

Executive summary

This report reviews the Taranaki Regional Council's performance and achievement on its river and flood control functions for the 2005/2006 year. This activity encompasses the maintenance of flood protection schemes, undertaking river control works, monitoring and providing information on rainfall and river levels, and responding to public requests for information on river control and flood protection issues.

Through its river control and flood protection activities, the Council is ensuring that the risks and associated costs of damage by rivers and floods are managed appropriately and to acceptable levels and is contributing towards making Taranaki a prosperous, sustainable, secure and healthy region.

Set out below is a summary of the main river control and flood protection activities carried out during the 2005/2006 year:

- Maintenance of and improvement to river control and flood protection scheme works in the Lower Waitara River.
- Maintenance of river control and flood protection scheme works in the Waiwhakaiho River.
- Undertaking channel clearance works in the Waitotara River.
- Servicing requests for advice and assistance.
- Undertake minor emergency river and flood control works.

Table of contents

1.	Introduction	1
1.1.	Purpose	1
1.2.	Background	1
1.2.1.	Objective	1
1.2.2.	Performance measures	1
2.	Report on progress	3
2.1.	Maintain Waitara and Waiwhakaiho flood protection schemes	3
2.1.1.	Waitara Flood Protection Scheme	3
2.1.2.	Waiwhakaiho Flood Control Scheme	4
2.2.	Waitotara River clearance	6
2.3.	The central Taranaki schemes	7
2.4.	Undertake monitoring and provide information on rainfall and river levels	7
2.5.	Respond to requests for information	7
2.6.	Minor emergency river and flood control works	7
3.	Conclusion	8
	Programmes and performance measures	8

List of figures

Figure 1:	Waitara Flood Protection Scheme – downstream of the Town Bridge	3
Figure 2:	Waitara Flood Protection Scheme – adjacent to the SH3 Bridge	4

List of tables

Table 1	Valuation of Lower Waitara Flood Protection Scheme assets (June 2006)	4
Table 2	Valuation of Waiwhakaiho Flood Protection Scheme assets (June 2006)	5

1. Introduction

1.1. Purpose

This report reviews the Taranaki Regional Council's ('the Council') performance and achievements on its river control and flood protection activities for the 2005/2006 financial year.

1.2. Background

The Council, as a catchment authority, has responsibility for river control and flood protection in the Taranaki region derived from the Soil Conservation and Rivers Control Act 1941. Specifically, the Council is required to minimise and prevent damage by floods and erosion. This involves providing advice and assistance to landholders on matters relating to the control of rivers and flooding and the construction and maintenance of flood protection schemes as necessary. These infrastructure assets are maintained according to the Council's policy, in an as new condition.

The Council has prepared Standard Operating Procedures for managing flood events. These Operating Procedures provide a strategic framework and guidance relating to river control and flood protection, including flood event monitoring and prediction, warnings and operation of flood protection structures.



Bank protection rock works associated with the Waitara Flood Control Scheme

1.2.1. Objective

There are two overall objectives for river control and flood protection activities for 2005/2006, as set out in the Council's *2005/2006 Annual Plan*. These are:

"Manage and maintain river control scheme works to acceptable design standards to minimise and prevent damage by floods and river erosion"

"Provide accurate and timely flood warnings, flood control advice and undertake minor works and associated actions to minimise and prevent damage by floods and river erosion."

1.2.2. Performance measures

In response to the above objectives, the following performance measures were adopted by the Council in 2005/2006.

- Maintain the Waitara and Waiwhakaiho flood control schemes to perform to design standards.

- Install continuous rock bank lining from McNaughton Street to the Estuary on the Waitara River flood protection scheme.
- Manage other minor river schemes to standards as agreed with scheme participants.
- Monitor rainfall and river levels and issue flood warnings when necessary in accordance with the *Flood Event Standard Operating Procedure*.
- Undertake minor emergency, river and flood control works when necessary.
- Respond to requests for drainage, river and flood control advice and assistance within ten working days.
- Facilitate river control projects for the environmental enhancement of the region's waterways.

2. Report on progress

2.1. Maintain Waitara and Waiwhakaiho flood protection schemes

Flood protection schemes at Waitara and Waiwhakaiho were maintained to design specifications and a programme of upgrading scheme works at Waitara was progressed.

