

Executive summary

This report reviews the Taranaki Regional Council's performance and achievement on its river and flood control functions for the 2008/2009 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 2008/2009 year:

- Maintenance of 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 2008/2009 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 Protection Scheme

1.2.1. Objective

There are two overall objectives for river control and flood protection activities for 2008/2009, as set out in the Council's 2008/2009 Annual 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 2008/2009.

- Maintain the Waitara and Waiwhakaiho flood protection schemes to perform to design standards. Specifically for 2008/2009 the target is to develop a works

programme to maintain and upgrade works on the right bank of the Lower Waitara and to prepare a proposal to upgrade the Waiwhakaiho Flood Control Scheme

- Manage other minor river schemes to standards as agreed with scheme participants.
- Monitor rainfall and river levels and issue flood warnings in 100% of cases, 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.
- Undertake channel clearing work 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 in 1992/1993 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.

The re-alignment and groyne-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.

Bank lining has been extended by 110 metres involving the placement of 1450 tonnes of rock on the right bank downstream of Richmond Street. A further 600 tonnes of rock has been trenched to provide armouring for the ongoing development of a high flow channel around the back of Mangaroa Island to improve main channel efficiency in that locality.



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



Figure 2: Waitara Flood Protection Scheme – between the Town and SH bridges

New Plymouth District Council undertook redevelopment of the lower boat ramp and protection works were upgraded at the same time.

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.

Table 1 Valuation of Lower Waitara Flood Protection Scheme assets (June 2009)

Location	Description	Valuation (\$)
Wharf to Milliscreen	Rock lining – benched and wall	586,500
Milliscreen to Flag Station	Rock lining – benched and stopbanks	346,500
McNaughton to Mouth	Rock lining and stopbank	151,400
East Quay	Rock lining and wave bank and stopbank	253,095
Downstream of Rowing Club	Rock lining – stopbanks and wall	393,150
Town Bridge	Rock lining and stopbanks	242,650
Queen Street	Rock lining and stopbanks	419,000
Between bridges	Rock groynes and linings	1,304,625
SH3 bridge	Rock lining – left bank	13,300
Upstream of SH3 bridge	Rock groynes – left bank	61,600
Newton's River Island	Minor banking and rock control	105,000
Downstream SH3 Bridge	Protection/amenity planting	50,000
Right bank downstream of SH3 bridge	Rock lining and spurs	260,750
		\$4,187,570

2.1.2. Waiwhakaiho Flood Protection Scheme

The Waiwhakaiho Flood Control Scheme, constructed by Council at Fitzroy in 1996/97, 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 2008/2009, the Waiwhakaiho Flood Control Scheme was managed to agreed standards. On-going maintenance work focused on removing invasive



Mangaone flood defence wall

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 were completed 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.

Table 2 Valuation of Waiwhakaiho Flood Protection Scheme assets (June 2009)

Location	Description	Valuation (\$)
River channel - Firths Bend & upstream Mangaone	Rock lining & blanket	176,750
River channel – Lower	Rock lining	17,500
Scott & Barron property	Gabion stopbank, with cutoff	100,050
Constance St to Mangaone confluence	Earth stopbank, with cutoff	401,500
Rifle Range Road	Gabion & block work - on earth stopbank	98,200
Culvert outlets	Pipe flapgates	18,000
Stopbank and berms	Vegetation	10,000
		\$822,000

2.2. Waitotara River

In 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 New Zealand Transport Agency support, has cleared some 2.4 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).

A further 2.5 km of ground based spraying of



Channel clearance – Waitotara River

regrowth was also undertaken.

Material removed from the channel was stacked at designated sites adjacent to the river and later burnt after a drying period. 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.

To date, a total of 18.5 km of channel clearance has been undertaken and maintained.

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 2008/2009, 49 '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 2008/2009, the Council received and responded to 46 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

Eight minor river control projects were undertaken in the Kaihihi and Mangatete streams in the vicinity of Okato in response to storm damage. Minor river control work was undertaken in the Waiwhakaiho.

Work was also undertaken in the Stony River to address the aggradation of gravels immediately downstream of the SH45 bridge.

A 320 metre diversion channel has been developed and maintained of which some 150m are protected by a heavy-weight rock training wall.



Stony River – work in progress



Stony River – completion of works

3. Conclusion

In conclusion, the Council met all of its performance measures for river control and flood protection functions as set out in the *2008/2009 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, maintenance was implemented to enhance operational efficiency.
2. In the Lower Waiwhakaiho River scheme area, routine maintenance implemented to maintain operational efficiency.
3. Channel clearance works in the Waitotara River continued.
4. Maintenance of river channels involved in the central Taranaki schemes was undertaken by landholders.
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.

