



## SH6 Route Security Strategic Study Project Summary



### Managing Route Security from Buller Gorge to Haast Pass



# STATE HIGHWAY 6 BULLER GORGE TO HAAST PASS ROUTE SECURITY STRATEGY CONSULTATION

## 1. Introduction

State Highway 6 is a Regional State Highway in the National State Highway Strategy, and provides often the only route along the length of the West Coast of the South Island. The route is vital for the economic well-being of the West Coast with, in addition to local traffic, a number of heavy vehicle movements and a significant and increasing number of tourists travelling in tour coaches, camper vans, rental cars and cycles.

Route security is crucial as severance, depending on location, can result in detours of hundreds of kilometres. A significant risk to the route security is the continuing threat of coastal erosion and rock fall that have the potential to remove large sections of highway. While flooding and river erosion are also threats to route security, they are more localised and can often be quickly reinstated.

This strategic study has investigated and prioritised the coastal erosion and rock fall risk areas where a forward planning strategy is required. The speed and severity at which coastal erosion and rock fall occur require particular expertise to assess the likely extent of the damage both to road and or users, and to consider the optimum period for timely intervention with capital improvements, or if ongoing maintenance is the most viable solution.

## 2. Purpose of this Document

This document is designed to inform you of the Agency's proposed management of the West Coast section of SH 6 for the foreseeable future. The Agency is keen to receive your comments on its proposed Strategy before it is formally adopted. Your comments are important and necessary to ensure the Agency has addressed areas that cause greatest concern to the highway's stakeholders and is your opportunity to raise any further issues.

## 3. Purpose of the Study

The SH 6 Study aims to identify, investigate and prioritise route security and road user safety issues along the highway from Newman's Slip (Buller) to Haast Pass (Westland), including risks from rock falls, slope instability, debris flows, flooding (stopbank breaches) and coastal erosion. The output of this study will be a recommended Strategy and Implementation Plan that will detail a practical and affordable management regime of the highway that will range from continuing current practice to investigating and developing new projects as they are required.

## 4. Stakeholder Consultation

An initial consultation exercise was completed in May 2008, inviting Stakeholders to provide insight of areas or specific sites where they believed hazards pose a significant risk to the highway and its users. The particular issues of concern within the feedback is summarised as follows:

- Coastal erosion threatened sections of SH 6 are of major concern and considered more pressing than flooding issues, with the visual and landscape impact from coastal protection works considered the most significant worry. Future work should be cognisant of sea level rise;
- A general concern of losing long sections of highway to flood events in particular adjacent to the stopbanks of Waitangitanao and Waiho;
- Flooding, erosion and landslip following major Storm events and the reliance on emergency works provisions of the RMA;
- Visitors using the highway are generally ignorant of the hazards that exist with the result of elevating the risk (consequences) posed by that hazard; and
- Extended closure of SH 6 would have significant impact on the community and as such is of major concern to the Stakeholders.

## 5. Investigation of Issues

At-risk sites have been identified through document and report review, consultation and a drive-over exercise. In total, twenty three sites have been recognised as potentially problematic, comprising rock fall, landslide, flooding, coastal erosion and debris flow hazards. The sites are shown on the map presented as Figure 1.

Each of the sites has been assessed in terms of its geological, environmental and economic issues and their contributions to route security with an attempt to prioritise sites in terms of seriousness and urgency. The following ten sites are considered the most problematic:

- Newman's Slip (landslide)
- Stilts Bluff (landslide)
- Hawks Crag (rock fall)
- Uranium Point (rock fall)
- Woodpecker Bay (coastal erosion)
- Meybille Bay (rock fall)
- Rapahoe (coastal erosion and rock fall)
- Omoeroa (Fox Hills) (debris flows)
- Bruce Bay (coastal erosion)
- Diana Falls to the Hinge (rock fall/landslide)

However, the issues experienced at these sites are typical for their general area. Consequently, this Study has developed a 'Corridor Management Strategy' over an individual site approach, which is considered a more cost effective solution to reducing natural hazard risk along the route.





