# Tasman District Council

# Rivers
## Activity Management Plan

**2009 - 2019**

**August 2009**

| Quality Assurance Statement | | |
|---|---|---|
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**For full Quality Assurance Statement, Refer Appendix Z.**

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# 1. INTRODUCTION

## 1.1 The Rivers Activity Management Plan: What is it and why is it produced?

The Rivers Activity is one of the eight engineering activities addressed in the Tasman District Council Long Term Council Community Plan (LTCCP). This Rivers Activity Management Plan (AMP) is, therefore, strongly linked to the overall strategic direction for the district. The LTCCP is the document and process that alerts the community to the key issues and strategies contained in this document.

The purpose of this plan is to outline and to summarise in one place, the Council's strategic and management long-term approach for the provision of river erosion protection and flood mitigation works and associated operation and maintenance of these works for the rivers identified in the respective schedules.

The Activity Management Plan demonstrates responsible management of the District's assets on behalf of customers and stakeholders and assists with the achievement of strategic goals and statutory compliance. The AM Plan combines management, financial, engineering and technical practices to ensure that the level of service required by the customers is provided at the lowest long term cost to the community and is delivered in a sustainable manner.

This AM plan is based on existing levels of service, currently available information and the existing knowledge and judgement of Council staff.

A programme of AM improvement (see Appendix V) is planned to improve the quality of decision making (e.g. predictive modeling, advanced asset data capture, risk management) optimising renewal decision making, and improve the knowledge of Council's assets and customer expectations. These future enhancements will enable Council to optimise life cycle AM activities and provide a greater degree of confidence in financial forecasts.

This plan has been prepared in line with the requirements of the Local Government Act 2002 and the guidance of the International Infrastructure Management Manual, Australia/New Zealand Edition, version 3.0, October 2006.

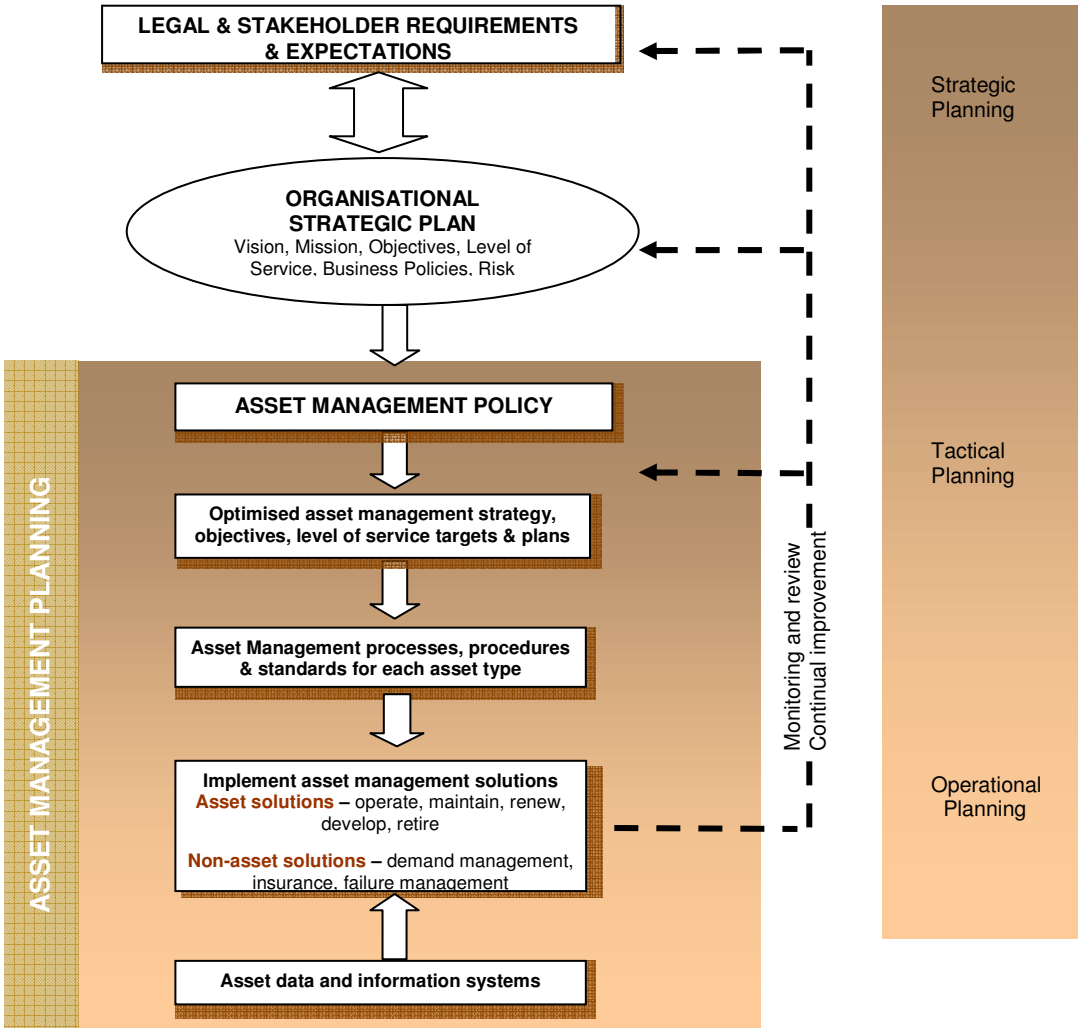


**Figure 1-1: Activity Management Process for Infrastructure (Source IIMM)**

Figure 1-1 depicts the activity management planning process for infrastructure assets, with fundamental links to customer expectations, legislative requirements and corporate visions and strategies.

This plan has been developed on the best current information and in accordance with the general principles of Basic Asset Management recommended in the IIM Manual. The AM approach adopted provides an immediate focus on the lifecycle costs prior to the development of more sophisticated information systems and processes as part of an improvement plan.

It is recognised that the lifecycle costs identified are based on historical information available and the experience and judgement of the Asset Managers. Consequently, it does not currently apply any computerised predictive modeling or risk management techniques. However, the Council retains a wide breadth of knowledge and understanding of the classified (X, Y and Z rated) rivers systems. The following information has been utilised in the development of this AM Plan:

- Asset Register
- Experience and judgment of the TDC rivers asset engineer the “Asset Manager”
- The River Maintenance Contractor’s Annual Programme of Works
- Professional Services Providers

It is recognised that the personal knowledge of the assets currently retained within Council, the Councils incumbent contractor and consultant will need to be supported by improved systems and processes as the number of assets increases and knowledge is lost due to staff changes. Appendix V describes the proposed improvements to the AM process to develop a more strategic and sophisticated approach to reduce the lifecycle costs and to refine the decision making process in relation to river management, flood mitigation activities and flood plain management.

## 1.2 Rationale for Council's Involvement in the Rivers Activity

The provision of river management services is considered to be a core function of local government. Prior to 1992 they were managed by the Nelson Catchment Board followed by the Nelson/Marlborough Regional Council. In 1992 the functions of a catchment board under the soil conservation and Rivers Control Act 1941 were transferred to Tasman District Council.

Tasman District Council maintains 285 kilometres of the Regions Rivers to meet the levels of service to a minimum standard and to carry out its statutory roles to promote soil conservation and mitigate damage caused by floods. These rivers are "classified" and funded by a differential river rating system. The rivers are on private, Council and Crown (Department of Conservation, LINZ) lands. The associated river protection works such as stopbanks, rock and selective willows species are owned, maintained and improved by Council.

Council involvement in rivers outside the classification scheme is limited to carrying out river and soil conservation works, which have some definable community benefit. These are not Council owned assets as the landowner takes over ownership and ongoing responsibility to maintain the asset. However these works are an integral part of the river control system and therefore it is considered appropriate to address them in this AM Plan.

The service provides many public benefits e.g. a level of flood protection to dwellings in the flood plain for selected rivers, river management and river maintenance. It is considered necessary and beneficial to the community that the Council undertakes the planning, implementation, and maintenance of these rivers services in the District in accordance with their respective legislative requirements and responsibilities.

## 1.3 Justification of Asset Ownership

This AM plan assumes continued Council ownership of the rivers network assets. Arguments to justify public ownership of rivers assets include:

(1) Core Business - the provision of rivers services is considered to be a core function of local government (TDC is a unitary authority).

(2) Public Benefit - the service is assessed as providing mainly public benefits

(3) Funding - local government has statutory powers under the Rating Powers Act for funding options for river control works.

(4) Community Opinion - the public generally do not favour private ownership of key infrastructure assets

The future transfer of ownership and control is not considered reasonable given the requirements of the Soil Conservation and Rivers Control Act 1941 and the Resource Management Act 1991 (& amendments).

