

Report To FERC December 2007

Flood Protection Asset Management Plans

1. Introduction

1.1 Purpose of the Asset Management Plan (AMP)

Greater Wellington Regional Council (GWRC) owns or maintains assets in the region on behalf of the people of Wellington. Legislation requires that the GWRC manage these assets in an effective manner.

This AMP details the Flood Protection Group's asset management principles that include:

- Maintenance
- Capital River Works
- Funding.

1.2 Objectives of the AMP

In accordance with Audit NZ criteria the objectives of this AMP are to:

- Deliver the existing or desired levels of service
- Ensure assets are maintained in perpetuity without loss of service potential
- Ensure that assets are managed and maintained in the most cost-effective way over their life cycle.

Financial, engineering and environmental management tools are used to ensure cost effective, and measurable levels of service are provided to the regional community. The direct benefits of sound asset management are:

- The level of service required by the community is ensured
- The cost of owning assets is minimised over their lives (lifecycle costs)
- The risk of asset failure is minimised (risk management)
- Decisions to add to, or replace, components are optimised
- There is improved accountability over the use of public resources.

1.3 Duration and review of the AMP

The AMP provides a management strategy for its river assets including financial forecasts for ten years. The AMP is reviewed three yearly in order to:

- Identify the adequacy of maintenance activities.
- Identify any issues arising from the 'Capital Works Programme' and funding.
- Confirm that Asset Management principles and management strategies are adequate.

2. Levels of Service and Related Performance Measures

2.1 Introduction to Levels of Service

Floodplain Management Plans identify the existing level of service the community receives and records the desired level of service.

Levels of service are described as the assets ability to withstand a flood event having a particular capacity or return period. This depends on the level of flood protection provided and the systems ability to withstand erosion during flooding.

Since flood events occur rarely, performance measures need to be established so as to determine the assets ability to provide the level of service required.

The generic levels of service and associated performance measures are described in the balance of this section

2.2 Definition of Levels of Service

Four categories of level of service are used with each one being assigned relevant performance measures. They are:

- Flood warning
- Flood protection
- Erosion
- Environmental enhancements.

3. Key Asset Management Principles

3.1 Introduction to Asset Management Principles

Asset Management principles are applied to maintenance, financial and monitoring practices undertaken by Flood Protection. They are:

Practice	Principles
Maintenance	Maintain all flood protection assets in perpetuity
Financial	<p>The value of an asset being maintained in perpetuity will:</p> <ol style="list-style-type: none"> 1. Reduce should part, or all, of the asset be removed, because of flood damage (“write down”). 2. Increase through the replacement of flood damaged assets following a write down, or through the creation of new assets. 3. Adjust as the holding cost of the asset fluctuates through a change in replacement cost values. <p>Cost from zero based management principles.</p>
Monitoring	<p>Comprehensively monitor the river systems to show:</p> <ol style="list-style-type: none"> 1. Assets are maintained efficiently in perpetuity. 2. Assets are capable of delivering the level of service they were designed for.

Council's intent is that the priority for applying allocated funds is to:

- 1st Maintain the assets it owns in perpetuity.
- 2nd Improve levels of service within prudent levels of debt.

3.2 Self Insurance (Risk Management)

It is not economic to commercially insure many of the assets in this AMP. Instead GWRC provides the following long term self insurance strategy:

- Budget work to provide for ongoing infrastructural asset maintenance with the goal of maintaining the assets to meet the desired performance measures.
- Budget works to, wherever practical, protect infrastructural assets from potential loss.
- Commit to studies related to damage from disaster, such as earthquake, where appropriate. These will be discussed more closely in the river specific AMPs.
- Annual review of the infrastructural assets to set the next year's maintenance and protection works priorities and budgets.
- Assessing the reinstatement risk profiles to determine the resources required to meet flood damages.
- Annually contributing to an investment fund related to major flood protection recovery work.
- Monitoring the ability of GWRC to access committed funding in case of a major flood event that exceeds a 25-year return period event.

The above strategy creates a sustainable programme and places the control and management with GWRC.

3.3 Risk Management in more detail

Flood protection has a long-term risk management regime that requires annual attendance to maintenance of the assets to meet the required level of service as recorded in AMP.

Where GWRC cannot eliminate the hazards resulting from major risks the following AMP processes are adopted.

a) Flood Damage

The risk to assets that are maintained by the Flood Protection Group is the loss or damage of assets caused by flood event. Flood events having a return period of up to 25 years may cause some damage with the repair being accommodated within Council's annual maintenance budgets combined with top up funding available from the Flood Contingency Reserve (FCR).

Flood events having a return period greater than 25 years may cause considerable damage with funding for the repair being provided from the Major Flood Protection Recovery Fund (MFPRF).

b) Gravel Management

Five-yearly cross-section surveys form an integral part of analysing the capacity of a river channel (as well as the surrounding floodplain). The surveys also provide the means to monitor gravel bed movement for gravel extraction and general river management purposes. A schedule of dates and checklists for these surveys are included in Volume 7.

The Council is subjected to the risk of additional costs to remove gravel build-ups resulting from large flood events. In most cases, gravel extraction is self-funding where royalties are paid for the gravel. Gravel can be of low quality and therefore costs may be incurred to effect removal, which have not been budgeted for. These costs can generally be accommodated from within approved maintenance budgets.

c) Biosecurity

The river environment is subjected to possible biosecurity hazards:

- Willow saw tooth fly.
- Willow blight.
- Noxious plants, principally, old-mans-beard, wild ginger, wandering Jew.
- Aquatic weeds.
- Rabbits, and opossum.

These hazards are currently managed within existing maintenance budgets, usually through the physical removal of the offending plant or hazard, and will remain so unless conditions change that lead to proliferation of any of these weeds, pests or diseases.

d) Earthquake

Several studies have been undertaken to determine the consequences of a major earthquake on flood protection assets in the region. A key outcome of one piece of work was that a major fault movement may cause subduction of parts of some floodplains. This may in turn require rising of stopbanks following such an earthquake. The probability of an earthquake that would cause this damage is 1 in 600 years.

There is no provision at present in Council budgets to respond to major earthquake damage to flood protection assets. One option for Council is to establish an Earthquake Repair Reserve similar to the two flood contingency reserves.