FIGURE 1 - SH6 CORRIDOR SECTIONS

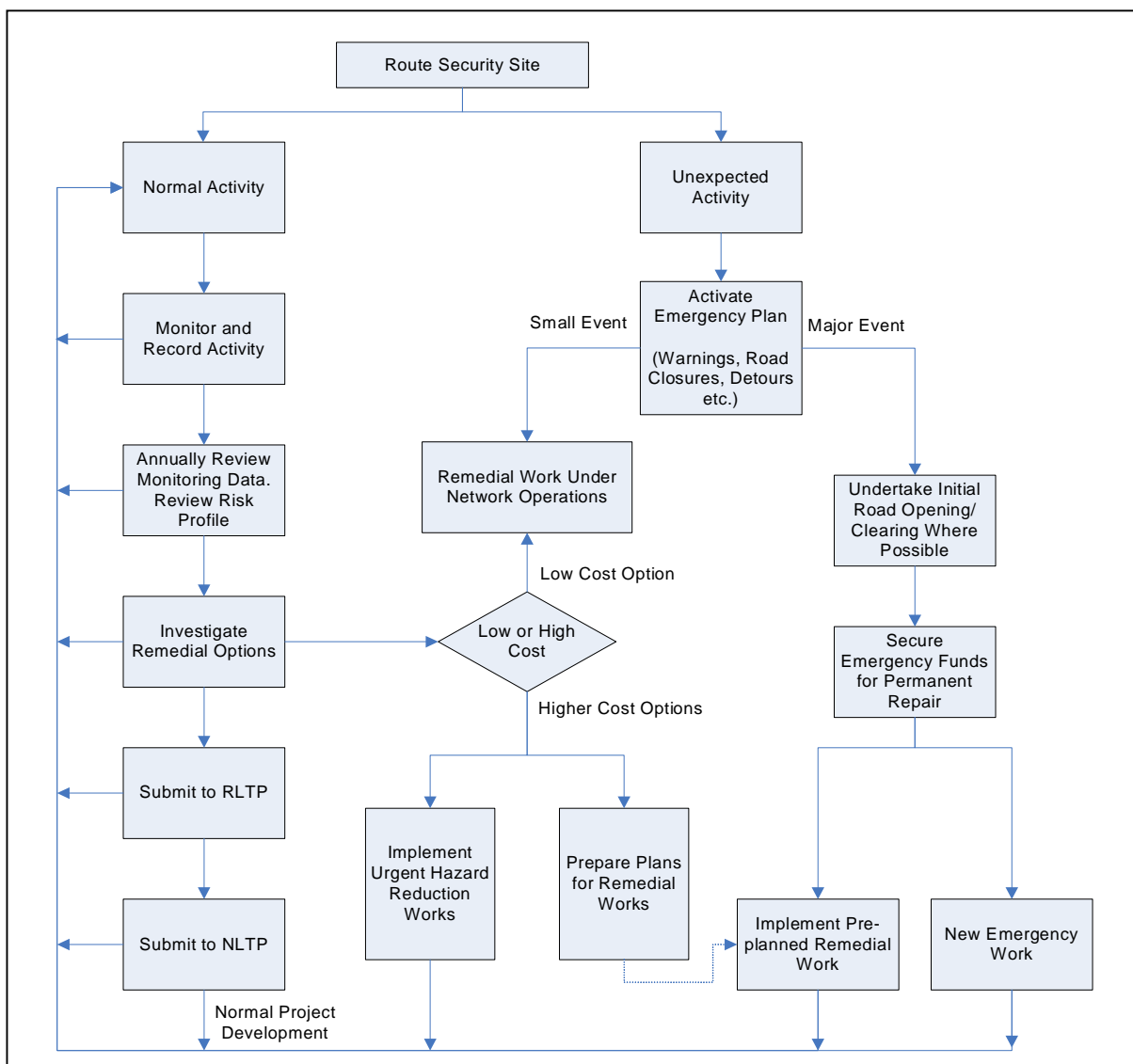
## 6. Proposed Corridor Management Plan

The section of SH6 covered by this Study has been subdivided into six continuous sub-sections, as shown in Figure 1 and described in Table 1. The table also summarises the typical issues and management Strategy to be adopted for each section.

The proposed Corridor Management Plan has been developed to manage risk along SH6 within the constrained funding that is available and is based on the 'DNA' principle of Detect, Notify, and Action.

- Detect and Identify risks to road users, route security and the environment through improved monitoring and surveillance by the Network Consultant and Contractor.
- Notify risks to NZTA Regional Engineer, management and affected Stakeholders as appropriate.
- Action Plan development including emergency response plans, investigation of highest risk sites, exposure and hazard reduction plans. See Figure 2 for the process to be adopted for determining appropriate action.

Figure 2: Investigate, Design and Construct Process



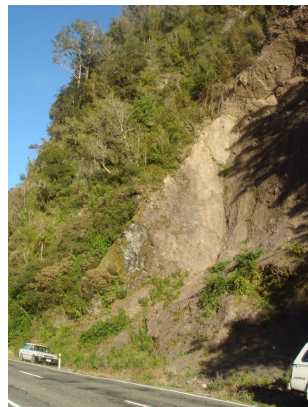


Some of the ways in which hazard and exposure can be reduced comprise the following:

- Increase driver awareness e.g. through signage.
- Install more warning signs e.g. No Stopping, Rock Fall.
- Develop early warning systems for drivers and have response plans in place for the various hazard scenarios, including road closures and diversions when warranted.
- Close off rest areas or lay-bys in areas of increased exposure.
- Consider traffic management systems to remove road users from areas of greatest risk.
- Where physical works are needed to reduce the hazard, this could be in the form of:
  - Improve drainage (rainfall and high ground water most common cause of instability).
  - Preventative maintenance to protect the road (engineered solution such as rockfall netting).
  - Realignment of the road away from the hazard.