The legal authority for Council to be involved in the management and ownership of assets is embodied in the Soil Conservation and Rivers Control Act 1941, Resource Management Act 1991, Local Government Act 2002, and Public Works Act 1981 and empowers Council:

- To restrict the type of activities that may occur on the stopbanks (Resource Management Act 1991, s9 and TRMP Chapter 4, 16.10)
- To undertake the planning, implementation and maintenance of any work that, in the opinion of the territorial authority, is necessary or beneficial to the district, whether within or outside the district' (Local Government Act 2002).

- To purchase, take, or otherwise acquire and hold, any land or interest in land which may be necessary or convenient for the purposes of or in connection with any public work that the local authority is empowered to undertake, construct or provide (Public Works Act 1981).

## 1.4 Overview of the Rivers Activity

### *1.4.1. Introduction*

Council operates, maintains and improves the infrastructure assets relating to rivers on behalf of the ratepayers to meet the level of service they require to enhance community development and improve the environmental and recreational assets relating to Tasman District.

The history of the assets is held by Council which also holds the historical records, background and documentation of the river scheme and river activities undertaken by Councils' predecessor for these activities, the Nelson Catchment Board. However, as a source of information such knowledge and experience has its limitations and a number of information systems are currently in plan to monitor performance and assist in a more formal asset management process.

Apart from the statutory policy and planning activities associated with the river and flood plain management, the current primary rivers activity is the operation, maintenance and renewals of the existing river schemes under the classified river areas.

### *1.4.2. River Classification*

There are 285km of classified river areas in the Tasman District. These rivers are classified as either X or Y where:

- X classified rivers afford protection, flood mitigation to adjacent land by stopbanks, and river training and erosion protection works
- Y classified rivers have river channel training and alignment works involving riparian work.

A list of the rivers with their respective classified reaches is given in Appendix B2.

The balance of the main waterways in the Tasman District is the general Z classifications which are not part of the managed catchments.

The council is planning a review of the river rating system and this will include a review of the river classification boundaries.

### *1.4.3. River Scheme Asset Management*

The assets within these X and Y classified rivers that are maintained and have been considered in this AMP review are as follows:

- Stopbanks
- Fairways
- Berms
- Willow bank protection
- Rock bank protection
- Drainage/Outfalls

Routine inspections and the annual rivers maintenance programme are undertaken by the River Works Maintenance Contractor. The River Works Maintenance Contractor is responsible for the day to day maintenance works and inspections of the river systems in accordance with the Annual Maintenance Operating Programme (AOMP) as a requirement under the Rivers Maintenance Contract. This maintenance contract is administered by the Council's Professional Services Consultant.

As part of the annual budgeting exercise the Asset Managers combine their knowledge with that provided by the Professional Services Consultant and the Contractor to identify assets that require renewal or significant upgrades.

Renewal decisions are based on a formal project ranking system. Council decision to proceed with significant renewal projects typically follows a formal investigation process. A risk management system will be developed as part of the Asset Management System.

Extensions to the existing network of assets occur to meet the agreed customer expectations and their willingness to pay.

Southbank Systems Ltd, Confirm Enterprise Software has been chosen for Councils corporate Asset Management System. The implementation of this system is on going through to 2011. There have already been some initial benefits from the adoption of this system.

## 1.5 Key Issues and Strategic Approach

The key issues for the rivers activity over the coming years are:

- Ensuring that the standard of river works is maintained to a consistent standard in accordance with the Rivers Annual Operations and Maintenance Programme (AOMP).
- Response to community requirements where there is support to upgrade levels of protection to a level that is sustainable and supported by the community.
- The affordability of the Lower Motueka River flood control project and the need to consult further with the public on the design and timing of the project prior to construction proceeding.

Our approach going forward is as follows:

- Continued funding at the level that adequately supports the current maintenance programme will ensure that the objectives of the AOMP are met.
- Future strategic direction intends to shift the responsibility for scheduling the forward programme to a process that focuses this activity with the Consultant with input from the Contractor and being adequately audited by Council.
- The strategic intention to upgrade the Motueka River stopbanking system at Motueka and Riwaka in the near future is a strategic objective. This capital works project is the first major capital works planned for river works in the district. Information obtained from the Motueka stopbanking re-construction may lead to similar projects for the Riwaka and Takaka Rivers.
- The current Rivers X, Y & Z rating system is considered to be in need of an urgent review. The inflexibility of the current software and data base management requires a major upgrade before this can be achieved.

# 2. LEVELS OF SERVICE, PERFORMANCE MEASURES, AND RELATIONSHIP TO COMMUNITY OUTCOMES

## 2.1 Introduction

A key objective of this AMP is to match the level of service provided by the asset with agreed expectations of customers and their willingness to pay for that level of service. The Levels of Service provide the basis for the life cycle management strategies and works programmes identified in the AMP.

The Levels of Service for Rivers have been developed to contribute to the achievement of the stated Community Outcomes that were developed in consultation with the community, but taking into account:

- The Council's statutory and legal obligations
- The Council's policies and objectives
- The Council's understanding of what the community is able to fund.

## 2.2 How do our River Activities Contribute to the Community Outcomes?

Through consultation, eight Community Outcomes have been identified. These community outcomes are linked to the four well beings and Council's objectives as shown in Appendix R. Table 2-1 lists the Community Outcomes to which the River Activities contributes and how it contributes.

**Table 2-1: How the River Activities Contribute to Community Outcomes**

| Community Outcomes | How our River Activity Contributes to the Community Outcome |
|---|---|
| Our unique and special natural environment is bountiful, healthy, clean and protected | Our river protection and flood mitigation activities are carried out so that the impacts on the natural river environments are minimised to a practical but sustainable level, and use best practices in the use of the Districts natural resources. |
| Our built urban and rural environments are functional, pleasant, safe and sustainable managed. | Our rivers protection works and flood control structures protect our most "at risk" communities and rural areas from flooding and are maintained in a safe and cost effective manner. |
| Our transport and essential services are sufficient, efficient and sustainably managed. | Our river protection and flood mitigation structures are maintained in an environmentally sustainable manner to a level supported by the community. |

## 2.3 What Level Of Service Do We Seek to Achieve?

Table 2-2 below sets out the levels of service that Council has adopted. It also shows:

- the Community Outcome from which each level of service has been developed
- how we will know if we are successful in delivering the level of service.

**Table 2-2: Levels of Service - Rivers**

| Community Outcomes | Levels Of Service (We provide) | We will know we are meeting the Levels of Service if….. |
|---|---|---|
| Our unique and special natural environment is bountiful, healthy, clean and protected | 1. Our river protection and flood mitigation activities are carried out so that the impacts on the natural river environments are minimised to a practical but sustainable level, and use best practices in the use of the district's natural resources. | All river maintenance and construction activities comply with any required resource consents |
| | | The 285kms of X and Y classified rivers are cleared of Crack Willow (pest tree species) at a rate of 15kms of river length per year. |
| Our built urban and rural environments are functional, pleasant, and safe. | 2. We provide flood protection to a level that the community is prepared to fund. | Council prepares and investigates new schemes in line with the community needs. |
| | | The Riwaka River stopbanks are maintained to a 1-in-20 year flood return standard. |
| | | The Lower Motueka River stopbanks are maintained to a 1-in-100 year floor return standard. |
| | | The Waimea River stopbanks are maintained to a 1-in-50 year flood return standard. |
| | 3. We manage the river alignment to minimise bank erosion up to an annual event in the X and Y rating areas. | Rivers are maintained within the X and Y classification area to the annual allocated budget. Capital projects are carried out on time, within budget and to the appropriate standard. |
| | 4. In River Z rating areas we provide technical support and funding assistance when available. | All River Z rating enquires will be responded to within 10 working days. |
| | 5. Existing access to the rivers are maintained in a safe and efficient manner. | The public are able to access the Council's rivers systems unless for safety reasons they are restricted by the undertaking of annual river maintenance works programme. |
| Our transport and essential services are sufficient, efficient and sustain ably managed. | 6. River works are planned with community input and professionally implemented. | An annual rivers maintenance programme as agreed with the communities is constructed to Council standards. |
| | | River Care Groups, iwi, Fish & Game and DoC are consulted annually on the rivers annual maintenance programme. |
| | 7. Enquires relating to our river systems are responded to promptly. | We are able to respond to enquires within timeframes specified within our operations and maintenance contracts.<br>We receive less than 12 complaints per year relating to the maintenance of river works. |
| | 8. There are adequate measures in place to know when flooding may occur and | We have a facility for receiving and handling emergency calls after office hours. |

| Community Outcomes | Levels Of Service (We provide) | We will know we are meeting the Levels of Service if….. |
|---|---|---|
| | provide a limited response during a flood event. | We have a monitoring system in place to provide information of the key river flows. |
| | | The Council's rivers maintenance contractor has adequate resources available in case of major flood damage. The rivers maintenance contractor is available to respond to emergencies. |

The Levels Of Service that the Council has adopted for this AMP has been developed from the Levels Of Service prepared in the July 2006 AMP, however the after taking into account feedback from various parties including Audit New Zealand, the Council has decided to reduce the number of levels of service so there is more focus and clarity, and to make sure that the link between the Levels Of Service adopted and the Community Outcomes is clear.

