

# **Waikato River Catchment Services**

## **“Project Watershed”**

### **Level of Service & Funding Policy**

**(June 2002)**

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# Glossary

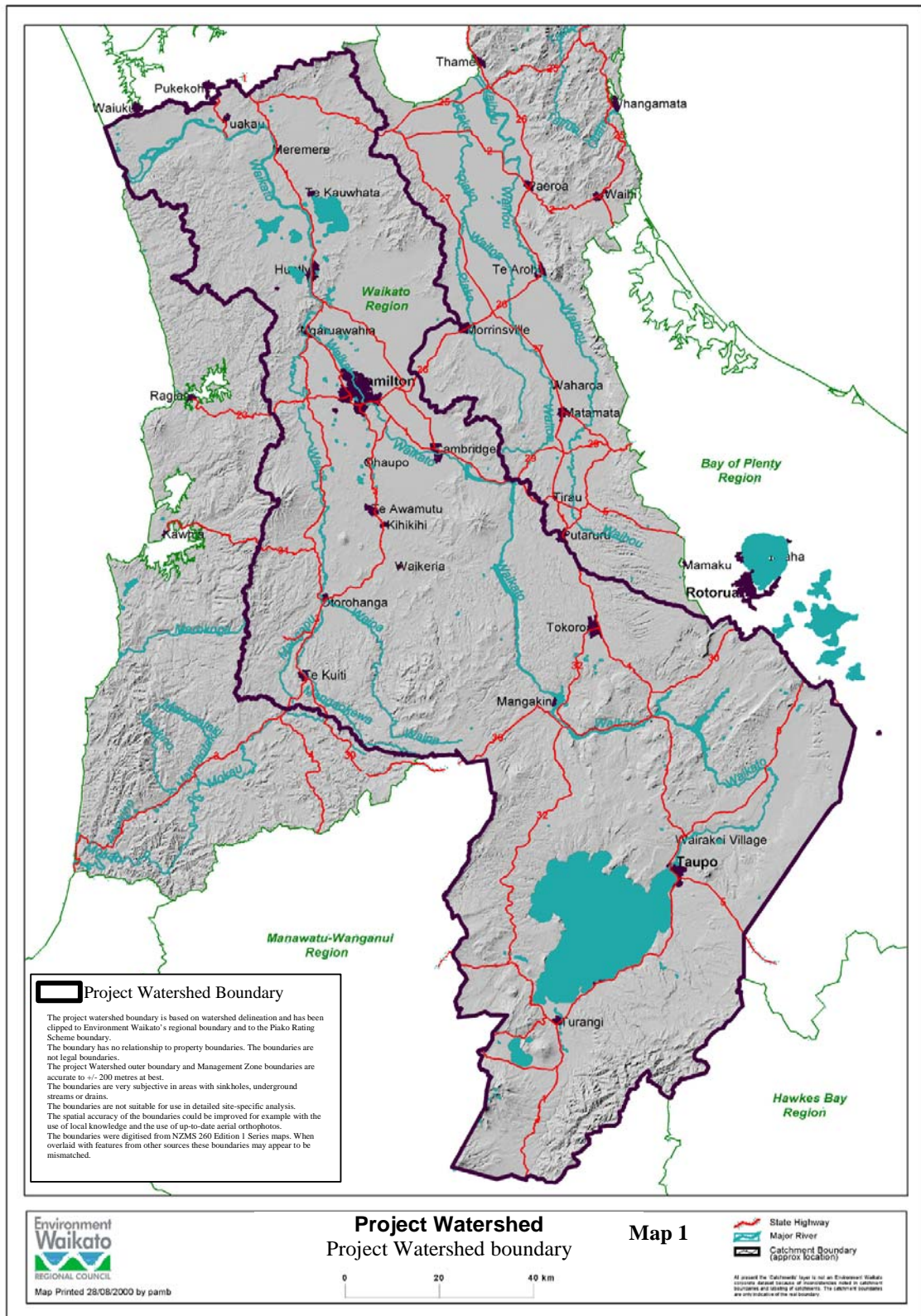
<b>Project Watershed</b>	The Waikato River Catchment Services Project.
<b>Greater Waikato Catchment</b>	Includes the Waikato, and Waipa River systems and their tributaries.
<b>Administration</b>	The overhead to the Project including the cost of collecting the rates and administering the budget through Council processes. This is estimated to be 10 percent of project costs.
<b>Alleviator</b>	Landowner or resource user whose property characteristics or effects of resource use (including land use) reduce the need for specific works and services.
<b>Asset Management Plans</b>	Documents that describe how assets within a scheme will be managed, maintained and funded.
<b>Beneficiary</b>	Landowner or resource user that receives benefit, either directly or indirectly, from specific works and services undertaken by EW.
<b>Bio-diversity</b>	Means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes the diversity within species, between species, and of the ecosystems in which they live.
<b>Catchment</b>	The area of land that drains into a stream or river. Often referred to as the 'watershed'.
<b>Catchment Differential</b>	A component of the rate levied on properties located within greater Waikato catchment.
<b>Channels</b>	Natural streams and rivers or constructed drains which convey water.
<b>Civil Emergency</b>	A situation that causes or may cause loss of life or injury or distress or in any way endanger the public - that must be dealt with by emergency services.
<b>Conservation fencing</b>	Fencing erected to achieve stock control or erosion control aimed at protecting water quality.
<b>Contributor</b>	Landowner or resource user whose property characteristics or effects of resource use (including land use) contribute to the need for EW to carry out specific works and services.
<b>Contributor Differential</b>	A component of the rate levied on landowners or resource users who are deemed to be Contributors.
<b>Co-ordinated River Management</b>	A term used in draft versions of the Funding Policy document and some supporting documents. It has been renamed 'routine river management'. Routine river management is defined in this glossary.

<b>Comprehensive River Improvement</b>	A term used in draft versions of the Funding Policy document and some supporting documents. It has been renamed 'river improvement'. River improvement is defined in this glossary.
<b>Costs (Direct)</b>	Consist of actual works costs i.e. materials (fencing, plants) and labour to undertake that work.
<b>Costs (Indirect)</b>	Costs of those activities (usually Environment Waikato staff time) associated with support to landowners for planning, oversight and supervision of works programmes.
<b>Culverts</b>	A pipe designed to convey water beneath a road, stopbank or other feature.
<b>Cumecs</b>	A measure of the volume of flow of water – cubic metres per second.
<b>Digital Cadastral Database (DCDB)</b>	Electronic drawings of property boundaries of land parcels. This is maintained by LINZ (Land Information New Zealand) and sold to the Council by Terralink (another State Owned Enterprise responsible for marketing LINZ information).
<b>Depreciation</b>	A measure of the consumption of economic benefits embodied in an asset whether arising from use, the passing of time or obsolescence.
<b>Detention Dams</b>	A dam designed to store floodwater until the flood has passed.
<b>Differential Rating</b>	A rating system whereby different levels of rating are applied to different areas of land based on the degree of benefit received from services.
<b>Drainage</b>	Involves the management and maintenance of artificial and modified watercourses so as to reduce surface flooding and control the level of the water table. Such management will provide production benefits to surrounding land.
<b>Drainage areas</b>	A specific area of land covered by a community drainage scheme and subject to a special rate.
<b>Easement</b>	Legal right of access.
<b>Event</b>	A flood or other natural event that has the potential to cause damage or harm.
<b>Erosion control</b>	Measures to reduce soil erosion including structures, planting, and stock and farm management practice.
<b>Faecal coliforms</b>	Types of bacteria from animal waste found in water.
<b>Fencing Act</b>	The legislation that defines responsibilities in regard to fencing of legal boundaries etc.
<b>Floodgates</b>	A structure to control the flow of floodwater.

<b>Flood Protection</b>	Measures to reduce both the incidence and duration of flooding through the construction of stop banks and associated structures, including flood gates and pumping stations. Such measures are designed to protect and enhance the productive potential of land and to minimise the impacts on people and property.
<b>Funding Policy</b>	The method and policy by which certain things will be funded.
<b>Groynes</b>	A structure in a river designed to protect against bank erosion and river training works designed to narrow the main channel to create higher velocity to keep the channel self cleaning of sand.
<b>Hydrology</b>	Measurement of precipitation originating as monthly rainfall and river flows as they flow through a particular catchment.
<b>Land Improvement Agreement</b>	An agreement with landowners undertaking soil conservation works. EW imposes certain obligations on the landowners in return for assistance.
<b>Land parcel</b>	An area of land for which there is a separate legal title.
<b>Liaison Subcommittees</b>	Subcommittees comprising local representative including property owners, district councillors, major stakeholders, Department of Conservation etc who provide community input on schemes.
<b>Land Use Capability Assessment</b>	A mapping system used in New Zealand which identifies the productive capability of land, and its erosion potential.
<b>Main Channel Works</b>	A variety of works designed to keep the channel of the Waikato River clear of obstructions, at a regular width and stable. Works may include willow planting, fencing, placing groynes in the channel and removing obstructions from the channel.
<b>Maintenance</b>	Repairs to conservation fencing and structures, management of plantings, repairs to stopbanks and pump stations in order to ensure the effectiveness of these protection assets.
<b>Management Zone</b>	An area based upon; catchments and sub-catchments, existing 'schemes' and communities of interest. (Lake Taupo, Upper Waikato, Middle Waikato, Waipa and Lower Waikato).
<b>Pump Stations</b>	A structure designed to pump floodwater from behind stopbanks.
<b>QEII Covenant</b>	An agreement between a property owner and QEII Trust over the reservation of a block of land. This is formalised by way of a covenant on title.
<b>Regional Rate</b>	The rate applied to all ratepayers in the Region to fund the general activities of councils.
<b>Riparian Zone</b>	That zone in the immediate vicinity of a river or stream including the riverbanks.

<b>Riparian Management</b>	Management of a strip of land, usually of varying width, adjacent to a waterway and which contributes, or may contribute, to the maintenance and enhancement of the natural functioning, quality and character of the waterway and its margin.
<b>River Management</b>	Involves works and services in relation to rivers to achieve stability, management of flows and integration of a range of activities. There are two major categories of river management – routine river maintenance and river improvement. These are defined below.
<b>Routine river maintenance</b>	A type of river management involving provision for an annual and ongoing programme of low level river management activity including annual river inspections, removal of obstructions, vegetative management and minor erosion control works. Much of the work will be undertaken by property owners.
<b>River Improvement</b>	A type of river management providing for more substantial capital works (usually over a timeframe of 2 - 5 years) including willow clearing over a significant length of channel, channel enlargements or major erosion control structures
<b>Scheme</b>	A specific area of works or services related to flood protection and soil conservation. Established from 1960s onwards. Including: Lower Waikato Waipa Control Scheme, Karapiro/Arapuni Catchment Control Scheme, Waitomo CCS, Paeroa range CCS, Reporoa CCS and Lake Taupo CCS.
<b>Soil Conservation</b>	The management of land to minimise soil erosion to maintain soil and water resources, and provide sustainable benefits in the long term
<b>Soil type</b>	A description of a particular soil found in a particular locality.
<b>Stabilisation</b>	Measures to reduce or control instability of land or to control natural systems such as rivers.
<b>Static Unique Feature Identifier (SUFI)</b>	A unique identity code for a land parcel in the DCDB (Digital Cadastral Database).
<b>Suspended Solids</b>	Organic soil and other mineral material carried by water in suspension.
<b>Tributaries</b>	A smaller of two joined streams or rivers.
<b>Turbidity</b>	Cloudiness of water dependent on the amount of suspended solids.
<b>Utilities</b>	Services such as roads, electricity, gas and telecommunications.

<b>Valuation Database</b>	A database of property information (value, area, owner) used for rating purposes. Originally managed by Valuation New Zealand. Since 1 June 1999 the responsibility for this information has been devolved to the territorial local authorities. A valuation property is not always the same as a DCDB property. Adjacent pieces of land with the same owner will be bundled together for the valuation records. Property details are identified by a valuation identifier.
<b>Valuation Identifier</b>	There is not a one-to-one match with SUFIs. The valuation database also includes land use codes. These advise what the valuer thought the land might be useful for, or is zoned for, when the property record was first created. It does not indicate what the land is actually used for.
<b>Waterway</b>	A river or stream generally more than one metre wide including perennially flowing streams and gullies as well as water channels that may only carry water from time to time. For the purposes of Project Watershed all rivers and streams identified initially were observable on 1:50000 topographical maps. No minimum size criteria was set for inclusion in the Project.
<b>Weirs</b>	A structure placed in a river to control water levels – like a small dam.
<b>Works and Services Rate</b>	A separate rate applied to a specific area for a specific purpose, as distinct from the general rate.
<b>Zone Differential</b>	A component of the rate levied on properties located within a particular management zone.
<b>1-10, 1-20, 1-100</b>	A measure of the likelihood of an event occurring, expressed as the average recurrence interval between events.



**Map 1: Project Watershed Boundary**

# 1 Summary

Project Watershed addresses the issues of flood protection, soil conservation and river management in the greater Waikato River catchment. The catchment includes the Waikato and Waipa rivers as well as smaller rivers, such as the Whangamarino, Maramarua and Mangawara. Project Watershed incorporates the existing Lower Waikato-Waipā Control Scheme, the Lake Taupo, Reporoa, Paeroa Range, Waitomo and Karapiro/Arapuni Catchment Control Schemes, as well as 'local' flood protection works currently managed and funded by territorial local authorities.

Feedback received during the consultation process indicated that the objectives of Project Watershed required to be more fully explained. Through Project Watershed Environment Waikato sought to:

- Prevent deterioration of flood protection assets so as to avoid loss of land productivity and a reduced level of flood protection for rural and urban properties.
- Ensure, within the limits of efficiency and fairness, that rating for flood protection within the Waikato/Waipā river catchment recognises all beneficiaries and all those whose actions or inactions contribute to the need for expenditure on flood protection systems.
- Maximise the effectiveness and efficiency of water quality, soil conservation, flood control and land drainage activities within the Waikato and Waipā River catchments, and minimise inefficiencies caused by inappropriate actions or inaction. With respect to water quality, Project Watershed's primary objective is management of sediment. However some protection activities, such as riparian fencing to exclude stock from waterways, will also reduce pathogens in water bodies.
- Provide a consistent framework for landowners and communities to be protected from flood damage in the flood plains of the major rivers, to a cost-effective standard agreed with the affected communities of the Waikato/Waipā catchment.
- Achieve and maintain stable river and stream channels and banks within the Project Watershed catchment, and ensure that inappropriate drainage or tributary management activities do not compromise scheme standards.
- Ensure effective control of accelerated erosion within the Project Watershed catchment.
- Ensure that where there are significant contributors and beneficiaries elsewhere in the catchment, Project Watershed activity is not hindered by an inequitable financial burden on individual landowners.

The Region covered by Project Watershed is geographically diverse (See map 1, previous page). It is made up of a range of different soil types and has some unique features, including large wetlands, large man-made dams, lakes and peat lakes. What happens in one area of the catchment can directly affect what happens in another. For example, soil erosion issues in the Waipā catchment can contribute to sedimentation in the Waikato River and flooding in the Lower Waikato.

At the beginning of the Project we estimated a current funding deficit of \$1.3m per year and that Government funding was at risk. After two years of consultation this figure has remained approximately the same. Environment Waikato has been seeking a long-term, sustainable and equitable process to fund maintenance of existing assets, and also to fund new work required by the community. Formal work on this project began in

1999. It involved seeking solutions to issues through a **'whole of catchment'** approach, rather than, managing specific parts of the wider catchment as smaller, independent management zones. Project Watershed is a significant project for Environment Waikato. It sits under the general framework of Council's Strategic Plan along with a number of other significant projects, such as the Taupo Water Quality Project and Riparian Management strategy (Clean Streams). This is illustrated in Appendix 2.

It is expected that rating levels indicated in this document would remain relatively constant over the next five years, unless a major disaster occurs or there are substantial increases in the rate of inflation.

Changes to the programmes and Funding Policy outlined in this document will be subject to Council processes, which will ensure that consultation occurs.

Existing assets will be reviewed through regular Asset Management Plan reviews.

A comprehensive analysis and justification, including a site-specific review of funding policy, will be prepared for significant new works. These will be presented to the community for consideration, to liaison subcommittees for recommendation and to Council for approval.

Other less significant new works will be presented to the relevant liaison subcommittees and Council annually for consideration within the project budget constraints.

Project Watershed's funding policy development has been guided by two key pieces of funding legislation - the Local Government Act 1974 Part VIIa (as amended by the Local Government Amendment Act 1996 (LGAA)) and the Rating Powers Act 1988 (RPA). Under this legislation, Environment Waikato is obliged to consider who benefits (both directly and indirectly) from the work to be undertaken, as well as who contributes to the need for such work.

The Funding Policy has been developed through consultation with the community. It is markedly different to the original proposals put out for comment in 2000. In particular, the soil conservation element reflects the feedback received from the community about the degree and the timing of works, while the flood protection and river management component has increased in response to requests for new works.

Environment Waikato has involved a number of technical experts to assist in the development of this Funding Policy. In addition, it has worked closely with representatives from throughout the greater Waikato catchment via formal liaison subcommittees – each representative of a specific geographical area of the wider catchment; and termed a management zone. It has also consulted with significant stakeholders such as territorial authorities, farmer representatives, drainage boards and key concerned interests. Community input was invited through a broad consultation programme. Participation was invited via circulars to households, regular press releases and a comprehensive advertising campaign during the formal consultation phase.

The programme approved by Council has changed significantly as a result of consultation. Originally four programme options were proposed ranging from \$3.1m per year for existing Environment Waikato services to \$6.4m per year for a full proposal. The option suggested by Environment Waikato was valued at \$6.2m per year. A programme valued at \$5.8m per year was eventually included in the draft consultation document and the programme finally approved by Council amounts to \$5.5m per year. The adopted programme includes approximately \$1.2m of works previously funded by other agencies.



Project Watershed is concerned with three things. **River management** involves active involvement in river processes to ensure rivers and streams are stable and flow appropriately. Work proposed under Project Watershed includes some routine river maintenance works across all rivers and streams, as well as more major river improvement initiatives in targeted locations.

**Soil conservation** is the management of land to maintain soil and water resources, and provide the widest range of sustainable benefits in the long term. Soil conservation proposals have caused considerable debate during the consultation process. Environment Waikato has considerably reduced the proposed erosion control programme in the Middle Waikato, Waipa and Lower Waikato management zones. Environment Waikato has however, increased the programme for both the Middle Waikato and Lower Waikato management zones as the programme recommended by the liaison subcommittees was considered insufficient to meet even the highest priority needs of the zones.

Council has developed a complementary but distinct riparian strategy to address non-point-source discharge pollution via surface runoff and ground water. Further discussion of the relationship between Project Watershed and the Riparian strategy (Clean Streams) can be found in Appendix 1 of this document.

**Flood protection** is that work which protects land and assets from natural flood events. The majority of the flood protection work considered under Project Watershed is in the Lower Waikato management zone, however there are also significant works proposed for the Tauranga – Taupo and Tongariro rivers as well as in the Otorohanga area.

#### **Overall**

To maintain all existing schemes and protection works across the whole catchment and to undertake recommended additional works, the programme is estimated at \$5.5m per year for the next five years. This assumes no major disasters or substantial increases in inflation.

A number of funding mechanisms have been considered during the development of the Funding Policy for Project Watershed. These include general (regional) rate; the greater Waikato catchment, management zone and contributor differentials; direct benefit differentials; and direct charges.

Council also considered whether rates should be collected by land area, land value, capital value, direct charges, or through contractual agreements. Its decisions are set out in Appendix 6 of this document and detailed as Funding Policy in section 16.

The effect for the average ratepayer not within a direct flood zone is around \$10 - \$15 per \$100,000 capital value, although this will depend on the land value of the property. A table of rates by management zone is shown in section 18.2.



## 2 Introduction

### 2.1 Project Watershed

The Waikato River Catchment Services Project began in 1999. It was branded 'Project Watershed' for ease of community recognition. It addresses the issues of flood protection, soil conservation and river management in the greater Waikato catchment. The greater Waikato catchment includes the Waikato and Waipa rivers as well as smaller rivers and streams such as the Maramarua and Mangawara, and Tongariro. Project Watershed incorporates the existing Lower Waikato-Waipā Control Scheme, the Lake Taupo, Reporoa, Paeroa Range, Waitomo and Karapiro/Arapuni Catchment Control Schemes, as well as 'local' flood protection works currently managed and funded by territorial authorities.

Environment Waikato initiated Project Watershed to work with the community to identify what type and level of flood protection, soil conservation and river management services required and to identify fair, equitable and sustainable ways to pay for those services.

Maintaining all existing schemes and protection works across the catchment requires approximately \$4.5m per annum. There is currently an estimated shortfall of \$1.3m per year for the maintenance of existing assets. The historical funding available has been insufficient to meet the asset management plan requirements, which set out the performance standards required of the schemes. The shortfall has been compounded by the potential withdrawal of Government funding (approximately \$180,000) and diminishing royalties from sand mining.

The Region covered by Project Watershed is geographically diverse. It is made up of a range of different soil types and has some unique features, including large wetlands and peat lakes. What happens in one area of the catchment can directly affect what happens in another. For example, soil erosion issues in the Waipa catchment can contribute to sedimentation in the Waikato River and flooding in the Lower Waikato.

Project Watershed looks at the catchment as a whole. It aims to develop a fair, equitable and sustainable way to pay for essential services catchment-wide. While the needs of local communities are taken into account, those needs must be weighed up against the requirements of other areas.

In particular, Project Watershed formally recognises that the ultimate responsibility for the management of flood protection rests with Environment Waikato, rather than the territorial authorities. Accordingly the 'local' flood protection assets are included in Project Watershed to ensure that they are managed in the context of the overall catchment and that the works are funded appropriately. In some cases, for economic reasons, the responsibility for the day-to-day management of the assets and associated funding may remain with the territorial local authority.

<b>Project Watershed – Basic Statistics</b>		
Total Catchment Area (Including Water Bodies)		1,434,605 hectares
Total Rateable Area Land Area		1,053,200 hectares
Approximate total number of rateable assessments		114,650
<b>Total Land Value as at 31<sup>st</sup> May 2002</b>		\$13,508,928,546
<b>Total Capital Value as at 31<sup>st</sup> May 2002</b>		\$25,158,835,570
<b>Population</b> (based on 2001 census):		
City – Hamilton	42 percent	114,318
Towns – Taupo, Tokoroa, Putaruru, Te Kuiti, Otorohanga, Cambridge, Te Awamutu, Ngaruawahia, Huntly, Tuakau	29 percent	79,779
Small townships and rural	29 percent	80,430
<b>Total</b>	<b>100 percent</b>	<b>274,527</b>

## 2.2 Project Issues

Project Watershed is Council's response to a complex set of issues that arises from the diversity of the catchment. The issues Project Watershed addresses are summarised below:

1. The historic system for financing flood protection systems in the Waikato/Waipā catchment is unable to fund maintenance into the future, due to:
  - the variability and inadequacy of the present rating system
  - the need to fund depreciation
  - the potential withdrawal of Government assistance, and
  - the accumulation of operating debts.

Without an adequate funding system, existing catchment and flood control scheme assets and associated land drainage systems will deteriorate. This in turn will cause land productivity to decrease, increase flooding of rural and urban areas, and lead to a drop in land values.

2. Current legislation requires recognition of wider beneficiaries and contributors to the need for work, other than the historically recognised landowners who directly benefit.

The lower Waikato flood plain is affected by the past actions of land owners, and power generators and their continued use and operation. The effects of these influences are to increase the height and severity of flood waters and reduce the length of flood peaks. This affects downstream rivers and channels and necessitates higher flood banks, with higher drainage pumping costs to landowners and affected urban centres within the Waipā and lower Waikato flood plains.

While some of these effects were historically recognised in separate funding agreements with Government, these agreements may lapse mid 2003. These historic contributions need to be reassessed and captured in a new rating system

which maintains equity.

Pastoral farming increases the speed and severity of runoff. This effect has not been recognised in the historic rating system - an inequity that current legislation requires Environment Waikato to consider in any new rating system.

Major urban areas also increase the speed and severity of runoff, with similar effects to the increase of runoff from pastoral land use. While the percentage of the catchment covered in urban development is small compared to that covered in pastoral development, the intensity of urban runoff is significant.

3. Management of soil conservation, flood control, land drainage and water quality are strongly interrelated activities. When activities in one part of the catchment are managed in ways that are incompatible with activities in other parts of the catchment, inequities and inefficiencies are created.

The historic inconsistencies in creating flood management works and other flood management provisions have resulted in a wide range of standards of protection throughout the catchment. In a number of areas, the present levels of protection are not sufficient for present and future needs and additional protection has been requested. For example, residents in parts of Turangi and Tauranga – Taupo are threatened by flooding, but there is currently no suitable funding mechanism in place to meet the cost of protection.

4. Flood protection systems create an opportunity for improved land drainage, and therefore a need for either gravity or pumped outlets as part of the protection works. Inappropriate development or management of land drainage systems can compromise the effectiveness of flood bank systems and flood outlets.
5. The success of the Lower Waikato flood protection system depends in part on maintenance of the riverbed below natural levels. Uncontrolled erosion within the larger catchment threatens the integrity of the system over time.
6. Accelerated erosion affects both local landowners and the downstream river system. Significant areas of the steeper upper catchments of the Waikato and Waipa rivers are vulnerable to erosion. These areas include pumice sands of the Taupo and Upper Waikato, the headwaters and ranges of the Waipa River, and hill ranges of the Lower Waikato.

Landowners in these areas are affected by loss of soil and erosion or damage on their properties. This erosion also puts sediment and debris into local streams, and into downstream rivers and lakes. This increased sediment and debris (including silt, sand, rocks, trees and other debris) can silt up channels downstream, and cause further erosion, instability and damage to streams and rivers. It also lowers water quality, and affects fish and in-stream values

Accelerated erosion is the result a complex set of factors, not all of which can be fairly laid at the door of the site landowner. Erosion low in any catchment, for instance, is exacerbated by the cumulated runoff from land higher in the catchment, which in turn is exacerbated by land use in the upper catchment. The beneficial effects of reducing river and stream sediment almost inevitably spread to landowners and communities downstream. Erosion control on the banks of unstable major rivers and streams can be very expensive and often beyond the resources of individual landowners.

7. Increased community recognition of the value of our rivers and streams requires that greater attention be given to water quality issues, including sedimentation.

8. Effective and efficient management of river and stream morphology is not occurring in many instances, due to fragmented and inconsistent efforts being made by individual landowners.
9. Effective management of rivers and streams through the Waikato catchment requires greater integration and coordination.

## **2.3 Objectives and Management Directions**

Feedback received during the consultation process indicated that the objectives of Project Watershed required to be more fully explained. A revised set of objectives which respond to the issues discussed in section 2.2 is provided below.

### **2.3.1 Objectives**

Through Project Watershed Environment Waikato sought to:

1. Prevent deterioration of flood protection assets so as to avoid loss of land productivity and a reduced level of flood protection for rural and urban properties.
2. Ensure, within the limits of efficiency and fairness, that rating for flood protection within the Waikato/Waipā river catchment recognises all beneficiaries and all those whose actions or inactions contribute to the need for expenditure on flood protection systems.
3. Maximise the effectiveness and efficiency of water quality, soil conservation, flood control and land drainage activities within the Waikato and Waipā River catchments, and minimise inefficiencies caused by inappropriate actions or inaction. With respect to water quality, Project Watershed's primary objective is management of sediment. However some protection activities, such as riparian fencing to exclude stock from waterways, will also reduce pathogens in water bodies.
4. Provide a consistent framework for landowners and communities to be protected from flood damage in the flood plains of the major rivers, to a cost-effective standard agreed with the affected communities of the Waikato/Waipā catchment.
5. Achieve and maintain stable river and stream channels and banks within the Project Watershed catchment, and ensure that inappropriate drainage or tributary management activities do not compromise scheme standards.
6. Ensure effective control of accelerated erosion within the Project Watershed catchment.
7. Ensure that where there are significant contributors and beneficiaries elsewhere in the catchment, Project Watershed activity is not hindered by an inequitable financial burden on individual landowners.

### **2.3.2 Management Directions**

To ensure that these objectives are achieved the following management actions have been or will be required:

1. Create a funding system for the Waikato/Waipā flood protection systems which
  - repays current scheme debts
  - provides for maintenance of the scheme assets
  - creates appropriate reserves for flood damage repair

- fits the present legislative rating and funding mechanisms and requirements, and
  - recognises an equitable and fair balance of benefits from the scheme, and from contributions for the need for the scheme.
2. Provides a rating system for flood protection within the Waikato/Waipā river catchments that recognises the contributors to the need for the expenditure from past and ongoing actions or inactions of landowners and power generators.
  3. Recognise, within the limits of efficiency and effectiveness, the contribution of upslope and upstream land use on the ability of landowners with accelerated erosion sites to manage erosion sites on their land.

Recognise, within the limits of efficiency and effectiveness, the benefits to downstream landowners and communities from reduction in sedimentation derived from accelerated erosion sites within the catchment.

4. Ensure that the development and management of land drainage systems behind and adjacent to flood banks is compatible with the design and capabilities of the structures and associated gravity outlets or pumps, and vice versa.
5. Carry out programmes of stream and riverbank erosion control works and other measures to minimise accelerated erosion
6. Identify and implement projects, with the collaboration of site landowners and communities, which will create stable and streambeds, channels and banks throughout the Project Watershed catchment.
7. Ensure that the combined effect of reducing accelerated erosion at source and sand dredging assists the intent of the Main Channel Works in maintaining a stable profile of the lower Waikato River.
8. Take a catchment oversight of activities affecting river and streambank erosion.
9. Co-ordinate and oversee management of river and streambank and bed works with a view to maximising the benefits of changes to land use practices and in-stream works undertaken.
10. Manage water quality, soil conservation, flood control and land drainage activities within the Waikato and Waipā river catchments on a whole-of-catchment basis.