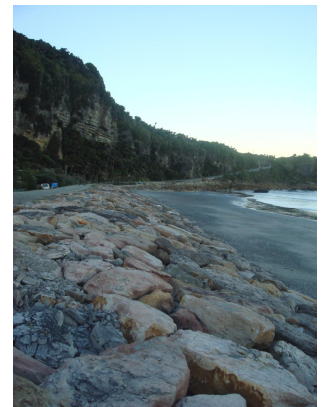
Meybille Bay



Uranium Point

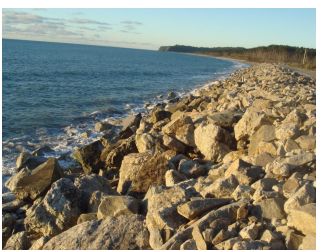


Fox Hills (Omoeroa)

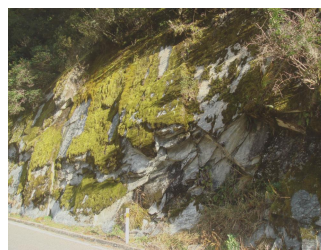


Punakaiki

#### Sites Identified as Potentially At-Risk During the SH 6 Strategic Study



Bruce Bay



Diana Falls



Waiho Stopbank



Hawks Crag

Table 1: Summary of Corridor Management

Name	Section Description	RP	Length (km)	Environment	Identified Sites	Typical Issue(s)	Typical Management
Upper Buller Gorge	Eight Mile Creek to SH69 Jct (Inangahua)	269/0.00 to 296/0.00	28	Upper river valley. Over steepened valley sides. Highway follows river, cut into valley side. Bush covered	Newman's Slip	Landslide River erosion Rockfall	Rockfall monitoring Riverbank and embankment inspections
Lower Buller Gorge	SH69 Jct (Inangahua) to SH67 Jct (Westport)	296/0.00 to 336/0.00	40	Lower river valley. Some steep valley sides with cut embankments. Bush covered.	Inangahua to Whitecliffs Stitts Bluff Blackwater Creek Hawks Crag Uranium Point Windy Point	Pavement instability Embankment instability River erosion Rockslide Rockfall Embankment instability	Rockfall monitoring Riverbank and embankment inspections Pavement inspections
Northern Coast	SH67 Jct (Westport) to SH7 Jct (Greymouth)	336/0.00 to 430/0.00	94	High-level coastal section. Highway mostly on cliff sections.	Woodpecker Bay Meybille Bay Punakaiki 17 to 10 Mile Creeks Rapahoe	Coastal erosion Rockfall Rockfall Rockfall Coastal erosion Rockfall	Rockfall monitoring Coastal erosion monitoring Traffic management
Kumara	SH7 Jct (Greymouth) to Arahura River (Hokitika)	430/0.00 to 445/17.55	32	Lowland coastal and pasture	None	Pavement performance	General and routine maintenance
Central Coast	Arahura River (Hokitika) to Waiho River (Franz Josef)	463/0.00 to 596/13.33	142	Lowland coastal and pasture with bush covered foothills in southern section	Mount Hercules Culvert 62 Waitangitanoa Stopbank Waiho Stopbank.	Stormwater management Stormwater management Flooding Flooding	General and routine maintenance Flood monitoring and response management
Southern Coast	Waiho River (Franz Josef) to Haast Pass Summit	610/0.00 to 800/14.34	203	Bush covered foothills crossing several river valleys. Becoming mountainous in the south towards Haast pass	Omoeroa Ranges, Bruce Bay Breccia Creek Depot Creek Diana Falls to The Hinge	Debris Flow Coastal erosion Rockfall Rockfall Rockslide	Rockfall monitoring Flood and storm management Traffic management

## 7. Your Views and Feedback

We welcome your comments about the draft strategy before it is finalised in late December 2009. Please submit your feedback to GHD (see contact details below) by Friday 27<sup>th</sup> November 2009.

When commenting please provide:

- Your name;
- Organisation if appropriate;
- Daytime and mobile telephone numbers; and
- Email address.

For further information please contact the Consultant Project Co-ordinator in the first instance, or the Transportation Planning Manager (NZTA).

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