

## Executive summary

This report reviews the Taranaki Regional Council's performance and achievement on its river and flood control functions for the 2006/2007 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 2006/2007 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.



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# 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 2006/2007 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 2006/2007, as set out in the Council's 2006/2016 Long-Term Council Community Plan. These are:

*"Manage and maintain river control scheme works to accepted 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 2006/2007.

- 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, where necessary, in accordance with the *Flood Event Standard Operating Procedure*.
- Undertake minor emergency, river and flood control works when necessary.
- Respond to 100% of requests for drainage, river and flood control advice and assistance within ten working days.
- Subject to completion of funding arrangements, implement channel improvement works in the Waitotara catchment.
- 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.

Rock bank protection is now complete on the left bank between the town bridge and the mouth of the estuary.

During the year, a further 2,500 tonnes of rock was placed at a ratio varying between 5 to 15 tonnes per metre of riverbank over a distance of 300 metres adding to rock protection work carried out in previous years.

The re-alignment and goyne-set works constructed in 1992 provide vital protection to the stopbank from the sewerage plant to the estuary. 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 constructed from the wharf downstream to the Flag Station. Renovation of the lower end of this work was undertaken this year.

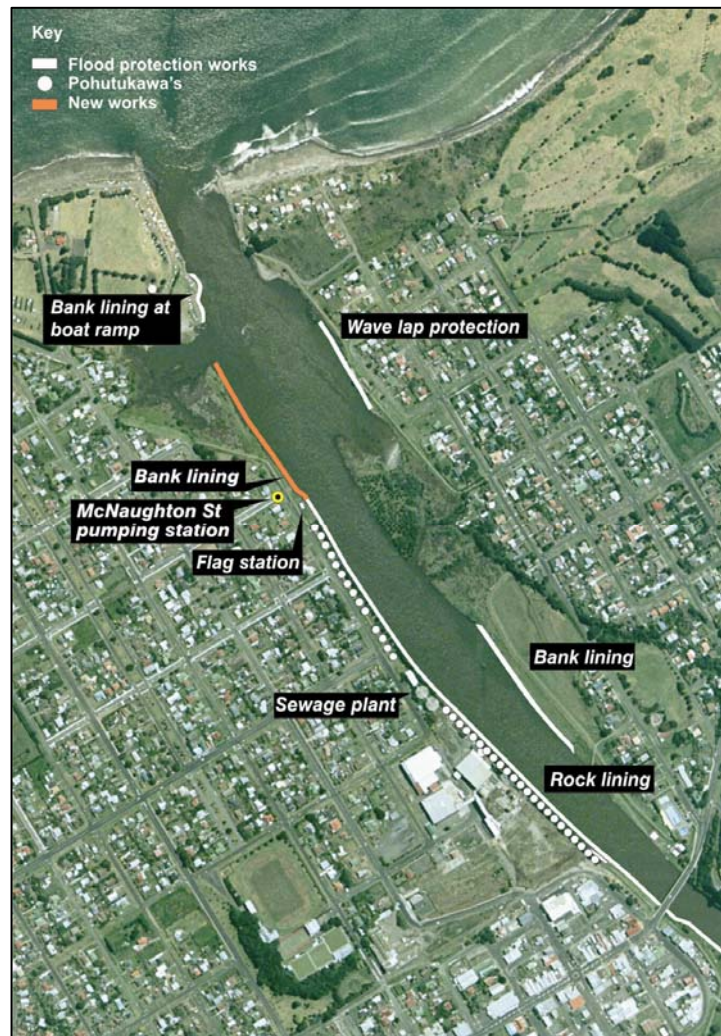


Figure 1: Waitara Flood Protection Scheme – downstream of the Town Bridge

An additional length of 60 metres of heavy bank lining was constructed about the McNaughton Street pumping station and connecting to the rock lining running down to 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.

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.



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

**Table 1** Valuation of Lower Waitara Flood Protection Scheme assets (June 2007)

Location	Description	Valuation (\$)
Itoham works	Rock lining - benched	330,000
Downstream Itoham Works	Rock lining – extension	99,000
Downstream Itoham Works	Rock lining – upper bank	15,000
McNaughton Street	Rock lining - blanket	106,000
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
		<b>\$2,950,000</b>

### 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.

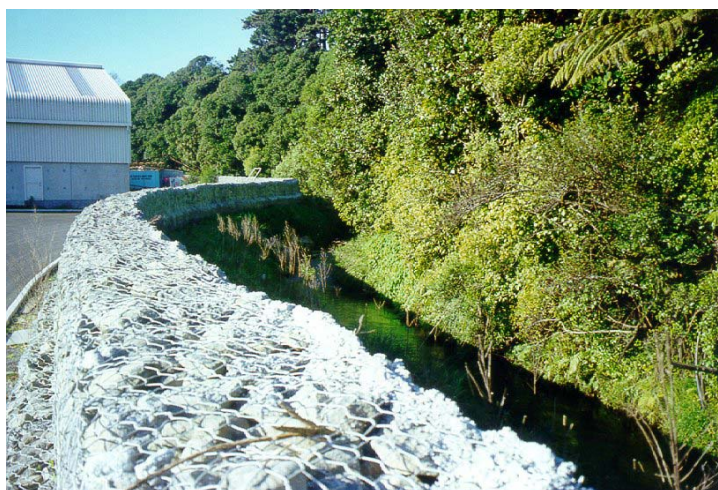
The works remain privately-owned by the individual property owners and are the subject of a maintenance agreement with Council to ensure their continued integrity.

In 2006/2007, 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 continues with channel clearing of the Mangaone Stream upstream of the Katere Road. These works are largely on Crown land and are programmed as a long term task involving the Community Work Scheme.

Preliminary investigations continue to facilitate a more detailed study of a Scheme upgrade of the Lower Waiwhakaiho to provide a higher level of protection of the increasing assets within the Waiwhakaiho Scheme area.

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.



*Mangaone flood defence wall*



*Channel clearance Mangaone Stream*

**Table 2** Valuation of Waiwhakaiho Flood Protection Scheme assets (June 2007)

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
		<b>\$530,000</b>

## 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, with South Taranaki District Council, and Land Transport New Zealand support, has cleared some 6.3 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.



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

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, with approximately 5 km being sprayed by helicopter and a further 2 km by ground spraying. 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.



*Spraying of regrowth by helicopter*

A total of 12.6 km of channel clearance has been undertaken.

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.

## 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.

#### **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 2006/2007, 39 '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 2006/2007, the Council received and responded to 40 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**

Two 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.

Work was also initiated in the Stony River to address the aggradation of gravels immediately downstream of the SH45 bridge. Further work is planned in the 2007/2008 year.



*Stony River realignment downstream of SH45 bridge*



### 3. Conclusion

In conclusion, the Council met all of its performance measures for river control and flood protection functions as set out in the *2006/2016 Long-Term Council Community 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.