## 2.4 What Performance Are We Achieving and What Do We Plan to Achieve?

The Levels of Service that Council is currently achieving is shown in Table R-2 in Appendix R. This table also includes the levels of service Council plans to achieve within the next 3 years, and at the end of 10 years.

## 2.5 What Plans Have Council Made to Meet The Levels Of Service?

In preparing the future financial forecasts, Council have included the following specific initiatives to meet the current or intended future levels of service:

- A programme of cracked willow eradication is being implemented. It is intended that 45km of the X and Y classified rivers will be free of cracked willow by June 2012. A total of 150km is proposed to be eradicated by June 2019.
- Presently 30% of the Riwaka stopbanks are maintained to a 20 year standard. It is intended by year June 2019 to have 60% of the Riwaka stopbanks built to 20 year standard.
- Presently 30% of the Lower Motueka stopbanks are maintained to 100 year standard. It is proposed to reconstruct and upgrade up to 65% of the existing stopbanks to a 100 year standard by 2019.
- Council presently responds to River Z works requests, 95% of the time, within 10 days of receiving an enquiry. It is proposed to improve that response to 100% by 2012.

## 3. THE EXISTING SITUATION DESCRIBED

The district river systems that are managed by the Tasman District Council are set out in Appendix B. The background and details of the classification system and description of each of the classified river systems and associated maintenance programmes are also set out in Appendix B.

The main points covered in Appendix B are:

- History of the organisation involved and classification structures.
- Work history of main river works, general overview of where construction and other significant information of note
- An overview of the existing condition of river asset for the main catchment areas
- Information on River Z protection work subsidized by Tasman District Council
- Information on existing private stopbanks not covered in the River Maintenance Contract.

### 3.1 Asset Management Practices

Council has access to staff and consultants who have had a long association with the assets being managed. The entire history of virtually all the assets is typically known. However, as a source of information such knowledge and experience has its limitations. A number of information systems are planned or being implemented to monitor performance and assist in the asset management process.

As part of the annual budgeting exercise the Asset Managers combine their knowledge with that provided by MWH and the Contractor to identify assets that require renewal or significant upgrades.

Renewal decisions are based on issues such as high operating costs, system inadequacies or failure rates. While there is no formal project ranking system, the Council decision to proceed with significant renewal projects typically follows a formal investigation process. A risk management system is to be developed as part of the asset management system to aid this decision making process.

Extension of the existing network of assets occurs through the vesting of assets associated with a new development or through direct creation to meet demand.

Southbank Systems Ltd, Confirm Enterprise Software has been chosen for Councils corporate Asset Management System. The implementation of this system is ongoing.

# 4. OPERATIONS AND MAINTENANCE

## 4.1 Council 'Ownership' of Operations and Maintenance

The Council currently contracts out the day-to-day operation and maintenance of the river works assets with the aim of maintaining required levels of service. The Council's Operation and Maintenance contracts are let through a competitive tendering process to ensure quality and a true market cost is obtained.

Both the Physical Works and Professional Services Contracts were competitively tendered and based around Partnering agreements. The existing Rivers Maintenance Contract which was awarded to Sicon Ltd is due expire on 30 June 2009 with a further 2 one year right of extension providing a satisfactory level of performance has been achieved in accordance with the contract performance schedule.

The Council contracts are designed to:

- Achieve maintenance efficiencies and cost effectiveness by allowing the maintenance contractor to be innovative in managing the maintenance activities.
- Encourage pro-active maintenance practices rather than reactive practices.
- Ensure compliance with legislative, monitoring and resource consent requirements.

## 4.2 Control and Management of Operations and Maintenance

The Contractor carries out day to day operation, inspection and maintenance of the rated riverworks systems. This maintenance contract is administered by Council's professional services provider. The operation and maintenance of the river systems has been incorporated into a single contract. The term of the contract is 5 years, with rights of renewal at the end of years 3 and 4. The key aspects of this contract are:

- Spirit of Partnering
- Emphasis on Innovation
- Performance Criteria
- Measurement of Performance
- Proactive Maintenance

## 4.3 Maintenance Standards

The work to be performed and materials to be used shall comply with the latest edition of the following documents and standards:

- Contract 666 (From 1 July 2006)
- Operations and Maintenance Manuals
- TDC engineering Standards and Policies 2008
- NZS 3910

The implementation of proactive maintenance work is managed in the following way:

1. The Contractor prepares an Annual Operation and Maintenance Programme (AOMP) in consultation with Councils consultant who reviews the programme, which is then submitted to the Council for approval.

2. The AOMP approved plan is then frequently reviewed and work re prioritised throughout the year by a forwarded two monthly work programme being submitted by the contractor.
3. The Engineer to the Contract (Council's Professional Services Contractor) in conjunction with the Councils Asset Engineer reviews the programme against available funding and then negotiates with the Contractor to agree on any deferrals or amendments to the draft works programme.
4. The Contractor then implements the works based on a bimonthly forwarded programme.

The above system has proven to be reasonably vigorous but for the purpose of a greater range of technical input, consultancy staff will be introduced.

The above maintenance strategy is intended to achieve the current levels of service with respect to the River works asset condition and functionality whilst minimising costs. Development of a more systematic and objective prioritisation process will be developed through the improvement of the Asset Management Systems – Appendix V.

River Asset problems are identified through the following resources:

- Asset Manager's observation.
- Annual inspection of the Asset Manager's Technical Advisor.
- Property owner direct to Asset Manager or Technical Advisor or Contractor.
- River Care groups.
- Councillor by observation and contact from ratepayers.
- Community Board.
- Contractor.

Maintenance activities are programmed according to priority. The fundamental criteria for works to enter the priority ranking process are the identification of a flood control/river bank erosion/drain maintenance problem. Priority levels are determined during the annual rivers inspection and are based on the experienced judgement of suitable qualified staff and the Asset Manager.

**Priority 1:** *Reactive work* required to restore river works assets to their original condition and original level of protection or to restore significant erosion of natural soils and inhibit even further damage.

There is a high chance that failure to carry out this work would lead to the total loss of the original work, which would then need total replacement at a probable higher cost. The result could be a significant channel alignment, which could endanger other works and inhibit land use options adjacent to river channels.

*Proactive work* where it has been difficult to maintain what was originally reactive work. For example, maintenance of stopbanks, drainage and tidal outfalls to sustain discharges. Also the clearing of floodways to prevent damage to other structures.

**Priority 2:** *Reactive works* as for Priority 1 but in the engineer's opinion the asset or river bank has a lower chance of failure in the following year or there is a lower consequence of failure.

**Priority 3:** *Pro-active* (preventative) work where there has been no adverse erosion to date but which will prevent or mitigate potential flood damage in the future, either from bank failure or flood overflow, or works to support existing work and reduce the long term maintenance costs of an asset.

The annual budget is the ultimate constraint on how many works will be carried out. If, as is usually the case, there are insufficient funds to carry out all priority 1 works, the works are further prioritised by consideration of those works likely to suffer the most damage (in repair cost terms) in the next flood event.
There is a risk in this managed approach to the works in that the reprioritised works previously in priority 1 could result in further damage before being able to be repaired.

The current system of prioritisation and risk identification has provided a good level of service over the years. However within the next two years it is anticipated that the operation of the assets will be better optimised and the programming of proactive maintenance will better reflect the following:

- the age of assets relative to expected economic life cycle
- the risk of failure of critical assets and consequence of failure
- the nature and timing of asset upgrading/development works.

The Criteria for Works' Discussion document will be used as the basis to develop a more objective process in the identification of works which will be benchmarked against the river classification and land use. (Refer Appendix U).

## 4.4 Estimated Operation and Maintenance Costs for Next Twenty Years

Operations and Maintenance Costs are detailed in Appendices E.

## 4.5 Maintenance and Operating Issues

The following maintenance and operating issues are considered of high priority

- More intensive use of land in rural areas negatively impacting on berm edge protection
- Gravel extraction (perceived or otherwise) with long term impact on river edge protection
- Inability to remove vegetation from some fairways given they are in restricted burning and spray zones
- Increase in illegal activities in berm land eg. conversion and dumping of vehicles, rubbish
- Current Council approved gravel extraction and crushing operations
- Building Act requirements
- District Plan requirements.

## 4.6 Business Continuity / Emergency Management

Council has not prepared a Business Continuity Plan specifically for riverworks activities. The ongoing maintenance responsibilities are covered under the River Maintenance Contract which has a term of 5 years with rights of renewal after year 3 and year 4. The new Contract 666 commenced June 2006.

Emergency management procedures are dealt with in the following documents or methods:

1. Council Flood Response Plan.
2. After hours response – Call Care system linking the Contractor, Consultant, and Asset Manager.
3. Minimum response times written into the Maintenance Contract.
4. Council's role in civil defence under the Civil Defence and Emergency Management Act 2002.