## 2.4 Tangata Whenua Interests

Iwi interests are acknowledged in this project. In particular it is acknowledged that Tuwharetoa, Raukawa, Waikato and Maniapoto iwi are key stakeholders in matters relating to the rivers in the catchment. These interests relate to the relationship of Maori, their culture and traditions with ancestral land, water, Waahi tapu sites, valued flora and fauna and other Taonga.

During the consultation phase of Project Watershed a number of iwi groups submitted a concern that the Treaty interests of Maori may be prejudiced by rating systems and works within the catchment.

Council considers that nothing in the Waikato River Catchment Services programme and Funding Policy should prejudice iwi claims with the Crown regarding the river, its beds, its riverbanks, surrounding lands and tributaries.

Iwi representatives served on the liaison subcommittees during the informal consultation process. To facilitate ongoing consultation issues with iwi, Council has resolved to invite iwi representatives to form a Project Watershed Advisory Committee.

## 2.5 Asset Management Plans

Over the years, more than \$100m of public money has been invested in the construction of community assets for the schemes included within Project Watershed. These assets need to be well managed and maintained, and provision must be made for their future reconstruction and replacement.

Asset Management Plans have been prepared for the schemes managed by Environment Waikato, and these have been adopted by Council. They provide the framework for maintaining the assets, specifying time frames for their refurbishment and eventual replacement, and identifying the sources and amount of funding required. Within Project Watershed there is also provision for carrying out new projects. These include river and land work projects supported by the community which require environmental or hazard protection intervention (e.g. erosion control and riparian enhancement).

While some asset plans have undergone an initial three yearly review, Council's Strategic Plan provides for five yearly reviews of asset plans.

Project Watershed provides the opportunity to rationalise the number of asset plans, and to incorporate the range of activities (soil conservation, river management and flood protection) into a single asset plan for each management zone. As a result of this, the proposed review cycle for asset plans is likely to be reassessed. Asset plans covering new capital work undertaken under Project Watershed will be prepared as those works progress. Project Watershed will also provide an overall funding mechanism across the greater Waikato catchment, compared to the range of funding arrangements applying under existing asset plans.

A table showing the adoption date of Environment Waikato Asset Management Plans is shown below.

Scheme	Management Zone	Adoption Date
Lake Taupo Catchment Control Scheme	Lake Taupo	May 1998
Paeroa Range CCS	Upper Waikato	September 1997
Whakamaru CCS	Upper Waikato	June 2000
Reporoa CCS	Upper Waikato	September 1997
Karapiro/Arapuni CCS	Middle Waikato	May 1998
Upper Waipa Catchment Management strategy	Waipa	June 2000
Waitomo CCS	Waipa	April 1998
Lower Waipa Waikato Control Scheme	Lower Waikato, Waipa	June 1997

## 2.6 Costs Including Capital Expenditure

The LGAA emphasises that the allocation of costs, for the purposes of preparing a funding policy, must match the benefits derived. The process of allocating cost in accordance with benefits derived is the foundation and fundamental driving mechanism



from which funding policy can be developed. There is a requirement to recognise where the costs originate from and there is a need for transparency in the links between costs allocated and expenditure needs to which those costs relate. In complying with the requirements of LGAA, Council is required to do so in such manner and include such detail as considered reasonable having regard to the significance of the matter, the cost and difficulty of obtaining information and the scale of Council's operations.

To satisfy these requirements, Council has subdivided annualised scheme expenditure into three major service activities - river management, flood protection and soil conservation – and has subdivided the catchment into six different management zones. Council considers that this subdivision recognises the various communities of interest within Project Watershed. When appropriate, these costs are then further separated into management sub zones and service activities. The Asset Management Plans or proposals for new works for each separate scheme are the formal documents upon which the subdivision of expenditure is based.

Approximately 65 percent of the costs included in Project Watershed relate to assets already in existence, such as annual operating and maintenance expenditure, or replacement and refurbishment. The remaining costs relate to the construction and maintenance of new work.

The capital programme for the next 15 years of approximately \$30m equates to less than 30 percent of the value of Project Watershed's current assets. Capital expenditure includes both new work and the ongoing refurbishment and replacement of existing assets.

Council's procedures for considering the need for new works include:

- Obligations and expectations relating to existing work
- Technical and operational needs for new work, i.e. upgrades, requirement to meet certain standards etc
- Community requests/demands for new work
- Strategic requirements
- Cost/benefit of proposed work.

Council will maintain its established policy that requires the landowner(s) to fund 75 percent of the capital expenditure for flood protection and river management works and 65 percent of soil conservation works. This reflects that these are primarily of local benefit and are not considered to be essential to protect or benefit the wider community. The basis of this policy is that the construction of local flood protection schemes, river management or soil conservation works provides significant economic benefits to the landowner that will increase the capital value of the landowner's property.

Project Watershed capital requirements will be funded from landowner contributions, and interest and depreciation allowances incorporated into annual expenditure flows. A 10 year projection has been made to take account of this aspect.

Consistent with the need to ensure intergenerational equity, Council's practice is to smooth the rating burden over the life of the assets through the use of reserves.

The phasing of capital works discussed in this document may be affected by the availability of capital from the above sources in any one year, and consequently some reprioritisation of capital works may be necessary to minimise interest costs.

The Lower Waikato Waipa Control Scheme operating reserve currently has an accumulated debt of \$1.8m.

Council has resolved that the accumulated debt should be identified to the major work areas of the scheme and serviced by the rating revenue collected for that area. It is intended that the debt will be recovered over the first 10 years of the Funding Policy. This is consistent with the principle of recovering those costs from the persons or categories of persons in a manner that matches the extent of the benefit accruing those persons or categories of persons in accordance with S122 F(c) of the LGAA.

The debt has been incurred for a number of reasons. These include:

- Flood response and damage (\$545,000)
- Lack of consistent funding for some elements of the scheme, such as community gates (\$378,000)
- Project Watershed classification costs (\$226,000)
- Asset Management Plan Establishment (\$218,000)
- Disposal of assets surplus to scheme requirements (\$175,000).

Council agreed to allow the scheme to move into debt on a temporary basis until a sustainable funding path could be provided.

Council has also noted that it does not consider that its Investment Fund should be used to fund existing debt. Income from the Fund is used to fund the general rate. Diverting this income to deficit reduction would reduce the income available for the general rate and would mean that all ratepayers were effectively funding the deficit.

Existing Asset Management Plans and works programmes make provision for responding to and addressing damage that may occur as a consequence of storm events, such as those with up to approximately a 20 year return period. Council also has reserves and insurance cover for existing assets to provide funding for responding to more significant events.

Significant effects on existing assets of events of 50 year return period or greater are partly covered by reserves and insurance under the Local Authority Protection Plan scheme (LAPP), but would be likely to require changes to work programmes.

Such events may also activate new sites requiring immediate attention. This may require further reprioritisation of works, particularly in the short term.

Government assistance may be available in very extreme events under the National Recovery Plan, but it is very limited under current criteria.

Environment Waikato estimates that administration costs amount to approximately 10 percent of the total programme. Of this, four percent is attributable to rate collection and six percent to internal administration.

Forecast annual costs as estimated for the next five years, assuming no major disasters or substantial increases in inflation, and as set out in sections 11 to 15 are:

Management Zone	Proposed Annual Expenditure				
	Catchment Oversight	Soil Conservation	River Management	Flood Protection	Total
Lake Taupo	54,795	258,832	150,225	105,749	569,600
Upper Waikato	61,430	689,653	70,058	-	821,139
Middle Waikato	72,245	189,130	837,038	-	1,098,413
Waipa	111,409	322,509	297,714	99,450	831,082
Lower Waikato	72,245	57,636	183,430	1,860,537	2,173,849
<b>Total</b>	<b>372,124</b>	<b>1,517,760</b>	<b>1,538,465</b>	<b>2,065,736</b>	<b>\$ 5,494,082</b>

The capital programme for the next 15 years, assuming no major disasters or substantial increases in inflation, and as set out in sections 11 to 15 is:

Management Zone	Proposed Capital Expenditure (15 years)				
	Catchment Oversight	Soil Conservation	River Management	Flood Protection	Total
Lake Taupo	-	1,029,906	707,203	2,679,627	4,416,736
Upper Waikato	-	2,987,046	569,080	-	3,556,126
Middle Waikato	-	602,446	1,783,174	-	2,385,620
Waipa	-	6,745,869	1,458,552	88,400	8,292,821
Lower Waikato	-	447,120	11,174,863	-	11,621,983
<b>Total</b>	-	<b>\$11,812,387</b>	<b>\$15,692,872</b>	<b>\$2,768,027</b>	<b>\$30,273,286</b>

All costs set out and discussed in this document are exclusive of GST unless otherwise stated. Lakeshore Protection Costs for Lake Taupo have been included under flood protection. Costs for the Tunawaea landslide and associated river management have been allocated to Soil Conservation and River Management.

The costs above are based on:

- The cost requirements set out in the Asset Management Plans prepared for Project Watershed's existing assets
- The cost of undertaking and maintaining new works that the community, through the liaison subcommittees, supports as being required.

Notwithstanding the comments made above regarding unforeseen damage arising from significant storm events, Council provides assurance that work additional to that outlined in this document will not be undertaken without prior consideration through appropriate Council processes. For existing assets that process will be the Asset Management Plan review process.

Significant new works (in particular, for new flood protection and river improvement projects) will not begin without first preparing a more comprehensive analysis of the works, including justification and a more site specific funding policy than the indicative policies in this document. These analyses would be presented to the community for consideration, and to appropriate subcommittees for recommendation to Council for approval.

Other less significant works would also be presented to the appropriate subcommittees and the Council annually for consideration. This process would not however delay work of an urgent nature.

The accounting policies stating the underlying accounting practices adopted by Environment Waikato in preparing Project Watershed budgets and forecasts are shown in Appendix 4.

## 2.7 Cost Benefit Analysis

Section 122C of the LGA, Principles of Financial Management, requires Council to assess the benefits and costs of different options in making any decision with significant financial consequences, including deciding to take no action. This places a requirement on Council to assess the cost/benefit of proposed work. While some

benefits can be measured in simple financial terms, other benefits are not necessarily financial, or easily measured and stated in financial terms.

Section 122I provides Council with discretion in respect of the extent and detail of information to be considered, the degree to which benefits and costs are quantified, and the extent to which different options are considered.

Fundamental to Project Watershed are the existing schemes, which make up 68 percent of proposed annual expenditure. Since 1996, Council has prepared Asset Management Plans for these schemes, a process that involved extensive consultation with the community to determine the future level of service schemes would provide, and to consider the associated cost. Since the inception of the existing schemes, and through the process undertaken to prepare the Asset Management Plans the community has had the opportunity to consider and comment on the benefit of the schemes. That the community wishes the schemes to continue demonstrates there must be sufficient benefit resulting from them.

Almost 75 percent of proposed capital expenditure is for soil conservation. Economic analyses have been completed for most of the major soil conservation schemes within Project Watershed. These were either undertaken during the approval stages, or are post scheme analyses. Assessments were also undertaken as part of the development of Asset Management Plans.

The key points of the economic analyses are:

- There are both quantifiable and non-quantifiable benefits associated with soil conservation. Analysis of the quantifiable benefits and costs with and without soil conservation measures indicates an internal rate of return (IRR) ranging from seven percent to 14 percent depending on scheme.
- In regard to soil conservation, it is generally accepted that in justifying work programmes, (particularly where the IRR is less than 10 percent), promoting new programmes and continued maintenance of existing schemes relies on benefits which are not easily quantified, These include water quality enhancement and associated recreational, aesthetic and other values, such as biodiversity.
- It is evident that the wider community places considerable weight on these values and is willing to contribute toward their protection. This has been shown during community consultation for Project Watershed and other data accumulated during the promotion of earlier catchment-based programmes.

The new soil conservation work proposed is largely to extend and complete existing schemes. Therefore those who are to fund the major share of the costs, and receive the major share of the benefits, most likely understand the economics of the work. There has been rigorous discussion at liaison subcommittee level with those directly affected by the work, and support from liaison subcommittees for the work proposed indicates that they see sufficient benefit.

## **2.8 Assumptions and Risks**

The previous section sets out the basis for determining the costs and funding requirements set out in this document. The assumptions and risks associated with these are discussed below:

### **2.8.1 Assumptions**

Key assumptions are that:

- The Asset Management Plans that have been used to determine the long term work and financial requirements to maintain Project Watershed's assets are

reasonable and soundly based. They have been derived from extensive community consultation.

- The new work that is proposed is undertaken.
- The new work that is proposed is completed within the forecast cost estimate.
- The community will agree to fund the costs as proposed in the Draft Funding Policy.
- Costs are funded in accordance with the Funding Policy.

## **2.8.2 Risks**

Risks are the financial consequences of:

- The above assumptions being incorrect.
- A natural disaster imposing significant costs on Project Watershed's assets.
- The community determining that a different level of service is required.



## 3 Funding Legislation

Council is required to fund the activities comprising Project Watershed in accordance with:

- The Local Government Act 1974 Part VIIa and Council's resulting Funding Policy, and
- The Rating Powers Act 1988, and
- The Local Government (Rating) Act 2002.

Relevant sections of these Acts are included in Appendix 5.

### 3.1 Local Government Act 1974 Part VIIa (as amended by the Local Government Amendment Act 1996)

The Local Government Amendment Act (LGAA) came into force in July 1996 and provides a statutory regime for the financial management of local authorities.

The general purpose of LGAA is to promote prudent, effective and efficient financial management by local authorities. It prescribes the following three-step approach for determining how expenditure needs are to be funded:

Step 1 Allocation of costs to groups or individuals, having consideration for:

- (a) Recovering costs at the time of benefit
- (b) Benefits to the wider community
- (c) Benefits received by individuals or identifiable categories of people
- (d) Contributions by individuals or groups to the need for the service.

Step 2 Modification of the cost allocation to take in to consideration:

- (a) Interests of residents and ratepayers
- (b) Fairness and equity
- (c) Promotion of Council policies
- (d) Avoidance of adjustment difficulties due to sudden and significant changes in cost.

Step 3 Consideration of the practicalities and efficiency of funding expenditure in a way that achieves the desired cost allocation having regard for:

- (a) The funding mechanisms available
- (b) The efficiency of those funding mechanisms
- (c) The efficiency of implementing new systems as opposed to the use of existing mechanisms
- (d) The transparency of funding mechanisms in terms of allowing clear identification of the links between costs allocated and expenditure needs to which they relate.

LGA recognises that decisions on funding policy are inherently subjective and complex. Elected representatives have to make judgements on an informed basis and following the process required in the LGA. The LGA provides that the process of formulating decisions is not exact, Council may use discretion, Council must act reasonably and Council must consult.

Council has prepared a Funding Policy in accordance with the requirements of the LGAA. Council's Funding Policy for Project Watershed is set out in section 16 of this document.

## **3.2 Rating Powers Act 1988**

The Rating Powers Act 1988 (RPA) provides Council with specific mechanisms for rating. These include:

- A general rate
- Works and services rates
- Direct charges
- Differential rates for river protection, soil conservation and drainage.

Differential rating systems use a classification system to identify and allocate the private benefits/costs of river protection, soil conservation and drainage schemes. This involves classifying land receiving benefit from works into a number of classes depending on the level of benefit received and/or the degree of contribution to the problem, and levying a special rate against that land with a varying scale of rates for different benefit classes. The system is ideal where benefit is confined within a defined area and applies primarily to land and property in private ownership.

## **3.3 Local Government (Rating) Act 2002**

The Local Government (Rating) Act 2002 (LGR) replaces the Rating Powers Act from 1 July 2003. The LGR is intended to simplify the RPA to meet the needs of modern local authorities. The three main purposes of the LGR are:

- To provide local authorities with flexible powers to set, assess and collect rates.
- To ensure rates reflect decisions made in a transparent and consultative manner.
- To provide processes and information to ensure ratepayers can identify and understand their liability for rates.

LGR gives regional authorities and Environment Waikato the same powers and rating mechanisms as territorial local authorities. In particular LGR replaces the range of separate rate and charge powers available under the RPA with a single flexible generic power to levy targeted rates. LGR allows Environment Waikato to use differential rates, targeted rates and uniform annual charges (UACs) to set focused rates.



## 4 Beneficiaries and Contributors

The catchment area of the Waikato and Waipa rivers, and the flood protection and soil conservation schemes within it, are important to the economic, social, cultural and recreational well-being of the greater Waikato Region.

Council considers that Project Watershed provides direct benefits to landowners in or near scheme areas. It also provides indirect benefits to both the local community near the scheme areas and the wider Regional community beyond the local scheme area. Council also notes that there are individuals and identifiable groups that contribute to the need for aspects of the works that make up Project Watershed proposals

Set out below is general discussion on beneficiaries and contributors. Where appropriate, these issues are considered in more detail later in this document.

### 4.1 Identification and Allocation Process

The benefits for each type of work activity were defined and allocated to a range of identified categories or 'beneficiaries'. The factors contributing to the need for the works in the catchment were defined and allocated to a range of identified contributor categories. The beneficiary and contributor analyses were then combined to provide the basis for the Funding Policy that Council has developed to fund the costs of the Project.

### 4.2 Direct Benefits

Those who directly benefit from Project Watershed proposals include landowners (both rural and urban) who have property receiving flood protection, needing drainage or requiring protection from soil erosion and its effects. Primarily, the direct benefits of the works and services being proposed are increased land productivity and reduced flood damage.

Flood protection is an important component of Project Watershed. Parts of the Waikato River flood plain are heavily dependent on regular maintenance of stopbanks, flood channels and emergency systems. A major factor influencing the size (and therefore maintenance cost) of river floodways and stopbanks is the peak flow generated from the development of the catchment. This is reflected in the 'contributor' effect described below. Land use development within the catchment has a direct effect on this peak flow.

### 4.3 Local Community Benefit

People occupying land within, or regularly travelling through the major direct-benefit area of the greater Waikato catchment, receive significant indirect benefits. Works proposed under Project Watershed would provide them with the protection, security and confidence to invest, reside and travel in the area. Over time, these works would help create a relatively safe environment to allow and encourage the development of a wide range of agricultural commercial and recreational activities, including quick and assured access to rural servicing towns in all weather. Such intangible benefits are of real value, and extend well beyond the area on which Project Watershed's assets are constructed.

The hill country areas of the greater Waikato catchment benefit in small but significant ways from the works and services that owe their existence partially or wholly to the types of works and services being proposed under Project Watershed.

Upper catchment residents and ratepayers benefit from the works and services because of their proximity and relationship to adjoining direct benefit areas; many of

which include essential facilities such as schools, clubs and local roads. These indirect benefits relate to communities and their use of the facilities that rely on the economic well being of those adjoining direct scheme benefit areas.

## 4.4 Regional Community Benefit

Council considers that all land within the total Environment Waikato Region (See map 1) will benefit from the types of works and services proposed under Project Watershed. Even ratepayers who live in areas remote from the Waikato and Waipa rivers and their tributaries rely to a degree on urban centres such as Hamilton, Huntly and Otorohanga. Wider regional community benefits include:

- a) Uninterrupted access to and use of state highway, roading and communication networks and users:
  - i) secure access for emergency services
  - ii) improved boating conditions and facilities
  - iii) improved recreational tourism opportunities.
- b) Improved water quality, long term.
- c) Improved environment and ecosystem.
- d) General security of transport, communication and energy networks.
- e) Improved resource management through more active surveillance of rivers and catchments; more active surveillance and protection of adjacent land uses and the availability of system information and models used for other activities.

It is Council's view that the proposed works and services will provide the Regional economy with all of these benefits.

The protection of Regional communication links from the effects of major disaster is considered important to the Regional community. The effective management of the major rivers and catchments from a resource management perspective is also of widespread interest to the social well being, commercial and economic viability of the Region, particularly urban areas.

The Regional benefit is different from the indirect benefit, reflecting both a slightly different type of benefit and the much greater level of benefit locally. The indirect benefit reflects a greater local community of interest within that specific zone. The Regional benefit is applied over the entire Region as well as locally, and is in addition to the direct and indirect benefits identified within specific zones.

## 4.5 Contributors to the Need for the Service

The 'contributor' principle is a relatively new concept introduced by both the RPA and the LGAA. The contributor principle is used to assess the degree to which the characteristics or use of the land, or the actions of the occupiers of that land contribute to the need for flood protection, river management and soil conservation works and services.

The physical characteristics of properties, and the past and present actions of the occupiers both affect maintenance costs. In the past, occupiers have assumed they have had a right to discharge water from their properties. The amount of water being discharged is increasing as a result of continued pastoral development and drainage improvements.

Water discharge has occurred not only on the flat areas of the greater Waikato catchment, but also in rolling and steeper districts where shallow gullies and swampy flats have been drained. Over recent years, the expansion of intensive livestock farming into steeper areas has been one of several factors driving this continued trend.

Justice Morris, in respect of the Piako River Differential Rating System, in 'Brockelsby and Others v Waikato Regional Council (2001)' stated, "*I find it unreal to say the higher*

*properties do not receive some benefit, albeit minimal, from the proposed drainage scheme. Clearly they do on the material before me. The common law right to discharge water from the higher ground still exists but the ability of a scheme to move any water so discharged away from the lower land more quickly must benefit the higher land in turn enabling water falling on such land to flow faster from it thus lessening the risk of ponding and the like.”*

Ratepayers in hill country areas are assessed as being liable for Project Watershed rates both as beneficiaries and contributors. As beneficiaries, they experience the same indirect benefits as others in the lower areas of the catchment and which have been attributed to all ratepayers through the general rate and the catchment and zone differentials. These indirect benefits include public safety, security of transport links and reduced inconvenience, recreational benefits, aesthetic benefits and secondary economic benefits arising from the wider range of land use options Project Watershed assets provide.

In addition to receiving benefits (either direct, indirect or both) properties throughout the greater Waikato catchment are also liable as contributors. This is generally because the development of these properties to pasture and the continuation of this land use has increased the ‘speed’ with which water runs off these properties, increasing the peak flows in streams and rivers further down the catchment. This affects flooding and erosion, requiring higher floodbanks and increased pumping head.

The contributor assessment is based on comparing the current land use to the ‘natural’ state of the catchment. The development of land to its current use has led to changes in soil erosion and runoff characteristics. Other activities also affect the erosion and runoff characteristics of the catchment and river system.

Mean annual flood peaks from catchments that are developed to grazed pasture have increased flows by 60 percent, compared with a native bush land use. Land in urban, industrial, commercial or roading increases the stormwater runoff significantly over that from pasture or bush/forest, due to the proportion of impervious surfaces.

In assessing what the ‘natural’ state of the catchment was, reference was made to a number of information sources.

For the purposes of applying the contributor assessment for the funding system, a broad comparison of current land uses and activities has been carried out in relation to the ‘natural’ or benchmark land use, including native forest, wetland and tussock. Plantation forest is also assumed to have similar hydrological characteristics to native forest.

Council has considered that costs should be allocated to ‘contributors’ on the following premises:

- That development of the greater Waikato catchment through land clearance, land drainage improvements, river and drainage system development and urban development has increased peak river flows. (A substantial body of scientific research, engineering knowledge and practical experience backs this up).
- That the assessment of contribution should be based on the difference between the natural conditions and the modified (current) conditions.
- That the increased flows have increased the cost of ongoing maintenance of the existing schemes.

Council has obtained independent technical advice on the contributor effect on the different components of Project Watershed. The principal contributor effects are:

- **Flooding** - The peak rate of flow down a river will determine the level of inundation of land immediately adjacent. Changing land uses can affect the peak flow.

Generally the more intensive the land use, the greater the rate of runoff. The velocity of the flow that floods land is directly related to the damage to the land itself, fences and buildings.

- **Drainage** - Drainage outfall from a property will be affected in some manner by the water levels in natural watercourses. Where there are increased flows in drains or rivers, the outfall is impeded.
- **Peat land** – Before it was drained for settlement, much of the peat land in the catchment was periodically flooded from the main rivers. These peat areas provided a natural storage zone for floodwaters, lowering the flood peak and then gradually releasing the floodwaters over days and weeks.
- **Sedimentation and degradation** - Hydroelectric dams trap sediment and reduce the natural sediment being transported through the river system. The loss of the natural sediment can lead to instability in the banks and bed of the river system and as a result, bank stabilisation measures may be required.
- **Channel stability** – There are fluctuations in river flows through hydroelectric generation or gate controls. This can increase bank slumping and on-going erosion because there is no natural settling down period before another 'flood' removes further material.
- **Increased flows** through land use changes and hydro diversion from out-of-catchment.
- **Soil erosion** - Soil erosion is affected by many factors, including geology, soil type, slope, aspect, rainfall events, vegetative cover, grazing intensity, cultivation and others. It is reasonable to generalise that increased erosion can be caused by loss of adequate vegetative cover, loss of soil structure through reduced organic matter in the soil profile, rapid changes in groundwater levels and increased runoff from land use changes.

## 4.6 Alleviators

The need for or costs of maintaining scheme works can be alleviated by the characteristics or use of properties, or the actions of the occupiers. Where land is still essentially in its undeveloped state or has either reverted to native bush or swamp cover, or been planted in exotic forest, it is considered to be neutral in effect. Council considers that, where the alleviation effect of land uses or activities are of sufficient scale, then the contributor differential will not be levied on the qualifying area. Environment Waikato considers that, from both hydrological effect and administrative efficiency, 10 ha of land in qualifying uses is the minimum required to qualify for rating relief. Landowners affected will be able to apply to Environment Waikato to have this recognised.

For the purposes of this policy, plantation forestry is considered to have the same hydrological characteristics as native forest cover. It is recognised that cut over forest will have a diminished alleviator effect, however if the area is replanted, this reduction is only likely to occur for four to six years. In this situation it is proposed that the rate relief would remain in place, so long as the block was replanted.

This policy will be administered by means of a series of questions contained in the application form for alleviators (available from Environment Waikato from July 2002) and periodic audits using aerial photography.

The alleviator effects of hydro electric power generation operations and infrastructure have been taken into account in assessing the contributor effect (Mulholland and Hamilton, 2001).

## 4.7 Crown Contribution

Historically, the Crown has undertaken a wide range of activities in the Region. While these have not been traditionally rateable, the Crown has made subsidies and loans available at favourable rates.

Responsibilities for some of these activities are now with various agencies.

As other contributions from the Government reduce, some argue that inequities arise, as the Region effectively subsidises benefits for people who do not live in the Region, and services provided to the Crown as a landowner.

Broadly four categories of costs and benefits can be identified.

### 1. Indirect benefits experienced beyond the Region's boundary

- Use of recreational and scenic areas by people from outside the Region. Other New Zealanders and overseas tourists enjoy natural recreational facilities throughout the Region, such as Lake Taupo and the lower Waikato River.
- Benefits to trout fisheries from maintenance of high water quality.
- Water from the Waikato River will provide the Auckland Region with a secure water supply to allow for future growth. Maintaining and improving water quality standards means that less treatment will be required to make the water drinkable. This benefits Aucklanders.
- Maintenance of a lifeline corridor through the Region. An important aspect of emergency planning is the ability to ensure 'lifeline corridors' through particular areas. These ensure provision of essential services, transport and infrastructural services such as power and telecommunications. Maintaining these corridors within the Waikato Region benefits those outside the Region who may otherwise be affected by a break in the Waikato Region's lifeline.

Environment Waikato has not attempted to quantify these indirect benefits, as it would require detailed and expensive economic research (estimated to cost approximately \$40,000). This expense is likely to outweigh recompense from the Crown, as there is currently no clear mechanism to recoup costs.

### 2. Benefits and contributory effects from the Crown as a landowner

- Department of Conservation lands are largely not rateable. As most of these lands are in natural or regenerating forest cover, they reduce runoff and flood peaks. Environment Waikato has not sought to rate these lands but is concerned that some aspects of land management are less than desirable on some of the Department of Conservation's (DoC) lower priority sites.
- Hydro lake shore reserves vested in Land Information New Zealand (LINZ) but protected under asset management plans are primarily maintained to lessen the effects of lake level fluctuations arising from hydro operations.

Rates foregone for catchment management activities from the Crown as a landowner are not considered to be significant, given the effect of DoC lands as a flood alleviator.

### 3. Utility benefits for services currently or formerly provided by the Crown

- Protection of the North Island Main Trunk rail link, providing reduced maintenance costs and security of access. Even though rail services have been privatised,

Environment Waikato has no ability to rate Tranzrail because the tracks are on Crown reserve land.

- Protection of State Highways 1 and 2, providing reduced maintenance costs and security of access. Environment Waikato has made representations to Transit NZ for a contribution to costs. However Transit maintains that there is no legal basis to contribute to catchment management costs.

Both of the above matters are still being pursued by Environment Waikato with the Crown, and are considered significant issues.

#### **4. Main channel maintenance**

A key area of concern for the Lower Waikato ratepayers is the removal of Government support for works in their zone as a consequence of the additional flow created by the Tongariro Power Scheme diversions. The deeds of the current agreement between the former Waikato Valley Authority and the Crown, providing for the Crown to fund Main Channel maintenance, are due to expire in 2003. Environment Waikato considers that an ongoing obligation exists for the Crown to fund Main Channel maintenance. Moreover, ratepayers consider that because there is substantial national and out-of-Region use of the Waikato River in the development of New Zealand, the Crown has an even stronger obligation to contribute to the maintenance of the Main Channel.

On the ratepayers' behalf, Environment Waikato is requesting the Government to consider an ongoing contribution to works in the Lower Waikato Management zone for the reasons outlined above.

However, since the introduction of the State Owned Enterprises Act in 1986, Environment Waikato has been able to rate State Owned Enterprises, such as hydro power companies Mighty River Power and Genesis.

Environment Waikato will also soon be able to rate utility services whose assets must now appear in the ratings valuation roll at capital value. This will allow companies such as Transpower, Natural Gas Corporation and Telecom to be rated.

Environment Waikato will continue to pursue Tranzrail and Transit NZ for contributions toward the protection they receive from various works. It will also ensure that recoveries are made from utilities that have recently become rateable.

Environment Waikato will also continue to request continuation of a Crown contribution to works in the Lower Waikato on behalf of the Liaison Subcommittee.

Any contributions received from the Crown, SOEs and private utilities which have recently become rateable, and which have not been budgeted for in Project Watershed, will be offset against the appropriate rate.