2.1.1. Waitara Flood Protection Scheme

The major re-alignment and channel training works completed for the protection of the Waitara township fourteen years ago continue to perform within design parameters.

A key element to the successful management of the Waitara Flood Protection Scheme has been the regular maintenance, monitoring and observation of channel characteristics and flow conditions. Where deterioration of, or damage to the river training groynes and bank protection rock work has occurred, restoration work is carried out.

In 2005/2006 some work was undertaken to bring some of the older parts of the Waitara Flood Protection Scheme up to standard. The works focused on pressure points within the Scheme area.

In 2005/2006, the Council continued to progressively install continuous rock bank lining from the sewage plant to the estuary (Figure 1).

The re-alignment and goyneset works constructed in 1992 provides vital protection to the stopbank in that locality. The most significant threat of high value flood damage to the Waitara township is from failure of the left bank flood defences. To this end, heavy benched bank lining has been



Figure 1: Waitara Flood Protection Scheme – downstream of the Town Bridge



Rock bank lining

constructed from the wharf downstream to the sewage plant with upper bank lining to the McNaughton Pumping Station. In 2005/2006, the Council placed 1,360 tonnes of rock over 200 metres to complete that work. An additional 1,160 tonnes of rock was also placed to form 120 metres of blanket bank lining downstream of the pumping station and towards the estuary.

Caretaking activities throughout the whole scheme area continued during the year and included vegetation control, mowing of stopbanks and berms, weed control and management of plantings within the wildlife habitat area developed adjacent to the main groynes. Passive recreation and community care is being encouraged within Council owned reserve land.



Figure 2: Waitara Flood Protection Scheme – adjacent to the SH3 Bridge

Annual valuation of the scheme assets is required and an independent valuation was undertaken. Table 1 shows the current valuation of structural assets within the scheme.

Table 1 Valuation of Lower Waitara Flood Protection Scheme assets (June 2006)

Location	Description	Valuation (\$)
Itoham Works	Rock lining	330,000
Downstream Itoham Works	Rock lining – extension	85,000
Downstream Itoham Works	Rock lining – upper bank	15,000
McNaughton Street	Rock lining - blanket	36,000
East Quay	Rock lining & wave bank	60,000
Downstream of Rowing Club	Rock lining – high level	40,000
Town Bridge	Rock lining/abutment works	185,000
Queen Street	Rock lining	220,000
Between bridges	Rock groynes and linings	1,015,000
SH3 bridge	Rock lining/abutment works	75,000
Upstream of SH3 bridge	Rock groynes and lining	70,000
Newton's River Island	Minor banking and rock control	105,000
Waitara Township	Stopbanks	500,000
Itoham Works & Rowing Club	Walling	100,000
Downstream SH3 Bridge	Protection/amenity planting	30,000
		\$2,866,000

2.1.2. Waiwhakaiho Flood Control Scheme

The Waiwhakaiho Flood Control Scheme, constructed by Council at Fitzroy, comprises of two components. First, river training channel management and stopbanks constructed

adjacent to the Waiwhakaiho River. Second, a gabion crate flood wall constructed on private land adjacent to the Mangaone Stream. Though constructed primarily for the protection of private property, the Council contributed to the cost of construction of the Mangaone works in recognition of the regional off-site benefits provided by these works. The works remain privately-owned by the individual property owners and are the subject of a maintenance agreement with Council to ensure their continued integrity.



Mangaone flood defence wall

In 2005/2006, the Waiwhakaiho Flood Control Scheme was managed to agreed standards. On-going maintenance work focused on removing invasive vegetation considered restrictive to flood capacity. Control methods included spraying by contract and the physical removal of weeds. Other regular maintenance and enhancement activities were undertaken that year.

Special attention has been given to channel clearing of the Mangaone Stream upstream of the Katere Road. These works are largely on Crown land and is programmed as a long term task involving the Community Work Scheme.

Investigations have commenced into possible methods of improving the level of flood protection provided by the scheme. this very preliminary work has been focused in the Mangaone catchment and is examining flood detention/storage opportunities.

The current valuation of the scheme assets is shown in Table 2 below. The works are to be maintained in an 'as-new' condition in line with Council's policy.

