



Report **04.508**
Date 23 August 2004
File N/50/01/06

Committee **Landcare**
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Western Rivers asset monitoring report for 2003-04

1. Purpose

To report on the progress with implementation of the Western Rivers Asset Management Plan.

To report on the condition of Western Rivers infrastructure assets at 30 June 2004

2. Background

The Flood Protection Department is responsible for a variety of assets in the western part of the Wellington Region. These assets are located on the Hutt, Otaki, Waikanae and Wainuiomata Rivers and on the Porirua Stream and have a total value of \$62 million.

The community expects that their substantial investment in flood protection will continue to protect people from the consequences of flooding. Likewise, money spent on maintenance and improvements in the future will preserve or improve the assets ability to protect people. Asset Management Plans have been built around this premise and have adopted the principle of maintaining flood protection assets in perpetuity.

3. Asset management plan achievement to 03-04

The following key tasks for the 2003-04 year were completed:

- **Monitoring.** We completed the requirements of the monitoring programme as set out in the plans, and as summarised on the attached chart (Attachment 1). Former Flood Protection Manager, Brendan Paul was engaged to develop a “road map” for the Asset Management Plan. Brendan also produced a template for the annual asset report and worked with Jacky Cox to develop a set of field inspection sheets.
- **Earthquake Preparedness.** A scope of work was completed for engaging a suitable consultant to ascertain the vulnerability of the Hutt

River flood protection assets in a large earthquake, and what if anything can be done to minimise the risk of damage.

- **Other Work.** Other work of note included follow up investigations following the safety review of the Seton Nossiter detention dam, a bed level survey of the Hutt River, and aerial photography of Hutt, Wainuiomata, Porirua, Waikanae and Otaki Rivers.
- **Maintenance Work.** We completed nearly all the programmed maintenance work on the asset plan watercourses, as well as the considerable extra work generated by the February flood event
- **Peer Review.** Selected assets on the Otaki and Waikanae rivers were peer reviewed by rivers management staff from the Wairarapa. A copy of the full report is attached **Attachment 2**. The report summary is reproduced below:

Three sites in Waikanae scheme and four sites in Otaki scheme were inspected. These sites were randomly selected from the asset inspection sheets. Inspection of these sites is considered to provide a representative overview of scheme maintenance standards. Scheme inspection sheets, and maintenance checklists were also provided.

A new feature this year was the revised asset inspection sheets which provided a comprehensive coverage of asset maintenance inspection/observation and recording. The revised sheets were a significant improvement since they provided space for the recording of not only the observations but also the action decided. The information gathered under the newly introduced asset maintenance sheets would facilitate monitoring of asset maintenance. They provided details of the inspection date, the name of the inspecting officer and certification of action taken by the asset manager.

Significant progress had been made with the implementation of Floodplain Management Plan Capital Works in both Waikanae and Otaki rivers. Overall adequate resources are being applied to maintain scheme assets. The opinion of the review team is that the assets are being maintained to an adequate standard.

4. Performance measures

Performance measures for all five schemes with assets were assessed but comparison with base figures proved troublesome. Further work is required to improve the comparisons. The measures that were most reliable generally indicate improvements. For example, **Attachment 3** details the results of the stopbank maintenance assessment.

5. Asset condition summary at 30 June 2003

Most Western Rivers assets are in good condition despite the 15 February flood event. A steady programme of improvements over the last decade has seen many of the problem areas dealt with. However, it should be recognised that we manage some assets, particularly some older stopbanks, that have a

capacity below the desired standard. Lifting the level of service will happen through the programme of capital works. In the meantime a sound maintenance programme will ensure that these assets continue to function to their original build standard.

- 5.1 **In the Hutt River** scheme assets are generally in very good order. A regular annual programme of mowing, fertilising, patching and tree removal ensures that stopbanks and berms are kept in the required standard. Front line defences such as rocklines, debris fences, groynes, floodgates and other edge protection works are similarly maintained, with regular inspections and repair as required.

Nevertheless there are two areas of some concern on the Hutt. Namely the poor condition of some willow stands, and gravel management.

Many of the hybrid willows, have reached the end of their life. For some willows site conditions have limited both their growth and their effectiveness. The extent of this problem will be assessed in detail this coming year, and a strategy developed to replace the losses with types more suitable for the situation. In the meantime where the answer is obvious, work has already commenced on rejuvenation of affected areas.

Maintaining bed levels continues to be a key Hutt River management issue at present. Preliminary indications from the recent survey are that bed levels are continuing to rise in the lower reach and current extraction volumes may need to be increased to manage this. The reach above Maoribank bend is degrading, and is putting recent edge protection works at risk. Some form of bed control is probably required in this area to prevent loss of assets.