# 5. FUTURE DEMAND

## 5.1 Introduction

Council recognises that factors affecting demand for river management and flood mitigation programmes will be influenced by:

- Land use changes
- Population Growth and demographics
- Trends in Community Expectations
- Technological and Environmental (climatic) change
- Legislation change

It is important to be aware of, and monitor the potential effects of future issues on the rivers management. Current knowledge and understanding of the issues set out above justifies the necessity for:

- Provision of scheme capacity reviews for the existing classified rivers
- Review of renewals programmes and policies for river protection works
- Investigation and feasibility studies for flood risk and flood mitigation across the district as identified from community surveys.
- Classification reviews to ensure the equity within the classification classes is maintained.

## 5.2 Community Expectations

There is an increasing expectation from the community for Council to provide river management and flood mitigation services. The community expectation needs to be related to risk management affordability issues. The extent of the future demand will be determined by investigations and community consultations.

### *5.2.1. Future Growth in the Classified Rivers Network*

#### ***Class Y***

Following the introduction of the current classified rivers scheme, it is understood that a number of requests were received from landowners for sections of river to become part of the Class Y classification scheme. One of the steps required to include a new reach in the Class Y area is bringing this reach up to that standard at the land owner expense. In 1997 it is understood that the first of these requests was investigated on the Parawhakaoho/Puremahaia stream and the decision on whether to go ahead (with part of the scheme) was rejected by the landowners. This scheme was considered the most likely to proceed at the time. Rejection of the scheme makes it unlikely that others will go ahead on the same grounds. Extensions to the Class Y scheme may be made in response to the inclusion of Crack Willow (*salix fragilis*) on the Unwanted Organisms Register and the lack of response in some River Z zones to raise the minimum 50% share required for essential river management responsibilities.

***Class X - Stopbanks***

New schemes or extensions to Class X schemes (stopbanks) are anticipated in the next ten years. The areas where these works might occur include: Riwaka, Lower Motueka, and Takaka. Investigations have commenced to determine the feasibility of these works, which have also been included in the 20 year financial forecasts. Note that a number of privately owned stopbanks are found throughout the district. That is, Council does not fund maintenance of these stopbanks.

## 5.3 Population Growth

### *5.3.1. District Wide Projections*

The scale of population growth anticipated in the District will have no impact on the River activities.

The Tasman District has undergone a period of rapid growth, as shown by census population shown below:

| Year | Census Population For Tasman District | % Increase since last census | Average Compound Growth Rate per Annum | New Zealand Average Growth Rate per Annum |
|---|---|---|---|---|
| 1991 | 34,026 | | | |
| 1996 | 37,971 | 11.6% | 2.22% | 1.41% |
| 2001 | 41,352 | 8.9% | 1.72% | 0.65% |
| 2006 | 45,800 | 10.8% | 2.06% | 1.51% |

This shows that Tasman District has been growing at a faster rate that the national average.

For the purpose of projecting population growth and related property / dwelling growth in the district for the next 20 years and beyond, a comprehensive growth modelling analysis has been undertaken. This is summarised in Appendix F, and reported in more detail in a separate document (Refer to Appendix F for details). The resulting population projection that Council has adopted for the purposes of its infrastructure planning and financial planning is shown in Figure 5-1.

Council have adopted population projections that are consistent with Statistics New Zealand growth projections. Council has assumed medium growth for all areas except Motueka and Richmond where high a growth rate has been adopted.

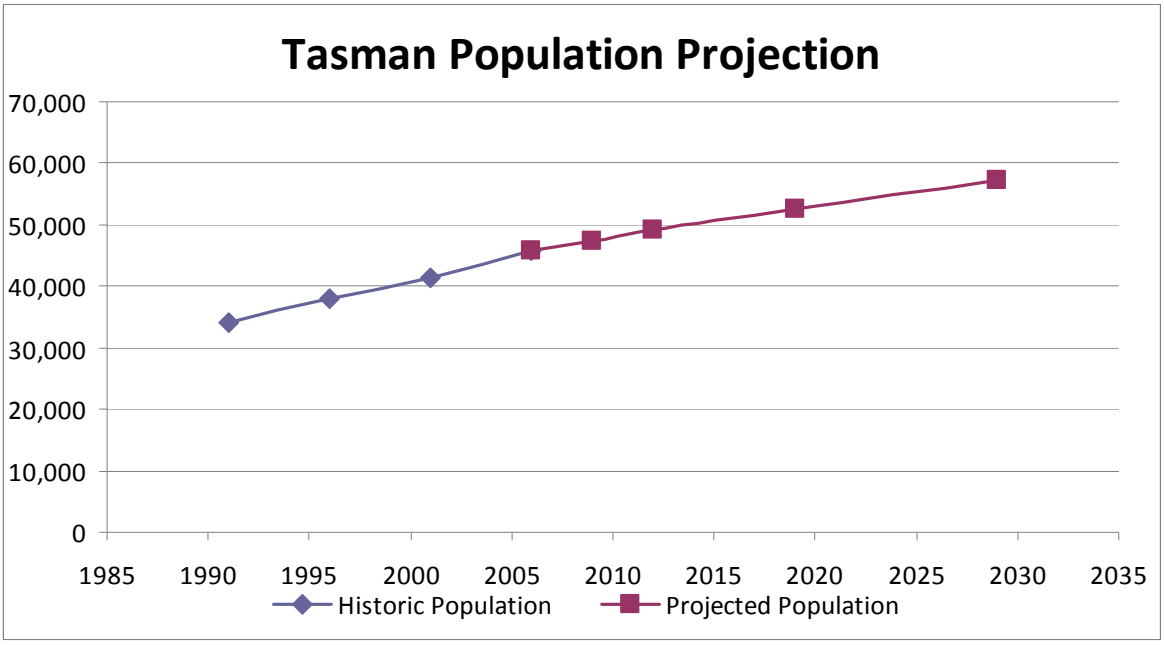


**Figure 5-1: Council's Desired Population Growth**

The major impact of population growth in the district on river works will be via subdivision of the property bordering the river berm and on the river flood plain. Generally, subdivision development will result in increased runoff which can have an influence in higher flood peaks in some of the smaller streams.

## 5.4 Technological Change

Technological change has the ability to impact on the demand for a service. These changes can increase the efficiency of riverworks infrastructure "work smarter". It has been assumed that the predicted technological changes will not have a significant effect on the assets in the medium-term. However, relevant examples are:

- New or different methods of willow maintenance, review of tree protection methodologies and use of new tree species for bank protection
- Changes to rock protection methodologies to enhance bank protection and reduce ongoing erosion.
- Collection of GPS data of protection works to enhance asset management.

It is important to be aware of continued technological changes to adequately predict demand trends and the effect on infrastructure requirements.

## 5.5 Legislative Change

Legislative change can significantly affect the Council's ability to meet minimum levels of service, and can require improvements to infrastructure assets. Recent and possible future legislative changes that will impact on Council's ability to meet required standards and can require improvements to infrastructure assets are outlined below:

- Resource Management Act 1991
- Proposed "Rivers and Lakes" Section 4 of the TRMP
- NZ4910 New Zealand Flood Risk Management
- Local Authority Protection Programme.

New Zealand Flood Mitigation protocol will require risk management analysis of catchments and sub catchments and once NZS 4910 New Zealand Flood Risk Management has been introduced the Tasman District Council will comply with the standard.

The Council have joined the Local Authority Protection Programme (LAPP) in 2008 which will provide additional risk cover.

# 6. NEW CAPITAL EXPENDITURE

## 6.1 Future Capital Works Programme

New works are those works that create a new asset that did not previously exist, or works that upgrade or improve an existing asset beyond its existing capacity. They generally result from environmental needs to control erosion and flood inundation outside the river fairway. E.g. erosion of river berms.

The creation of new assets (generally stopbanks, tree and rock protection) is approached differently depending on whether it is located within an existing classified river system, or whether it is the introduction of a new asset into a previously unclassified area.

Development within existing classified river systems is typically driven by:

- Priority ranking of area requiring capital input e.g. erosion near a stopbank
- A community determining the need for an increased level of service e.g. construction or raising of stopbanks for protection of infrastructure.

These developments are guided and controlled by rating and resource consent processes, administered by the Environment and Planning Section of Council. As part of the building consent process the design of all assets, which will be vested to the Council, are checked against TDC Engineering Standards.

The creation of entirely new systems and the significant expansion of existing systems are based on public demand, political drivers or technical requirements to meet the level of service agreed with the community.

## 6.2 Capital Expenditure under Current Classified Areas

Council have developed 20 year capital works programmes. Only the first 10 years of the capital works programme are reported in Council's LTCCP, however Council have decided that there is benefit in planning over a 20 year horizon to ensure the level of expenditure over the long term is financially sustainable, and that a long term view is taken on the infrastructure planning.

