor applied for emergency works funding to carry out a geotechnical investigation, detailed reporting, and to draw up a design for the repairs.

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### Outcome

SH3: Mangaotaki North guardrail slip was not accepted as emergency work.  
In this case, the slip was rejected for emergency works funding as the dropout was not close enough to the carriageway to require the restriction of the traffic lane. It also did not pose an immediate threat to the road structure. Also, the lack of cones or other warning devices in the photos suggested that there was no immediate threat to safety.

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# SH1: Waitohu Stream Bridge

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Event image



**What happened**

Storm flood event – considerable rainfall meant a 1-in-20-year state of flooding for Waitohu Stream; Damage to northern abutment of the Waitohu Stream Bridge

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**Consequence**

Significant build-up of large debris around the bridge piers and abutments; Significant amount of material had dropped away from the northern bank, exposing and leaving vulnerable the northern bridge abutment; Ground supporting the SH1 guardrail posts had dropped away; Waitohu Stream deviated from the original path as a consequence of the storm event; Collapse of the highway behind the southern abutment at SH1 Waikawa River Bridge.

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**Proposed action**

Removal of debris from around the bridge and abutments; Shifting gravel to return the Waitohu Stream to the path it followed prior to the storm event. Installation of 10–20m of rip-rap rock around northern bridge abutment; Northern abutment protection works for the Waitohu Stream Bridge. Scour remedial works.

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**Outcome**

The SH1 Waitohu Stream Bridge was accepted as emergency work.

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# SH1: Maromaku (Lynn's) Slip

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## Event image



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## What happened

Very intense rain experienced on the morning of the 12th of July, 2014, in Northland.

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## Consequence

The intense rain caused a large major slip, and cracking in the south bound lane of SH1 near Maromaku. The damage rendered the site unsafe, so for the safety of road users the road was closed in both directions and this severed the route to Northland. The only viable alternative route was itself compromised and reduced to one lane.

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## Proposed action

Due to geography and extent of the slip, the temporary alternative traffic route would not be tenable long-term. To ensure connectivity of the network, and ensure open life-lines, a new road on a temporary alignment was constructed without delay.

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## Outcome

The Maromaku Lynn's Slip application for funding was accepted as emergency work.

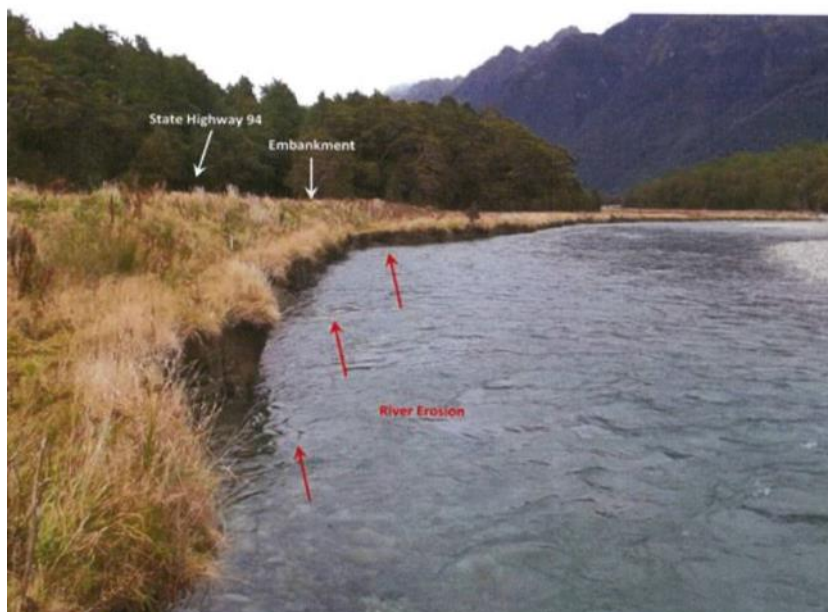
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# SH94: Eglinton Flat, Eglinton

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Event image



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**What happened**

Embankment erosion in the area of SH94 Eglinton Flat / Eglinton River.

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**Consequence**

The embankment adjoins and protects State Highway 94 and the erosion of the embankment poses a threat to both highway and highway users.

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## SH94: Eglinton Flat, Eglinton, Continued

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**Proposed  
action**

Undertake emergency work to protect the highway as soon as possible given the high rainfall levels currently occurring in the area. Proposed protection that will minimise erosion risk to SH94 should be undertaken straight away.

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**Outcome**

This funding application was declined and the applicants advised to submit a new application under resilience.

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# East Waikato, Region 3, Storm Event

Event image

East Waikato 11-13 June 2014 Storm Event Funding Application



SH25 RS24/4300 – Flood waters receded enough to reopen to traffic



SH25 RS127/0.2 – Tree blocking road carriageway



SH25 RS24/4300 – Flood waters receded enough to reopen to traffic



SH2 RS73/12885 – Tree hanging over carriageway

**What happened**

A storm event occurred on 11-13 June 2014, consisting of heavy wind and rain in Region 3, East Waikato.

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## East Waikato, Region 3, Storm Event, Continued

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**Consequence** The storm event consisting of heavy wind and torrential rain caused flooding, slips and severe sign and tree damage across the East Waikato region network. This damage affected areas of SH24 and SH25, SH25A, SH26, SH27 and SH29. A large slip and a number of minor slips came down on the Kaimais (SH29). The large slip blocked all 3 lanes of SH29 with vegetation and slip material. Significant rain again caused closures on SH25 south of Thames and SH25 at Hikuai. Additionally the SH25A Kopu Hikuai road was closed due to numerous slips. The SH2 Karangahake Gorge river levels rose causing significant surface flooding. SH26 between Paeroa and Te Aroha was also closed due to flooding. Throughout the storm excessive winds caused trees to come down in a number of places around Coromandel and throughout the HMP networks.

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**Proposed action** Removal of obstructions and hazards from the road to clear a path for traffic; clearance of a significant number of trees; culvert clearing; pavement repairs; stabilising slip face; retaining wall.

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**Outcome** This funding application was accepted as emergency work.

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