- 5.2 **The Otaki River** is probably the most difficult of the 5 watercourses to manage. It comprises a short steep catchment, and has large volumes of gravel. The challenge in the Otaki River is to manage the active channel within the preferred alignment by a combination of judicious gravel extraction, maintenance of edge works, and timely intervention with machinery when required

Year-end asset inspections have highlighted that some topping up of rock groynes is required and this will be a priority for 2004/05. The older Otaki stopbanks are being maintained to a “hold” standard until they can be upgraded through the capital works programme.

What is left of old Catchment Board bank edge bank edge works are gradually being replaced as they fail. The replacement is either through the maintenance programme or as planned capital works. Difficulties in getting adequate quantities in 2003/04 of good quality rock slowed the replacement work programme.

- 5.3 **In the Waikanae River** rock supply difficulties meant that, and some routine maintenance of rock groynes below Walnut Grove had to be postponed. However the alignment of the Waikanae River in this reach is being looked at carefully again as part of the Jim Cooke Park design. This will enable any

required minor adjustments to the groynes to be completed as part of the 2004/05 maintenance programme.

- 5.4 The Porirua Stream** scheme was completed in early 1990 and so the assets are relatively new, and in good condition. The main item of concern through this reach is the increasing accumulation of gravel in the CBD area which is beginning to affect flood levels. Some extraction was completed in 2002-03, and more will be required this year.

Work is continuing on maintenance items highlighted in recent dam inspections. The recent completed Seton Nossiter safety review has also highlighted technical safety issues. This issue is being worked through carefully as its resolution has potentially significant cost implications.

- 5.5 The Wainuiomata River** scheme is also relatively young at about 20 years old. The flood event of 15-16 February was estimated at 30 year return and severely damaged bank edges and willow lines. Considerable gravel settled out in places, and there were marked shifts in river alignment. In Leonard Wood Park the river left its former channel and badly damaged the berm area. All up repair costs are in the order of \$150,000 in comparison to the Rivers annual maintenance budget of \$17,000. Channel repairs were completed within six weeks of the flood. Re planting of the raw areas if now also complete. No damage was caused to stopbanks.

6. Capital works programme

The capital works programmes for Hutt, Otaki and Waikanae are set out in the relevant Floodplain Management Plans. Capital works raise the level of service of the protection schemes, and also create assets which must be cared for.

Progress with the implementation of the various capital works is the subject of a separate report to the Committee.

7. Asset management system improvements and tasks proposed for 2004-05

The following improvements to the asset management system are planned for this year.

- Where necessary, clarify the assessment of some of the performance measures. Where measures appear to be unworkable, either adjust them as required, or substitute with a more appropriate measure.
- Where possible, adjust our asset inspection routines so they tie in better with operational requirements.
- Evaluate the need to formally inspect all our assets every year. Some assets are unlikely to alter in condition over several years.
- Review the set out of inspection sheets. Present sheets are set out on a lineal basis representing their actual position. Inspection of assets may be better on a class basis.

- A major review of all the Asset Management Plans is scheduled for 2005/06. Work needs to start this year on identifying areas in the plans that require 'tweaking' so that any changes can be evaluated properly before being written into the plans.
- Complete the assessment of earthquake risk to Flood Protection assets.
- Asset Management training for staff.

8. Summary

The flood events of February this year and the follow up work that resulted, put considerable pressure on staff to complete existing work programmes. Nevertheless the normal year's maintenance programme was essentially completed as planned. Steady progress was also made in the implementation of the Asset Management Plans.

Overall the majority of assets are in good condition with little deferred maintenance. Year-end inspections did highlight a couple of areas that will need attention in the coming year, but at this stage, these items do not put the flood protection schemes at increased risk.

On the Hutt the considerable works put in place over the last 10 years are proving their worth with the reduction in damage from smaller flood events. Gravel management is one area for continued attention, as is the renewal of some willow stands.

Overall our maintenance programmes are now largely planned with a steadily reducing component of reactive work. The smaller floods are now causing less damage.

A key focus over the coming year will be to work towards the review of the plans next year. Operational staff will to be brought into the asset management system by involving them in the planning and implementation of any changes. The monitoring system will also work better as some flexibility is brought into the inspection routines, and the assessment of performance measures is refined.

9. Communication

This report is written primarily for internal quality assurance purposes. No particular communication initiatives are proposed.

10. Recommendations

That the Committee:

1. *receive the report*
2. *note the contents of the report*

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Attachment 1: Asset monitoring flowchart

Attachment 2: Wairarapa division peer review audit

Attachment 3: Stopbank maintenance performance measure