#### **5. Estimated Crown Cost Allocation**

During the preparation of the Funding Policy for Project Watershed, Council estimated an appropriate cost allocation to the Crown for road and rail utilities of approximately \$250,000. In addition to this, the Crown owns land within the Project Watershed area. It is estimated that this holding would attract a general rate, and catchment and zone differentials, totalling approximately \$35,000 to \$50,000. As much of the Crown land is forest it would be considered an alleviator for the purposes of the catchment contributor differential. Therefore the amount of forgone rates due to a legal inability to rate the Crown and its road and rail utilities is approximately \$250,000 to \$300,000.

## 4.8 Hydro Electric Effects

Environment Waikato has worked with Mighty River Power and Genesis to assess the effect of hydro electric power generation structures and operating regimes on the river system. Both companies have provided additional information to Environment Waikato and an assessment has been produced (Mulholland and Hamilton, 2001)

It has been agreed that there are a range of factors affecting the need for works at any location. The assessments have taken into account technical material, but judgement has still had to be applied. The dominant factors in all zones are considered to be natural.

In working through the issues on a zone-by-zone basis, the relevant technical material has been reviewed and a summary of the most relevant factors made. Assessments of the contributor effect of land uses and hydro electric companies has been made and is detailed in section 16. The four zones affected are Lake Taupo, Upper Waikato, Middle Waikato and Lower Waikato.

Significant capital works, that are yet to be fully scoped and defined, are of concern to the companies. Environment Waikato intends to refine funding policies and justification for these works on a case-by-case basis.

The overall outcome of the combined contributor assessments is that hydro electric companies should meet about five percent of the overall Project Watershed budget as a Contributor to the need for the works or services. This is in addition to the cost to the companies as general ratepayers.





## 5 General Funding Principles

Having considered the funding legislation and general benefit/contribution effects, it is necessary to derive a set of general principles. These principles provide the framework to guide the development of an appropriate funding and service solution. These principles are consistent with those derived from decisions made by Environment Waikato over recent years. Most of these have been discussed by liaison subcommittees.

This document considers three spheres of Council's activity: river management, soil conservation and flood protection. Environment Waikato is responsible for overseeing and coordinating all activities in the greater catchment which affect these, because the catchment is an inter-related system. What happens in one part of the catchment will affect what happens elsewhere.

River management activities (defined and discussed elsewhere in the document) can be seen largely as a co-ordinating role across the whole river system, bridging the gap between soil conservation and flood protection. River management's emergence as an activity in its own right reflects Environment Waikato's recognition of the importance of an integrated approach to catchment management. Council also recognises that these activities must be better and more sustainably resourced.

It is important to also focus on the responsibility of landowners. Environment Waikato considers that landowners and resource users are responsible for 'contributor' effects to the greater Waikato catchment, which arise from their land or resource use; be it through natural or human-controlled processes.

In terms of soil conservation, Environment Waikato considers that its role should be that of facilitator and overseer, rather than being responsible for carrying out works. Most soil conservation works can be undertaken by landowners with Environment Waikato providing support and advice.

Environment Waikato is also bound to promote the sustainable development of resources. As part of that responsibility it acts as a facilitator to encourage the use of soil conservation works and practices. The use of incentives such as grant support can assist in encouraging soil conservation work, particularly if there are off-site benefits such as a reduction of sediment loads downstream. Where this is possible, it is appropriate that grant support be provided to landowners undertaking the works in proportion to the amount of off-site benefit. However this does not reduce the responsibility of landowners to minimise any adverse effects that their property or their actions cause.

Flooding is a natural phenomenon and the peak rate of flow down a river will determine the level of flooding of land immediately adjacent. Changes in land use have affected the peak flows of rivers by changing the runoff characteristics of a catchment. Urban land causes the greatest volume of runoff per unit area, and developed pasture has a significantly higher yield than land in native bush or plantation forestry.

Environment Waikato may act to protect land from flooding. This is usually in the form of stopbanks designed to protect for a specific level of flooding determined by the statistical probability of occurrence. Properties protected from flooding gain a real economic benefit. Under the LGAA, those who benefit from the protection must contribute to the costs in relation to the level of benefit they receive.

The wider community may also receive indirect benefits from flood protection, such as security in knowing that essential services and amenities will usually still be available during floods.

The general principles outlined in this document have been developed in association with liaison subcommittees, from Environment Waikato's experience, and from informal consultation with communities and key stakeholders throughout the greater Waikato catchment. The principles on which the proposals outlined in this Draft Funding Policy are based are:

1. There is a need for better co-ordination, integration and oversight of activities in the greater Waikato catchment.
2. Project Watershed makes provision for the ongoing maintenance of all existing scheme works and additional related works across the greater Waikato catchment on an integrated basis.
3. Provision of proposed works and services under Project Watershed provides a range of benefits, varying from specific local works providing direct protection to local landowners to major river system programmes providing more widespread benefits.
4. Specific direct benefits are to be identified, with works and services funded by those benefiting.
5. Landowners and other resource users must bear a responsibility for negative effects on the catchment created by their use of land and water resources.
6. Where works provide an off-site benefit to other landowners or utility providers, it is appropriate for grant support to be available to landowners undertaking the works.
7. The level of grant support depends on the level of benefit experienced off site.
8. To promote the sustainable use of resources Environment Waikato must encourage landowners to undertake soil conservation work. Grant support is an appropriate way to encourage this.
9. A number of landowners have existing soil conservation agreements with Environment Waikato in the form of Land Improvement Agreements, Farm Plans and other arrangements. Existing agreements must be recognised in the development of a funding policy.
10. Flooding is a natural phenomenon, however its effects can be modified by human actions.
11. Flood protection works provide a specific benefit to local areas. It is required by law that landowners contribute to flood protection works relative to the benefit they receive.
12. Acknowledgement of Tangata Whenua interests in a whole of catchment approach (This explained in more detail in Section 2.4 ).

## **5.1 Application of Funding Principles**

To assist with the development of its Funding Policy, Council has engaged independent technical experts (see Appendix 3) to advise on the identification of beneficiaries and contributors for activities, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5.0. The work of the technical experts is both current and historic and has been used to develop existing funding policies. The approaches taken by the independent technical experts vary and Council is required to make some adjustments to their information to be able to use it in the development of funding policy.

The work of Meister and Quasi has been applied to the development of flood control and river management funding policies in other zones. Although specifically developed for the Lower Waikato Waipa control scheme, it was considered by staff and the authors that this work would provide an appropriate basis for setting a provisional funding policy. The Funding Policy will be reviewed for each significant new work once they are confirmed.

Section 16 includes tables setting out benefit and contribution for the activities in each management zone. Common adjustments that Council has made to enable the work of the technical experts to be incorporated are:

- The technical experts have not generally recognised Crown benefit and contribution, due to the complexity of making an assessment and the inability of Council to charge the Crown. This is discussed in detail in section 4.7.
- Council has made adjustments to benefit/contribution where it considers that the assessment for a specific aspect requires refinement.
- The assessment of benefit/contribution for soil conservation schemes has been used for Farm Plans and other soil conservation works.
- The benefit/contribution assessment for Lower Waikato flood protection has been used to assess the benefit/contribution relating to other flood protection works.
- Council has made the determination of benefit for Catchment Oversight.



# 6 River Management

## 6.1 Introduction

River management can be seen as distinct from flood protection and soil conservation, although in some ways it links to both.

Most landowners are capable of undertaking river and stream maintenance, and under Project Watershed it is proposed that this continue. Most landowners manage stock to prevent damage, maintain trees and vegetation along riverbanks, and undertake minor levels of work to maintain the channels in their present form.

Issues arise when the work is undertaken to differing standards or when the type of work undertaken needs particular expertise or experience. Most river improvement work is outside the normal maintenance activities done by landowners, and in many instances, requires a resource consent. It is also essential that river and stream work in a catchment be undertaken to a consistent standard so that any damage or loss from river processes is minimised.

**Routine river maintenance** includes undertaking inspections, liaison with landowners, and completing an annual work programme to maintain river and stream channels in their present form. It does not include any improvement work or capital work. The intention of routine river maintenance is to ensure channels remain free of vegetation and obstructions so efficiency is maintained. It also includes undertaking small erosion control work to maintain channels in their present locality, as well as reduce the sediment input caused by streambank erosion. River management includes:

- Annual inspections of the main rivers and streams and responding to enquiries.
- Removal of isolated whole trees, stumps or limbs that have fallen into the channel, or are likely to and could create an obstruction to flow or exacerbate erosion.
- Assisting with fencing of eroding portions of channels.
- Planting and maintaining vegetation to help prevent erosion.
- Undertaking simple erosion control work within channels.
- Spraying vegetation.

Routine river maintenance work involves landowners by liaison before the work is done. In most cases, the work would be undertaken with assistance from the landowners and in conjunction with the landowners' normal river and stream maintenance work.

It is intended that landowner involvement in proposed river management work continue. Environment Waikato's involvement would be to provide advice, ensure that maintenance within a catchment is undertaken to a consistent standard, and undertake work which is beyond the normal capabilities of landowners, or requires a resource consent.

It is proposed that routine river maintenance be undertaken in all of the larger rivers and streams where lack of maintenance is likely to have a significant effect on other properties or values, or where streambank erosion is having a significant input to the sediment load within the stream. Streams in this category may include:

- Rivers and streams of a significant size (say, greater than 3-5 m top width) and where there is benefit within the catchment from consistent maintenance.
- Rivers and streams that suffer from significant erosion and where there is regional benefit in controlling the erosion.

- Rivers and streams of a significant size that have different property owners on opposite banks.
- Rivers and streams that are within a property where maintenance is required to avoid significant adverse effects on upstream property or values.

At this stage, only limited mapping has been undertaken to assist in scoping the possible extent of work proposed under routine river maintenance. If the work fits this description then it is likely to be noted and prioritised.

**River improvement** involves works of a more significant capital nature. In some cases this will involve large-scale intervention. In most cases, the work aims to control bank erosion and stabilise the river channel. Proposed river improvement works are restricted to a few specific areas where major intervention is required.

The type of intervention will depend on the requirements of the site, but could include:

- Willow revetment (revetment refers to the armouring of stream banks).
- Rip rap (or large rock) revetment.
- Channel realignment.
- Construction of groynes.
- Gravel management.
- Sand Management

Landowners adjacent to the works are likely to receive the most benefit from river improvement work. Where direct benefit can be attributed, a differential rate may apply. A percentage of cost is attributed to the wider catchment in recognition of sediment reduction and other contributing effects.

## 6.2 General Beneficiaries and Contributors

The nature of routine river maintenance (in contrast to major physical works) means that benefits are largely for public good. Those living within the catchment area receive most of these benefits but there is also some benefit to the wider Regional community. The ultimate outcome of this activity is the range of benefits outlined in section 1.6. While there will be some direct benefit to landowners as a consequence of river management, the benefits are not exclusive to those landowners and little of the benefit is received by identifiable people or groups of people.

Independent technical advice to Council (Harris S, 2001) suggests that 80 percent to 90 percent of the benefit from river management work goes to the management zone where the work takes place. The greater Waikato catchment as a whole gains the rest of the benefit.

River improvement involves much more significant works protecting specific areas. These are considered to have a much greater degree of local benefit. The diverse nature of river improvements means that it is very difficult to identify beneficiaries and contributors by generally applying assumptions developed in one part of the catchment to another area. This is particularly true of landowner contributions. Consequently, the allocations developed in this paper are indicative only. Funding policies for each river improvement site will be reviewed on a case-by-case basis before any works commence.

# 7 Flood Protection

## 7.1 Introduction

Flood protection schemes are designed to provide flood protection and drainage improvements within identified sections of flood plains of rivers. Schemes consist primarily of stopbanks, pump stations, floodgates, and river channel improvement works.

Flood protection within Project Watershed comprises the Lower Waikato Waipa Control Scheme, the Lower Tongariro River Scheme, the Tauranga-Taupo River Scheme, Otorohanga, and several local community works and schemes. These are discussed within their respective management zones.

## 7.2 General Beneficiaries and Contributors

The main beneficiaries from flood protection are landowners and utilities directly protected by the scheme. Landowners receive direct benefits in the form of production increases and reduced flood damages. Utilities and primarily transport network operators receive direct benefits in terms saving damage to roads and savings on costs of traffic diversions and delays.

Indirect benefits are received by third parties (those not directly protected by the scheme) and can often accrue collectively and widely throughout the Region. Indirect benefits are all those benefits that extend to the land outside the immediate flood plain. This land, to a certain extent, relies on the infrastructural, economic and community factors in the protected flood plains.

Other indirect benefits are environmental, ecosystem and recreational. Indirect benefits from the flood protection scheme can be received by people in the management zone, catchment and wider Region. However, the level of indirect benefit received is greater for people in the management zone compared to the catchment area and the wider Region.

The development of river catchments through land clearance, land drainage improvements, river and drainage system development, land (and river use) and urban development increases river flows. The increased flows increase the cost of ongoing maintenance of flood protection schemes. Those who contribute to the increased river flows are contributors.





# 8 Soil Conservation

## 8.1 Introduction

Soil conservation is the management of land to maintain New Zealand's soil and water resources, to provide the widest range of sustainable benefits for the needs and aspirations of present and future generations. Soil conservation includes:

- a) maintenance of the productive potential of the nation's soil resources to retain sustainable land use options for present and future generations
- b) maintenance of catchments to provide high quality water resources for downstream users
- c) land management practices that further enhance the protection of waterways from suspended sediments, nutrients, harmful micro-organisms and other pollutants
- d) reduction of the effects of land-related hazards including flooding, subsidence and erosion
- e) maintenance of the aesthetic, scientific and cultural values of land and water.

Erosion is a natural phenomenon, which results in soil losses and water quality degradation. New Zealand is geologically young and active, and the natural level of erosion is high by international standards. Changes to the vegetative cover of the land from activities such as farming, introduction of pests, burning, forestry, road construction and urban development reduce protection against erosive forces and lead to accelerated erosion. Once erosion has occurred, the productivity of the soil rarely returns to its former level.

Some land types are more susceptible to accelerated erosion than others. These generally include hill country and the banks of rivers and lakes. In addition, some soils such as pumice soils are more prone to erosion than others.

In the Waikato Region, accelerated erosion occurs in different forms, depending on the locality. Erosion prone or 'high risk erosion areas' in the Waikato can be grouped as follows:

- The Central Volcanic Area - Includes the pumice land around Taupo. The soils are extremely fragile and prone to severe gully, sheet, rill, stream bank and wind erosion.
- The Western and Central Hill Country - Includes the hill country extending along the Waikato's west coast and becoming more dissected in the north. Overlaid with volcanic ash, these hills are prone to sheet erosion, particularly where heavy stock are grazed on steep land.
- Stream banks - Including streams across the entire Region affected by erosion. Stream banks are subject to the erosive force of water, which can be exacerbated by land use activities that damage or disturb the banks and beds of rivers and lakes.

Water yields, and consequently, sediment yields from surface and stream bank erosion, have increased in catchments which have been largely cleared of forest. Land use also has a major effect on the sediment loads in rivers. Erosion prone areas yield higher levels of suspended sediment under agricultural use than under forest.

Accelerated erosion is generally caused by activities that disturb or expose the soil to the erosive forces of gravity and rain/water. Climatic or weather conditions combined with human activity can increase soil erosion. For example, severe and intense storms may increase the rate of accelerated erosion.

Different land uses have different effects. For example, forestry operations may have positive effects on land and water while trees are growing, followed by a period of adverse effects associated with land disturbance from harvesting. In contrast, erosion from pastoral activities may occur at reasonably constant rates for long periods, as there may be minimal protection against erosion.

Data from a wide variety of sources, including forestry industry research, shows the main land uses contributing to accelerated erosion are agriculture, earthworks, roading and tracking activities, establishment and harvesting of forests and mining. In catchments undergoing land use changes, sediment yields increase as vegetation cover is reduced, exposing the soil surface.

The adoption of unsuitable land uses and land management practices, are major contributors to erosion problems. For example, soil disturbance on steep slopes may lead to a high risk of accelerated erosion. Overgrazing by stock and uncontrolled browsing by pests may damage vegetation to the extent that it no longer adequately protects the soil from erosion.

Accelerated erosion may result in:

- loss of soil productivity, versatility or capability
- degradation of water quality and aquatic ecosystems
- increased adverse effects of flooding and instability hazards
- infilling of lakes, estuaries, artificial watercourses, rivers, wetlands and caves
- effects on the ecological values associated with land
- adverse effects on tangata whenua's relationship with land and soil.

The soil conservation component of Project Watershed includes both existing and proposed soil conservation works. For existing works the level of service is detailed in each Asset Management Plan and has already been agreed with the communities, concerned following extensive consultation.

Under Project Watershed, Environment Waikato seeks to address the most severe erosion in the greater Waikato catchment. To predict the new works likely to be required, two categories of soil conservation works have been defined and included in this document. These are Hill Country/Upper Catchment works, and Riparian works. For Hill Country/Upper Catchment works, an assessment of Land Use Capability maps was carried out and an assumption made that 10 – 20 percent of class 6e, 7e and 8e pastoral land mapped as severely erodible would be treated. The exact proportion varies by management zone.

Estimates for Riparian Soil Conservation Works requirements are based on field observations made in each zone by Environment Waikato staff. An assessment was made of the percentage of stream banks actually eroding. The field survey indicated that across the greater Waikato catchment, between two percent and 13 percent of the streams surveyed in pastoral land were classified as eroding. For practical and farm management purposes, protection of a length of stream in excess of that actively eroding is generally required. In most cases, this has been assessed at an equivalent length to that mapped as eroding.

Environment Waikato's soil conservation programme must be a balance between what is required for the maintenance and betterment of the greater Waikato catchment and what the affected landowner will support. Environment Waikato has consulted with the community, including affected landowners, via the liaison subcommittees in order to determine the appropriate balance. This document includes the proposed new work that has been agreed to through that consultation.

For the existing major schemes (largely Taupo based), the present annual cost comprises some or all of the following:

- Transitional maintenance work.
- Routine maintenance costs, including direct and indirect expenditure.

Transitional maintenance work is urgent work carried out in accordance with Land Improvement Agreements with landowners. This involves a separate grant to apply for a limited period only. This work is prioritised in order to bring existing schemes up to the required standard. Direct and indirect maintenance costs are the costs of maintaining the assets following the transitional period.

The types of additional works proposed within the soil conservation component of Project Watershed include fencing of stock from erodible land, planting of suitable vegetation to achieve soil stability, retirement of indigenous areas, provision of alternative water supplies where appropriate, and the installation of erosion control structures.

Council has developed a complementary but distinct riparian strategy to address non-point-source discharge pollution via surface runoff and ground water. Further discussion of the relationship between Project Watershed and the riparian strategy can be found in Appendix 1 of this document.

## 8.2 Soil Conservation Programme

The above section identifies the level of protection that Council estimates is required to effectively address significant erosion in the catchment.

For the Middle Waipa section of the Waipa management zone, and the Middle and Lower Waikato management zones, a much lower level of work has been included in the programme. In these areas pilot programmes are proposed over the first three years, to confirm appropriate approaches and requirements. This change has resulted from informal consultation with liaison subcommittees and others.

No soil conservation work will be undertaken without the support of the landowners directly involved.

Following extensive technical analysis of where soil conservation is desirable the priority areas have been mapped and specific work costed, documented and submitted to subcommittees for comment. The resulting documentation forms part of the Project Watershed record (Project Watershed - Recommended Soil Protection Works with Catchment Maps, 2001).

Works approval will be subject to a number of criteria. These will include:

- Severity of erosion risk
- Priority catchment
- Extent of on site impact
- Extent of off site benefit (Regional, catchment)
- Level of participation from owner.

## 8.3 General Beneficiaries and Contributors

Most existing soil conservation schemes are based in the pumice lands of the Upper and Middle Waikato and Taupo management zones. Beneficiaries include the property owners directly affected, the district or area where the work is being undertaken and the wider Regional community. Accordingly, a large direct benefit (property value and utilisation) and a smaller direct 'downstream' benefit (economic, resource management, tourism, etc) results from this work. Utility operations (hydro generators and roading authorities) also benefit from this work.

There are several characteristics which the catchment control schemes of the Waikato and Waipa catchments have in common, particularly with respect to the flow of benefits. Landowners tend to be the major financial beneficiaries of the schemes. The key financial benefits of the soil conservation schemes are:

- The prevention of loss of pastoral production as a result of erosion and debris deposition.
- Prevention of damage to farm infrastructure.
- Timber production benefits (depending on the species planted and the silvicultural maintenance regime used).
- Farm/stock management benefits arising from retirement fencing. For example, some retirement fencing would have been required in the course of normal farm subdivision and its provision under the scheme benefits the landowner.

The public benefits are not easily quantified but are nonetheless significant. This is due to the fact that the community generally places high value on the protection of water quality and its associated values. The wider community also has a role in the long-term protection of natural resources and in achieving other values such as biodiversity.

Transitional maintenance work has a greater level of financial support, reflecting the greater community component of the work and the need to address the problem.

The allocation of costs to soil conservation beneficiaries and contributors in the following sections has, for most work programmes, been previously established and agreed through Asset Management Plans for major catchment schemes. Council made these earlier determinations after considering appropriate independent technical advice (Simon Harris, Harris Consulting). This previous work, subsequently reviewed by the technical advisor (Harris S, 2001) has formed the basis for the proposed allocations made in this document.

A recent report from the technical advisor includes the following summary of ranges of cost allocation for Environment Waikato’s soil conservation programmes:

Landholder	25 – 67 percent
Local Community/Zone	20 – 40 percent
Catchment	30 percent
Region	25-50 percent
Utilities	4 – 30 percent
Contributor scheme works	15 percent
Contributor isolated works	40 – 50 percent

The actual allocation for each work programme will depend on the type of work undertaken and the type of land use.

## 9 Catchment Oversight and Information and Advice

Two new activities have been introduced in the Project Watershed costings. They are Catchment Oversight, and Information and Advice. Both activities are intended to support the integrated management of the catchment discussed earlier in section 5. Each management zone budget includes an allocation for both catchment oversight and information and advice.

These costs are distinct from the indirect costs also included in the Project Watershed costings. Indirect costs relate to the planning and supervision of specific works programmes.

### 9.1 Catchment Oversight

Catchment oversight has three major activities:

- **Liaison Subcommittee**

Liaison subcommittees have been established to provide local input to Project Watershed, and ensure that the needs of the communities are effectively reflected in the work programmes developed by Environment Waikato. Each committee is made up of a variety of members such as farmers, government agency representatives, staff and councillors of territorial authorities. They offer an invaluable depth of knowledge not only about the land, rivers and streams of each management zone but also of the people.

Environment Waikato considers it very important that the subcommittees continue in the future. They are likely to meet annually or biannually to confirm work programmes, ensure that operational works carried out in the area are meeting expectations and to make Environment Waikato aware of new issues that may be developing in the zone.

- **Liaising with other authorities**

The responsibility for undertaking flood protection and river control works in the Project Watershed area has traditionally been shared amongst a number of territorial authorities and Environment Waikato. It is important that Environment Waikato maintains links with authorities and other agencies (such as the Department of Conservation and Transit NZ). This will assist in ensuring that actions taken by all organisations, which may affect the catchment, are as consistent as possible with the principles of good catchment management.

- **Maintaining a general awareness of the catchment and any issues that may affect its balance**

It is preferable to respond proactively to changes in the catchment, rather than dealing with the consequences later on when they may be far more expensive. To enable this proactive response, Environment Waikato requires more information about what is actually happening in the catchment in terms of changing land use, major resource users, and erosion and river processes. There is a need to respond to this in a more integrated way than currently occurs because of the systemic nature of the catchment and the strong interrelationships between soil conservation, river management and flood protection.

A monitoring programme will provide an overview of the condition of the catchment and river system.

## **9.2 Information and Advice**

Information and Advice includes responding directly to public requests for information and providing advice on matters relating to aspects of catchment management. On a more proactive basis 'Information and Advice' also includes provision for educational programmes targeted at specific issues of catchment management, which may emerge through general enquiries or liaison subcommittee requests.

The creation of the information and advice cost centre has occurred in response to liaison subcommittee requests for more 'on the ground' representation by Environment Waikato Staff.

## **9.3 Benefits and Contributors**

Catchment oversight costs are approximately \$370,000 or around five to seven percent of total annual costs. Catchment Oversight and Information and Advice include a diverse range of activities, which may vary from year to year, and zone to zone. This diversity makes it difficult to carry out any meaningful economic analysis of beneficiaries and contributors. The benefits are generally considered to be widespread.

Consequently, Catchment Oversight and Information and Advice have been spread evenly across the general rate and the catchment and zone differentials after contributor proportions have been subtracted.

# 10 Consultation Overview

As part of Project Watershed the Waikato catchment was divided into six Management Zones (later reduced to five by amalgamation of the two Waipa zones). A liaison subcommittee was established in each zone. In the Upper Waikato zone a second committee was established in the Whakamaru area to ensure adequate representation (see map 3).

In the Waipa catchment Council formed the Upper Waipa and the Middle Waipa liaison subcommittees.

The two Waipa subcommittees met independently throughout the informal consultation process until a combined meeting was held in December 2001. The consultation process has resulted in discussion in December 2001 and January 2002 between zone subcommittees and Environment Waikato over the equity implications of initiating two separate Waipa zone differentials, given the downstream benefits of works in the Upper Waipa zone.

It has been decided that combining the Upper and Middle Waipa zones into a single Waipa zone for zone rating and management purposes will better reflect both the local and wider community benefits expected from work proposals, and more fairly distribute benefits presently attributed to that area above Otorohanga to the balance of the Waipa catchment.

A summary of the major outcomes of liaison subcommittee deliberations is included in each of the management zone discussions below.

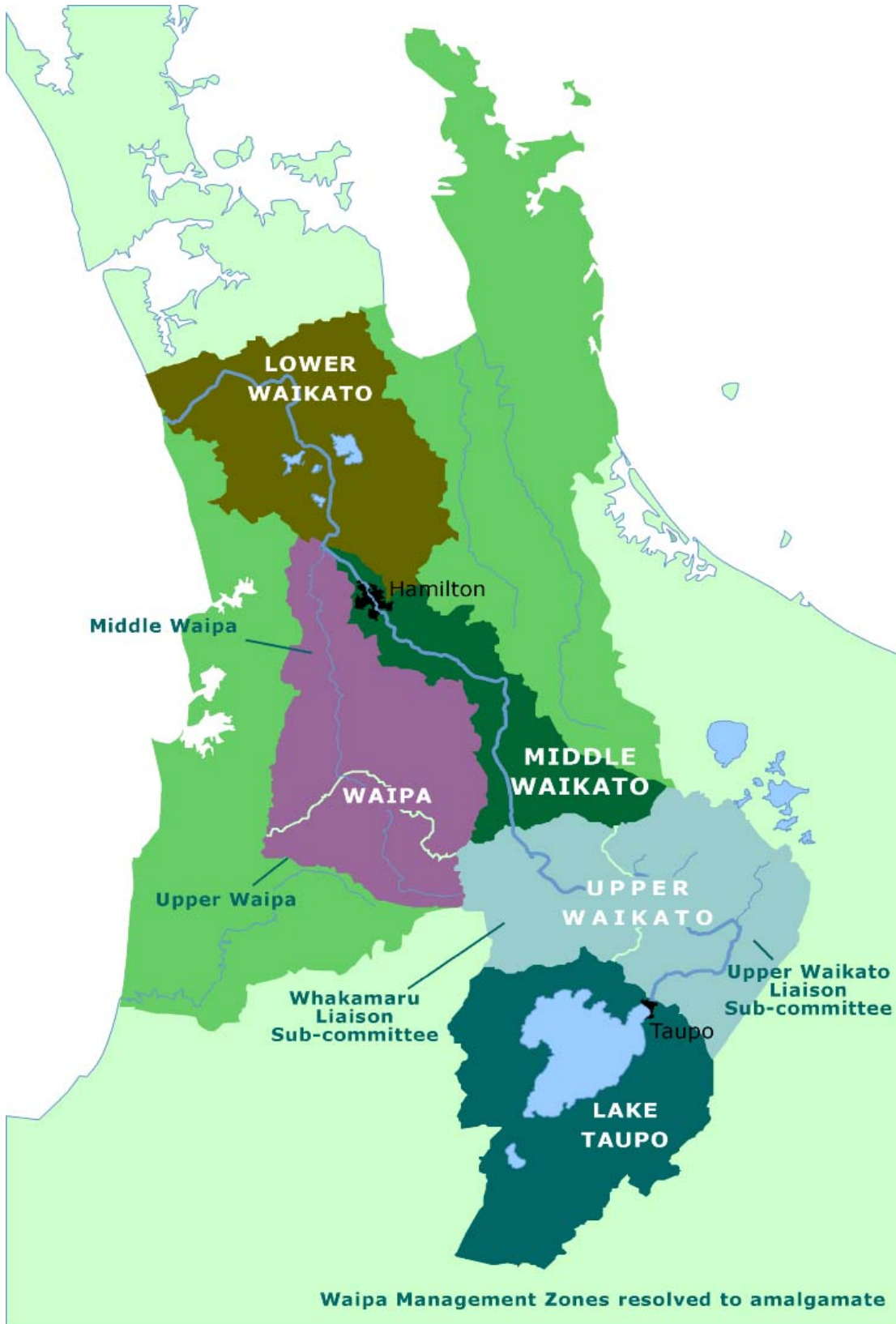
Community meetings were also held in each zone where significant issues existed or where extensive works were proposed. Across the catchment presentations were given and discussions held with agencies, interest groups and communities. Participants included district councils, Department of Conservation, Maori trust boards, major river users, Federated Farmers, Rotary and Lions clubs, farmers, hapu, care groups and local residents.

The information collected has been used in three ways:

- a) Presented to liaison subcommittees to assist them in making their recommendations to Council.
- b) By technical staff at Environment Waikato in adjusting works and costing proposals for the project.
- c) Feedback reports to Council.