The Council's 20 year capital programme is included in Appendix F.

## 6.3 Funding Of Future Capital Works

### *6.3.1. Overview*

Future capital works (especially stopbank works) for flood mitigation typically grouped into three categories namely:

- Works to address additional requirements to an existing scheme
- New schemes
- Significant extensions to new schemes

### *6.3.2. Funding New Requirements for an Existing Scheme*

The funding of new capital works for existing schemes of a minor nature are funded directly against the closed rivers account.

Where substantial capital works are proposed such as the Lower Motueka the majority of the work will be funded by way of a special rating area.

### *6.3.3. Motueka Stopbank Flood Control Scheme*

The Capital upgrade of the Lower Motueka Stopbank is proposed to be funded from three sources and is proposed to be as follows:

- 60% of the required funding is to be funded from the direct beneficiaries of the work.
- 30% of the required funding is to be funded from the indirect benefit to the Motueka Ward.
- 10% of the required funding is to be funded out of General Rates as a district benefit.

The proposed rating base area is outlined in Appendix Y.

### *6.3.4. Funding Significant Extensions to Schemes*

This will occur when a current scheme is extended to service an area outside of the rated river works area (often adjacent to the current stopbank works). It is initially funded by the landowner and subsidized by Council by up to 50% when funds are available.

### *6.3.5. Funding New Schemes*

New schemes are funded by loan, against the closed rivers account following community consultation classified rating charges or extension of the rating area.

## 6.4 Other Capital Works Issues

Apart from community consultation and affordability of new schemes, there are other issues that must be addressed for many capital projects. These include:

- Land purchase or land lease issues
- Resource consents, including consultation with affected parties such as other landowners, Fish and Game, Department of Conservation and Iwi.

# 7. RENEWALS CAPITAL EXPENDITURE

## 7.1 Future Renewals Needs

Renewal expenditure is major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews and existing asset to its original capacity. Work over and above restoring an asset to original capacity is new works expenditure.

Assets are considered for renewal as they near their effective working life or where the cost of maintenance becomes uneconomical and when the risk of failure of critical assets is sufficiently high.

Rock work provides for the majority of work that could be classed as renewal capital expenditure. Renewal work is currently considered as capital work. This is because rock armouring has a long life (>50 yrs), or is additional rock installed where erosion occurs as a result of failure at the toe / upstream/downstream of the amoured face.

Renewal decisions are supported by the Consultant's and Maintenance Contractor's annual report and programme of work based on their knowledge of the systems.

Predicting the long-term costs of maintaining the rivers assets has an inherently high level of uncertainty. The future costs depend on the extent and severity of flooding and on the often unpredictable way rivers respond to those events.

Another uncertainty with such predictions is that riverworks are one of the areas with the highest flexibility to change planned expenditure. The service is highly dependent on the economic state of the farming community and, during periods of recession when they are not valuing their land highly, the community may be unwilling to pay for a high level of river protection.

Non-performing assets are identified by the monitoring of asset reliability, capacity and efficiency during planned maintenance inspections, operational activity and investigation of customer complaints. Indicators of non-performing assets include:

- structural failure
- repeated flooding
- erosion of river bed
- undermining of structures

The projected expenditure on renewals for the next 20 years is detailed in Appendix I.

The renewal programme will be reviewed at least annually, with any deferred work re-prioritised along side new renewal projects and a revised programme established.

Development of Asset Management software is ongoing and will assist in the process of identifying underperforming assets and the cost of maintaining or rehabilitating those assets can be determined to decide if renewing the asset is the most cost effective solution. The aim is to achieve a solution with the lowest long-term costs and with an affordable cash flow programme.

## 7.2 Renewal Standards

The work to be performed and materials to be used shall comply with the current TDC Engineering Standards.

## 7.3 Deferred Renewals

Renewal works identified may be deferred if the cost is beyond the community's ability to fund it. This can occur when higher priority works are required on other infrastructure assets, or there are short term peaks in expenditure or if an inadequate rating base exists.

When renewal work is deferred the impact of the deferral on economic inefficiencies and the system's ability to achieve the required service standards will be assessed. Although the deferral of some renewal works may not impact significantly on the operation of assets, repeated deferral will create a liability in the longer term.

There are no renewal projects that have been deferred in the 20 year period of this plan.

## 7.4 Depreciation and Decline of Service Potential

As assets age they deteriorate and the efficiency and effectiveness of the service they provide can erode. This "decline of service potential" can be very minor and take a long time, or it can be quick depending on the type of asset. Depreciation is the mechanism by which this is accounted for, and renewals are the means by which assets are restored to providing an acceptable level of service. Key assumptions on the Depreciation and Decline in Service Potential are included in Appendix J. The actual value of depreciation accounted for is included in the future overall financial requirements in Appendix L.

## 7.5 Asset Disposals

When an asset reaches the end of its useful life and renewal or replacement is decided against, Council may elect to decommission and dispose of an asset. The Council does not have a formal strategy relating to asset disposals. Council's approach to asset disposals is summarised in Appendix W.

There are no plans to decommission and dispose of any assets in the Rivers activity in the period of this AM Plan.

# 8. SUMMARY OF THE OVERALL FINANCIAL POSITION, INCLUDING EXPENDITURE, INCOME AND EXISTING ASSEST VALUE

## 8.1 Overview

Council has a policy of operating the Riverworks account as a closed account and, therefore, has a credit or debit balance reported annually.

## 8.2 A Statement of Financial Performance for the Next Ten Years

The future overall financial requirements for the rivers account for the next 10 years are summarised in Appendix L.

Table L-3 in Appendix L provides an indication of the level of expenditure and income anticipated within the plan. The values shown exclude GST and inflationary effects.

## 8.3 An Explanation of the Council's Funding Policy for the Activity

Riverworks expenditure is funded by:

- General rates (Z), X Rates (Stopbank flood mitigation protection) and Y Rates (Non-stopbank high level river management and river erosion protection)
- Gravel royalties
- Berm rental income
- Return from Disaster Recovery Funds.

## 8.4 A Schedule of Fees and Charges

A schedule of fees and charges is included in Appendix M.

# 9. RESOURCE CONSENTS AND PROPERTY DESIGNATIONS

## 9.1 An Explanation of All Resource Consent Issues Relating To This Activity

A very important aspect of the rivers activity function is to ensure that the districts natural waterways and water resources are managed responsibly. Two river catchments – the Buller and Motueka – are the subjects of Water Conservation Orders that aim to protect their outstanding features.

Council holds two "global" resource consents that enable it to carry out a range of river protection and fairway maintenance works on all rivers within Tasman District.

Any changes proposed to river control assets and maintenance activities, particularly stopbanks and outfalls, and gravel management, may require additional resource consents,

## 9.2 A Schedule of All Resource Consents

Resource consent details for operations and maintenance works in the Districts rivers, and consent compliance information are provided in Appendix H.

The extent to which the Council has been able to meet all of the conditions, of each resource consent is reported in its Annual Report each year.

## 10. DEMAND MANAGEMENT

Council's approach to demand management is detailed in Appendix N.

The main aspects of Council's approach to demand management comprise:

- Optimise utilisation/ performance of existing assets.
- Reduce or defer the need for new assets.
- Meet the organisation's strategic objectives (including social, environmental and political).
- Delivery a more sustainable service.
- Respond to customer needs.

## 11. SIGNIFICANT NEGATIVE EFFECTS

There are significant negative effects associated with river activities. These are discussed in Appendix P and include:

- Gravel extraction
- Eradication of crack willow
- Inappropriate use of river berms.

# 12. SIGNIFICANT ASSUMPTIONS, UNCERTAINTIES, AND RISK MANAGEMENT

## 12.1 Assumptions and Uncertainties

The most significant assumptions and uncertainties that underlie the approach are described in Appendix Q and summarised as follows;

(a) ***Asset data knowledge:*** Assumptions have been made on the locations, condition and performance of the assets because the asset data register is not complete.

(b) ***Growth Forecasts:*** Assumptions have been made on future population growth. These assumptions greatly influence the financial forecasts.

(c) ***Network Capacity:*** Council does not have complete knowledge of system capacities, but data collection and hydraulic modeling is in place to address this deficiency.

(d) ***Timing of Capital Projects:*** Many factors influence when projects can be implemented, some of these beyond the Council's control. This will impact on the year to year budget, but in the long term this will not have a significant effect.

(e) ***Funding of Capital Projects:*** Funding is critical to new water supply projects and assumptions have been made about how this will be achieved, especially in terms of subsidies, major user's contributions, development contributions, Council subsidy and community contributions. These have significant contributions to the financial forecasts.

(f) ***Accuracy of Capital Project Cost Estimates***: All projects in the capital forecasts have been estimated. A 15% contingency has been added to construction costs to reflect uncertainties in unit rates used. A further provision has been added to the project estimate to reflect uncertainty in project scope. It is prudent to have a high level of certainty of project scope for projects planned for implementation in the next three years, however this has not always been possible.

