



Report 10.457
Date 18 August 2010
File N/50/01/30

Committee Catchment Management Committee
Author Jacky Cox, Engineer

Flood Protection Annual Asset Management Report 2009/10

1. Purpose

- To report on the condition of Flood Protection infrastructural assets as at 30 June 2010.
- To report on the maintenance activities completed on the 15 river schemes in the region.

2. Significance of the decision

The matters for decision in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3) (b) of the Local Government Act 2002.

3. Background

The Flood Protection Department is responsible for a variety of infrastructural assets that form the basis of flood protection schemes in the Wellington region. These assets have a total value of approximately \$189 million (2007 valuation) and provide flood and erosion protection to property and people residing on the floodplains of these rivers.

The monitoring of scheme assets over the past financial year seeks to reassure Council that the various assets are being managed appropriately, maintained to the desired standard, will perform when needed and, where necessary, are being enhanced by a capital works programme.

4. Summary

Our annual asset inspections showed that the majority of frontline flood defences are well maintained and are in good condition and therefore providing the desired level of service. The relatively stable weather experienced during the past year meant that the planned work programmes were completed on schedule without too many problems.

Each year, for the Wairarapa schemes, performance statements are prepared reporting on asset management plan performance indicators. The performance criteria of the schemes have been generally met on all of the schemes, except for a few minor issues.

The scheme performance statements are contained in Attachments 2 – 8 of this report and summarised in section 7 below.

5. SAP Plant Maintenance

The most significant asset management activity completed in 2009/10 was the implementation of the Plant Maintenance (PM) module of SAP. Flood Protection went live with PM on the 10th of August 2009 for the Western Region, and the 17th of August 2009 for the Wairarapa. The primary purpose of Council implementing PM across the organisation in the first instance was to ensure consistency in capturing what work is done, where, and at what cost.

Not only did operational staff have to keep on top of the maintenance work programmes for their respective schemes, they had to attend a myriad of workshops and training sessions to ensure that they had input into the system design and could use it once implemented. Overall operational staff have adapted extremely well to this new system, which for some who were not entirely comfortable with computers was a huge achievement. Whilst staff are still coming to grips with the nuances of PM, we have defined business processes and are in the process of identifying improvements to both business processes and the asset register. These improvements will be incorporated into the 2010/11 asset management work programme.

6. Peer review

On 28 and 29 June 2010, staff from Horizons Regional Council visited our region. The primary purpose of this visit was to share information and experiences but to also to get feedback on how GW is maintaining infrastructural assets. They were shown various sites on the Hutt, Otaki and Waikanae Rivers. Feedback from our peers is that GW is maintaining assets appropriately, and to the required standard. They were especially impressed with how assets are displayed on the aerial mosaics of our river systems.

7. Scheme Summaries

7.1 Western

7.1.1 Hutt River

Infrastructural assets on the Hutt River are constructed to provide a high level of service and as such are maintained to a high standard. This is warranted given the scheme's importance in protecting one of the most developed floodplains in New Zealand. The total value of flood protection assets on the Hutt River is \$62.0M (2007 valuation).

Stable weather during the year meant the Wellington operations work programme was completed at year end with all programmed work finished as

per programme and to budget (\$1.15M). Annual asset inspections showed that the majority of frontline flood defences such as stopbanks, rocklines, debris fences, groynes and other edge protection works are well maintained and in good condition.

In summary, 2,840 tonnes of rock was used on the river to:

- Top up existing rocklines and groynes;
- Construct 35 metres of new rockline at Avalon and Maoribank;
- Infill an erosion gut at Maoribank bend; and
- Construct two new rock groynes at Manor Park.

Rejuvenation of willow lines continued, with 2,848 willow trees planted during the 2009/10 financial year. This involved the removal of old booth willows and replacing them with new hybrid willows on the design channel alignment. 1,500 native plants were also planted. Staff have also been busy installing the new River Trail furniture, which provides a cohesive and modern look for the River Trail.

Gravel extraction from the river has slowed markedly. In the 2009/10 financial year, 7,981m³ was extracted compared to 41,479m³ in 2008/09. This is primarily due to the reduced demand for sand and aggregate from the concrete industry, which is not expected to improve over the coming 12 months. The closure of the Horokiwi intersection has also increased overall processing costs and has impacted on the contractor's ability to extract the required 80,000m³ per annum. Construction of the Boulcott Hutt and City Centre stopbanks will go some way to make up the shortfall in the medium term. Long term staff are investigating alternatives.

Attachment 1 presents a summary of the stopbank maintenance condition ratings for the Hutt, Otaki and Waikanae Rivers. As shown in this attachment, the majority of our stopbanks in these schemes either meet or exceed the required standard, except for those stopbanks that are earmarked for upgrade as part of our capital works programme.

7.1.2 Otaki River

The annual asset inspection showed that infrastructural assets on the Otaki River are in good condition. This is attributed to capital improvements that have been completed and the regular inspection and maintenance regime undertaken. Otaki River infrastructural assets are valued at \$16.5M (2007 valuation).