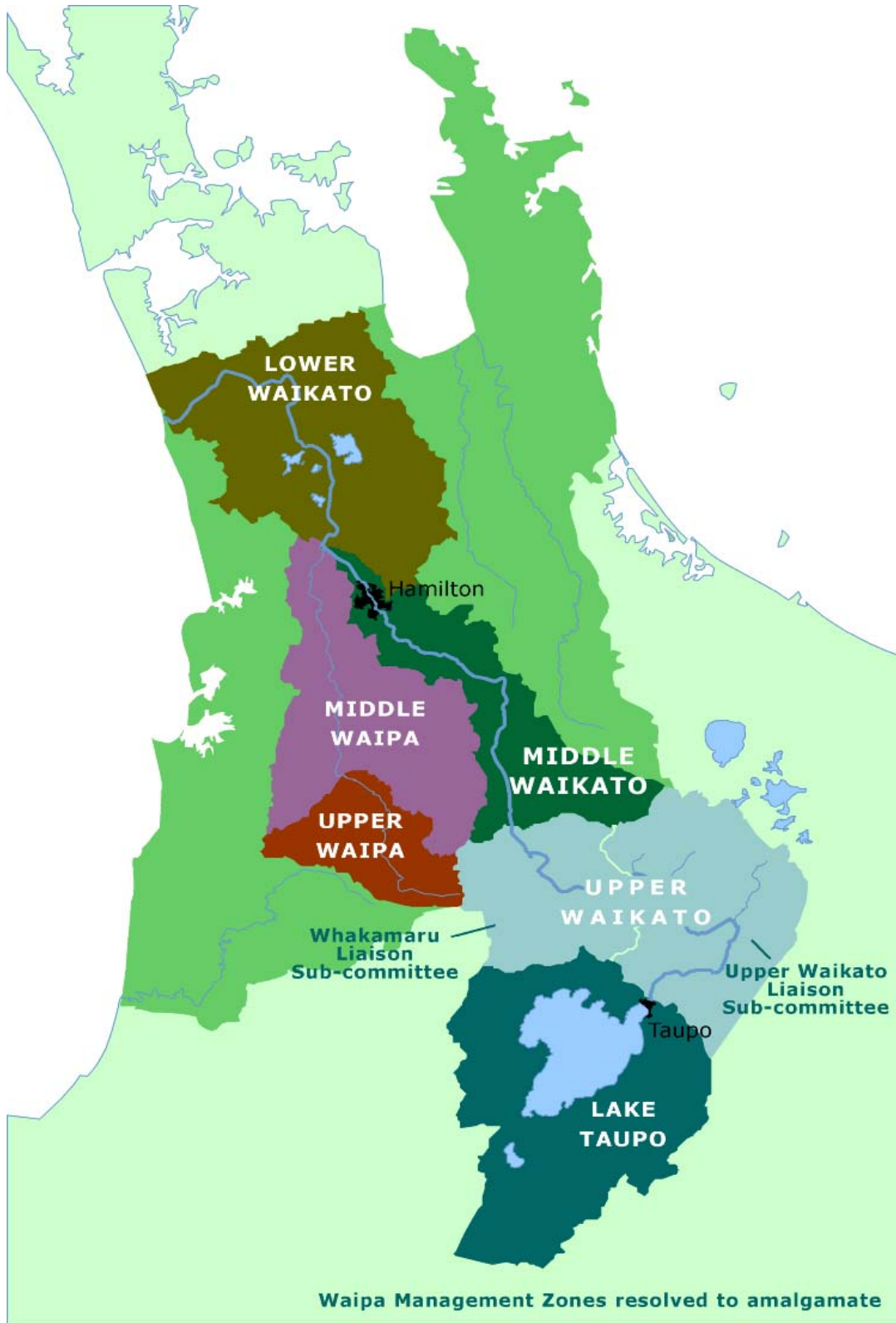
Environment Waikato acknowledges the valuable feedback that has been received through these processes. It has had a substantial bearing on the development of Draft Funding Policy for Project Watershed.

A summary of the formal consultation process and results of Council's deliberations is contained in Appendix 6 of this document.



**Map 2: Project Watershed Management Zones**





**Map 3: Project Watershed Liaison Subcommittee Representation**



# 11 Lake Taupo Management Zone

## 11.1 Description

The Lake Taupo Management Zone covers an area of 349,222 ha surrounding and including Lake Taupo. The zone represents 22 percent of the total project catchment area. The boundaries of the zone are shown in map 2. Of the total area, 18 percent is in pasture, 18 percent in production forestry, 41 percent in native vegetation, scrub and other land uses. The Lake surface accounts for 19 percent of the zone and bare ground four percent.

The predominant geology of the area is Taupo pumice (71 percent) with volcanic material accounting for a further 20 percent. The remaining nine percent is greywacke or argillite. As there is very little clay in the soil parent materials to provide cohesiveness, the soils are extremely fragile and prone to severe gully, sheet, rill, streambank and wind erosion. A break in ground cover can lead to major effects on the land and downstream siltation under certain conditions.

Included in the zone area is the Lake Taupo Catchment Control Scheme. This scheme focuses on the pastoral area of the catchment. The objective of the scheme is to ensure the long term protection of the water quality of Lake Taupo through the encouragement of sound land use practices, and the implementation of soil conservation and water resource management measures. The scheme was implemented between 1976 and 1989 and has a replacement value of \$16m.

## 11.2 Consultation

The Lake Taupo Liaison Subcommittee supported the existing works and recommended that further works be carried out where necessary. This includes proposed river management and flood control works for the Tongariro, Tauranga-Taupo and South Western rivers as well as additional soil conservation works. The committee suggested that all capital works proposed should be implemented within five years. It also considered it important that the beneficiaries and contributors to erosion and flood control were clearly identified to ensure that the burden of funding the works is equitably distributed.

The establishment of a disaster fund to cater for the costs of unforeseen damage, such as that which may follow high intensity rainfall was also recommended.

The role of tangata whenua and the need to take account of cultural views and land ownership issues was also recognised. Finally, the committee emphasised the need for education of both urban dwellers and rural landowners about principles of sustainable land and water management. This is seen as part of an integrated approach to catchment management.

## 11.3 Service Level Options and Justification

### 11.3.1 Soil Conservation

The existing scheme is well documented in the Asset Management Plan. The level of service and associated justification has been agreed with the community and affected landowners. In conjunction with extensive native and exotic forest cover, these existing works provide a high level of protection to the present catchment and to Lake Taupo.

There are some areas where additional protection is considered appropriate. The requirement for new works has been identified by means of the estimation process for soil conservation discussed in section 8. The emphasis in this zone is on riparian

areas, since this reflects the nature of the erosion risk in the pumice land zones and the fact that extensive protection works are in place in many of the hill country areas.

Field surveys have identified a further 131 km of waterways either actively eroding or with high erosion potential. For hill country erosion, assessment of Land Use Capability units for the zone shows that 13 percent of the zone or 36,694 ha of pastoral land classified as between Land Use Capability classes 6 and 8e is considered at risk.

Under Project Watershed, it is proposed that 90 km of this riparian erosion be treated to achieve the sediment reduction. This riparian length is an estimation of the primary areas at risk which were not included in the earlier scheme. The Liaison Subcommittee has agreed these planning assumptions. The gaps in the present coverage, and the proposed new work include key catchments on the western side of the Lake and in the north east. A small amount of lakeshore protection work has also been included in the proposal.

Without the new works there is likely to be an increase of sediment transported into Lake Taupo from its tributaries. As well as affecting farm production, this could reduce the amenity values associated with the high water quality of Lake Taupo, such as trout fisheries, swimming, tourism and water sports.

### **11.3.2 River Management**

A number of river management issues have been apparent for some time within this management zone. These include riverbank erosion, channel instability and channel obstruction. Project Watershed proposes to address these issues in an integrated way, and to clarify roles and responsibilities for the management of existing river works and promoting additional protection. Provision has been made under routine river maintenance for the oversight and basic level of channel management and maintenance.

A greater level of management and protection works is required on some rivers, in particular Tongariro and Tauranga-Taupo. Major additional works are proposed on these rivers to protect local communities. This will complement the existing works, including those recently undertaken on the Tongariro in Turangi by Taupo District Council in 2001. Provision is made under river improvement for this work and should be considered in conjunction with flood protection proposals outlined in section 11.3.3.

The Tongariro River is a constantly changing river system, with Turangi on the entrance to the river delta that continues to actively build. River bed sediments are actively building up and moving through the river channel and have a major influence on the River.

Project Watershed proposals are a combination of both flood protection and river management aimed at preventing, as far as possible, a major river breakout and destruction of property. As a result, the whole of Turangi township benefits from the works. It is reasonable that previously flooded properties which are at greatest risk should pay a higher rate than the rest of Turangi, but with such a volatile river the actual areas of risk are unpredictable.

Gravel management and extraction (local excavations, substantial excavations or commercial extraction) are considered to be an important part of the flood and river control scheme for the Tongariro River. Gravel relocation or extraction would require agreement of landowners and formal consent.

Environment Waikato is intending to develop a gravel management plan in association with stakeholders with specific interests within the local community, in particular the river bed owners, before seeking any consents. The range of environmental effects will need to be fully evaluated before any activity goes ahead. Issues such as sediment discharge effects, alterations to sediment and channel forming regimes, ecological

(including fishery) issues, effects on recreational, noise, dust, landscape effects, archaeological sites and cultural issues will all require assessment.

Provision has also been included in Project Watershed costings for lakeshore protection in this zone. These works, previously administered by Taupo District Council, include construction of structures to protect lakeshore assets, such as footpaths and reserves. Existing lakeshore protection assets are valued at \$300,000. A further \$1.06m of protection assets is scheduled for construction over the next 10 years. Annual maintenance costs are programmed to rise from \$10,000 to \$44,000 over a similar period.

### **11.3.3 Flood Protection**

Flood protection within the Lake Taupo management zone is focused on the existing Lower Tongariro River Scheme and the Tauranga-Taupo River Scheme.

The Tauranga-Taupo River causes significant flooding in and around the settlements of Oruatua and Te Rangiita and on adjacent farmland. The River has a substantial hill country catchment and is highly dynamic with substantial gravel transport in floods. Recent changes in the river course have altered the balance of flood overflow and caused erosion and scour in some areas and gravel deposits in others.

The existing Tauranga-Taupo River flood protection scheme comprises stopbanks and bank protection. Proposed new works include maintaining the main channel, upgrade of flood protection works, drainage improvements in flood prone areas, clearing vegetation debris from the river course where practicable (including the State Highway Bridge) and addressing issues of stopbank maintenance and land use/cultivation with the respective landowners. The Tongariro River presents a number of management issues, relating principally to protection of Turangi township and adjacent land. A Natural Hazard Management Strategy document has been published and Taupo District Council has in recent years implemented erosion and flood protection works, and scoped planning provisions for controlling development in flood prone areas.

Existing Tongariro River flood protection comprises stopbanks. Under Project Watershed, it is proposed that additional work be done to extend, raise and improve the stopbanks.

## **11.4 Costs**

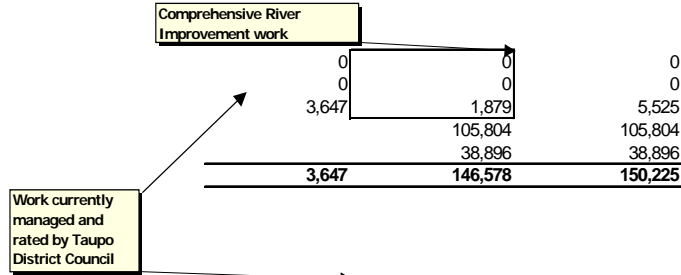
The level of service for Soil Conservation, River Management, Flood Protection and Catchment Oversight discussed above for the Lake Taupo management zone has been translated into estimates and is shown in the following table on the basis discussed in section 2.6.

All costs are shown in 2001 dollars and are GST exclusive.

## Lake Taupo Planned Work Programme

### Proposed Expenditure Level

	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	27,625	27,625
Information and Advice	0	27,170	27,170
<b>Total Catchment Oversight</b>	<b>0</b>	<b>54,795</b>	<b>54,795</b>
<b>SOIL CONSERVATION</b>			
Lake Taupo Scheme	237,852	20,980	258,832
<b>Total Soil Conservation</b>	<b>237,852</b>	<b>20,980</b>	<b>258,832</b>
<b>RIVER MANAGEMENT</b>			
Tongariro	0	0	0
Tauranga-Taupo	0	0	0
East and South Western General	3,647	1,879	5,525
Lake Shore Protection		105,804	105,804
<b>Total River Management</b>	<b>3,647</b>	<b>146,578</b>	<b>150,225</b>
<b>FLOOD PROTECTION</b>			
Tongariro	29,283	32,598	61,880
Tauranga-Taupo	7,956	35,913	43,869
<b>Total Flood Protection</b>	<b>37,239</b>	<b>68,510</b>	<b>105,749</b>
<b>TAUPO ANNUAL EXPENDITURE</b>			
	<b>278,737</b>	<b>290,863</b>	<b>569,600</b>

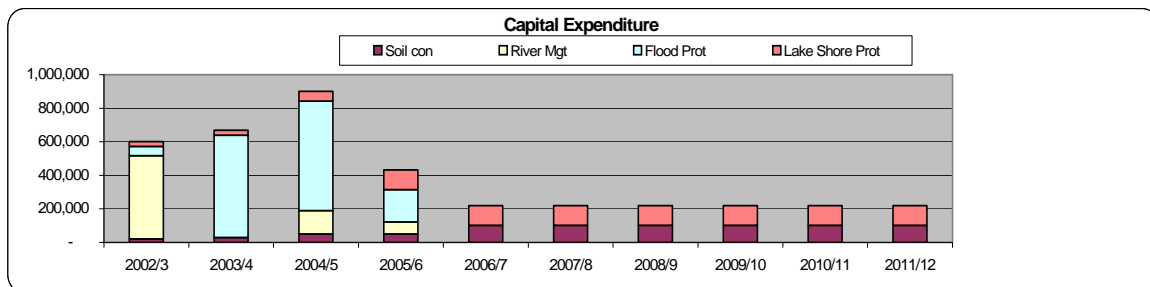


Note the above expenditure includes a component which is set aside into a reserve fund. This reserve fund will be used to fund the capital works requirement outlined below.

## Taupo Indicative Capital Programme

Total Amount to be spent over the next 15 years

Soil Conservation	1,029,906
River Management	707,203
Flood Protection	1,508,327
Lake Shore Protection	1,171,300
<b>Total</b>	<b>4,416,736</b>



## 11.5 Beneficiaries and Contributors

The benefits from the type of work included in the Lake Taupo Management Zone (river management, flood protection, soil conservation and catchment oversight) are discussed in sections 4 to 9.

The relative benefits to landowners for soil conservation are not as substantial in the Lake Taupo Management Zone as in the Reporoa or Paeroa Range Soil Conservation schemes of the Upper Waikato Management Zone. This is because the high value of benefits for Lake Taupo, such as water quality, makes on-farm benefits relatively less significant. Also there are more dairying operations in the Paeroa Range and Reporoa Scheme areas and therefore per hectare production is generally valued higher.

King Country Energy Ltd benefits from the reduced incidence of sedimentation in Kuratau Hydro Lake. There are significant non-financial benefits from the scheme in the form of water quality effects, particularly for tourism, angling, other recreational uses and domestic water supplies. The off-site benefits are considered to be higher than for other schemes and are gained by people from outside the management zone. For that reason a greater contribution from Regional ratepayers is appropriate.

The Tauranga-Taupo work primarily benefits landowners in and around the settlements of Oruatua and Te Rangīta and on adjacent farmland.

The beneficiaries of the Tongariro River works are primarily those with property in the Turangi township and adjacent land.

However, Council recognises that there are wider benefits to the Taupo area from both the Tauranga–Taupo and Tongariro works. As a consequence of this, Council resolved to adjust the budgets and funding policy for these works and for river management in the Lake Taupo Zone to allow the costs to be spread more widely. These changes are detailed in Appendix 6.

When developing its Funding Policy for work of this nature, Council engages independent technical experts to advise on the identification of beneficiaries and contributors for each activity, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5 of this document. Where Council has previously developed and consulted on existing funding policies, that previous work is taken into account when considering future funding policies. The beneficiaries and contributors, and extent of benefit and contribution are as set out in Section 16.





# 12 Upper Waikato Management Zone

## 12.1 Description

The Upper Waikato Management Zone is divided into the Upper Waikato and Whakamaru liaison subcommittee areas. However, for proposed funding purposes they are treated as one area.

In total area the zone is 320,604 ha of which 125,803 ha is in the Whakamaru area and 194,801 ha is in the remaining Upper Waikato Area.

Geologically both areas are volcanic in nature with 60 percent of Whakamaru and 73 percent of Upper Waikato being Taupo pumice. The remainder of both areas is made up of other volcanic materials, including tephra.

Of the Whakamaru area 39 percent is in pasture, 37 percent production forestry, and 24 percent in native vegetation, scrub and other uses. The corresponding figures for Upper Waikato are 50 percent pasture, 40 percent forestry and 8 percent native vegetation, scrub and other.

There are two existing catchment control schemes (CCS) within the zone – the Paeroa Range CCS and the Reporoa CCS. There is also coverage of the soil conservation works within the Whakamaru zone which, while not carried out as a scheme, is to be managed as one. This involves 65 individual farm properties.

The largest of the schemes, Paeroa Range, is located in the vicinity of Waikite and Ngakuru in the Rotorua District. The catchment area is 68,000 ha and includes the Waitapu, Whirinaki and Wharekaka streams that flow from the Paeroa Range to the Waikato River. The objective of the scheme is to protect land, roads, bridges and other structures from erosion, improve water quality and enhance the local environment. The scheme also provides protection to the margin of Lake Ohakuri.

The Reporoa scheme comprises of three distinct catchment-based soil and water conservation schemes totalling 56,000 ha located in the Reporoa – Broadlands area of the Rotorua and Taupo Districts. The individual schemes are the:

Torepatutahi Catchment Control Scheme  
Waiehu Catchment Control Scheme  
Pueto Scheme.

Both the Paeroa Range and the Reporoa schemes and the Whakamaru works were implemented to minimise the effect of high runoff events under storm conditions on the erosion-prone pumice soils in the area. In earlier years, such events threatened the viability of a number of farm properties. The schemes have been largely successful in meeting their objectives of erosion control and protection, and significant benefits have resulted.

The scheme assets include conservation fencing, land retired from grazing use, plantings of trees and structures including bridges, erosion control flumes and crossings, and are valued at \$18m.

## 12.2 Consultation

The Upper Waikato Liaison Subcommittee emphasises the need to protect and maintain the existing scheme works. They considered that a goal focused approach

should be taken to managing the zone, with a goal of having all stock excluded from all waterways in 10 years.

An integrated approach to catchment management is suggested, particularly in respect to land management, water quality and river management. The need to monitor, collate information, measure results and assess the effectiveness of works was emphasised, and it was suggested that more field staff may be required to achieve this.

The Subcommittee suggested an appropriate landowner contribution of 65 percent for new soil conservation works and maintenance. It considered that new works should be carried out as soon as possible to be effective. However it recommended that Environment Waikato maintain some flexibility in funding arrangements, such as spreading landowner contributions over a number of years. The Subcommittee further considered that indirect costs should not be funded by direct charges on the landowner.

The Subcommittee maintained that there is still a need for a legal agreement between landowners and Environment Waikato similar to Land Improvement Agreements. It also asked that consideration be given to bundled consent processes covering a scheme area, particularly for the harvesting of trees.

The Whakamaru Liaison Subcommittee agreed there was a need to continue maintenance on existing works and that works should be secured under a Land Improvement Agreement or similar document. It suggested that Environment Waikato's role needs to be clearly identified.

The Subcommittee requested that further work be carried out to assess qualitative benefits. It also considered that there should be further investigation of the possibility of Crown contributions to the costs associated with Project Watershed. (in respect of the Department of Conservation and lakeshore lands). The issue of the Crown's contribution is addressed in section 4.7 of this document.

## **12.3 Service Level Options and Justification**

### **12.3.1 Soil Conservation**

The existing schemes are documented in the Asset Management Plans. An asset management strategy also exists for the Whakamaru works. The level of service and associated justification has been agreed with the community and affected landowners.

The requirement for new works has been identified through the estimation process for soil conservation discussed in section 8. The emphasis for soil conservation within this zone is on the riparian areas based on the pattern of erosion present, and the distribution of existing protection. Specific catchments identified for additional work include the Tahunaatara and Waitapu catchments, and those streams draining from the southern side of Lake Whakamaru.

Field surveys have identified a further 156 km of waterways either actively eroding or with high erosion potential.

It is proposed that 113 km and 222 km of bank lengths respectively for the Whakamaru and Upper Waikato subcommittee areas be treated for riparian erosion to achieve the desired sediment reduction. This riparian length is an estimation of the primary areas at risk which were not included in either of the existing schemes.

The liaison subcommittees have agreed with these planning assumptions.

### 12.3.2 River Management

Currently little or no river management activities are undertaken in the Upper Waikato/Whakamaru zones apart from some occasional advice.

Provision has been made for routine river maintenance work. Activities would include channel maintenance, vegetative management and supervision within the main channels of priority waterways.

The priority waterways for the Upper Waikato Liaison Subcommittee zone are:

- Waiotapu
- Tahaanatarā/Pokaitu
- Ruatawiri
- Kereua
- Waikora
- Torepatutahi
- Otamakokore
- Wharekaunga.

The priority waterways for the Whakamaru Liaison Subcommittee zone are:

- Mangakowhiriwhiri Stream
- Maraemanuka Stream
- Okama Stream
- Waipapa Stream
- Waiteti Stream
- Mangakino River.

### 12.3.3 Flood Protection

Flood protection is not a significant issue in this zone.

## 12.4 Cost

The level of service for Soil Conservation, River Management, and Catchment Oversight discussed above for the Whakamaru and Upper Waikato liaison subcommittee areas has been translated into estimates and is shown in the following tables, on the basis discussed in section 2.6.

All costs are shown in 2001 dollars and are GST exclusive.

Upper Waikato Planned Work Programme	Proposed Expenditure Level		
	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	22,100	22,100
Information and Advice	0	37,009	37,009
<b>Total Catchment Oversight</b>	<b>0</b>	<b>59,109</b>	<b>59,109</b>
<b>SOIL CONSERVATION</b>			
Scheme Work	364,650	75,388	440,038
Farm Plan Work	99,450	0	99,450
<b>Total Soil Conservation</b>	<b>464,100</b>	<b>75,388</b>	<b>539,488</b>
<b>RIVER MANAGEMENT</b>			
River Improvements Main Channel	0	49,504	49,504
River Management Tributaries	0	13,813	13,813
General	4,420	0	4,420
<b>Total River Management</b>	<b>4,420</b>	<b>63,317</b>	<b>67,737</b>
<b>UPPER WAIKATO ANNUAL EXPENDITURE</b>	<b>468,520</b>	<b>197,813</b>	<b>666,333</b>

### Whakamaru Planned Work Programme

#### Proposed Expenditure Level

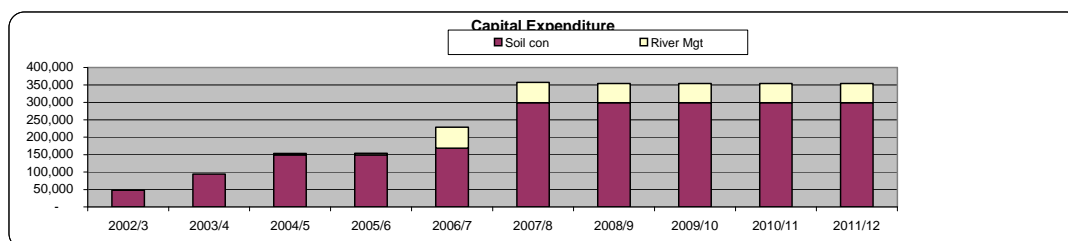
	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	2,321	2,321
Information and Advice	0	0	0
<b>Total Catchment Oversight</b>	<b>0</b>	<b>2,321</b>	<b>2,321</b>
<b>SOIL CONSERVATION</b>			
Scheme Work	0	35,245	35,245
Farm Plan Work	114,920	0	114,920
<b>Total Soil Conservation</b>	<b>114,920</b>	<b>35,245</b>	<b>150,165</b>
<b>RIVER MANAGEMENT</b>			
River Improvements Main Channel	0	663	663
River Management Tributaries	0	1,658	1,658
<b>Total River Management</b>	<b>0</b>	<b>2,321</b>	<b>2,321</b>
<b>WHAKAMARU ANNUAL EXPENDITURE</b>	<b>114,920</b>	<b>39,886</b>	<b>154,806</b>

Note the above expenditure includes a component which is set aside into a reserve fund.  
This reserve fund will be used to fund the capital works requirement outlined below.

### Upper Waikato Indicative Capital Programme (Including Whakamaru)

Total Amount to be spent over the next 15 years

Soil Conservation	2,987,046
River Management	569,080
<b>Total</b>	<b>3,556,126</b>



## 12.5 Beneficiaries and Contributors

The benefits generic to the type of work included in the Upper Waikato Management Zone (river management, soil conservation and catchment oversight) are discussed in sections 4 to 9.

The Reporoa schemes exhibit a similar pattern of benefit distribution to other pumice land schemes (with the exception of Taupo). The benefits mentioned in section 8 are the principal financial benefits arising from the schemes and accrue largely to the landowners and neighbouring downstream properties. There is another benefit, in the form of reduced damage to off-farm infrastructural assets, predominantly roading. This benefit goes beyond just the immediate environment.

The Paeroa Range scheme is similar to the Reporoa scheme in that both are based on pumice lands experiencing similar types of erosion and requiring similar types of soil conservation techniques. Given that the land uses are also similar, it follows that the benefits and their distribution should also be similar. As with the Reporoa scheme there is a benefit in the form of reduced damage to off-farm infrastructural assets, predominantly roading. Again, the benefit goes beyond just the immediate environment. A specific benefit is also experienced by hydro electric generation through the protection and reduction in siltation of the Whirinaki arm of Lake Ohakuri. Other benefits, such as improved water quality, aesthetic and protection values are also experienced widely. These are difficult to quantify and relatively minor in relation to the other benefits mentioned above.

When developing its proposed Funding Policy for work of this nature, Council engages independent technical experts to advise on the identification of beneficiaries and contributors for each activity, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5. Where Council has previously developed and consulted on existing funding policies, that previous work is taken into account when considering future funding policies. The beneficiaries and contributors, and extent of benefit and contribution are as set out in section 16.



# 13 Middle Waikato Management Zone

## 13.1 Description

The Middle Waikato Management Zone covers an area of 174,451 ha. The zone represents 12 percent of the total project catchment area. The boundaries of the zone are shown in map 2. Of the total area, 68 percent is in pasture, 21 percent in production forestry, and six percent in native vegetation, scrub and other land uses

The predominant geology of the area is volcanic material, including tephra which accounts for 65 percent. Twenty six percent is made up of alluvial and unconsolidated sediments. Taupo pumice makes up four percent, peat three percent and greywacke or argillite two percent.

The Karapiro Catchment Control Scheme is included in the zone. This catchment scheme is in the vicinity of Lakes Karapiro and Arapuni, and located in the middle reaches of the Waikato River system. The primary objectives are to protect the land draining to these lakes from soil erosion and therefore enhance lake water quality. Works include retirement of erosion prone lakeshore land, conservation planting and erosion control structures.

The zone also includes the most significant urban areas in the catchment including Hamilton City, Cambridge, Tokoroa, Tirau, Putaruru and Ngaruawahia.

## 13.2 Consultation

The Middle Waikato Liaison Subcommittee considered that Environment Waikato has a role in educating and encouraging to ensure the use of soil conservation works, and should provide information and templates on the development of farm plans. It recognised that this role needs to be funded and that the current funding policy process is an appropriate means of achieving this. As an enabling process, the Subcommittee supported the landcare concept and would like to see it used in the implementation of soil conservation works. It has recommended that, initially, soil conservation trial programmes should be established and monitored regularly.

The Subcommittee agreed that existing soil conservation assets must continue to be maintained.

The Subcommittee considered it important to analyse where the public benefit lies and that tools and processes need to be worked through to achieve this. However it maintained that rates should be levied, taking into account on and off-site benefits and there should be no assistance available for soil conservation works where there are only on-site benefits.

Riverbed changes between Karapiro and Ngaruawahia are considered to be a key issue that should be investigated further as part of Project Watershed.

The need for better integration with district councils and with Hamilton City Council was also recognised.

The Subcommittee recognised the need for community participation, and that cultural aspects need to be taken into consideration in relation to Treaty of Waitangi principles.

## 13.3 Service Level Options and Justification

### 13.3.1 Soil Conservation

The existing scheme is documented in the Asset Management Plan. The level of service and associated justification has been agreed with the community and affected landowners.

There are some areas where additional protection is considered appropriate. The requirement for new works has been identified by means of the estimation process for soil conservation discussed in section 8. The soil conservation proposals include provision to address soil erosion issues in the hill country/upper catchment areas as well as the riparian or stream/river channel areas.

It was originally proposed that 649 km of stream banks in the Middle Waikato Management Zone be treated. This riparian length includes 363 km of waterways that are either actively eroding or have high erosion potential, plus a further 286 km included for practical reasons. These streambanks were not included in the existing Karapiro Catchment Control Scheme, or are outside the area concerned by the scheme. Treatment may have included fencing to exclude stock access to stream margins, with planting where appropriate. Provision for alternative water supply where access to natural water will be denied was included in the proposals.

Land use capability assessments for the Middle Waikato management zone show a total of 4130 ha which can be classified for erosion risk potential as severe. It is estimated that 15 percent of this erosion has been treated. It was proposed to treat a further 10 percent of the severe hill country type erosion. Works may include retirement from grazing of eroding land and block planting of trees or open pole planting.

Based on feedback from the Liaison Subcommittee, a considerably lower level of protections was proposed. Council considered however, that the level of work proposed was insufficient to meet even the highest priority needs of the zone. As a consequence it has added a further \$90,000 spread over three years to the capital programme for this zone. This will be promoted in a measured way in association with education programmes. It is proposed that the effectiveness of the works be evaluated at the conclusion of the initial period to determine whether to proceed to further works.