## 12.2 Risk Management

Council is adopting an Integrated Risk Management (IRM) framework and processes to manage risk with the organisation. Appendix Q contains a brief description of the IRM framework. The IRM process and framework is intended to:

- Demonstrate responsible stewardship by TDC on behalf of its customers and stakeholders.
- Act as a vehicle for communication with all parties with an interest in TDC's organisational and asset management practices.
- Provide a focus within TDC for ongoing development of good management practices.
- Demonstrate good governance.
- Meet public expectations and compliance obligations.
- Manage risk from an organisational perspective.
- Facilitate the effective and transparent allocation of resources to where they will have most effect on the success of the organisation in delivering its services.

The risk assessment is considered at 3 levels:

Level 1 – Organisational Risk

Level 2 – Asset Group Risk

Level 3 – Critical Asset Risk

At this point, Council has undertaken the Risk Assessments for Level 1 and 2, but have yet to complete the determining the appropriate risk treatment strategies for either. This has been included in the Improvement Plan. The level 3 assessment has not been started but has been planned for in the Improvement Plan.

## 13. BYLAWS

There are no present active Tasman District Council bylaws related to rivers.

# 14. PLAN REVIEW AND PUBLIC CONSULTATION

## 14.1 Review Process for This Activity Management Plan

This section details the programme of ongoing monitoring of AMP effectiveness and review. The AMP is a living document that is relevant and integral to daily AM activity. To ensure the plan remains useful and relevant the following ongoing process of AMP monitoring and review activity will be undertaken:

- A comprehensive review at intervals of not less than three years via the Special Consultative Procedure. Each review will be completed to coincide with the next review of the LTCCP.
- Between three yearly reviews, various asset management initiatives will be undertaken as listed in the improvement plan. The AMP will be amended to incorporate the outcomes of these at each interval.
- Quality assurance audits of AMP information to ensure the integrity and cost effectiveness of data collected.

## 14.2 Public Consultation

The Council consults the public through various mediums, including:

- Surveys
- Public meetings
- Feedback from elected members, advisory groups and working parties
- Feedback through public hearings (e.g. through LTCCP consultative procedures).

The Council also gains knowledge of customer expectations through analysis of customer service requests and complaints.

Recent consultation activities included:

- Meetings with Rivercare member groups on proposed annual rivers maintain programmes.
- Annual Rivers work programme circulated to TDC Environmental Information Planning, Fish and Game and Iwi to comment on.
- Rivers have not been part of any official survey such as Communitrak™ Survey carried out by TDC in June / July 2008.

## 14.3 Intentions for Future Consultation

The Draft Long Term Council Community Plan outlines the Council's intent for public consultation around the LTCPP and this AMP.

Council plans to review the community outcomes in the later half of 2010 (refer LTCCP) and subsequently the Levels of Service for all Council activities in 2011 (refer Improvements Plan and LTCPP). The outcome of these will feed into the next revision of the AMPS and LTCPP.

Council proposes in 2009-2012, to undertake consultation on the levels of service for Motueka Stopbank.

# 15. SUSTAINABLE DEVELOPMENT

## 15.1 Intentions to Manage All River Activities in a More Holistic Way

Council's Vision, Mission and Objectives (refer Appendix A) demonstrate the Council's commitment to sustainable development at an organisational level. This is in line with the community wishes and the legislative requirements of the Local Government Act 2002 to promote the social, economic, environmental and cultural well beings of communities in the present and for the future.

At an organisational level, Council has:

- incorporated the 4 well beings into the community outcomes, which flow into the levels of service and performance measures
- incorporated the 4 well beings in the integrated risk management approach
- incorporated environmental, social and cultural considerations in the growth planning and modelling

The Council will progressively move towards managing all of rivers activities and responsibilities in a more holistic, integrated and life cycle way. It will endeavour to improve the amount of social, economic, cultural and environmental effects of all infrastructure related activities in the Tasman District.

In the Rivers Activity specifically, a greater integration approach is demonstrated in the following aspects:

- Improved coordination in the management of rivers
- Clear target levels of service that meet agreed community needs
- Better understanding of the state of the existing rivers assets
- Review existing classification to ensure the level of service provided reflects the economic and social benefits received.

## 16. IMPROVEMENT PROGRAMME

An overall implementation and improvement plan has also been prepared and a copy of it is in Appendix V of this AMP.

## 17. SCHEDULE OF SIGNIFICANT PROPOSED NEW CAPITAL WORKS

The most significant capital works being proposed is the Motueka Stopbank upgrade with the design programmed to commence in 2009 /10 and construction following through to 2018 / 2019.

The significant work programmed for years 2009 to 2019 is listed in the table below. A full list of all capital projects over the 20 year period is included in Appendix F.

**Table 17-1: Schedule of Work for Years 2009/10 to 2018/19**

| Activity | 2009/10 to 2011/12 Years 1 to 3 | 2012/13 to 2018/19 Years 4 to 10 | Project Driver |
|---|---|---|---|
| Lower Motueka Stopbank | $600,000 | $10,823,000 | **I** |
| Riwaka Stopbank | | $230,000 | **I** |

Note: I = Increased level of service

# APPENDIX A: LEGISLATIVE AND OTHER REQUIREMENTS AND RELATIONSHIPS WITH OTHER PLANNING DOCUMENTS AND ORGANISATIONS

## A.1 Introduction

In preparing this AMP the following have been taken account of:

- National Drivers – for example drivers for improving Asset Management through the Local Government Act 2002.
- Local Drivers – for example the Community Outcomes determined through consultation with the public, and change in rules and environmental standards in the TRMP.
- Linkages – the need to ensure this AMP is consistent with all other relevant plans and policies.
- Constraints – the legal constraints and obligations Council has to comply with in undertaking this activity.

The main Drivers, Linkages and Constraints are described in the following Sections.

## A.2 Key Legislation and Industry Standards, and Statutory Planning Documents

- The Climate Change Response Act.
- The Civil Defence Emergency Management Act 2008 (Lifelines).
- The Resource Management Act 1991
- The Local Government (Rating) Act 2002.
- The Health and Safety in Employment Act 1999.
- The Building Act.

Relevant Council and regional policy documents include:

- LTCCP 2009-2019
- TDC Engineering Design Standards 2008
- Rivers Activity Management Plan 2008
- Tasman Resource Management Plan

## A.3 Key Stakeholders

Stakeholders are those individuals and organisations that have an interest in the management and/or operation of the assets. Stakeholders include but are not limited to:

**National Organisations:**

- INGENIUM.
- The Ministry for the Environment.
- The Department of Conservation.
- Local Government New Zealand.

**Local Stakeholders**

- The elected representatives (Councilors and Community Boards).
- The TDC Community of owners, residents and ratepayers.
- Tangata Whenua.
- Regulatory and monitoring bodies.
- Environmental and Recreational Interest Groups including Fish and Game New Zealand, Royal Forest and Bird Protection Society and Tasman Environmental Society.
- Tasman District Council employees.
- Consultants and contractors.
- River Care Groups.

## A.4 Links with Other Documents

This AMP is a key component in the Council's strategic planning function. Among other things, this Plan supports and justifies the financial forecasts and the objectives laid out in the Long Term Council Community Plan (LTCCP). It also provides a guide for the preparation of each Annual Plan and other forward work programmes.

Figure A-1 depicts the links between Council's activity management plans and other corporate plans.