Maintenance tasks completed during 2009/10 included:

- Topping up of an existing rockline at Stresscrete;
- Constructing two rock and block groynes at Tracys;
- Constructing two rock deflectors on the end of the Stresscrete Mangahanene rocklines;
- Cutting of the river mouth;

- Planting of 2,220 willow trees;
- Extraction of 49,095m³ of gravel; and
- Planting, mulching and releasing of native plants, in liaison with Friends of the Otaki River where 4,000 natives were planted over the period.

7.1.3 Waikanae River

As with the Otaki River, the annual asset inspection showed that the Waikanae River flood protection assets are in good condition. Waikanae River infrastructural assets are valued at \$6.7M (2007 valuation). Maintenance tasks completed during 2009/10 included a 30 metre extension to the Otaihanga rockline and top up of two existing groynes at Karu Crescent.

7.1.4 Wainuiomata River

There is a limited flood protection scheme on the Wainuiomata River, comprising stopbanks, outlet structures and willows at a 2007 valuation of \$1.3M. Overall the infrastructural assets on this scheme are in good condition. Rejuvenation of willow lines that are below the desired standard following flood events in February 2004 and July 2006 is still the main focus on this scheme. Plantings are being done to the design channel alignment developed in 2007, which is proving to be invaluable to a scheme that relies heavily on vegetation for bank edge protection due to budget constraints. Minor repairs were also made to stopbanks adjoining Burden Avenue and Parenga Street.

7.1.5 Porirua Stream

The Porirua Stream scheme includes infrastructural assets through the central business district and two earth detention dams valued at \$5.5M (2007 valuation). The scheme was completed in the 1990s, so assets are relatively new and are in good condition.

The detention dams (Stebbing and Seton Nossiter) have comprehensive safety reviews completed every 5 years which focus on major safety aspects and are part of the long term care of the structures. Annual inspections provide assurance of the ongoing safe performance of each structure between the formal reviews. The latest annual inspections for each dam indicate that the general standard of maintenance is very good and that no dam safety deficiencies were identified.

A bed level survey conducted in 2009/10 has confirmed that no extraction is required through the city centre reach.

7.2 Wairarapa

7.2.1 Lower Wairarapa Valley Development Scheme

There were no flood events in the period under review. However the Ruamahanga River base flow levels have been high during the winter of 2009 and summer of 2010. The Ruamahanga River reach, close to Morison's Bush, suffered minor damage that has now been repaired.

All maintenance and development works have been completed to programme and on budget.

The land purchase for the development of Tauanui delta was successfully completed, and a major part of the stopbank constructed. Material for the stopbank was sourced from Tauanui gravel and silt deposits in the Ruamahanga Diversion Channel, which also resulted in clearing a restriction in the diversion channel.

The 2009/10 Performance Statement for the Lower Wairarapa Valley Development Scheme is shown in **Attachment 2**.

The scheme reserve closing balance was \$1,539,473 with the Major Flood Damage Reserve Fund closing balance at \$740,865. LWVDS assets are valued at \$96.7M as at June 2009.

7.2.2 Waiohine - Mangatarere River

The current annual works programme budget is \$300,000. It is planned in 2010/11 to increase this to \$308,400.

The physical condition of the Waiohine - Mangatarere scheme is continuing to improve by working towards the design channel alignment. Rock groyne placement is ongoing and generally the most vulnerable sites are targeted as a priority on an annual basis.

Currently there are no serious areas of erosion, directly affecting farmland. However, there are still areas identified within the active channel which need to be addressed to achieve the design channel alignment.

The scheme's Asset Management Plan performance criteria have been satisfied, albeit a minor exception due to no peer review of scheme works. The 2009/10 Performance Statement for the Waiohine – Mangatarere Scheme is shown in **Attachment 3**.

The scheme reserve closing balance was \$445,286 with the Major Flood Investment Fund closing balance at \$24,435.

7.2.3 Waingawa River

The current annual works programme budget is \$141,300. It is planned for 2010/11 to increase this budget to \$156,900. This scheme is currently being reviewed, and future funding and river management options are dependent on the review outcome.

The physical condition of the scheme is continuing to improve by working towards the design channel alignment. Bed and beach recontouring are the predominant works undertaken, with follow up willow planting once areas are stabilised.

There are few areas of erosion, which are directly affecting farmland. However, there are still areas identified within the active channel which need to be addressed to achieve the design channel alignment.

The scheme's Asset Management Plan performance criteria have been satisfied, albeit a minor exception due to no peer review of scheme works. The 2009/10 Performance Statement for the Waingawa River Scheme is shown in **Attachment 4**.

The scheme reserve closing balance was \$56,287 with the Major Flood Investment Fund closing balance at \$16,290.

7.2.4 Upper Ruamahanga summary

The process to vary the Upper Ruamahanga River Scheme's global resource consent has been in progress over the last year, with a number of workshops and meetings held with Fish and Game, Greater Wellington's Environmental Regulation department, iwi, Department of Conservation, and Forest and Bird. Progress has been made to develop an understanding of the issues concerning the management of the river for flood protection, habitat, and cultural and recreational activities. The current objective is to have the variation to the resource consent in place for the 2010/11 works programme.