### 13.3.2 River Management

Currently little or no river management activities are undertaken in the Middle Waikato Management Zone, apart from some riverbank maintenance in Hamilton City and some other localised areas.

Provision has been made for routine river maintenance within the management zone. Activities would include channel maintenance, vegetative management and supervision within the main channels of priority waterways.

Provision has been included for maintenance of works on the Waikato and tributaries that directly affect Hamilton City. These works include flood protection, erosion and bank protection on the Waikato River and major tributaries, including the Kirikiriroa, Mangaonua, Waitawhiriwhiri and Mangakotukutuku streams. Some of these works are outside of the Hamilton City Boundary.

During the consultation process Hamilton City Council raised concerns that works directly aimed at offsetting or arresting the effect of bed degradation in the Hamilton reach should be substantially attributed to Mighty River Power. At present it is unclear what level of future degradation can be expected, and how this relates to degradation which could be expected to occur naturally. Capital work to the value of \$1.3m and annual costs of \$100,000 have provisionally been allowed for in Project Watershed to address this issue.



However, before any work is undertaken there will be an investigation so that work requirements can be more clearly defined. If no works, or a lower level of works, is identified as a result of these investigations, then the financial provision for work will also be reduced accordingly. Currently the hydro contribution to river improvement work elements within this reach is set at 20 percent.

Council considers that this assessment is appropriate for the investigative work but that on completion contributor assessments for any required channel degradation control works in Hamilton be reviewed in conjunction with Mighty River Power and Hamilton City Council.

## 13.4 Cost

The level of service for Soil Conservation, River Management, Flood Protection and Catchment Oversight discussed above for the Middle Waikato Management Zone has been translated into estimates and is shown in the following table on the basis discussed in section 2.6.

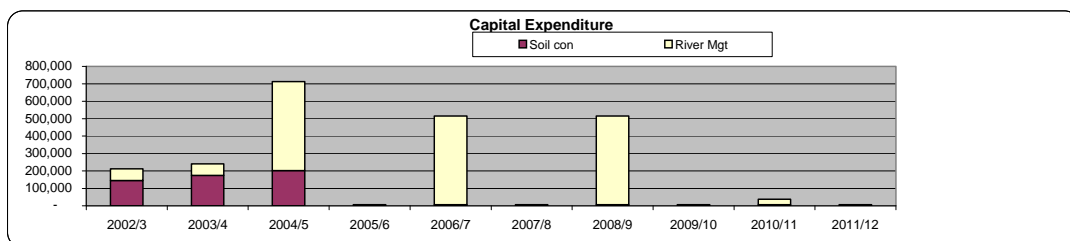
All costs are shown in 2001 dollars and are GST exclusive.

Middle Waikato Planned Work Programme	Proposed Expenditure Level		
	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	35,360	35,360
Information and Advice	0	36,885	36,885
<b>Total Catchment Oversight</b>	<b>0</b>	<b>72,245</b>	<b>72,245</b>
<b>SOIL CONSERVATION</b>			
Scheme Work	101,660	69,790	171,450
Farm Plan Work	17,680	0	17,680
<b>Total Soil Conservation</b>	<b>119,340</b>	<b>69,790</b>	<b>189,130</b>
<b>RIVER MANAGEMENT</b>			
River Management Main Channel	216,580	69,063	285,643
River Improvements Main Channel	0	184,535	184,535
River Management Tributaries	259,675	70,720	330,395
River Improvements Tributaries	0	36,465	36,465
<b>Total River Management</b>	<b>476,255</b>	<b>360,783</b>	<b>837,038</b>
<b>MIDDLE WAIKATO ANNUAL EXPENDITURE</b>			
	<b>595,595</b>	<b>502,818</b>	<b>1,098,413</b>

Work currently managed and rated by Hamilton City Council

Note the above expenditure includes a component which is set aside into a reserve fund. This reserve fund will be used to fund the capital works requirement outlined below.

Middle Waikato Indicative Capital Programme	Total Amount to be spent in total over next 15 years
Soil Conservation	602,446
River Management	1,783,174
	<b>2,385,620</b>



## 13.5 Beneficiaries and Contributors

The benefits for the type of work included in the Middle Waikato Management Zone (river management, soil conservation and catchment oversight) are discussed above in sections 4 to 9.

A range of benefits result from the schemes. These include reduced erosion losses of productive land, farm management benefits (stock shelter and shade, paddock subdivision), reduction in stock losses, production forestry returns and protection of farm infrastructure (farm access and stock water supply). Landowners primarily benefit.

Other benefits include water quality protection, aesthetic enhancement and resource protection. Landowners, lake users and the local and wider communities benefit.

It must be recognised that certain activities have contributed to the need for the schemes. The effects of those activities include accelerated sediment and nutrient inputs into the water. These have resulted from development and use of land for pastoral farming, and through impoundment of the river system.

When developing its Funding Policy for work of this nature, Council engages independent technical experts to advise on the identification of beneficiaries and contributors for each activity, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5. Where Council has previously developed and consulted on existing funding policies, that previous work is taken into account when considering future funding policies. The beneficiaries and contributors, and extent of benefit and contribution are as set out in section 16.

### 13.5.1 Hamilton City and Other Urban Areas

Hamilton City Council currently spends approximately \$430,000 per annum on the type of works involved in Project Watershed. This expenditure is currently funded from the Hamilton City Council general rate. It is intended that these works will be funded under Project Watershed and they are included in the \$5.5m annual cost.

These works involve maintenance of existing erosion protection works on the Waikato River which protect walkways, parks and reserves, and property. This includes some works to streams outside the Hamilton boundary which benefits Hamilton City.

Provision of further protection of the Waikato River bank, gully outlets and the major streams dissecting the city from erosion has also been included in Project Watershed.

An investigation into the degradation (or lowering) of the riverbed through Hamilton City will also be conducted under Project Watershed as has already been noted. Works to protect bridges, private property and other facilities will be programmed under Project Watershed, if the investigation proves that they are required.

Hamilton ratepayers will pay \$882,000 per annum of the total \$5.5m annual expenditure or around 16 percent. Hamilton's population of 114,000 makes up approximately 42 percent of the total population in the Project Watershed catchment. The capital value and land value of Hamilton City is 33 percent and 26 percent of the total for the Project Watershed catchment respectively.

The residents of Hamilton will also enjoy indirect benefits from Project Watershed, such as enhanced recreational opportunities because of reduced sedimentation in the lakes and other reaches of the Waikato River. In particular Project Watershed will provide and maintain significant works around Lakes Arapuni and Karapiro to control erosion and the inflow of sediment. Residents of Hamilton and other urban centres make

considerable use of these amenities and will benefit from the maintenance and improvement of water quality and aesthetic values.

The effective resource management of the Region's major river and catchments is also important to the social, economic and commercial well being of urban areas such as Hamilton, as is the protection of Regional communication links from a major disaster.



# 14 Waipa Management Zone

Under Project Watershed, the Council formed two subcommittees to represent the Waipa catchment, the Upper Waipa and the Middle Waipa liaison subcommittees. The definition of zone boundary within the Waipa catchment arose from an early request from the Upper Waipa and Mangapu communities for assistance in developing a management strategy to address the catchment-related issues which emerged during the 1998 flood event. The management strategy boundary included the Upper Waipa River above Otorohanga and the flood prone Mangapu and lower Mangaokewa systems. It excluded the Waitomo system because that upper catchment already had a soil conservation scheme, although the lower valley flooding was similar to that in the Mangapu system.

The two Waipa subcommittees met independently throughout the informal consultation process until a combined meeting was held in December 2001. The consultation process has resulted in discussion in December 2001 and January 2002 between zone subcommittees and Environment Waikato over the equity implications of initiating two separate Waipa zone differentials, given the downstream benefits of works in the Upper Waipa zone. It has been decided that combining the Upper and Middle Waipa zones for zone rating and management purposes will better reflect both the local and wider community benefits expected from work proposals, and more fairly distribute benefits presently attributed to that area above Otorohanga to the balance of the Waipa catchment.

This document reflects that decision, and accordingly the work programmes have been combined and a single Waipa zone differential proposed. A single Waipa zone Liaison Subcommittee will agree the detail and timing of the work programme.

## 14.1 Description

The Waipa Management Zone covers an area of 306,569 ha. The zone represents 22 percent of the total project catchment area. The boundaries of the zone are shown in map 2. Of the total area 78 percent is in pasture, 21 percent in native vegetation, scrub and other land uses and one percent in production forestry.

The predominant geology of the area is volcanic material, including tephra accounting for 65 percent. Eighteen percent is made up of alluvial and unconsolidated sediments. Taupo pumice makes up three percent, sandstone/mudstone/limestone five percent and greywacke or argillite six percent.

## 14.2 Consultation

### 14.2.1 Upper Waipa

The Liaison Subcommittee has suggested priorities for works in the Upper Waipa management zone. For the Mangapu catchment it suggests that soil conservation and river control works occur over a 10 year period, but overall the zone programme should be spread over 20 years. It supports the concept of routine river maintenance. Environment Waikato should make budgeted information and advice available.

Some form of controlled activity consent is suggested where a planned and co-ordinated programme of river control works is being carried out. For minor river works, the committee considers that landowners be able to carry these out themselves.

In the Tunawaea landslide area it was suggested that the land most severely affected by erosion should be purchased, either by Environment Waikato or the Department of Conservation. It suggested that this should be brought forward in the proposed programme.

The current 65 percent landowner/35 percent regional share funding apportionment is supported for minor works, but major works need to be considered differently.

The Subcommittee considered that as the promoter of development in the Upper Waipa Management Zone, Central Government should contribute financially to the protection of waterways above the Tunawaea landslide. It also recommended that the Treaty of Waitangi be recognised.

#### **14.2.2 Middle Waipa**

The Middle Waipa Liaison Subcommittee supported the improved co-ordination and maintenance of rivers and streams, with the focus on facilitating and assisting local communities. While supporting the Project Watershed proposals generally, the Subcommittee considered that the Project is seeking to achieve too much in too short a time, and recommends that initial work be undertaken on a pilot basis. It suggested that more local meetings be held to determine local solutions.

The use of incentives and voluntary methods to promote the protection needed was supported by the Subcommittee.

### **14.3 Service Level Options and Justification**

#### **14.3.1 Soil Conservation**

There are some areas of the Upper Waipa catchment where additional protection is considered appropriate. The requirement for new works has been identified by means of the estimation process for soil conservation discussed in section 8. Proposals include treatment of eroding hill country areas, particularly in upper reaches of key catchments, steps made toward stabilising the Tunawaea landslide area, and riparian protection within the main channels and other priority sub catchments.

It is proposed that 496 km of stream banks in the zone be treated. This riparian length includes 298 km of waterways that are either actively eroding or have high erosion potential plus a further 198 km included for practical reasons.

Land use capability assessments for the Upper Waipa catchment show a total of 7841 ha which can be classified for erosion risk potential as severe. It is estimated that 10 percent of this erosion has been treated. It is proposed to treat a further 20 percent of the hill country type erosion. Treatment would take the forms of open pole planting or the fencing, retirement and planting of severely eroding areas.

The proposals to stabilise the Tunawaea landslide area have been brought forward as requested by the Subcommittee. The issue of purchasing land to be retired in the area, as recommended, has not yet been considered by Council.

The landslide and damming of the Tunawaea Stream occurred in 1991 and the dam failed during a minor flood event in 1992. As a result of this natural event, the landslide area has continued to provide a heavy sediment load into the Waipa River during rainfall events, and the debris from the landslide has continued to affect the Waipa River channel and valley floor upstream of Toa Bridge.

The Upper Waipa Strategy identified that significant works were required to stabilise the landslide environs and the debris in the valley floor, and Project Watershed was to provide a mechanism that would fund the necessary work.

The costs for managing the Tunawaea landslide and its downstream effects have to date been included in both Project Watershed's soil conservation and river improvement works. Managing the landslide area and the downstream debris is better considered as a single, separate project, as the soil conservation works and river

improvement works have the same purpose, and in this area will include a mixture of the same types of work.

In addition, the issues relating to the area of the Tunawaea landslide and debris are considered to be different from the normal soil conservation and river improvement works, as there is more catchment and Regional benefit and less local benefit from the proposed works.

Accordingly, a separate funding policy has been developed for the soil conservation and river control works from the Tunawaea landslide downstream to the Toa bridge.

In the Middle Waipa catchment the existing Waitomo Catchment Control Scheme is well documented in the Asset Management Plan. The level of service and associated justification has been agreed with the community and affected landowners. A range of benefits result from the scheme. These include saved loss from erosion, farm management benefits (stock shelter and shade, paddock subdivision), reduction in stock losses, production forestry returns and protection of farm and community infrastructure (farm access and local roading). Landowners and the local community primarily benefit.

Other benefits to the Middle Waipa catchment include water quality protection, aesthetic enhancement and resource protection. There are a range of beneficiaries, including the local and wider communities. In particular, commercial tourism interests operating in the immediate Waitomo area benefit.

There are some areas where additional protection is considered appropriate. The requirement for new works has been identified by means of the estimation process for soil conservation discussed in section 8. Proposed new works include protecting the steeper areas of this zone at risk from surface erosion, and riparian protection in identified key sub catchments within the zone.

It was initially proposed that 1084 km of stream banks in the middle Waipa catchment be treated. This riparian length includes 494 km of waterways that are either actively eroding or have high erosion potential plus a further 590 km included for practical reasons. The priority streams identified include the Waitomo, Turitea, Puniu and Mangapiko.

Land use capability assessments for the middle Waipa catchment show a total of 8718 ha which can be classified for erosion risk potential as severe. It is estimated that 15 percent of this erosion has been treated. It was proposed to treat a further 15 percent of the severe hill country type erosion. Works may take the forms of open pole planting, and the fencing and planting of the most erodable areas.

However the (former) Middle Waipa Liaison Subcommittee considered that soil conservation works implementation should be discussed in further detail on a subcatchment basis, and supported the concept of pilot studies to demonstrate the nature of the proposal in the first instance. The estimate therefore assumes only a low level of work for the initial five year period. The work will be reviewed after that time.

### **14.3.2 River Management and Flood Protection**

Currently river management activities in the zone are limited to riverbank maintenance in localised areas and some maintenance of the Waipa River channel.

Provision has been made in the proposed project estimates for routine river maintenance over 370 km of stream lengths in the management zone. Proposed activities include the provision of information and advice, channel maintenance, vegetative management and supervision within the main channels of priority waterways. It is proposed that much of the day-to-day work be completed by landowners.

At present the relevant district councils undertake limited river maintenance work in the main channels within drainage districts still operative in the zone. It is proposed that these activities be undertaken by Environment Waikato under routine river maintenance.

River improvement works have also been suggested for the zone. These include training and stabilising the Waipa River channel to allow gravel in the system to be transported through. The cost estimate for river improvement is \$1.53m. Of this, \$835,000 is involved in works upstream of the Toa bridge and is accounted for in the separate Tunawaea landslide and river works funding policy.

A further \$110,000 is estimated to be required for investigating the flooding that occurs within the Mangapu, Mangaokewa and Mangawhero river systems. This has been provided for.

The (former) Upper Waipa Liaison Subcommittee expressed concern that a large sum of money could be spent on an investigation, and at the end of the investigation no works may proceed as the project may well be uneconomic. The Subcommittee has recommended that the proposed investigation into flooding in these catchments be reconsidered. It was suggested that the investigation be staged so that at the end of each stage the project could be reviewed, and if appropriate, could be terminated.

Accordingly these investigations have been phased over six years starting from 2004. The work will be structured in such a way that if 'desk investigation', (including a review of existing information) of each of stream does not reveal sufficient benefit, the subsequent field investigations will not proceed. No allowance has been made in Project Watershed estimates for any capital works that may be initiated as a consequence of these investigations. A separate funding policy, that may include a differential rate, would be developed if it were decided to proceed with works.

Flood protection currently comprises stop banks to protect the township of Otorohanga. These are currently maintained and funded by the Otorohanga District Council. This is largely funded by lease rentals.

The Mangawhero Stream channel that drains the Kawa Drainage District has been identified as requiring substantial improvement to relieve the flooding that occurs within the Kawa basin. Subcommittee members have requested that the improvement works be included in the proposed programme.

The existing Kawa drainage area stopbank scheme has been provided for in Project Watershed estimates as a flood control work. Capital work, estimated at \$89,000 spread over two years, is required to bring the scheme up to the agreed standard, and the annualised cost of maintaining the scheme is estimated at \$15,000. This cost includes inspections, maintenance and refurbishment costs associated with the stopbanks and floodgates.

## 14.4 Cost

The level of service for Soil Conservation, River Management, Flood Protection and Catchment Oversight discussed above for the Waipa Management Zone has been translated into estimates and is shown in the following table on the basis discussed in section 2.6.



**Waipa Planned Work Programme**

**Proposed Expenditure Level**

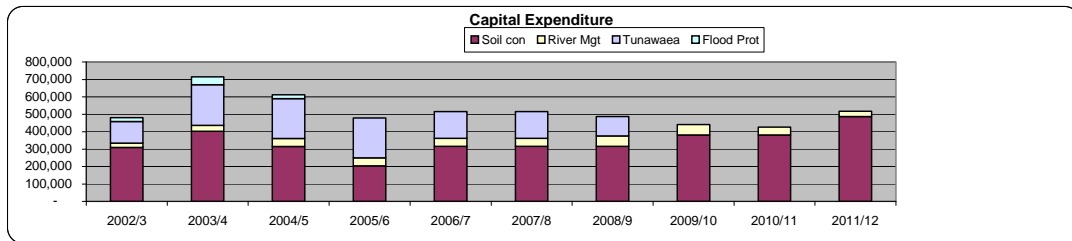
	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	55,250	55,250
Information and Advice	0	56,159	56,159
<b>Total Catchment Oversight</b>	<b>0</b>	<b>111,409</b>	<b>111,409</b>
<b>SOIL CONSERVATION</b>			
Scheme Work	67,405	197,644	265,049
Farm Plan Work	57,460	0	57,460
<b>Total Soil Conservation</b>	<b>124,865</b>	<b>197,644</b>	<b>322,509</b>
<b>RIVER MANAGEMENT</b>			
River Management Main Channel	11,050	225,420	236,470
River Improvements Main Channel	0	12,624	12,624
Tunawaea Landslide & River Improvements	0	48,620	48,620
<b>Total River Management</b>	<b>11,050</b>	<b>286,664</b>	<b>297,714</b>
<b>FLOOD PROTECTION</b>			
Flood Protection	99,450	0	99,450
<b>Total Flood Protection</b>	<b>99,450</b>	<b>0</b>	<b>99,450</b>
<b>WAIPA ANNUAL EXPENDITURE</b>	<b>235,365</b>	<b>595,717</b>	<b>831,082</b>

Note the above expenditure includes a component which is set aside into a reserve fund. This reserve fund will be used to fund the capital works requirement outlined below.

**Waipa Indicative Capital Programme**

Total Amount to be spent over the next 15 years

Soil Conservation	6,348,794
River Management	623,552
Tunawaea Landslide & River Improvements	1,232,075
Flood Protection	88,400
<b>Total</b>	<b>8,292,821</b>



All costs are shown in 2001 dollars and are GST exclusive.

## 14.5 Beneficiaries and Contributors

The benefits from the type of work included in the Waipa Management Zone (river management, flood protection and soil conservation and catchment oversight) are discussed above in sections 4 to 9.

Benefits from river management and flood protection are likely to include the reclaiming of land outside the stabilised channel to pasture over time, reducing current grazing losses to erosion and reduced siltation of pasture. River shingle is likely to be available for extraction at some sites. Indirect benefits include better water quality long term, better certainty of access and increased fish life in the river.

A range of benefits result from soil conservation work. These include reduced erosion losses of productive land, farm management benefits (stock shelter and shade, paddock subdivision), reduction in stock losses, production forestry returns and protection of farm infrastructure (farm access and stock water supply). Landowners primarily benefit. Other benefits include water quality protection, aesthetic enhancement and resource protection. These benefit a number of people, including the local and wider communities.

Certain activities have contributed to the need for the work. The effects of those activities include accelerated sediment and nutrient inputs into streams and rivers. These have resulted from the development and use of land for pastoral farming purposes.

By law, those effects that have contributed to the need for the scheme must also be considered in apportioning costs. These include the effects of land development, land use and road and other asset construction.

Flood protection works provide protection for Otorohanga.

When developing its Funding Policy for work of this nature, Council engages independent technical experts to advise on the identification of beneficiaries and contributors for each activity, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5. Where Council has previously developed and consulted on existing funding policies, that previous work is taken into account when considering future funding policies. The beneficiaries and contributors, and extent of benefit and contribution are as set out in section 16.

# 15 Lower Waikato Management Zone

## 15.1 Description

The Lower Waikato Management Zone covers an area of 283,757 ha. The zone represents 20 percent of the total project catchment area. The boundaries of the zone are shown in map 2. Of the total area, 82 percent is in pasture, three percent in production forestry, and 10 percent in native vegetation, scrub and other land uses.

Geologically the area is quite diverse with volcanic materials including tephra accounting for 26 percent of the area. Twenty six percent is made up of alluvial and unconsolidated sediments, greywacke or argillite 22 percent, peat 13 percent and sandstone/mudstone makes up four percent.

The Lower Waikato Waipa Control Scheme is included in the zone.

The Lower Waikato-Waipā Flood Control Scheme is a comprehensive river control scheme designed to provide flood protection and drainage improvements within the flood plains of the lower Waikato and Waipā rivers. The scheme consists primarily of stopbanks, pump stations, floodgates, and main river channel improvement works. Scheme construction was commenced in 1961 and completed in 1982.

The Lower Waikato River is that portion of the Waikato River extending from Ngaruawahia to the Waikato Heads. Above Ngaruawahia, the River is generally confined within a well incised channel. At Ngaruawahia the River becomes wider and slower flowing, and the flood plain is low and wide.

In its natural state, lakes and wetlands dominated the Lower Waikato floodplain. Today much of this land has been drained and brought into agricultural production. Below Tuakau the River widens out and branches into many smaller channels threading their way through a myriad of small islands before entering Maioro Bay, a wide open tidal expanse of water. From Maioro Bay the River exits through the single narrow channel at the Waikato Heads to the Tasman Sea.

The original area of low lying land in the Lower Waikato, comprising the floodplains of the Waikato River and its tributaries and substantial areas of wetland, was approximately 36,400 ha. Approximately 17,200 ha of this is directly protected by existing scheme works including stopbanks, floodgates and pumping stations. An additional 16,500 ha benefits from improvements to the waterways and river channels (including the main channel of the Waikato River) and the Community Works designed to control ponding areas. Within the Mangawara River Valley the scheme provides protection to approximately 8,300 ha of rural land. In addition to protecting pastoral land, the scheme provides protection to the urban settlements of Huntly in the Lower Waikato zone, and Te Kuiti and Otorohanga in the Waipā zone.

Since the original scheme was completed, two significant works are currently being undertaken as extensions to the Lower Waikato Scheme works.

The Deroles Flood Protection Project comprises a stopbank, pump station and gravity outlet. It is designed to protect 117 ha of low farming land within the Deroles property in the vicinity of Lake Whangape from flooding.

The Mercer West Flood Protection Works are proposed flood protection and drainage works on the area of land adjacent to the western bank of the Waikato River between Mercer and Meremere, protecting approximately 356 ha of low-lying flat farmland. The works consist of stopbanks along the Waikato River, a low return bank along the Morrison Drain and five floodgated outlet structures creating three separate

compartments – Northern, Morrison Road and Southern. Rating levels are subject to further progress with these works.

After approaches from the landowners, the projects were developed under the capital works programme of the Lower Waikato-Waipā Control Scheme. Recognising direct and wider community benefits associated with the works, Council proposed that the landowners fund 75 percent of the construction costs (approximately \$700,000 for Derolles and \$1.1m for Mercer West). The remaining 25 percent is to be funded by Council to reflect the local and wider community benefits from the work. Studies demonstrated sufficient economic benefit for the landowners to agree to this proposal, subject to conditions. Landowner approval for Mercer West has not been received to date, and progress is subject to this approval.

The existing scheme is presently managed by several different agencies, including Environment Waikato and the Franklin and Waikato district councils.

The approximate capital value of the components of the Scheme are:

Environment Waikato	\$37.7m
Franklin District Council }	\$24.0m
Waikato District Council }	
Otorohanga District Council	\$2.7m
	<hr/>
	\$64.4m

The following local areas have decided to take responsibility for maintaining their local protection works and have been excluded from Project Watershed for local protection rating at this stage: Whiskey Flats, Horseshoe, Te Kohanga, Onewhero West, Onewhero East, Tuakau and Ohairoa.

## 15.2 Consultation

The Lower Waikato Liaison Subcommittee noted that soil conservation has not previously been a significant issue in the zone. While it is agreed that soil conservation is beneficial, the appropriate level of works to achieve economic benefits has been questioned. It suggested that more cost benefit analysis be conducted into soil conservation proposals and the possibility of a pilot project was suggested. Views have been expressed both ways as to whether soil conservation should be purely a landowner responsibility, or whether some form of assistance should be available. However it is also noted that there would be a faster uptake of soil conservation if assistance was provided, including educational assistance. The effects of forestry harvesting have been questioned and it has been suggested that it may be preferable to retire land.

The importance of funding on a catchment wide basis was emphasised, particularly as the main channel is a ‘whole of catchment’ issue. The Subcommittee considered that funding also must be consistent and equitable. It is also considered that a high proportion of the existing budget is consumed in administration and depreciation.

There was support for maintaining the main channel. However landowners are considered to be responsible for log removal from waterways other than the main channel. Some problems have been experienced with conservation areas in this. The Subcommittee also considered that some additional flood protection works might be required in addition to those proposed. It also notes that there are boundary issues between separate rating areas.

The need for a consistent approach in planning for future development of flood plains was recognised.

## 15.3 Service Level Options and Justification

### 15.3.1 Soil Conservation

There are some areas in the Lower Waikato Management Zone where additional erosion control works are considered appropriate. The requirement for new works has been identified by means of the estimation process for soil conservation discussed in section 8. Soil conservation proposals have focused on the steep hill country areas (particularly in selected upper catchment areas) where surface erosion is occurring in the forms of soil and earth slipping, and also in certain riparian areas.

It was proposed that 1,181 km of streambanks in the Lower Waikato Management Zone be treated. This riparian length includes 546 km of waterways that are either actively eroding or have high erosion potential, plus a further 635 km included for practical reasons.

Land use capability assessments for the zone show a total of 24,441 ha that can be classified for erosion risk potential as severe. It is estimated that five percent of this erosion has been treated. It was initially proposed to treat a further 15 percent of the severe hill country-type erosion. This would have taken the form of open pole planting, retirement of severely eroding land, and the regeneration of areas of indigenous vegetation.

The Subcommittee recommended a substantially reduced programme of works over the first three years to be promoted as a pilot programme. Council, however considered that the level of work proposed was not sufficient to meet even the highest priority needs of the zone. As a consequence it has added a further \$90,000 to the capital programme spread over three years. The programme will be reviewed after three to five years.

### 15.3.2 Flood Protection and River Management

The objective of the Lower Waikato Waipa Control Scheme is to provide flood protection to rural agricultural land in the Waipa and Lower Waikato valleys and to provide protection for the towns of Te Kuiti, Otorohanga and Huntly. A large component of the existing scheme is in the Lower Waikato Management Zone.

The limiting design flood is the one percent Annual Exceedance Probability (AEP) event (100 year recurrence interval), except for specific areas where a lower standard of protection was adopted for economic or other reasons.

An additional objective was incorporated into the scheme works subsequent to the Tongariro Power Development. This objective aimed to offset the effects of increased river levels due to the additional water diverted into the Waikato River as a result of this scheme. These works are known as the Tongariro Offset Works.

Protection is achieved by a combination of the following:

- Stopbanks providing direct protection to specific areas, including floodgates and pump stations for evacuating water from behind stopbanked areas
- Willow clearing along river and stream channels where infestation severely restricted flood capacity
- Improvements to the channel of the Waikato River, including river training and dredging
- Control of the natural ponding and storage within Lake Waikare and the Whangamarino Swamp.

Since it was constructed, the Scheme has been successful in achieving its objectives and continuation of the service is justified because:

- The scheme provides a significant benefit to the economy and community of the greater Waikato Region.
- The scheme's economic benefits outweigh the ongoing costs of providing the service by nearly 10 to one.
- The economic livelihoods of the communities in the protected areas are dependent on continuation of the scheme benefits.
- In addition to economic benefits, the scheme provides benefits in terms of reduced societal risk, security of access for national, regional and local transport and communication networks, enhanced resource management and recreational benefits.

The Lower Waikato Waipa Control Scheme was originally funded on the basis of 75 percent from Government subsidy, 12.5 percent from sand royalties and 12.5 percent from landowner contributions that were advanced in the form of loans which will be repaid in 2003.

Project Watershed maintenance costs for the scheme include depreciation, which will be used to fund annual refurbishment works

The Asset Management Plan for the scheme notes that the overall benefit cost ratio for ongoing management and maintenance of the scheme is 8. All sections of the scheme apart from the Mangawara section have a benefit cost ratio well in excess of one. For these sections the high benefit cost ratio shows that continued maintenance of the scheme works is sustainable. The Mangawara section works have a benefit cost ratio of 1.2 which indicates that this part of the scheme is economically viable. However, the relative benefits are not as great as for other parts of the scheme.

For Deroles, studies demonstrated sufficient economic benefit that the landowner agreed to the Council's construction and operating funding proposals.

## 15.4 Costs

The level of service for Soil Conservation, River Management, Flood Protection and Catchment Oversight discussed above for the Lower Waikato Management Zone has been translated into estimates and is shown in the following table on the basis discussed in section 2.6.

All costs are shown in 2001 dollars and are GST exclusive.