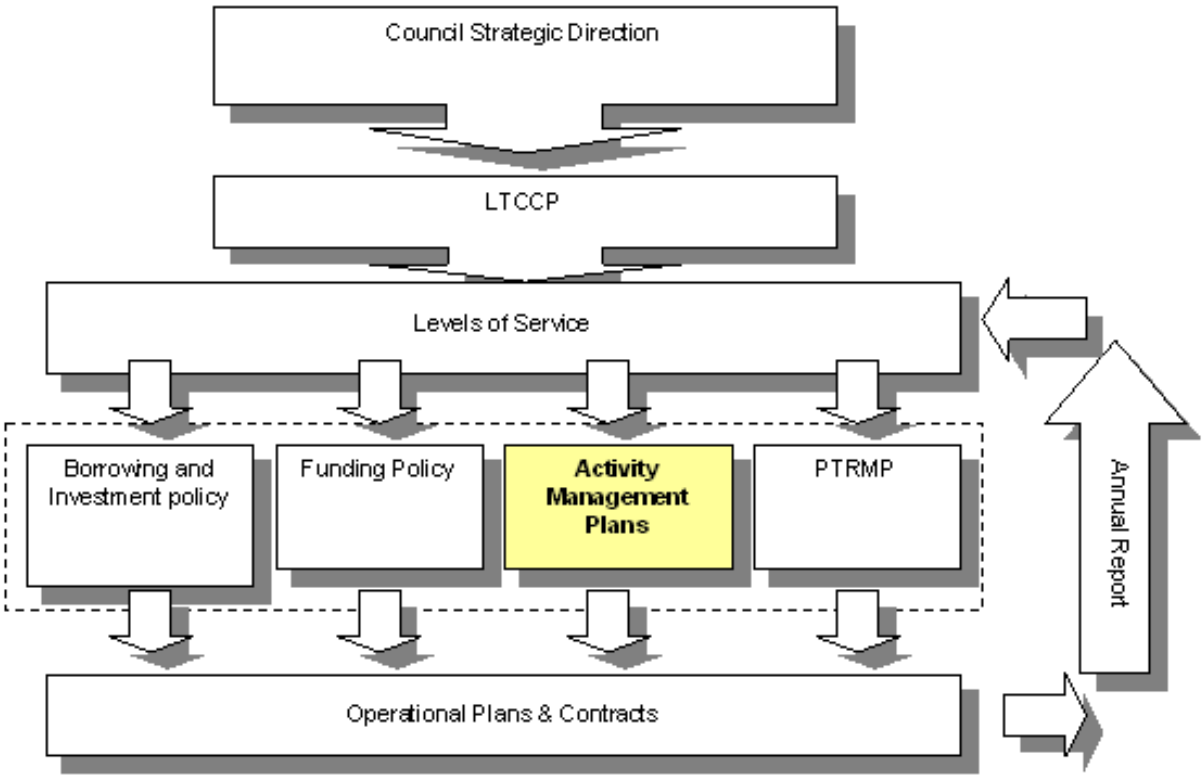


**Figure A-1: Hierarchy of Council Policy, Strategy and Planning**

**Council Strategic Direction is outlined in the Vision, Mission and Objectives of the Council:**

**Vision:** An interactive community living safely in the garden that is Tasman District.

**Mission:** To enhance community wellbeing and quality of life.

**Objectives:**

**Objective 1:**
To implement policies and financial management strategies that advance the Tasman District

**Objective 2:**
To ensure sustainable management of natural and physical resources, and security of environmental standards

**Objective 3:**
To sustainability manage infrastructural assets relating to Tasman District

**Objective 4:**
To enhance community development and the social, natural, cultural and recreational assets relating to Tasman District

**Objective 5:**
To promote sustainable economic development in the Tasman District

The following table outlines the strategic documents utilised by the Council as part of the planning process.

**Table A-1: Strategic Documents Utilised During the Planning Process**

| | |
|---|---|
| **LTCCP** | The Long-term Council Community Plan. The primary instrument for the Council to report on its intentions on delivering its services to the community. The LTCCP supersedes the Long Term Financial Strategy (LTFS) and traditional Annual Plan. |
| **Strategic Plan** | This is the broad strategic direction of Council set in the context of current and future customer requirements. The AM plan is the tactical plan with a view to achieving the strategic targets. |
| **Annual Plan** | The service level options and associated costs developed in the AM plan will be fed into the Annual Plan consultation process. The content of the Annual Plan will feed directly from the short term forecasts in the LTCCP. |
| **Financial and Business Plans** | The financial and business plans requirement by the Local Government Amendment Act (3). The expenditure projections will be taken directly from the financial forecasts in the AM plan. |
| **Contracts** | The service levels, strategies and information requirements contained in the AM plan are the basis for performance standards in the current Maintenance and Professional Service Contracts. |
| **Operational Plans** | Operating and maintenance guidelines to ensure that the schemes operate reliably and equipment and plant is maintained in a condition that will maximise their useful service life. |
| **Corporate Information** | Quality AM is dependent on suitable information and data and the availability of sophisticated AM systems which are fully integrated with the wider corporate information systems (e.g. financial, property, GIS, customer service, etc.). Council's goal is to work towards such a fully integrated system. |

## A.5 Key Activity Drivers

Key drivers in the rivers activity include:

- Meeting the resource consent requirements whilst still performing operations and maintenance activities in a practical and efficient manner
- Meeting the needs of ratepayers who receive the benefit from the activity are met in a manner that they consider affordable and through a rating structure that is equitable
- Providing an adequate but affordable level of flood protection for those that desire it

## APPENDIX B: AN OVERVIEW OF EVERY CLASSIFIED RIVERS SYSTEM IN THE DISTRICT

B1 – History

B2 – River System Overview

B3 – Waimea Catchment

B4 – Upper Motueka Catchment

B5 – Lower Motueka Catchment

B6 – Riwaka Delta Catchment

B7 – Aorere Catchment

B8 – Takaka Catchment

B9 – Buller Catchment

B10 - Overall Asset Condition

B11 - Operations and Maintenance

B12 - Classified Rivers Annual Review Prioritisation

B13 - River Z – General Works

B14 – List of Privately Owned Stopbanks in the Class Y Rating Area

## B.1 History

### *B.1.1. Background Rationale for the Council's involvement in the Rivers Activity*

Catchment Boards were established during the 1940's to implement the Soil Conservation and Rivers Control Act 1941, and later the Water Soil and Conservation Act 1967. The main objectives of these Boards were the promotion of soil conservation, the prevention and mitigation of soil erosion, and the prevention of damage by floods.

The Nelson Catchment Board (NCB) was one of the first bodies to be established under the 1941 legislation. Initially they carried out river works to achieve their objectives funded by a district wide rate. Then in 1956 they established the General Works Classification rating system, which was a differential rating system with 5 classifications. Areas A, B, C, D and E were those considered to be receiving direct benefit from Council provided river works (the 290km of rated rivers), and an indirect benefit. The Motueka Borough Council area was rated on land value and the Waimea County Council on capital value. The urban areas of Nelson and Richmond were removed from the rating system as a result of appeals to the courts.

During the 1950's and 1960's the NCB carried out significant works along the 290 km of "classified rivers" including flood protection stopbank schemes along the lower Motueka and Waimea. Capital works were generally funded from 70% State subsidy and 30% local contributions, with ongoing maintenance funded 50% from the Catchment Board Works Classification rate and 50% from State subsidy. A great deal of maintenance work was also undertaken under the guise of capital works.

Through the local body amalgamation in 1989, the Nelson-Marlborough Regional Council inherited the statutory roles of the Nelson Catchment Board. In 1992, those roles were passed on again to Marlborough District Council, Nelson City Council and Tasman District Council when these bodies became both Regional and Territorial Authorities. Tasman District Council also inherited the upper Buller catchment, which had been under the jurisdiction of the Westland Catchment Board and then the West Coast Regional Council (WCRC).

Central Government announced their intention to withdraw their subsidy of river control schemes in the late 1980's and gradually reduced their subsidies. In their last year of funding (1991/92) they subsidised $630,000 of river scheme works in the Tasman district.

Even without State subsidy TDC continued to operate the NCB rivers classification scheme, though initially at a greatly reduced level. They maintained the 290km of "classified" rivers funded on a 50/50 basis from the Works Classification Rate and General Rate. However the overall budget for river works reduced by nearly a half in the year Central Government subsidy was removed.

There were no such rating schemes in the Westland Catchment Board (WCB) area of jurisdiction. In fact neither the WCB nor the WCRC carried out much work on the section of Buller River which became part of the Tasman District. Any river works which were carried out were funded by a combination of local contributions and State subsidy.

### *B.1.2. History of Classification*

In 1995 a sub-Committee to Council's Engineering Services Committee (called the Rivers Task Force) was convened to review the existing rivers classification scheme which was based on the old NCB system. By this time the classification was outdated and a reclassification was long overdue to recognise the changes in land use etc which had occurred over the previous 40 years. Also Council wished to include the former Richmond Borough Council and West Coast Regional Council areas into the rating scheme.

Following a public consultation process, a new river rating policy was adopted in May 1996.

The original Class A and B properties (which were protected by stopbanks designed to contain a 50 year flood) were changed to Class X rating. The rated section of property is defined as that area which would be flooded in a 50 year flood if the stopbanks did not exist.

The original Class C and D properties (which received direct benefit from river works other than Q50 stopbanks) were changed to Class Y rating. The rated section of property was originally defined as the Q50 flood extent but the boundaries were modified during the river re-classification process. All other land in the district was rated Class Z.

### *B.1.3. Classification Policy – X, Y & Z Rating*

The policy adopted at the Special Council meeting of 23rd May 1996 is summarised below:

*That Council adopt a system of a differential rating for Separate River Care Rates to be made and levied in the Tasman District Council administered area on the land value of rateable property for the purposes of carrying out works and services which seek to maintain existing flood defences and mitigation of the effects of flooding and to maintain and develop stable watercourses.*

*That the proposed differential will group rateable property in three classes:*

***Class X*** *being property to receive a direct benefit and protected by stopbanks designed to a minimum standard.*

***Class Y*** *being property to receive a direct benefit but not protected by stopbanks*

***Class Z*** *being the balance of the Tasman District (considered to receive an indirect benefit)*

*That 50% of the River Care rates are to be collected from Class X and Y and the other 50% from Class Z.*

*That the Class Y rate shall be 80% of the Class X rate.*

Maintenance of the Class X and Y rivers is funded 100% from the rivers account.