Table 2 Valuation of Waiwhakaiho Flood Protection Scheme assets (June 2006)

Location	Description	Valuation (\$)
River channel - Firths Bend	Rock lining	105,000
River channel - Lower	Rock lining	11,000
Ebert property	Gabion stopbank, with cutoff	67,000
Constance St to Mangaone confluence	Earth stopbank, with cutoff	271,000
Rifle Range Road	Gabion & block work - on earth stopbank	58,000
Culvert outlets	Pipe flapgates	12,000
Stopbank and berms	Vegetation	6,000
		\$530,000

2.2. Waitotara River clearance

In 2005/2006, following consultation with the South Taranaki District Council, local land occupiers and the local community, the Council adopted the document *Reducing the Risk – Proposed River Clearance and Maintenance Programme for the Waitotara*. This document sets out an agreed staged programme of channel clearance and maintenance works, including funding arrangements.

In accordance with the programmes set out in that document, and based upon a channel clearance trial commenced in 2004, the Council has cleared some 4 kilometres of the Waitotara River that was heavily congested with mixed, aged willow and poplar material (both within the river as well as the banks) using light weight logging machinery.

Material removed from the channel was stacked at designated sites adjacent to the river and later burnt after a drying period. Follow-up work involving a spraying programme to control regrowth has also been undertaken. The cooperation of adjacent landholders has been an essential part of the work. Prior to any works, the Council first obtained the agreement of landholders to work on their land, stack material and in some instances remove fences to allow access.

A further 2,300 metres of contracted clearing downstream of the Waitotara township was completed by 30 June 2006 and preparations are being made to contract an additional 2,700 metres in two areas immediately upstream and downstream of the township.

Of note, a severe storm event caused flood flows to occur in the Waitotara River during 5-7 July 2006. At its peak flow the river's discharge at state highway 3 bridge was calculated to be equal to or exceeding the peak flow of the February 2004 event when the Waitotara township experienced floodwaters up to one metre in depth. The July 2006 event involved backwaters only a few centimetres deep entering a small area and affecting three homes.



Channel congestion caused by uncontrolled willow growth was a major cause of the high flood levels in the lower catchment in 2004



Mechanical channel clearance of vegetation debris in the Waitotara catchment

2.3. The central Taranaki schemes

The Council manages three small river schemes in eastern Taranaki. These comprise parts of the Makuri, Toko and Mangaotuku streams with channel clearing taking place on an 'as when required' basis.

The central Taranaki schemes are well maintained and generally require a low level of Council input. In 2005/2006, a review of the operating efficiency of the schemes was commenced with a view to formulating a works programme for each scheme.

2.4. Undertake monitoring and provide information on rainfall and river levels

The primary source of flood event information is obtained through the Council's telemetry system. The telemetry system operates at selected sites throughout the region and measures rainfall and river levels. This information is automatically transmitted to the Council. During a flood event these remote stations can be individually interrogated to provide immediate information as to conditions.

Analysis of telemetry data provides a predictive capability, which enables the Council to provide information to emergency services, road controlling authorities and district councils and the community to assist their management requirements.

During 2005/2006, 18 'special weather watches and warnings' were received from the Met Service.

2.5. Respond to requests for information

Every year the Council receives and responds to requests from the public for information and assistance on drainage and river and flood control.

In 2005/2006, the Council received and responded to 26 requests for advice and assistance. All requests for general advice and assistance were responded to within ten working days.

2.6. Minor emergency river and flood control works

Five minor river control projects were undertaken during the year. These were all associated with upgrading river channels in the south western sector of the ring plain. This issue is becoming an increasing problem, which will require attention in the future.

3. Conclusion

In conclusion, the Council met all of its performance measures for river control and flood protection functions as set out in the *2005/2006 Annual Plan*. Through its river control and flood protection activities, the Council is ensuring that the risks and associated costs of damage by rivers and floods are managed appropriately and to acceptable levels and is contributing towards making Taranaki a prosperous, sustainable, secure and healthy region.

Programmes and performance measures

1. In the Lower Waitara River scheme area, routine maintenance and capital works undertaken to enhance operational efficiency.
2. In the Lower Waiwhakaiho River scheme area, routine maintenance implemented to maintain operational efficiency.
3. Undertaking channel clearance works in the Waitotara River.
4. Maintenance of river channels involved in the central Taranaki schemes was undertaken by landholders and limited contractor work.
5. Rainfall and river levels are monitored throughout the region.
6. The Council continues to respond to requests for advice and assistance in relation to river control and flood protection issues.

This report will be forwarded to key interested stakeholders for river control and flood protection.