## Lower Waikato Planned Work Programme

### Proposed Expenditure Level

	Existing Work	Additional Work	Total Annual Work
<b>CATCHMENT OVERSIGHT</b>			
Catchment Oversight	0	35,360	35,360
Information and Advice	0	36,885	36,885
<b>Total Catchment Oversight</b>	<b>0</b>	<b>72,245</b>	<b>72,245</b>
<b>SOIL CONSERVATION</b>			
Scheme Work	0	42,166	42,166
Farm Plan Work	15,470	0	15,470
<b>Total Soil Conservation</b>	<b>15,470</b>	<b>42,166</b>	<b>57,636</b>
<b>RIVER MANAGEMENT</b>			
River Management Main Channel	0	0	0
River Improvements Main Channel	0	0	0
River Management Tributaries	0	183,430	183,430
<b>Total River Management</b>	<b>0</b>	<b>183,430</b>	<b>183,430</b>
<b>FLOOD PROTECTION</b>			
Main Channel Works	240,477	0	240,477
Community Works	199,797	0	199,797
Local Protection Works - Waikato District			
- Waikato	20,059	0	20,059
- Meremere West	24,680	0	24,680
- Meremere	54,659	0	54,659
- Churchill	61,625	0	61,625
- Swan	41,071	0	41,071
- Vrsaljkos	11,828	0	11,828
- Waikare	67,450	0	67,450
- Kimihia	17,290	0	17,290
- Huntly West	206,027	0	206,027
- Ruawaro	45,800	0	45,800
- Waahi	11,713	0	11,713
Local Protection Works - Franklin District			
- Tickle	7,196	0	7,196
- Whiskey Flats	0	0	0
- Horsehoe	0	0	0
- Te Kohanga	0	0	0
- Onewhero West	0	0	0
- Onewhero East	0	0	0
- Tuakau	0	0	0
- Ohairoa	0	0	0
- Mangatawhiri	162,810	0	162,810
- Motukaraka	92,147	0	92,147
- Bell Rd	15,771	0	15,771
- Waller	5,096	0	5,096
- Parish Polder	16,899	0	16,899
- Orton	34,916	0	34,916
Local Protection Works - Mercer West	17,779	0	17,779
Local Protection Works - Deroles	20,774	0	20,774
Local Protection Works - Aka Aka	127,640	0	127,640
Local Protection Works - Mangawara	302,489	0	302,489
Local Protection Works - Huntly	54,546	0	54,546
<b>Total Flood Protection</b>	<b>1,860,538</b>	<b>0</b>	<b>1,860,538</b>
<b>LOWER WAIKATO ANNUAL EXPENDITURE</b>	<b>1,876,008</b>	<b>297,841</b>	<b>2,173,849</b>

Note: Local Protection Works are charged via direct rates

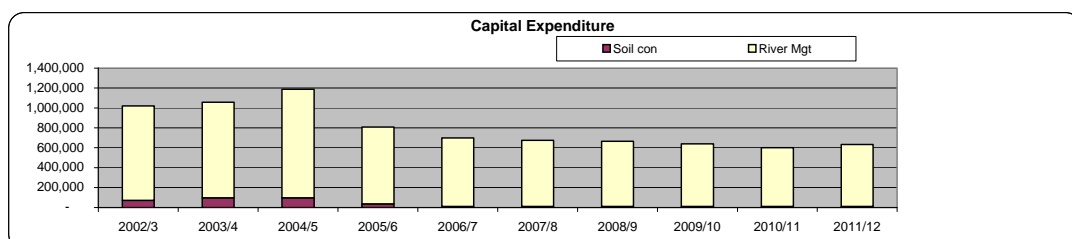
These drainage districts have opted not to have their local protection work funded via Project Watershed

Note the above expenditure includes a component which is set aside into a reserve fund. This reserve fund will be used to fund the capital works requirement outlined below.

### Lower Waikato Indicative Capital Programme

Total Amount to be spent in total over next 15 years

Soil Conservation	447,120
River Management	11,174,863
<b>Total</b>	<b>11,621,983</b>



## 15.5 Beneficiaries and Contributors

The benefits from the type of work proposed for the Lower Waikato Zone (River Management, Flood Protection, Soil Conservation and Catchment Oversight) are discussed above in sections 4 to 9.

The Lower Waikato Waipa Control Scheme provides direct protection to approximately 17,200 hectares of land within the Lower Waikato River Valley. The remaining 16,500 ha of floodplain receives benefits from general river improvements and lowered river levels. In addition, within the Mangawara River Valley, some 17,500 ha of land is protected by the existing Scheme.

Council has engaged independent technical experts to recommend an allocation of benefits and to establish the basis for a differential rating scheme. Set out below are extracts from that work (Meister and Quasi,2001).

### **Direct Benefits**

*These benefits accrue directly to the user of the service. The LWWCS provides direct benefits to private land and property by affording flood protection from the main rivers and tributary streams. The area of benefits covers both urban and rural properties.*

*The main direct beneficiaries are the landowners and utilities directly protected by the scheme.*

### **Production Benefits**

*Landowners receive direct benefits in the form of production increases and reduced flood damages. The increased security (from flooding) has led to land development with many thousands of hectares having been cleared, fertilised and drained. Much of that land has gone into dairy farming since the soils in the flood plain area are highly productive. Hence land with previously very low productivity is now in a variety of highly productive land use enterprises.*

*To demonstrate that more clearly, most of the land protected by Scheme would, without the Scheme being place, be classified as wetland, allowing limited grazing, mostly restricted to the summer months. With the security of the Scheme this land has now been developed, most of it for dairy farming, some beef and cropping. The value of the Scheme is reflected in what has happened to land values.*

*Environment Waikato has engaged classifiers to classify the relative direct benefits to land. To assist with this they have for the scheme area determined the Net Added Land Value, Net Added Cash Operating Surplus and Potential Further Added Cash Operating Surplus. This information is used to determining relativities for differential rating purposes, and also demonstrates the benefits of the Scheme.*

### **Utility Benefits**

*Utilities, primarily being transport network operators, receive direct benefits in terms of saved damage to roads and saved costs of traffic diversions and delays. These transport network operators are not currently rateable under the Rating Powers Act for benefits received.*

*The saved cost of damage to highways and roads, traffic diversion costs, and rescue and repair costs relates primarily to State Highways in the region. The beneficiaries therefore are the New Zealand public (including the people in the region). Hence payment for benefits received should come from those authorities that manage these roads.*



*Within the LWWCS the benefits received by major roads and rail links from flood protection are:*

- 1. State Highway One – Huntly to Pokeno*
- 2. North Island Main Trunk Line Huntly – Mercer*
- 3. State Highway 3 – Otorohanga.*
- 4. North Island Main Trunk Line - Otorohanga*

### **Indirect Benefits**

*These kinds of benefits accrue to third parties (those not directly protected by the scheme) and can often accrue collectively and widely throughout the region. These benefits are technically difficult and administratively inefficient to identify and quantify.*

*Indirect benefits are all those benefits that extend outside the immediate flood plain. It is land that to a certain extent is reliant on the infra-structural, economic, and community factors in the protected flood plains. The security of the flood plains area has led to a greater security for access between dairy farms and dairy factory, sheep/cattle farms and freezing works or sale yards, and the transportation of all types of raw materials and finished products. The increase in security from flooding of the flood plains area and the security of access have led to a situation “where high ground may now be utilised more effectively for dairy farming or other intensive land use owing to the availability of adjacent protected land”. There is much evidence of this in the immediately adjacent areas.*

*This increase in intensification in turn has an impact on the local area and the region as a whole. Input-output tables for the region show that for every extra dollar of output delivered to final demand (and this includes production and processing of agricultural products) regional output will increase by three to four dollars. The scheme therefore results in not just economic units of land, but viable local economies, where the protection from flooding has provided the confidence to invest in development.*

*Further to these indirect economic benefits we also have benefits of peace of mind and resource management. This applies especially to those living adjacent to the flood plain. Although floods do not directly affect these people and their houses, security of access to schools, work and markets is a significant benefit. Further the role of Environment Waikato in providing early warning and forecasting of floods contributes to the peace of mind these people experience.*

*Other indirect benefits are environmental / ecosystem benefits, and recreational benefits. The environmental / ecosystem benefits relate in the main to the main Waikato River channel plantings and stability control. The Scheme also undertakes regular monitoring of changes in the river bed through annual water level profile measurements and 10 yearly surveys of some 200 river cross sections.*

*It is recognised that the Scheme has had some adverse effects on the Whangamarino wetland and Lake Waikare, which were initially affected by the Scheme (and hence a negative indirect benefit occurred). The Scheme requirement to maintain a minimum amount of flood storage within the wetland has been a major factor in preventing further private development within the wetland.*

*Today we could conclude that DOC (on behalf of the wider community) received a negative benefit from the scheme both in terms on lower lake levels and ecological effects. The same goes for recreational benefits from Lake Waikare that have been affected by the scheme due to lower water levels, which makes it*

*difficult to launch boats and sail. Also recreational hunters complained about more difficult access.*

*Indirect benefits from the flood protection scheme accrue to people in the sub-catchment, catchment and wider region, however the level of indirect benefit received is greater to people in the sub-catchment area as compared to the catchment area and the wider region. It is hard to see any justification for separating the people in the wider catchment (beyond the sub-catchment boundary) and those in the region in general. Therefore the cost allocation of indirect benefits is broken into:*

- *Regional community benefit (region and catchment), and*
- *Local community benefit (sub-catchment).*

When developing its Funding Policy for work of this nature, Council engages independent technical experts to advise on the identification of beneficiaries and contributors for each activity, along with the extent of benefit and contribution. These experts base their analysis on the principles outlined in sections 4 and 5. Where Council has previously developed and consulted on existing funding policies, that previous work is taken into account when considering future funding policies. Council considers that the beneficiaries and contributors, and extent of benefit and contribution are as set out in section 16.

# 16 Project Watershed Funding Policy

## 16.1 Preamble

Council is required to prepare a funding policy for Project Watershed in accordance with the to the Local Government Act 1974 Part VIIa as amended by the Local Government Amendment Act 1996 (LGAA). The process Council must use to determine how expenditure shall be funded under the LGAA is the three step process set out in section 3.1.

## 16.2 Step 1 – Who benefits from the activity, what is the extent of that benefit and who contributes to the cost of the activity

Section 122F of LGAA requires the identification of those that benefit from Project Watershed, a determination of the extent of that benefit and an allocation of costs to match benefit.

### 16.2.1 Recovery of Costs at Time of Benefit

LGAA section 122F(a) requires Council to recover the cost of any expenditure at the time the benefits of that expenditure accrue. The principle is concerned with the spread of costs and benefits across time. Ratepayers should not be required to meet costs until they enjoy the associated benefits.

Project Watershed has capital assets in excess of \$100 million and further capital expenditure of approximately \$25 million is planned over the next 15 years. This expenditure relates to the maintenance and replacement of existing assets, and the construction of new assets that the community requires. Council has determined a level of annual expenditure that provides for the funding of ongoing maintenance and operating costs, recovery of deficits in recent years for work relating to Project Watershed and funding of capital expenditure requirements over an appropriate time frame.

Project Watershed has a deficit resulting from a considerable shortfall in funding while this rating system has been put in place. Taken at face value, LGAA section 122F(a) could mean that Council would be unable to fund past deficits. However Council has statutory responsibilities under the Soil Conservation and River Control Act “to minimise and prevent damage within its district by floods and erosion”. Under the LGAA Council also has the “obligation to act in the interests of its residents and ratepayers”. Having regard to the purpose of the legislation and giving words their normal and natural meaning, Council believes that rates can include provision for deficits which have accumulated as a result of expenditure from past works and services.

***Council considered that the proposed level of annual expenditure, and how it has been determined, meets the requirements of S122F(a).***

### 16.2.2 Allocation of Costs to Five Zones and to Significant Activities within each Zone

The LGAA emphasises that the allocation of costs must match the benefits derived. However, to attempt to assess in monetary terms the benefit *per se* without regard to cost would be to depart from the directions of the LGAA. The process of allocating cost in accordance with benefits is the foundation and fundamental driving mechanism to develop the Funding Policy. There is a requirement to recognise where the costs

originate from and there is a need for transparency in the links between costs allocated and expenditure needs to which those costs relate. In complying with the requirements of LGAA, Council is required to do so in such manner and include such detail as considered reasonable, having regard to significance of the matter, the cost and difficulty of obtaining information and the scale of Council's operations.

To satisfy these requirements Council has deemed it appropriate to subdivide annualised scheme expenditure into five separate zones and within each zone, as appropriate, Soil Conservation (Direct, Indirect, Farm Plans and Transitional), River Management, River Improvements, Flood Protection and Catchment Oversight. Asset Management Plans and proposals for new works are the formal documents upon which the subdivision of expenditure has been made.

***Council has developed the Funding Policy based on five zones with Soil Conservation (Direct, Indirect, Farm Plans and Transitional), River Management, River Improvements, Flood Protection and Catchment Oversight detailed within each zone. The cost for each zone and activity within each zone are set out in sections 11 to 15.***

### **16.2.3 Benefits to the Wider Community**

Council considered benefits to the wider community in terms of the LGAA Section 122F(b). This requires it to consider any expenditure that is independent of the number of people who benefit, generates benefits that do not accrue to identifiable persons or groups of persons or generates benefits to the community generally.

While the LGAA sets out how costs are to be apportioned, the Rating Powers Act 1988 (RPA) is the empowering statute to collect rates. The RPA provides a specific mechanism for rating in the particular area of river or erosion protection, and therefore provides guidance for determining benefit.

Section 41 of the RPA states:

- 41 (2) Where the rate is in respect of works for the protection of land from flood or erosion or for the conservation of soil or the management of water, a Board shall for the purposes of subsection (1) of this section, give consideration to,-
- (b) In relation to indirect benefit-
    - (i) The establishment or preservation of economic units of land; and
    - (ii) The protection or establishment of water, sewerage, drainage, electrical, gas, and other services and of works, services, and amenities to which rates from the land can be applied; and
    - (iii) The protection or establishment of communications and of other property, service, or amenity within or benefiting the land.

Council considers that Project Watershed provides benefits to both the wider Regional community, extending beyond the local scheme area, and the local community within the vicinity of the scheme area. For the purposes of this Funding Policy the local community benefit is referred to as "indirect benefit".

#### **Regional Community Benefit**

The wider Regional community beneficiaries identified include:

- State highway, roading and communication networks and users.
- Recreational users.
- General security.
- Resource management.

Protecting Regional communication links and infrastructural assets from the effects of major disaster is considered important to the Regional community. The effective

management of the Region's major river and catchments from a resource management perspective is also of widespread interest to the social well being, commercial and economic viability of the Region, particularly the urban areas. The capital value basis of the Regional rate provides a greater contribution from urban areas consistent with this benefit.

The Regional benefit also includes benefits accruing to those outside the Region, including the Crown. Council does not have the legal ability to recover a share of expenditure from them.

The extent of Regional benefit depends on the zone within which the work is undertaken, and the nature of the work. Council has determined that the overall the Regional benefit allocation is approximately 14 percent of total annual expenditure.

### **Local Community Benefit**

People occupying land within, or regularly travelling through the major direct benefit area of the catchment, receive significant indirect benefits. Project Watershed provides them with the protection, security and confidence to invest, reside and travel in the area and, over time, it has created a relatively safe environment that has allowed and encouraged the development of a wide range of agricultural commercial and recreational activities, including quick and assured access to rural servicing towns in all weather conditions. Such benefits, although of an intangible nature are nevertheless of real value and they extend well beyond the area on which the assets making up Project Watershed are constructed.

It is considered that all of the land within the catchment receives a degree of indirect benefit, however small, based on its "community of interest" with the rest of the catchment. Even ratepayers who live in areas remote from the Waikato or Waipa rivers and who have never seen a floodgate still rely on service towns which would be smaller and offer a greatly reduced range of goods and services if it was not for the commercial activity generated through the protection Project Watershed provides. The hill areas benefit in significant ways from the receipt of services which owe their existence partially or wholly to Project Watershed.

The indirect benefits accruing to the upper catchment areas result from their proximity and relationship to the tributaries that flow into the Waikato and Waipa rivers. These indirect benefits relate to use of the facilities and communities, such as local schools, clubs, services, local roads etc that rely on the economic well being of those adjoining direct scheme benefit areas. The indirect benefit in some extremities of the catchment is small, but it is considered not to be so negligible as to justify their exclusion.

Council considers that there are two levels of local community benefit - a greater Waikato catchment benefit (for those with land in the greater Waikato catchment) and a zone benefit (for those with land in the five defined zones of the Waikato River catchment). The allocation of indirect has been undertaken on this basis.

***Council considered that the (approximate) Regional benefit is 14 percent, the greater Waikato catchment benefit 11 percent, the average zone benefit is 22 percent and that land receiving these benefits should be identified and the extent of benefit assessed.***

#### **16.2.4 Benefits Received by Individuals or Identifiable Categories of People**

Section 122F(c) of the LGAA states "the principle that the costs of any expenditure should be recovered from persons or categories of persons in a manner that matches the extent to which direct benefits of that expenditure accrue to those persons or category of persons".

While the LGAA sets out how costs are to be apportioned, the Rating Powers Act 1988 (RPA) is the empowering statute to collect rates. The RPA provides a specific mechanism for rating in the particular area of river and erosion protection, and therefore provides guidance for determining benefit.

Section 41 of the RPA states:

- 41 (2) Where the rate is in respect of works for the protection of land from flood or erosion or for the conservation of soil or the management of water, a Board shall for the purposes of subsection (1) of this section, give consideration to,-
- (a) In relation to direct benefit,-
    - (i) accruing from the works concerned and the responsibility, the likelihood, frequency, depth, and severity of flooding and erosion; and
    - (ii) The likelihood, frequency, and extent of damage to land and the improvements to land; and
    - (iii) The improvement of drainage; and
    - (iv) The need for water management generally,-  
in relation to the actual and potential uses of land and by reference to the advantages for their care and maintenance:

Taking into account the requirements of LGAA and RPA, and the allocation of costs to cost centres, Council has considered the direct benefit in each of the following categories

- Soil Conservation.
- River Management.
- River Improvements.
- Flood Protection.

Council further considered that, for each category of benefit, the extent of benefit depends on the degree of protection and accordingly there will be different degrees of benefit within each category. Council engages technical advisers and classifiers to determine the degree of benefit in each category. The determinations of the technical advisers and classifiers are the basis for establishing direct landowner charges, rating systems, including differential rating systems, that:

- meet the requirements of Council's Funding Policy (in accordance with LGAA),
- comply with the RPA,
- are fair and equitable, and
- are practicable, transparent and cost efficient to implement and administer.

***Council considered that the Project Watershed Funding Policy, and associated landowners direct charges, rating systems and differential rating systems should identify and assess the extent of direct benefit for:***

- ***Land receiving soil erosion protection***
- ***Land receiving protection from river flooding***
- ***Land receiving drainage benefits, including flat land elevated above scheme assets and channels***
- ***Land receiving river management benefits***
- ***Land receiving river improvement benefits***

***and for each category the extent of benefit will depend on the degree of protection.***

### **16.2.5 Contributions by Individuals or Groups to the Need for the Service**

The characteristics or use of the land or the actions of the occupiers throughout the catchment contribute in varying degrees to the need for flood protection, river management, river improvements and soil conservation in the catchment.

The physical “characteristics” of properties and the past and present “actions of the occupiers” are factors that affect Project Watershed’s costs. In the past, occupiers have assumed that they have an inalienable right to discharge the water from their properties at an ever increasing rate as a result of continuing pastoral development and drainage improvement. This has occurred not only on the flat areas of the catchment but also in rolling and steeper areas where a high proportion of the shallow gullies and swampy flats have now been drained. The expansion of dairying into steeper areas has been one of several factors driving this continued improvement in recent years.

Council considers that the responsibility for sustainable management of land does not stop at each property’s boundary and, under the new legislation, upper catchment land occupiers are considered to have some responsibility for the downstream consequences of their discharge. While it is recognised and accepted that there are legal rights for ratepayers to discharge water, it is also considered that under the Resource Management Act those rights are modified by the need to minimise any adverse effect, such as flooding, on downstream landowners.

Council has considered that costs should be allocated to “contributors” on the following premises:

- That development of the catchment through land clearance, land drainage improvements, river and drainage system development and urban development has increased river flows. (A substantial body of scientific research, engineering knowledge and practical experience backs up this position).
- That the development of hydro schemes and dams in the catchment has increased river flows. Council acknowledges that dam operations can assist in managing flows and this is recognised when determining the extent of contribution.
- That the increased flows have increased the cost of ongoing maintenance of the assets that make up Project Watershed.
- That the assessment of contribution should be based on the difference between the natural (pre-development) conditions and the modified (current) conditions.

The need for or costs of maintaining Project Watershed’s works can be alleviated because of the characteristics, or use of properties or the actions of the occupiers. Examples include areas of native and commercial forest. Council considers that alleviators should have nil liability as contributors.

***Council considered that contributors in the catchment should be identified and allocated a share of costs in a manner that matches the extent to which they contribute, with alleviators (with native or plantation forest) having nil liability as contributors.***

#### **16.2.6 Summary – Step One**

Council has engaged independent classifiers to apply the above policies to determine an appropriate allocation of costs.

***In terms of section 122F of LGAA, Council adopted the percentage apportionment of costs as set out on the following pages:***

	Beneficiary percent							Contributor percent			
	Regional	Catchment	Zone	Landowner	Hydro	Utility	River Management & Flood Protection (Direct Benefit)	Hydro	Urban/Industrial/Roading	Sand mining	Pastoral
<b>Lake Taupo</b>											
Soil Conservation Scheme (Direct)	13	13	13	55					3		3
Soil Conservation Scheme (Indirect)	71	5	14		4				3		3
Soil Conservation Scheme (Transitional)	13	13	13	55					3		3
River Management (General)	5	13	67					5	5		5
River Management East & South Western	9	10	10			8	50	4	4		5
River Management & Flood Protection Tongariro	8	8	8			9	49	4	8		6
River Management & Flood Protection Tauranga-Taupo	10	11	11			9	50		4		5
Lakeshore Protection	8	8	9			6	55	5	9		
Catchment Oversight	26	28	28					7	3		8
<b>Upper Waikato</b>											
Soil Conservation Schemes (Direct)	5.5	7	8	63	2.5	7		2	3		2
Soil Conservation Schemes (Indirect)	50	5	13		5	20		2	3		2
Soil Conservation (Transitional)	5.5	7	8	63	2.5	7		2	3		2
Soil Conservation Farm Plan (Direct)	5.5	7	8	63	2.5	7		2	3		2
Soil Conservation Farm Plan (Indirect)	50	5	13		5	20		2	3		2
River Management - Main	5	9	36					30	6		14
River Management – Tributaries	5	16	64						3		12
River Improvements - Main	2	16	16	26				30	6		14
River Improvements - Tributaries	5	14	38	28					3		12
Catchment Oversight	26	28	28					6	3		9
<b>Middle Waikato</b>											
Soil Conservation Scheme (Direct)	3.5	7	9	64.5	2	7		2	3		2



	Beneficiary percent							Contributor percent			
	Regional	Catchment	Zone	Landowner	Hydro	Utility	River Management & Flood Protection (Direct Benefit)	Hydro	Urban/Industrial/Roading	Sand mining	Pastoral
Soil Conservation Scheme (Indirect)	75	5	13					2	3		2
Soil Conservation Farm Plan (Direct)	3.5	7	9	64.5	2	7		2	3		2
Soil Conservation Farm Plan (Indirect)	75	5	13					2	3		2
River Management – Main	5	11	44					20	4	1	15
River Management – Tributaries	5	15	60						4	1	15
River Improvements – Main	3	5	13.5	13.5			25	20	4	1	15
River Improvements – Tributaries	5	14	37	27					4		13
Catchment Oversight	26	28	28					6	3		9
<b>Waipa</b>											
Soil Conservation Scheme (Direct)	7.5	12	12	62.5					3		3
Soil Conservation Waitomo Caves Scheme (Direct)	13	13	13	55					3		3
Soil Conservation Scheme (Indirect)	75	5	14						3		3
Soil Conservation Farm Plan (Direct)	7.5	12	12	62.5					3		3
Soil Conservation Farm Plan (Indirect)	75	5	14						3		3
River Management	5	15	60						4		16
River Improvements (excluding Tunawaea to Toa Bridge)	5	14	37	24					4		16
Flood Protection	11	11	11			9	40		3		15
Tunawaea Landslide and River Improvement to Toa Bridge	22	24	32	7					3		12
Flood Protection (Mangapu investigations)	11	11	11			9	40		3		15
Catchment Oversight	26	28	28						4		14

	Beneficiary percent							Contributor percent			
	Regional	Catchment	Zone	Landowner	Hydro	Utility	River Management & Flood Protection (Direct Benefit)	Hydro	Urban/Industrial/Roading	Sand mining	Pastoral
<b>Lower Waikato</b>											
Soil Conservation (Direct)	6	8	9	64		7		3			3
Soil Conservation (Indirect)	75	5	14					3			3
Soil Conservation Farm Plan (Direct)	6	8	9	64		7		3			3
Soil Conservation Farm Plan (Indirect)	75	5	14					3			3
River Management – Tributaries	5	14	56					2	4	2	17
Main Channel Works	1	2	1			6	40	27	4	4	15
Mangawara Channel Works	10	10	11			8	41	2	3	1	14
Community Works	10	10	11			8	41		4	1	15
Local Flood Protection Works	11	10	8			7	40	5	4		15
Catchment Oversight	26	28	28					5	3		10

## 16.3 Step 2 – Evaluation against criteria

Section 122G of LGAA requires Council to consider specific factors (in addition to benefit) in formulating its Funding Policy.

### 16.3.1 Obligation to Act in the Interests of its Residents and Ratepayers

The fundamental components of Project Watershed are existing soil consideration schemes, current river management practices but in particular the Lower Waikato Waipa Catchment Control Scheme (LWWCS).

The current rating system for the LWWCS does not provide sufficient revenue and the scheme has operated in deficit for several years. Also, the rating scheme currently in place for LWWCS does not include all of the lands receiving direct and indirect benefits. With higher funding requirements, as set out in Council's Strategic Plan, this deficiency needed addressing. Also the introduction of the Rating Powers Act (1988) and the Local Government Amendment Act N<sup>o</sup> 3 (1996) significantly changed the way rating classifications are carried out, including the new principle of "contribution", requiring upper catchment landowners to accept some responsibility for the downstream consequences of their water discharge.

Council believes that the positive use of the legislation will help to meet the objectives of Project Watershed and is in the best interest of the Region's residents and ratepayers. The spread of the costs to all relevant sections of the community should make the Project Watershed affordable and protect the productivity and prosperity generated by the scheme.

***Council considers that in terms of section 122G(a) of LGAA the allocation at step one is in the interests of residents and ratepayers and does not require modification.***

### 16.3.2 Fairness and Equity of any Allocation of Costs

Council acknowledges that decisions on funding policy are inherently subjective and complex. Judgements have been made on an informed basis, following the process required in the LGAA and on the basis of recommendations from independent experts. Council believes that the Policy developed is fair and equitable and the allocation of benefit at step one does not require modification.

Council will review the Funding Policy (and associated rating system) whenever the Asset Management Plan is revised but in any case not less than every five years to accommodate changing conditions. Factors which may necessitate future adjustments include changing ground levels, changes in scheme performance or land use, the commencement of new capital works and any future re-appraisal of annualised maintenance costs in the Asset Management Plan review.

***Council considers that in terms of section 122G(b) of LGAA the allocation at step one is fair and equitable and does not require modification.***

***Council will review the Funding Policy whenever Asset Management Plans are revised.***

### 16.3.3 Lawful Council Policy is Effectively and Appropriately Promoted by Funding Policies

With respect to flood protection, and in particular the LWWCS, scheme assets were originally designed and built on the basis of funding from the beneficiaries, plus generous central government grants. The local share of Scheme costs was met by the landowners within the direct benefit area, based on the land protected from flooding, and served by the pump stations, floodgates and improved drainage service.

The Asset Management Plan developed by Environment Waikato in 1997 identified several issues:

- The scheme classification focused on benefit and took no account of wider contributors to scheme costs.
- The scheme provides benefits to parties not covered by the benefit classification system.
- Government funding for main channel maintenance was due to cease in 2003.
- The Tongariro Offset Works Agreement was due to cease in 2003.
- No mechanism existed for recovering the private benefit portion of the cost of managing and maintaining the Community Works assets.
- It was considered desirable that the individual rating systems for various sections of the scheme should be amalgamated so that the different classes of benefit were the same across the whole scheme.

These issues are some of the drivers in the development of Project Watershed.

Considerable work has already been undertaken by Council, particularly in the area of Soil Conservation, to develop and agree funding policies with the community.

Environment Waikato's experience with the promotion of soil conservation indicates that financial incentives not less than a third of total cost (say 30 percent) are needed to encourage property owners to proceed with new soil conservation programmes. Accordingly a funding policy that requires landowners to fund 65 percent of new works currently exists. In addition to this, the landowner share of funding, as set out in Asset Management Plans and Land Improvement Agreements, is currently either 65 percent or 66 percent for both capital work and maintenance, except Lake Taupo which is 50 percent. Finally Transitional Agreements (which expire in about 2007) for Lake Taupo and Upper Waikato require landowners to pay 20 percent.

For existing works, a departure from existing policy in relation to asset maintenance (i.e. an increase) will create major community backlash and complicate the legal obligations under Land Improvement Agreements. For capital work, an increase in the landowner share over present policy has fewer implications, in that it would not compromise any legal agreement. However, it would create inconsistencies and be less administratively simple.

Adoption of the 65 percent level for landowner share (50 percent for Lake Taupo) has the value of being consistent with the Riparian Management Strategy (Clean Streams), thus minimising confusion at an operational level and assisting with administrative processes.

Council has an established policy that requires the landowner(s) to fund 75 percent of the capital expenditure for flood protection and river management works and 65 percent of soil conservation works that are primarily of local benefit and are not considered to be essential to provide protection or benefit to the wider community. The basis of this policy is that the construction of local flood protection schemes, river management or soil conservation works provides significant economic benefits to the landowner that will increase the capital value of the landowner's property.