7.2.5 Upper Ruamahanga - Mt Bruce

This scheme remains in a development phase, and as such requires targeted channel alignment work, planting of the buffer zones, and edge protection works such as willow lopping and clumping. The river is prone to erosion and as an interim measure, a 'one off' resource consent was applied for in December 2009 to cater for additional instream works. These works could not be accommodated within the existing global resource consent, which permitted 1,000 metres of instream activities over a 58 km length of the upper reach of the Ruamahanga River, the Te Ore Ore and Gladstone River schemes. Sign off for this work was required from Fish and Game and the Department of Conservation, in addition iwi were provided with the information and attended site visits.

In the last year, there has been a noticeable increase in old man's beard within the willow buffer zone, due to budget constraints the scheme can only fund targeted spraying of areas.

The Asset Management Plan annual performance criteria have been largely satisfied for the scheme. The 2009/10 Performance Statement for the Mt Bruce Scheme is shown in **Attachment 5**.

The scheme reserve closing balance was \$77,271 with the Major Flood Investment Fund closing balance at \$5,538.

7.2.6 Upper Ruamahanga - Te Ore Ore

The scheme continues to be in a stable condition with the ongoing works programme focussing on maintenance of existing groynes, addition of new groynes at specific erosion spots, lopping of willows, and channel alignment work. The ongoing spraying programme to target old man's beard appears to be managing spread and regrowth. Fortunately sufficient funding is available in this scheme to manage this pest plant.

The Asset Management Plan annual performance criteria have been largely satisfied for the scheme. The 2009/10 Performance Statement for the Te Ore Ore River Scheme is shown in **Attachment 6**.

The scheme reserve closing balance was \$127,142 with the Major Flood Investment Fund closing balance at \$5,538

7.2.7 Upper Ruamahanga - Gladstone

This scheme remains in the development phase, with the focus over the last few years on improving the design channel alignment. The scheme is prone to erosion and in July 2009 a 5 year return period flood resulted in \$18,000 of instream work. Previously a flood of a similar size had resulted in \$30,000 to \$50,000 worth of flood damage, indicating that work to secure the design channel alignment is providing tangible benefits.

The works programme is now focussed on extensive willow planting of the stabilised buffer zones, which was not previously possible. This scheme, like the Mt Bruce scheme suffers from old man's beard. Proactive communication with a number of landowners has resulted in them spraying the buffer zone with chemical provided by Greater Wellington.

The Asset Management Plan annual performance criteria have been largely satisfied for the scheme. The 2009/10 Performance Statement for the Gladstone River scheme is shown in **Attachment 7**.

The scheme reserve closing balance was \$69,901 with the Major Flood Investment Fund closing balance at \$5,538

7.2.8 Waipoua River

The current annual works programme budget is \$75,700. No increase is planned for 2010/11 but an increase is expected in 2011/12.

The physical condition of the scheme is continuing to improve through the recommendation of the Scheme Advisory Committee to increase the use of hard edge protection measures as funding permits.

Willow planting and cabling is still the predominant work, which is followed up with the construction of boulder groynes.

There are few areas of erosion, which are directly affecting farmland. However, there are still areas identified within the active channel which need to be addressed to achieve the design channel alignment.

The Asset Management Plan annual performance criteria have been satisfied, albeit a minor exception due to no peer review of scheme works. The 2009/10 Performance Statement for the Waipoua River is shown in **Attachment 8**.

The scheme reserve closing balance was \$43,164 with the Major Flood Investment Fund closing balance at \$16,290.

7.2.9 Other Schemes

The other three schemes managed by the department are the Kopuaranga, Taueru and the Whangaehu. These schemes are relatively small and involve keeping the channel clear from obstructions and as such have no major assets to report on.

8. Communication

This report is written primarily for internal quality assurance purposes. The Asset Management Plan Performance Statements will be presented to the Scheme Advisory Committees for their information.

9. Recommendations

That the Committee:

1. **Receives the report.**
2. **Notes the content of the report.**

Report prepared by:



Jacky Cox
Engineer

Report approved by:



Jeff Evans
Team Leader,
Western Operations

Report approved by:

Mike Longworth
Team Leader,
Wairarapa Operations

Report approved by:



Graeme Campbell
Manager, Flood Protection

Report approved by:

Wayne O'Donnell
General Manager, Catchment
Management

Attachment 1: Stopbank condition performance measure

Attachment 2: 2009/10 Performance Statement for the LWVDS

Attachment 3: 2009/10 Performance Statement for the Waiohine - Mangatarere Scheme

Attachment 4: 2009/10 Performance Statement for the Waingawa River Scheme

Attachment 5: 2009/10 Performance Statement for the Mt Bruce Scheme

Attachment 6: 2009/10 Performance Statement for the Te Ore Ore Scheme

Attachment 7: 2009/10 Performance Statement for the Gladstone Scheme

Attachment 8: 2009/10 Performance Statement for the Waipoua Scheme