***Council considered that in terms of section 122G(c) of LGAA, after modification to reflect existing soil conservation funding policies, the allocation effectively and appropriately promotes Council policy.***

***Council will continue its established policy that requires the landowner(s) to fund 75 percent of the capital expenditure for flood protection and river management works and 65 percent of soil conservation works.***

### **16.3.4 Avoiding Significant Adjustment Difficulties for any Person(s) Arising from Changes in the way Costs are Allocated**

Council accepts that increased rates will increase the financial burden on ratepayers within the scheme area and within the Region. The problem is one of bridging the gap between the overall cost of maintaining the scheme to the required standard, and the current inadequate funding for this, including the deficits that have arisen. Council has considered the requirements of the LGAA Section 122E(c) and 122G(d) but does not consider that phasing in the Funding Policy over a period of several years is required.

*Council considered that in terms of section 122G(d) of LGAA the allocation avoids significant adjustment difficulties for any person(s) arising from changes in the way costs are allocated.*

### **16.3.5 Summary – Step Two**

*Council modified the step one allocation to reflect existing soil conservation funding policies and its established capital expenditure policy.*

## **16.4 Step 3 – Identification of appropriate funding mechanism**

Section 122(h) of LGAA requires an analysis of appropriate mechanisms for funding expenditure needs. All potential sources of revenue available to Council were identified and documented.

### **16.4.1 The Funding Mechanisms Available**

There are significant areas of publicly owned or Crown land, which either benefit from maintenance of scheme assets or which contribute towards the costs of scheme maintenance, that cannot be rated under current law.

At the present time Council has no arrangement to recover costs from the Roding Authority (Utility). As these costs relate to benefit within the local community, Council policy therefore is to fund these costs from the local community. However, until such time as the local community is able to recover a share of these costs from the Roding Authority, these costs are funded equally from the local community (zone) and Regional community.

Council has a Regional general rate, based on capital value, for collecting revenue to meet the costs of activities that are of public benefit. Council considered that the Regional benefit should be funded from the Regional general rate.

The RPA provides Council with a specific mechanism for rating drainage and river protection, including the only mechanism regional councils currently have for differential rating. Council considers that this differential rating mechanism is appropriate to achieve the funding of Project Watershed.

The RPA gives Council the ability to levy works and services rates. Council considered that works and services rates should be levied for the following:

- Catchment benefit allocation, on a capital value basis
- Zone benefit allocation, on a capital value basis
- Contribution allocation, excluding hydro, over the whole Project Watershed catchment, on a land value basis
- Hydro generator benefit and contribution on a capital value basis.

Council considers that levying the contribution allocation over the whole catchment is, in the circumstances, more practical than levying it on a zone basis or combination of zone and catchment.

In determining the most appropriate basis for each rate Council considered the most appropriate mechanisms from three perspectives. Firstly, the incidence of the rate and the charge to a property owner. Secondly, the analysis of beneficiary and contributor and how best that analysis can be achieved. Finally, the need to ensure a balance between the cost and administration of any rating system and the amount being collected from each ratepayer.

With the proposed rates Council has in general achieved an appropriate balance to all of the above considerations and each ratepayer is being rated at least in an equitable manner given that rates are a tax. In most territorial local authorities (TLA's) there is some smoothing and the general rate and catchment and zone differentials provide for some of that smoothing.

In determining the base for levying the contributor differential Council considered capital value, capital value with urban/rural differentials, land area or land value as options. In brief the options have the following features:

- Capital value - places a heavy incidence on urban areas, does not correlate to land use or land area that contributes to the need for the expenditure, and perhaps overly weights ability to pay. In summary, it is a simple system but might not be fair and equitable.
- Capital value with urban/rural differentials – would reflect contribution more closely but likely to be more complex to develop and implement. In summary, it would be fair and equitable but is unlikely to be practical.
- Land area – would reflect contribution more accurately and align funding with cost drivers. However it would not reflect the nature or use of the land and would be difficult to administer. In summary, it would be fair and equitable but not practical.
- Land value – reflects the value of services provided by the schemes that protect and enhance the land. Reflects landowner's contribution to need more accurately than capital value, would provide a better balance between urban and rural. In summary, would be simple, fair and equitable.

The RPA gives Council the power to levy or negotiate direct charges. For Project Watershed this particularly relates to charges for soil conservation work in accordance with Land Improvement Agreements. Council considered it appropriate to levy direct charges for:

- Soil conservation landowner benefit
- River improvements landowner benefit
- TLA direct benefit allocations (Lakeshore Protection, Lake Taupo zone – Taupo District Council, River Improvements Main, Middle Waikato zone – Hamilton City Council, Flood Protection, Waipa zone – Otorohanga District Council, Huntly Flood Protection, Lower Waikato zone – Waikato District Council).

Within the Project Watershed differential rating system Council considers it appropriate to have specific differential rating systems for river management and flood protection direct benefit allocations for:

- Lower Waikato Waipa Flood Protection, on a land area basis
- Tauranga-Taupo River Management and Flood Protection, on a capital value basis
- Tongariro River Management and Flood Protection, on a capital value basis.

Council considered the options available for the basis of the differential rates (capital value, land value, annual value and land area) and adopted an area based rating system for Lower Waikato, rather than a value based system. This eliminates the

distortions and inequities that can result from fluctuating rural land values, and promotes simplicity and ease of administration.

For Huntly (Lower Waikato) and Otorohanga (Waipa) flood protection Council considered uniform targeted rates to ensure that properties pay the same amount for effectively the same level of service provided, and to remove the effects associated with rating on a capital value basis. These rates will be effective from 1 July 2003.

For Tauranga-Taupo and Tongariro Council considered capital value as the appropriate basis, given the generally urban nature of the area, protection provided to improvements (rather than rural land) and the notion that higher value property receives greater benefit.

Council considered that it is not practical to establish a differential rating system for Eastern and South Western River Management (Lake Taupo zone) and that the allocation to River Management and Flood Protection direct benefit should be funded from the Lake Taupo zone.

Council considered that it is not practical to establish a differential rating system for the allocation to Flood Protection for the Mangapu investigations (Waipa zone) and that this allocation should be funded from the Waipa zone.

***Council considered that in terms of section 122H(a) of LGAA the rating mechanisms set out in section 16.4.5 below will be used.***

#### **16.4.2 The Efficiency of those Funding Mechanisms**

The specific mechanisms for rating Project Watershed, including the differential rating systems, are considered to be efficient with no significant extra cost for small rates. There is limited additional cost for maintaining the differentials, and land area and capital value provide low cost, stable bases. Council has all the information required to implement the proposed system.

***Council considered that in terms of section 122H(b) of LGAA the proposed rating system will be efficient.***

#### **16.4.3 The Efficiency of Implementing New Systems as Opposed to the Use of Existing Mechanisms**

The required rating system will not be difficult to implement and there would be little additional cost to establish the differential rating systems. The basis for the Lower Waikato river management and flood protection differential rating system is already in place and can be efficiently extended to include the additional areas of benefit. Council has all the information required to implement the proposed system.

***Council considered that in terms of section 122H(c) of LGAA it is efficient and effective to use the proposed funding mechanisms.***

#### **16.4.4 The Transparency of Funding Mechanisms in Terms of Allowing Clear Identification of the Links Between Costs Allocated and Expenditure Needs to Which They Relate**

The rating system proposed by Council, in accordance with the LGAA and RPA allows clear identification of the links between costs allocated and expenditure needs to which they relate. While it is an extensive system, it is not overly complex and it is transparent.

***Council considered that in terms of section 122H(d) of LGAA the proposed system allows clear identification of the links between costs allocated and expenditure needs to which they relate and meets the requirements of transparency.***

### 16.4.5 Summary – Step Three

The final allocation of costs will be as set out on the following pages and the following rating mechanisms within a Project Watershed differential rating system will be used:

- ***Regional allocation from the general rate on a capital value basis.***
- ***Catchment allocation from a benefit works and services rate over the greater Waikato catchment on a capital value basis.***
- ***Zone allocations from benefit works and services rates over the respective management zones on a capital value basis.***
- ***Landowner allocations from direct charges on landowners.***
- ***River management and flood protection direct benefit allocation from a differential rating system over the area of direct benefit based on capital value (Tauranga - Taupo River and Tongariro River). A direct charge on Taupo District Council (Lakeshore Protection), a direct charge on Hamilton City Council (River Improvement Main in the Middle Waikato zone) and a direct charge on Otorohanga District Council to be replaced from 1 July 2003 with a uniform targeted rate (Flood Protection Waipa zone). A differential rating system over the area of direct benefit based on land area (Lower Waikato excluding Huntly) and a direct charge on Waikato District Council to be replaced from 1 July 2003 with a uniform targeted rate (Huntly).***
- ***Hydro benefit and contributor allocations from works and services rates on hydro generators on a capital value basis.***
- ***Contributor allocations, excluding hydro, from a works and services rate over the greater Waikato catchment on a land value basis.***



	Beneficiary percent							Contributor percent			
	Regional	Catchment	Zone	Landowner	Hydro	Utility	River Management & Flood Protection (Direct Benefit)	Hydro	Urban/Industrial/Roading	Sand Mining	Pastoral
<b>Lake Taupo</b>											
Soil Conservation Scheme (Direct)	13	13	18	50					3		3
Soil Conservation Scheme (Indirect)	71	5	14		4				3		3
Soil Conservation Scheme (Transitional)	39	13	22	20					3		3
River Management (General)	5	13	67					5	5		5
River Management East & South Western	13	10	64					4	4		5
River Management & Flood Protection Tongariro	13	8	12				49	4	8		6
River Management & Flood Protection Tauranga-Taupo	15	11	15				50		4		5
Lakeshore Protection	11	8	12				55	5	9		
Catchment Oversight	26	28	28					7	3		8
<b>Upper Waikato</b>											
Soil Conservation Schemes (Direct)	9.5	7	9	65	2.5			2	3		2
Soil Conservation Schemes (Indirect)	60	5	23		5			2	3		2
Soil Conservation Schemes (Transitional)	44.5	7	19	20	2.5			2	3		2
Soil Conservation Farm Plan (Direct)	9.5	7	9	65	2.5			2	3		2
Soil Conservation Farm Plan (Indirect)	60	5	23		5			2	3		2
River Management – Main	5	9	36					30	6		14
River Management – Tributaries	5	16	64						3		12
River Improvements – Main	2	6	16	26				30	6		14
River Improvements – Tributaries	5	14	38	28					3		12
Catchment Oversight	26	28	28					6	3		9
<b>Middle Waikato</b>											
Soil Conservation Scheme (Direct)	7.5	7	11.5	65	2			2	3		2
Soil Conservation Scheme (Indirect)	75	5	13					2	3		2
Soil Conservation Farm Plan (Direct)	7.5	7	11.5	65	2			2	3		2
Soil Conservation Farm Plan (Indirect)	75	5	13					2	3		2
River Management – Main	6	11	44					20	4		15
River Management – Tributaries	6	15	60						4		15
River Improvements – Main	4	5	13.5	13.5			25	20	4		15

	Beneficiary percent							Contributor percent			
	Regional	Catchment	Zone	Landowner	Hydro	Utility	River Management & Flood Protection (Direct Benefit)	Hydro	Urban/Industrial/Roading	Sand Mining	Pastoral
River Improvements – Tributaries	5	14	37	27					4		13
Catchment Oversight	26	28	28					6	3		9
<b>Waipa</b>											
Soil Conservation Scheme (Direct)	7.5	12	9.5	65					3		3
Soil Conservation Waitomo Caves Scheme (Direct)	13	13	13	55					3		3
Soil Conservation Scheme (Indirect)	75	5	14						3		3
Soil Conservation Farm Plan (Direct)	7.5	12	9.5	65					3		3
Soil Conservation Farm Plan (Indirect)	75	5	14						3		3
River Management	5	15	60						4		16
River Improvements (excluding Tunawaea to Toa Bridge)	5	14	37	24					4		16
Flood Protection	16	11	15				40		3		15
Tunawaea Landslide and River Improvement to Toa Bridge	22	24	32	7					3		12
Flood Protection (Mangapu investigations)	16	11	55						3		15
Catchment Oversight	26	28	28						4		14
<b>Lower Waikato</b>											
Soil Conservation (Direct)	10	8	11	65					3		3
Soil Conservation (Indirect)	75	5	14						3		3
Soil Conservation Farm Plan (Direct)	10	8	11	65					3		3
Soil Conservation Farm Plan (Indirect)	75	5	14						3		3
River Management - Tributaries	5	14	56					2	4	2	17
Main Channel Works	4	2	4				40	27	4	4	15
Mangawara Channel Works	14	10	15				41	2	3	1	14
Community Works	14	10	15				41		4	1	15
Local Flood Protection Works	15	10	11				40	5	4		15
Catchment Oversight	26	28	28					5	3		10

## 16.5 Funding policies by zone and activity will be:

### 16.5.1 Lake Taupo

- **Soil Conservation Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; direct charges on landowners; a benefit works and services differential on hydro generators on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management General**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Flood Protection and River Management Tauranga-Taupo**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; a differential rating system over the area of direct benefit based on capital value and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Flood Protection and River Management Tongariro**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; a differential rating system across the area of direct benefit on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management East and South Western**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Lakeshore Protection**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; a direct charge on the Taupo District Council for the Direct Benefit

allocation; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Catchment Oversight**

From the general rate on a capital value basis; a benefit works and services differential over the Waikato River catchment on a capital value basis; a benefit works and services differential over the Lake Taupo Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

## 16.5.2 Upper Waikato

- **Soil Conservation Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a capital value basis; direct charges on landowners; a beneficiary charge on hydro generators; a benefit works and services differential on Hydro Generators on a capital value basis; a contributor works and services differential on Hydro Generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management Main**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management Tributaries**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Improvements Main**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a capital value basis; a charge on landowners; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Improvements Tributaries**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a

capital value basis; a charge on landowners; and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Catchment Oversight**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Upper Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

### 16.5.3 Middle Waikato

- **Soil Conservation Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works & services differential over the Middle Waikato Management Zone on a capital value basis; direct charges on landowners; a benefit works and services differential on hydro generators on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management Main**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Middle Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management Tributaries**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Middle Waikato Management Zone on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Improvements Main**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Middle Waikato Management Zone on a capital value basis; a charge on landowners; a charge on Hamilton City for the Direct Benefit allocation; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Improvements Tributaries**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit

works and services differential over the Middle Waikato Management Zone on a capital value basis; a charge on landowners and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Catchment Oversight**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Middle Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

#### 16.5.4 Waipa

- **Soil Conservation Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis; direct charges on landowners and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Improvements (excluding Tunawaea to Toa Bridge)**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis; a charge on landowners and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Tunawaea Landslide and River Improvement to Toa Bridge**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis; a charge on landowners and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Flood Protection; net of lease rentals**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis; a charge on the Otorohanga district for the river management and flood protection direct benefit allocation (to be replaced by a uniform targeted rate

from 1 July 2003) and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Flood Protection (Mangapu Investigations)**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Catchment Oversight**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Waipa Management Zone on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

### 16.5.5 Lower Waikato

- **Soil Conservation Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; direct charges on landowners and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **River Management Tributaries, net of sand royalties**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Main Channel Works, net of sand royalties and government contribution**

From the general rate on capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a direct charge on the Waikato district for the Huntly part of the river management and flood protection direct benefit allocation (to be replaced by a uniform targeted rate from 1 July 2003); a differential rating system over the area of direct benefit on a land area basis for the remaining part of the river management and flood protection direct benefit allocation; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Mangawara Channel Works**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a differential rating system over the area of direct benefit on a

land area basis for the river management and flood protection direct benefit allocation; a contributor works and services differential on Hydro Generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Community Works**, net of lease rentals

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a direct charge on the Waikato district for the Huntly part of the river management and flood protection direct benefit allocation (to be replaced by a uniform targeted rate from 1 July 2003); a differential rating system over the area of direct benefit on a land area basis for the remaining part of the river management and flood protection direct benefit allocation and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Local Flood Protection Works**, net of lease rentals

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a direct charge on the Waikato district for the Huntly part of the river management and flood protection direct benefit allocation (to be replaced by a uniform targeted rate from 1 July 2003); a differential rating system over the area of direct benefit on a land area basis for the remaining part of the river management and flood protection direct benefit allocation; a contributor works and services differential on hydro generators on a capital value basis and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.

- **Catchment Oversight**

From the general rate on a capital value basis; a benefit works and services differential over the greater Waikato catchment on a capital value basis; a benefit works and services differential over the Lower Waikato Management Zone on a capital value basis; a contributor works and services differential on hydro generators and a contributor works and services differential over the greater Waikato catchment on a land value basis; in the proportions shown.



# 17 Differential Rating Systems

The funding for Project Watershed is achieved through the use of an overall differential rating system within which there are specific differential rating systems:

- Lower Waikato Waipa Flood Protection.
- Tauranga-Taupo River Flood Protection.
- Tongariro River Flood Protection.

## 17.1 Lower Waikato Flood Protection Differential Rating System

Based on the cost allocations set out in sections 2.6 and 15.4 and the draft report prepared by the classifiers, the following is a summary of the proposed Lower Waikato Flood Protection Differential Rating System.

The classification is essentially an analysis of the direct benefits that the scheme works provide to the land, property and communities.

The classification was undertaken by registered valuers with experience in the classification of similar schemes.

Direct Benefits of flood protection works, as set out in the Rating Powers Act, are as follows:

- a) Reduction in the likelihood, frequency, depth and severity of flooding and erosion; and
- b) reduction in the likelihood, frequency, and extent of damage to land and improvements to the land; and
- c) improvement of drainage;
- d) the need for water management generally – in relation to the actual and potential uses of the land and by reference to the advantages accruing from the works concerned and the responsibility for their care and maintenance.

The proposed new classification would replace that put in place when the scheme was completed. The existing classification has some severe limitations and is currently used to varying degrees by the different agencies involved in the scheme.

For the purpose of the new classification, the scheme works have been broken down into three primary layers. Typically for each layer, land has then been classified within a range of up to twelve classes reflecting the differing levels of benefit received. The three primary layers are:

1. Main Waikato River Channel Works.
2. Community Works.
3. Local Protection Works (Formerly the original scheme Section A, B, and D works).

The Main Channel Works are all those works undertaken within the Waikato River to maintain the hydraulic capacity and performance of the channel.

The Scheme Community Works are those that control the operation of the scheme ponding areas, i.e. Lake Waikare and the Whangamarino Wetland. The Community Works provide storage of floodwaters from local catchment areas and in large floods, from the Waikato River and greater catchment. They are so called because they involve structures which benefit the whole lower floodplain area, and do not relate to any specific local protection works. They include:

- The Rangiriri Spillway.
- The Te Onetea Stream sluice gate.
- The Lake Waikare Outlet control gate.
- The canal between the Lake Waikare outlet and the Whangamarino Wetland,
- The Whangamarino Control Gate.

Local protection works are the stopbanks, floodgates, pump stations and channel improvements that were aimed at protecting specific local areas or compartments. These areas have all been classified on the same basis, however for the purpose of funding a further subdivision has been undertaken in to specific 'cost centre' areas. Within specific cost centre areas, funding will be undertaken separately, using the required mix of differential rating over the benefit area for that cost centre, plus zone, catchment and regional rate contributions. The separate cost centre areas proposed within the Local Protection Works Layer are:

- Waikato District Rural works (Part of the original Section B works).
- Franklin District Rural Works excluding Aka Aka. (Part of the original Section B works).
- Aka Aka Drainage Area Works (Part of the original Section B works).
- Managawara Valley Protection Works (The original Section D works).
- New Works – Deroles, Lake Whangape.

The proposed Mercer West works are currently under review due to changes in spoil availability for stopbanks. Implementation of capital rating and associated local protection maintenance rating would be subject to the scope of works finally implemented.

Additionally, two separate cost centre areas are proposed within the Main Channel works Layer. These are:

- Main Lower Waikato Floodplain.
- Mangawara Valley.

While the primary benefit from the Main Channel works occurs in the Lower River floodplain, an additional Mangawara Valley Cost Centre has been included to recognise the fact that some limited benefit from the Main Channel works does accrue within the Mangawara Valley. The costs of the Main Channel works have been divided 85 percent to the Main Cost Centre and 15 percent to the Mangawara.

While the differentiation into layers and cost centres adds a degree of complexity to the system, it is necessary because the range of different services provided by different agencies in individual areas requires this separation.

## **17.2 Tauranga-Taupo River Flood Protection Differential Rating System**

A proposed differential rating scheme was developed for the Tauranga-Taupo River flood protection and river management works. However as a result of submissions made during the formal consultation process the classification is being revised and further consultation undertaken with the community. A separate special order for direct benefit rates will be notified later at the conclusion of these processes.

## **17.3 Tongariro River Flood Protection Differential Rating System**

A proposed differential rating scheme has been developed for the Tongariro River flood protection and river management works.

The differential rating scheme defines five classes of direct benefit in and adjacent to the township of Turangi. The direct benefits relate to properties which are floodable, or at risk of being flooded or eroded due to changes in the course of the River.

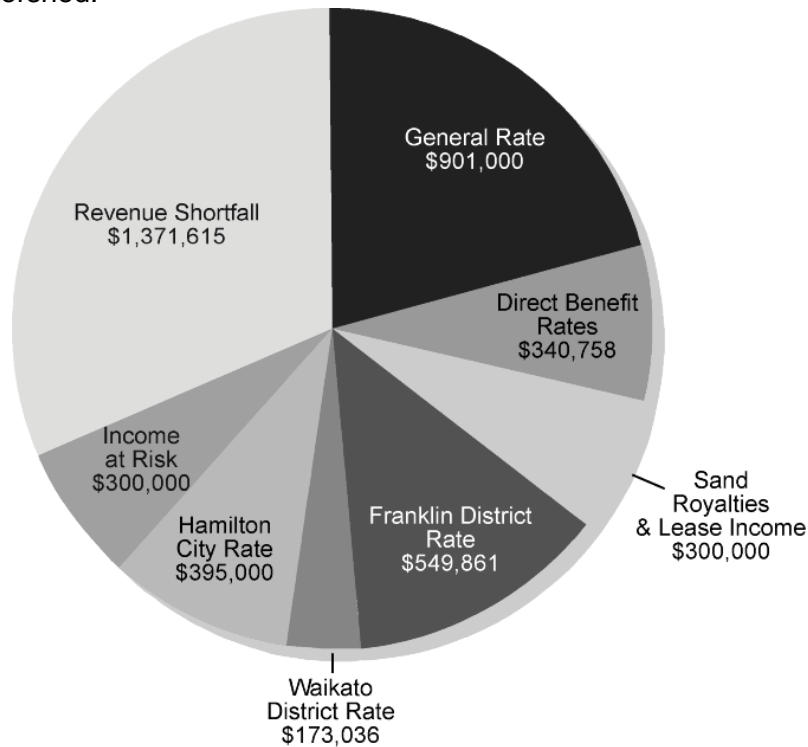
It is proposed that the scheme will be based on capital value.



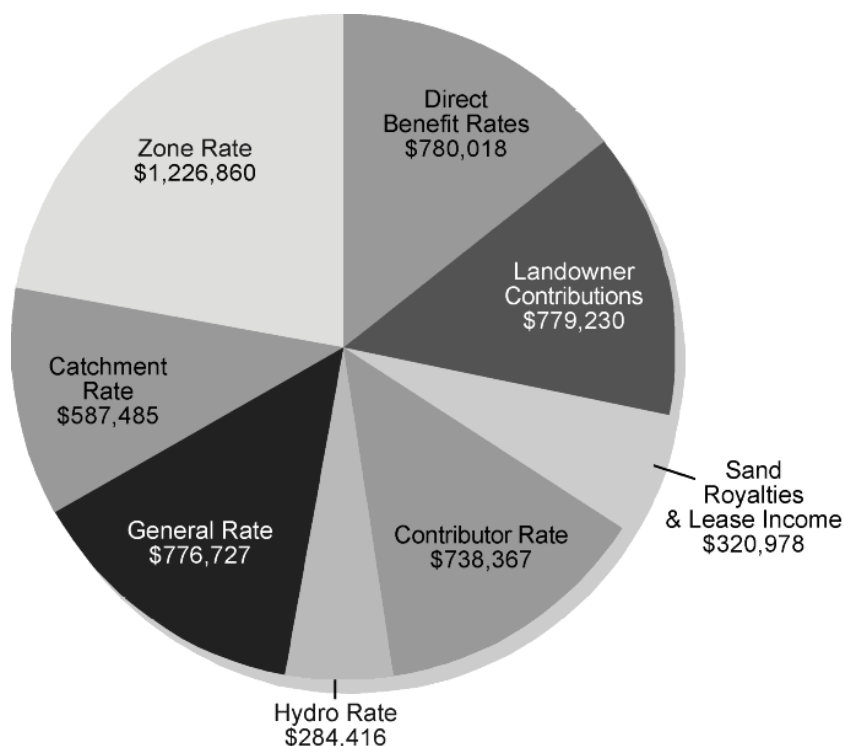
# 18 Financial Implications

## 18.1 Impact on Expenditure and Funding Requirement

The following graphs compare the approved level of expenditure and funding for the 2001/2002 financial year with that approved for the 2002/03 financial year under Project Watershed.



**Funding of Expenditure – Current Level of Service**



**Funding of Expenditure – Approved Level of Expenditure**

## 18.2 Rating Factors

Rating factors based on the Funding Policy and applied to the estimates are shown below by management zone. These factors are shown below per \$100,000 capital value for the General, Catchment and Zone differentials and per \$100,000 land value for the Contributor differential. They are inclusive of GST. These exclude direct benefit differentials and direct charges.

### Project Watershed Rating Factors by Management Zone for properties without Direct Benefit Differentials (GST inclusive)

Management Zone	Capital Value \$100,000	Land Value \$100,000
General Rate (all regional ratepayers)	2.13	
Lake Taupo (Separate Rate Differentials) <ul style="list-style-type: none"> <li>• Catchment</li> <li>• Zone</li> <li>• Contributor</li> </ul>	2.35 4.23	6.63
Upper Waikato (Separate Rate Differentials) <ul style="list-style-type: none"> <li>• Catchment</li> <li>• Zone</li> <li>• Contributor</li> </ul>	2.35 6.87	6.63
Middle Waikato (Separate Rate Differentials) <ul style="list-style-type: none"> <li>• Catchment</li> <li>• Zone</li> <li>• Contributor</li> </ul>	2.35 3.17	6.63
Waipa (Separate Rate Differentials) <ul style="list-style-type: none"> <li>• Catchment</li> <li>• Zone</li> <li>• Contributor</li> </ul>	2.35 7.17	6.63
Lower Waikato (Separate Rate Differentials) <ul style="list-style-type: none"> <li>• Catchment</li> <li>• Zone</li> <li>• Contributor</li> </ul>	2.35 8.72	6.63

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\* denotes the key documents used in assessing the Funding Policy. These documents are available free of charge from Environment Waikato or from the Environment Waikato web site [www.ew.govt.nz/watershed](http://www.ew.govt.nz/watershed).

Other documents included in the bibliography have provided useful reference but have not been key in developing the document. These documents are available from Environment Waikato, however an administrative charge will apply.

# Appendix 1: Relationship Between Project Watershed and the Environment Waikato Riparian Project

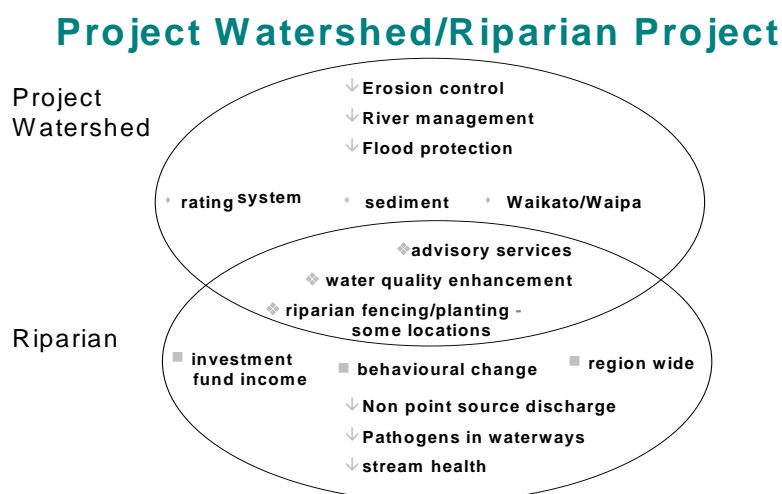
While Project Watershed addresses flood control, river management and soil conservation responsibilities prescribed in the Soil Conservation and Rivers Act, it links with wider Resource Management Act responsibilities in terms of water quality initiatives (e.g. the riparian project), sustaining natural resources (in this case, soil). Council's consent processes and its education strategies support RMA work, taking into account ecological impacts of works, both Council's and private parties.

The riparian strategy is linked in that both projects seek water quality outcomes. Under Project Watershed soil conservation work deals with visibly eroding properties that are a priority because of their downstream effect in terms of sedimentation. Project Watershed is concerned with soil conservation and the control and management of sediments in waterways. Project Watershed also focuses on flood management, and that requires taking into account the hydrological impact of runoff.

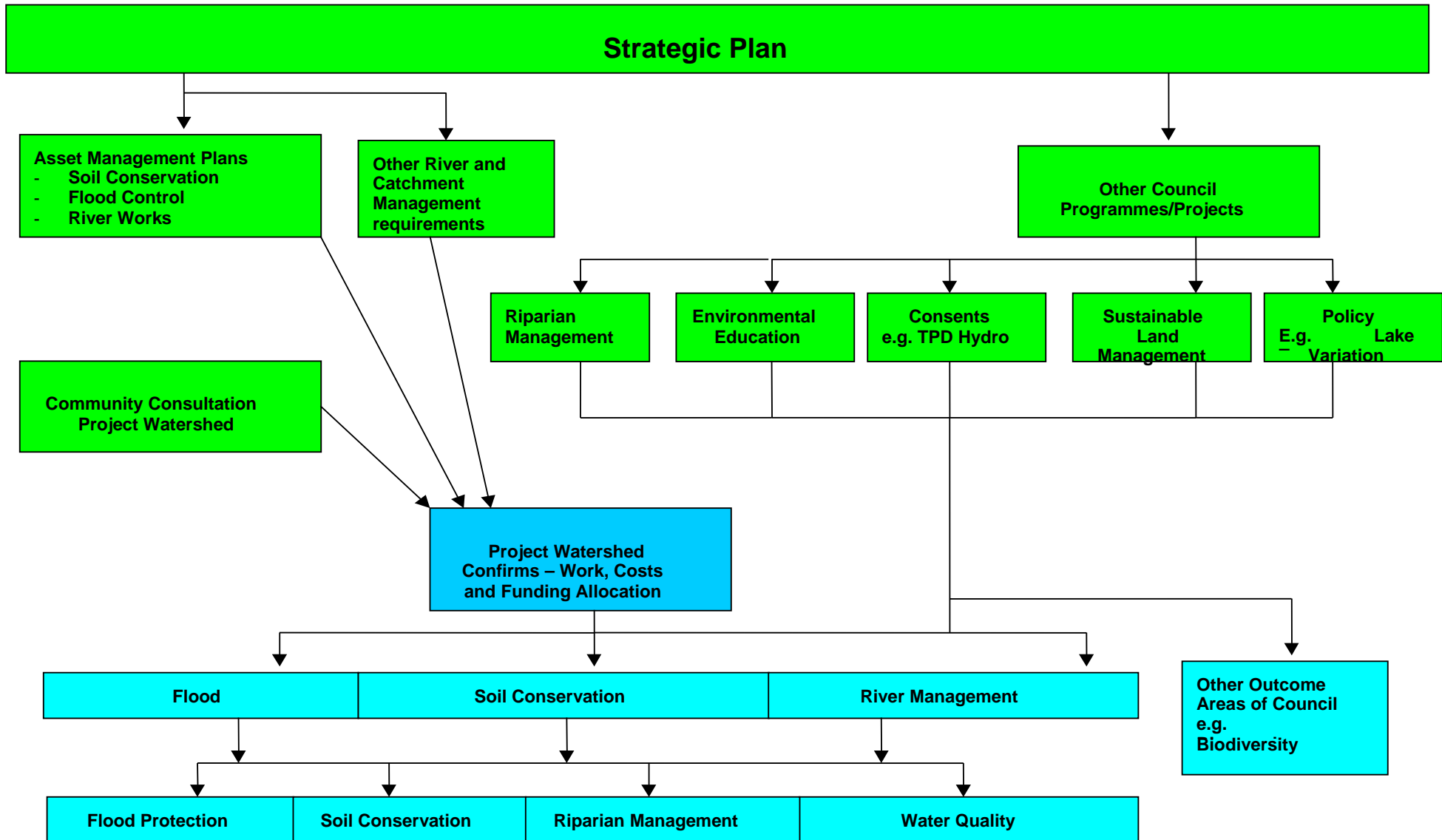
The riparian project (Clean Streams) is a strategic initiative set up to assist Council address non-point source pollution. Non point source pollution, via runoff and ground water, is usually found in the form of pathogens in waterways. This is due to faecal and other polluting contamination that is occurring, but not attributable directly to a particular point source (i.e. pipe or specific property). Non point source pollution is difficult to control through the consent process, although rules relating to stock in waterways and effluent disposal do help. The riparian fund is a 10 year and \$10 million programme, funded not from rates but from investment fund income. It has been set up to provide the catalyst for behavioural change in farm management practices – particularly to prevent stock access to streams. Apart from water quality, there are expected to be positive biodiversity outcomes from this initiative although that is not the prime objective. The riparian strategy does not seek to deal with erosion.

It is acknowledged that crossover benefits occur in each project and in terms of building a healthy catchment, synergies will be exploited where possible. Some overlap is therefore anticipated and is not expected to be difficult to manage in terms of applying funding policy.

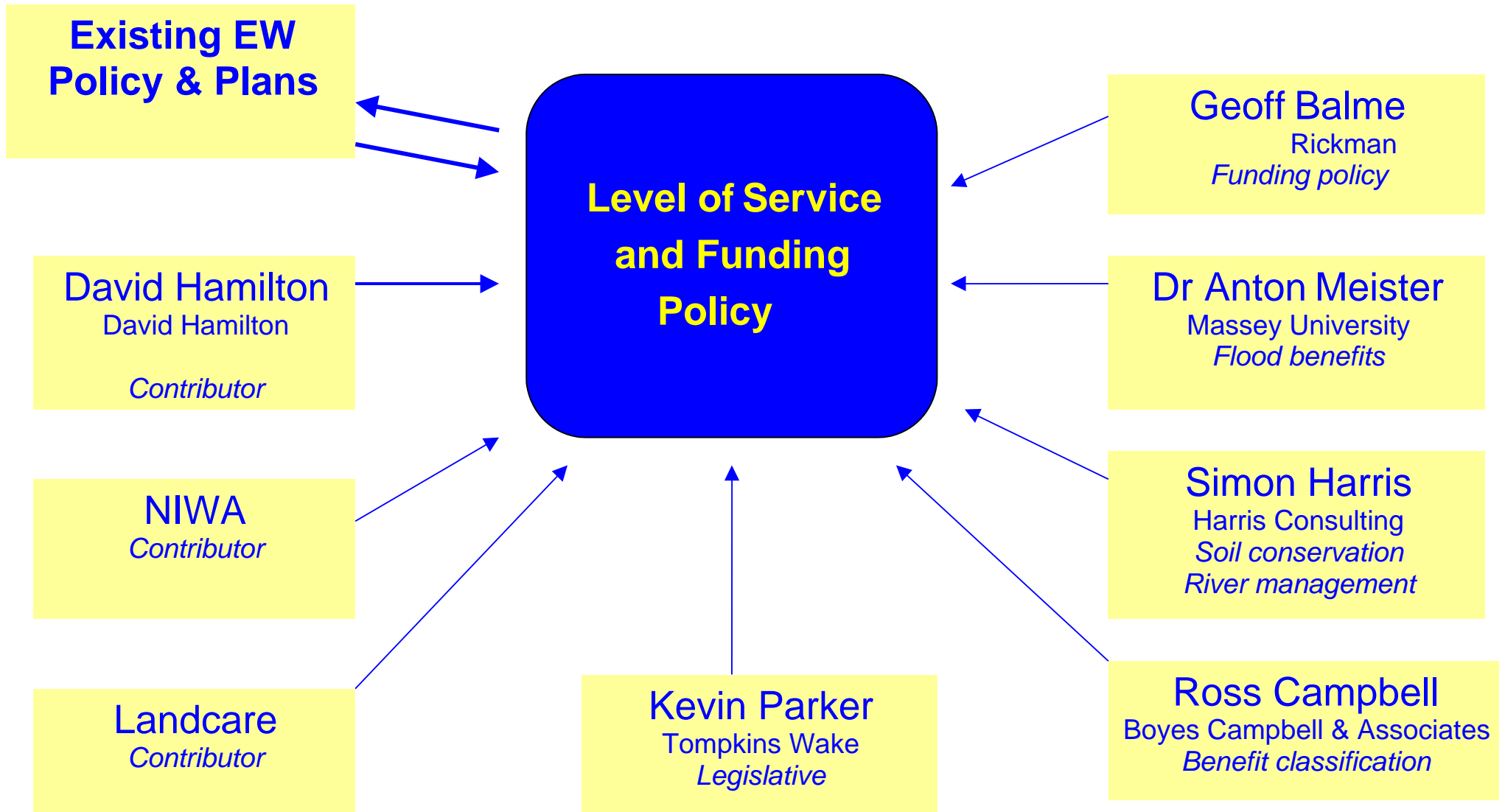
The relationship between Project Watershed and the riparian project is further depicted in the diagram below.



# Appendix 2: Strategic Plan



# Appendix 3: Technical Consultants





# Appendix 4: Accounting Policies

The following accounting policies outline how the budgets for Project Watershed were compiled and state the underlying accounting practices adopted.

## A General Accounting Policies

Project Watershed Budgets have been prepared to meet the requirements of Section 122 of the Local Government Amendment Act (No. 3) 1996. It may not be appropriate for the information disclosed in this document to be used for purposes other than those for which it was prepared.

The accounting principles established by the Institute of Chartered Accountants of New Zealand are applied in preparation of this document. These financial statements constitute a forecast in terms of Financial Reporting Standard No. 29. Actual results for the periods covered are likely to vary from this forecast.

The measurement base adopted is that of historical cost unless otherwise stated. Reliance is placed upon the fact that the Council is a going concern.

Accrual accounting is used to measure costs of services provided and recognise revenues.

## B Recognition of Income and Expenditure

- Grant revenue is recognised at the same time the related expenditure is recognised.
- Rates and other revenues are recognised when the assessment or invoice has been issued.
- Expenditure is recognised when the service has been provided or the goods received.

## C Work in Progress

Work in progress is stated at the lower of cost or net realisable value.

## D Depreciation - Operational Fixed Assets

Fixed and infrastructural assets, apart from land, are depreciated on a straight line basis at rates that will write off the cost over the useful life of each class of asset.

The annual rates applied for fixed assets are:

	<b>percent</b>
Buildings (concrete)	1.00
Buildings (wooden)	2.50
Motor vehicles	13.33
Computer equipment	20.00 – 25.00
Other equipment and office furniture	13.33
Plant items	10.00
Air conditioning	5.00

## E Infrastructural Fixed Assets

Infrastructural fixed assets, including land, have been valued by Opus International Limited and Quotable Value New Zealand respectively, as at 1 July 1998. These assets have been valued at depreciated replacement values and at cost for acquisitions subsequent to that date.

As from 1 July 1998, Council began depreciating all infrastructural assets, including stopbanks and the drainage network. This has been based on the review of accounting policies for infrastructural assets and changes to the treatment of capital and maintenance expenditure to accurately reflect the capital nature of the work being performed. The treatment has been applied consistently over all asset categories.

Infrastructural asset depreciation rates are based on the residual useful life for each individual asset component which equates to a range of rates as per our infrastructural asset register.

The base life in years are:

Ballast	200
Bridges	50 - 100
Channels	50 - 100
Conservation Areas – Fencing and Planting	20
Culverts	60
Debris Traps	100
Earth Detention Dams	50
Flood Pumps and Motors	25
Pipes	80
Power and Control Equipment	20
Pump Stations – Buildings	60
Retaining Structures - Timber	25
River Training Works	100
Rock Weirs, Bank Protection and Drop Structures	25 – 400
Screens	10
Stopbanks - Clay Foundation	200
Stopbanks – Firm Clay Foundation	500
Stopbanks – Marine Mud	40
Stopbanks - Peat Foundation	50
Stopbanks - Sand Foundation	125
Structures Major	100
Structures Minor	20 - 60
Telemetry / Scada	15
Valves	25

## **F Goods and Services Tax (GST)**

These financial statements have been prepared on a GST exclusive basis. The balance outstanding at balance date is included in the Forecast Statement of Financial Position.

## **G Overhead Allocations**

All overheads are reallocated amongst significant activities on a basis which it is considered to reflect the costs attributable to each activity. The various categories of corporate cost are allocated by determining the most appropriate basis (e.g. labour dollars, staff numbers) applicable to the service provided.

## **H Notional Interest**

This is an internal charge that is made to reflect the true cost of service of each significant output activity. It should be noted that notional interest is eliminated in preparing the Council's Forecast Statement of Financial Performance.



We have made a notional interest charge against each significant activity at the rate of five percent on the net book value of land and buildings and 10 percent of the net book value of other fixed assets employed in each activity. A rate of 0 percent has been applied to infrastructural assets.

## **I Reserves**

Reserves are the components of equity that have been created for a particular use.

Council created reserves are established by Council decision. Transfers to and from these reserves are at the discretion of the Council.

## **J Leases**

Leases, where the lessor effectively retains all the risks and benefits of ownership, are classified as operating leases. Payments under these leases are charged as expenses in the financial period they are incurred in.

Leases of fixed assets, where substantially all the risks and benefits incidental to the ownership of the asset are transferred to the group, are classified as finance leases. The leased assets and corresponding liabilities are disclosed. The leased assets are depreciated over the period the entity is expected to benefit from their use.

Operating lease payments, where the lessors effectively retain substantially all the risks and benefits of ownership of the leased item, are charged as expenses in the periods in which they are incurred

# Appendix 5: Relevant Legislation

## Local Government Act 1974 Part VIIa (as amended by the Local Government Act 1996)

The Local Government Amendment Act (LGAAA) came into force in July 1996 and provides a statutory regime for the financial management of local authorities.

The Act:

- In Section 122B sets out its purposes. The general purpose is to promote prudent, effective and efficient financial management by local authorities.
- In Section 122E proscribes the approach to be followed in determining how expenditure needs are to be funded. Local authorities must:
  - a) *Identify the allocation of costs indicated by the application of such one or more of the principles specified in section 122F of this Act as the local authority determines on reasonable grounds to be relevant to those expenditure needs; and*
  - b) *Determine the extent to which -*
    - i) *Any modification of the allocation of costs identified under paragraph (a) of this subsection; or*
    - ii) *Any alternative to the allocation of costs identified under paragraph (a) of this subsection -*  
*is indicated by such one or more of the considerations specified in section 122G of this Act as the local authority determines on reasonable grounds to be relevant to those expenditure needs; and*
  - c) *Consider, having regard to the matters specified in section 122H of this Act, the extent to which it is practicable and efficient to fund those expenditure needs in a way that achieves, or approximately achieves, the allocation of costs determined pursuant to paragraph (b) of this subsection.*
- Section 122F lists the principles referred to in Section 122E(1)(a) (which principles are specifically noted as not being ranked in order of priority). The principles are:
  - a) *The principle that the cost of any expenditure should be recovered at the time that the benefits of that expenditure accrue;*
  - b) *The principle that, to the extent that any expenditure -*
    - i) *Is independent of the number of persons who benefit; or*
    - ii) *Generates benefits that do not accrue to identifiable persons or groups of persons; or*
    - iii) *Generates benefits to the community generally, -*  
*the costs of that expenditure should be allocated in a manner consistent with economic efficiency and appropriate to the nature and distribution of the benefits generated which manner may require the use of rating mechanisms under the Rating Powers Act 1988;*
  - c) *The principle that the cost of any expenditure should be recovered from persons or categories of persons in a manner that matches the extent to which the direct benefits of that expenditure accrue to those persons or categories of persons;*
  - d) *The principle that the cost of any expenditure to control negative effects that are contributed to by the actions or inaction of any persons or categories of persons should be allocated to those persons or categories of persons in a way that matches the extent to which they contribute to the need for that expenditure.*

- Section 122G sets out the considerations referred to in Section 122E(1)(b) (which considerations are again noted as not ranked in any order of priority). The considerations are:
  - a) *The obligation of the local authority to act in the interests of its residents and ratepayers;*
  - b) *The fairness and equity of any allocation of costs;*
  - c) *Any lawful policy of the local authority, to the extent that the costs of any expenditure may be allocated in a way that effectively and appropriately promotes that policy;*
  - d) *Balancing the avoidance of significant adjustment difficulties for any persons or categories of persons arising from sudden and significant changes in the total costs allocated to those persons or categories of persons, with achieving the indicated allocation of costs at the earliest reasonable date.*
  
- Section 122H sets out the matters referred to in Section 122E(1)(c) which are:
  - a) *The extent to which any funding mechanism or combination of funding mechanisms lawfully available to the local authority can achieve any allocation of costs;*
  - b) *The efficiency, including the costs, of the different funding mechanisms available to the local authority;*
  - c) *The extent to which it is efficient and effective to fund any expenditure need by a funding mechanism that is separate from those used to fund any other expenditure of the local authority;*
  - d) *The extent to which different funding mechanisms lawfully available to the local authority will allow persons or categories of persons to whom costs are allocated to identify the expenditure needs to which those costs relate.*
  
- Section 122I provides Council with discretion in respect of:
  - a) The extent and detail of information to be considered; and
  - b) The degree to which benefits and costs are quantified; and
  - c) The extent to which different options are considered; and
  - d) The extent and nature of any written record of that consideration,- shall be such as the local authority considers on reasonable grounds to be appropriate, having regard to the purposes specified in section 122B of this Act, the significance of the decision, and the scale of the local authority's operations.

“(2) In complying with the requirements of this Part of this Act to prepare and adopt any long-term financial strategy, funding policy, investment policy, or borrowing management policy, a local authority shall do so in such manner and include such detail as the local authority considers on reasonable grounds to be appropriate, having regard to-

- (a) The purposes specified in section 122B of this Act; and
- (b) The significance of the matter; and
- (c) The costs and difficulty of obtaining information; and
- (d) The scale of the local Authority's operations.

(3) It shall be the responsibility of each local authority to make judgements about the ways in which the principles specified in section 122c (1) of this Act are to be complied with by the local authority, having regard to-

- (a) The purposes specified in section 122B of this Act; and
- (b) The role of local authorities in making appropriate expenditure and funding decisions which reflect the goals of the communities they serve; and
- (c) Such other matters as the local authority considers on reasonable grounds to be relevant to those judgements.

(4) Without limiting the generality of subsection (3) of this section, it shall be the responsibility of each local authority, having regard to any relevant submissions received by the local authority,-

(a) To make judgements about fairness and equity; and

(b) To make judgements concerning the extent to which any provision of sections 122F to 122H of this Act is relevant to any particular case,- which judgements may reflect the complexity and inherent subjectivity of any benefit allocation for the specified outputs and the complexity of the economic, social, and political assessments required in the exercise of political judgement concerning rating.

Council has prepared a funding policy in accordance with the requirements of the LGAAA. Council's proposed overall Funding Policy for Project Watershed is summarised in section 17 of this document.

## Rating Powers Act 1988

The Rating Powers Act 1988 (RPA) provides Council with a specific mechanism for rating drainage and river protection, and in particular section 41 which provides:

s 41 "Differential rates –

1) In adopting a differential rating system in terms of sections 79 to 93 of this Act in accordance with section 40(3) of this Act, a Board shall take account of –

a) The benefits that are, in the opinion of the Board, likely to accrue, directly or indirectly, to any property from the work or service in respect of which the separate rate is to be made; and

b) The extent to which the characteristics or the use of any property, or any actions of its occupier, are, in the opinion of the Board, likely to either contribute to or alleviate the need for the work or service concerned.

2) Where the rate is in respect of works for the protection of land from flood or erosion or for the conservation of soil or the management of water, a Board shall, for the purposes of subsection (1) of this section, give consideration to, -

a) In relation to direct benefit, -

i) The likelihood, frequency, depth, and severity of flooding and erosion; and

ii) The likelihood, frequency, and extent of damage to land and the improvements to the land; and

iii) The improvement of drainage; and

iv) The need for water management generally, - in relation to the actual and potential uses of the land and by reference to the advantages accruing from the works concerned and the responsibility for their care and maintenance:

b) In relation to indirect benefit -

i) The establishment or preservation of economic units of land; and

ii) The protection or establishment of water, sewerage, drainage, electrical, gas, and other services and of works, services, and amenities to which rates from the land may be applied; and

iii) The protection or establishment of communications and of any other property, service, or amenity within or benefiting the land."

The terms of section 42(1)(a) are similar to the principles contained in the Soil Conservation & Rivers Control Act 1941 and the Drainage Act 1908 (both now repealed) which required an assessment of the amount of direct and indirect benefit applicable to each rateable property.

Section 41(1)(b) introduces a new concept not contained in the earlier legislation. It is considered that the characteristics or use of land or the actions of occupiers (including development of land) in the total catchment contributes in varying degrees to the need for flood protection and drainage work in the lower catchment. The application of this

principle has resulted in the requirement to levy a contributor differential on almost whole catchments including upper catchments.

Section 41(2) deals specifically with a rate in respect of works for the protection of land from flood or erosion or for the conservation of soil or the management of water which may be summarised as the very reasons for the existence of Project Watershed. This subsection specifies matters that require consideration in relation to direct and indirect benefits.

Council does not consider there is any conflict between the relevant statutory provisions of the LGAAA and the RPA. Both statutes emphasise benefits, direct and indirect, and contribution/alleviator factors as primary principles to be applied.

## Local Government (Rating) Act 2002

The Local Government (Rating) Act 2002 comes into effect on 1 July 2003. It replaces the Rating Powers Act 1988 (RPA), and amendments to related Acts.

It is intended to simplify the existing rating powers to meet the needs of modern local authorities. The purpose of the Act as set out in Section 3 is:

to promote the purposes of local government set out in the Local Government Act 1974 by—

- (a) providing local authorities with flexible powers to set, assess, and collect rates to fund local government activities;
- (b) ensuring that rates are set in accordance with decisions that are made in a transparent and consultative manner;
- (c) providing for processes and information to enable ratepayers to identify and understand their liability for rates.

The Local Government (Rating) Act gives Regional Authorities the same powers and mechanisms as Territorial Local Authorities.

Relevant provisions are:

- Owners will now generally be liable for rates rather than occupiers;
- A single, flexible generic power to levy targeted rates replaces the range of separate rate and charge powers available under the Rating Powers Act (RPA);
- The ability of the regional authority to delegate the assessment and collection process in part or all to the territorial local authority remains;
- The requirement to provide new specific comprehensive information to the ratepayer, in particular in relation to an assessment notice, rates invoice payment and remission and postponement of rates.

The Act provides for general rates based on valuation as the primary means for raising revenue from the whole community. It allows for the use of differential rates, targeted rates and uniform annual charges (UAGCs) to set focused rates. These are dealt with in section 13, 14 and 15 of the Act:

### 13 **General rate**

- 1) A local authority may set a general rate for all rateable land within its district.
- 2) A general rate may be set—
  - a) at a uniform rate in the dollar of rateable value for all rateable land; or
  - b) at different rates in the dollar of rateable value for different categories of rateable land under section 14.
- 3) For the purposes of this section, the **rateable value** of the land—
  - a) must be—
    - i) the annual value of the land; or
    - ii) the capital value of the land; or

- iii) the land value of the land; and
- b) must be identified in the local authority's annual plan as the value for setting a general rate.

**14 Categories of rateable land for setting general rate differentially**

For the purposes of section 13(2)(b), categories of rateable land are categories that—

- (a) are identified in the local authority's annual plan as categories for setting the general rate differentially; and
- (b) are defined in terms of 1 or more of the matters listed in Schedule 2.

**15 Uniform annual general charge**

- 1) A local authority may set a uniform annual general charge for all rateable land within its district, being—
  - a) a fixed amount per rating unit; or
  - b) a fixed amount per separately used or inhabited part of a rating unit.
- 2) A uniform annual general charge is a rate for the purposes of this Act.

The single flexible targeted rate replaces the range of separate rate and charge powers under the RPA. The purpose of the targeted rate is to allow local authorities to align the nature of a service provided more closely with the manner of rating for that service. A targeted rate may be set for several functions or several targeted rates set for a single function. The determination of categories of ratepayers for a targeted rate and factors that can be used to determine the liability are listed in the schedules to the Act. Sections 16,17 and 18 of the Act deal with targeted rates:

**16 Targeted rate**

- 1) A local authority may set a targeted rate for a function if the function is identified in its annual plan as a function for which a targeted rate may be set.
- 2) Subsection (1) does not prevent a local authority from setting a targeted rate for several functions, or setting several targeted rates for 1 function.
- 3) A targeted rate may be set in relation to—
  - a) all rateable land within the local authority's district; or
  - b) 1 or more categories of rateable land under section 17.
- 4) A targeted rate may be set—
  - a) on a uniform basis for all rateable land in respect of which the rate is set; or
  - b) differentially for different categories of rateable land under section 17.

**17 Categories of rateable land for setting targeted rate**

For the purposes of section 16(3)(b) and (4)(b), categories of rateable land are categories that—

- (a) are identified in the local authority's annual plan as categories for setting the targeted rate; and
- (b) are defined in terms of 1 or more of the matters listed in Schedule 2.

Compare: 1988 No 97 ss 17, 20, 26-31, 34, 39, 40, 44, 49

**18 Calculating liability for targeted rate**

- 1) The calculation of liability for a targeted rate set under section 16 must utilise only a factor or factors that—
  - a) are identified in the local authority's annual plan as factors that must be used to calculate the liability for the targeted rate; and
  - b) are listed in Schedule 3.
- 2) Despite subsection (1), the liability for a targeted rate may be calculated as a fixed amount per rating unit.
- 3) To avoid doubt, if targeted rates are set differentially, the rates concerned do not have to be calculated using the same factors for each category of land.

The Act limits the revenue that can be collected by UAGC and targeted rates set on a uniform basis can not exceed 30 percent of local or regional authorities total rate revenue. These provisions are similar to the current provision in the RPA.

The use of targeted rates must be detailed in the Annual Plan of the local authority to provide authority to use the mechanisms. This replaces the Special Order Process required under the RPA.

# Appendix 6: Summary of Formal Consultation and Deliberations

Just over 530 submissions were received during the formal consultation phase of the project, some supporting the Project and others against. Many submitters agreed that the work is needed, but want others to pay for it. After careful consideration of the submissions and evidence received, the Council has made a number of changes to the programme. These changes affect the level of work proposed and the Funding Policy.

Some of the key themes and issues to emerge from the submissions are summarised below :

- A number of submitters sought to delay the implementation of Project Watershed because they believed there had been insufficient consultation. Some submitters called for its abandonment.
- Many submitters considered that the Waikato River is a national asset so that the Crown should contribute to maintenance of scheme works. This was particularly the case with Lower Waikato submitters.
- There was also a strong view from Lower Waikato submitters that hydro companies should contribute more to Project Watershed on the basis of the effects of their operations.
- A number of drainage boards made submissions regarding implementation issues.
- Several Huntly submitters did not agree with the classification of areas of benefits. A number of submitters, including the Community Board, considered that a uniform annual charge or targeted rate on each property in the community would be more equitable.
- Submitters queried the classification of benefit, level of rates and identification of beneficiaries and contributors for the proposed works at both the Tauranga – Taupo river area and the Tongariro river area.
- A number of iwi groups submitted that Project Watershed could prejudice their Treaty of Waitangi interests in claims against the Crown which involved the river, its bed, banks, surrounding lands and tributaries. The iwi groups also questioned the consultation process with respect to Maori.
- A number of submitters considered that the proposed level of assistance to landowners for soil conservation was too generous. Some considered that 75 percent was an appropriate landowner contribution, while others considered that landowners should pay all soil conservation costs themselves. Some submissions also queried the proposed programme of works.
- The contribution of Hamilton City compared with the benefits it received was queried by Hamilton City Council which suggested that alternatives to a capital value rating should be explored.
- Hamilton City Council also submitted that hydro companies should be regarded as a major contributor to the need for any works which may be required to address the effects of riverbed degradation through Hamilton City.
- Otorohanga District Council submitted that the funding requirement for local protection works be increased to \$90,000 and that associated direct benefit rates be spread evenly over all ratepayers in Otorohanga township.



- Otorohanga District Council also submitted that land to be retired in the Tunawaea area should not be purchased by Environment Waikato.
- Submissions from hydro power companies disagreed with the assessment of benefits and contribution for them. They also considered that further justification was required for new works.

Hearings of submissions were held in the Taupo, Hamilton and Mercer areas over several days. The Project Watershed Hearings Committee then deliberated over the evidence for five days. Technical experts were available to the Committee for any further questions relating to the evidence they had heard. At the conclusion of the hearing, the Project Watershed Hearings Committee resolved to make a number of changes to both the Funding Policy and works programmes notified in the draft consultation document. Those resolutions are summarised below:

### **Funding Policy**

- (a) The allocation to landowners for soil conservation expenditure was increased to 65 percent, except for the Lake Taupo Zone and the Waitomo Catchment Control Scheme (50 percent and 55 percent respectively)
- (b) The pastoral and urban contributor differential was consolidated as one differential and levied on land value across the catchment.
- (c) The collection of direct benefit allocations in Huntly and Otorohanga urban will be through a targeted special rate from 2003, with a transitional arrangement for 2002 – 2003 being collection through a direct charge on Waikato District and Otorohanga District Councils respectively.
- (d) On the basis of engineering investigation and submissions, the classification descriptions for Tauranga-Taupo were amended to define that part of Te Rangiita which obtains benefit from river management and control, This means that this area will have a reduced incidence of rating compared with Oruatua and the southern part of Te Rangiita, where properties obtain benefit from both flood control and river management works.

### **Budget Allocation and Cost tables**

- (e) That the collection of the budget allocations for Tauranga-Taupo and Tongariro river management and flood protection be as follows:
  - 50 percent of the budget allocation for river management of the Tauranga-Taupo and Tongariro be added to general river management in the Lake Taupo zone, and rated in accordance with the Funding Policy for general river management.
  - Tauranga-Taupo River: the remaining 50 percent of the budget allocation for river management, along with the budget allocation for flood protection, be rated in accordance with the Funding Policy for Flood Protection Tauranga-Taupo.
  - Tongariro River: the remaining 50 percent of the budget allocation for river management along with the budget allocation for flood protection be rated in accordance with the Funding Policy for Flood Protection Tongariro.
- (f) An additional \$30,000 of capital expenditure per annum (i.e. annual operating expenditure of approximately \$4,000) for the first three years was added to the soil conservation budget for both the Middle and Lower Waikato zones.
- (g) That after considering and applying the principles relating to funding of expenditure needs in S122 of the Local Government Act 1974, Project Watershed development

costs and debt incurred in the Lower Waikato Waipa Control Scheme be funded through Project Watershed.

- (h) That any Crown contribution to main channel works in the Lower Waikato be offset against the costs of main channel work in the Lower Waikato, with net costs then allocated according to Funding Policy.
- (i) That the accumulated debt be identified to each specific activity of the scheme. The debt will then be allocated to each activity and serviced by the rating revenue for that activity, so that it is recovered over the first 10 years.
- (j) Other general debt and Project Watershed development costs will be recovered across the whole scheme by way of a general charge. These costs will be spread over the first 10 years of the Project.
- (k) That budget provision for local protection works be removed for those drainage districts which have confirmed in writing their desire to remain independent of Project Watershed, (Whiskey Flats, Horseshoe, Onewhero West, Onewhero East, Ohairoa, Tuakau and Te Kohunga).
- (l) That Iwi representatives be invited to form a Project Watershed Advisory Committee.

The cost table and funding policy revisions noted above have been incorporated into this document.