Legal boundary descriptions for classified works areas (X, Y) are provided below:

**Table B-1: Titles for Classified Rivers (X, Y Rating)**

| Classified River | Extent of Boundaries as described by Title | |
|---|---|---|
| | Start | Finish |
| **Aorere** | Section 187, Block IV, Aorere SD | Mouth |
| **Kaituna** | Roadway dividing Section 128, Block III, Aorere | Mouth |
| **Anatoki** | Section 166, Block IX, Waitapu SD | Mouth |
| **Waingaro** | Section 79, Square II, Block II, Takaka SD | Mouth |
| **Takaka** | Section 31, Block XI, Takaka SD | Mouth |
| **Riwaka** | Section 78, Block X, Kaiteriteri SD | Mouth |
| **Motueka** | Section 4, Square 7, Block IX, Motueka SD | Mouth |
| **Motueka** | South-Western Corner of Section 25, Block I, Gordon SD | Wangapeka Confluence |
| **Moutere** | Part Section 93, Block XVI, Motueka SD | Mouth |
| **Powley Creek** | Section 232, Block VII, Motueka SD | Mouth |
| **Sherry** | Section 99, Block III, Tadmor SD | Mouth |
| **Motupiko** | Section 75, Square 5, Block II, Tadmor SD | Mouth |
| **Dove** | Section 103, Block VII, Wai-iti SD | Mouth |
| **Wai-iti** | Section 78, Block VI, Gordon SD | Mouth |
| **Waimea** | Over whole length | |

| Classified River | Extent of Boundaries as described by Title | |
|---|---|---|
| | Start | Finish |
| **Wairoa** | Wairoa Gorge | Waimea – Wai-iti Confluence |
| **Eves Valley Stream** | Section 1, Block V, Waimea SD | Mouth |
| **Redwoods Valley Stream** | Section 29, Square 2, Block I, Waimea SD | Eves Valley Stream |
| **Little Sydney Stream** | Section 40, Block X, Kaiteriteri SD | Mouth |
| **Tadmor** | Village of Tui | Mouth |

### *B.1.4. "Joining" Class X & Y Schemes*

X Classification To join the Class X scheme, landowners who directly benefit from the scheme must fund 2/3 of the costs to construct minimum standard stopbanks (which would be subsidised 1/3 from the rivers account). Note that a number of private stopbanks and catchment board banks are located around the district. Generally these are found in Class Y areas and are not maintained by Council. Examples include Krammers stopbank in Motupiko, stopbanks on the Riwaka outside the Class X classification, and banks in the Upper Motueka and Takaka River.

Y Classification To join the Class Y scheme, benefiting landowners must fund works to bring the length of river to Class Y standard (with no subsidy from rivers account).

Z Classification River works carried out along other sections of rivers (in Class Z classification areas) are funded up to 50% by Council with the balance funded by the Landowner. Funding assistance is not guaranteed by the Council and is dependent on available funds. : Council share, contingent upon the work having demonstrable community benefit. Any subsidized works carried out under the Rivers General or Soil Conservation budget are handed over to the landowner once established. Council does not retain ownership, unless works occur on Council land.

### *B.1.5. Gravel Extraction*

Another role inherited from the Catchment Board/Regional Council was regulatory control over gravel extraction. Activities in rivers and streams are now regulated by the Resource Management Act which requires all activities in a river bed to have a resource consent (unless otherwise allowed in the district plan) with a supporting investigation into the adverse effects of the extraction or other activity.

Council's Asset Management group holds a global resource consent relating to river bank protection and channel stabilisation measures and maintenance (NN010109 and spraying consent (NN000425).

## B.2 Rivers Systems Overview

For the purposes of this Activity Plan, Tasman District's Rivers and associated drainage network has been divided into specific zones. These zones generally follow geographical boundaries. The zones are as follows:

**Table B-2 River Network Overview**

| River / Stream / Drainage System | Class | Maintained Length (km) | Stopbank Length (km) |
|---|---|---|---|
| **Waimea** | | | |
| Redwoods Valley Stream. | X | 5.75 | - |
| Redwoods Valley Overflow. | X | 2.0 | - |
| Eves Valley Stream. | X | 10.1 | - |
| O'Connor's Creek | X | 1.8 | - |
| Wai-iti R. | Y | 30.0 | 1.4 |
| Waimea R. (including Wairoa) | X | 13.45 | 18.1 |
| **Upper Motueka** | | | |
| Motupiko R. | Y | 14.1 | - |
| Tadmor R. | Y | 33 | - |
| Sherry R (including Wangapeka). | Y | 14.1 | - |
| Upper Motueka R. | Y | 19.75 | - |
| **Lower Motueka** | | | |
| Dove R. | Y | 19.8 | - |
| Brooklyn Stream. | X | 2.5 | 5.0 |
| Lower Motueka R. | X | 11.4 | 26.2 |
| **Riwaka Delta** | | | |
| Little Sydney D. | X | 4.25 | - |
| Scotts D. | X | 0.7 | - |
| Hamilton D. | X | 2.8 | - |
| Riwaka R. | X | 5.2 | 8.25 |
| **Moutere** | | | |
| Moutere R. | Y | 12.35 | - |
| Moutere Creek Ditch | Y | 4.3 | - |
| Pawley Creek. | Y | 2.25 | - |
| **Aorere** | | | |
| Kaituna R. | Y | 6.1 | - |
| Aorere R. | Y | 11.55 | - |
| **Takaka** | | | |
| Waingaro R. | Y | 6.65 | - |
| Anatoki R. | Y | 4.65 | - |
| Takaka R. | Y | 28.25 | - |
| **Buller** | | | |
| Buller R. | Z | NIL | - |

### *B.2.1. Rivers System Risks*

In general all (maintained) river systems in the Tasman District Region are subject to failure from one or a series of major flooding events. Failure could occur in any location within the berm, given factors such as localised rainfall intensity, loss of frontline protection (willow and rock work), stopbank design and capacity, and failure in flood/tide gate systems.

The last plan review identified willow trees being subject to attack from the Sawfly insect. Because crack willow has now been placed on the unwanted organism list by MAF the issues related around sawfly damage of crack willow is now of less importance regionally.

Crack Willow (*salix fagilis*) has been added to the New Zealand Unwanted Organisms register. This variety cannot be spread or propagated without permission. TDC has applied for a 20 year exemption to eradication but accepts that it will work in low erosion potential sites to remove Crack Willow.

### *B.2.2. Classified Rivers Assets Protection Fund*

*Purpose*

The purpose of the Fund is the reinstatement of River works (assets) following a major unforeseen event, such as natural disaster.

a) To provide an immediate cash resource

The fund should be maintained as a cash investment in accordance with the guidelines of Council's Treasury Management Policy

b) To contribute to the costs of reinstatement of Council owned services/assets following a major unforeseen event.

To contribute implies that the total value of the Fund does not necessarily need to be used for any single event. Reinstatement implies that it is critical for the service capability to be reinstated urgently. The degree of reinstatement would need to be determined on a situation basis whereby the reinstatement could be staged from emergency service capability to full or improved service capability.

This will relate to damage or destruction of river works in the X and Y rivers areas.

*Coverage*

The Fund should provide coverage over Council owned classified rivers assets, the costs of reinstatement or prevention of potential reduction in service capability arising from an unforeseen event and the costs incurred in a civil defence or an adverse event emergency.

Types of adverse events may include:

- Earthquakes
- Tsunami/tidal waves
- Flood damage
- Slips / subsidence
- Chemical spill or environmental disaster

The coverage specifically excludes any events related to:

- Operational breakdown / failure
- Maintenance expenditure
- Flood damage in Z classified rivers

*Use of the Fund*

The fund may be used for

a) Contributing to costs incurred in responding to any civil defence or adverse event emergency specifically relating to X and Y river works.

b) Contributing to the costs of reinstatement of service capability which arises from a defined, major, short duration, unforeseen natural event.

c) Contributing to the costs of any emergency preventative works required to protect service capability.

*Contingency*

The first $100,000 of any claims within a financial year is to be funded from annual operating budgets.

*Criteria*

a) All calls on the Fund should be authorised by resolution of Council but with a delegation to the Mayor and Chief Executive to spend up to $100,000 to ensure an immediate and adequate level of service capability is restored or preventative works undertaken to minimise any threat to river assets or to secure river bank stability.

b) This is a "last resort fund". Prior to the use of this fund Council should first use up alternative funds or assess more appropriate funding sources such as:
   - available contingencies
   - current year budget/s
   - depreciation or other reserves
   - loans
   - funding from external agencies

c) Factors to consider in determining the extent to which the Fund should be called on:
   I. The impact or potential draw-off from the Fund particularly for a single event.
   II. The degree of replacement/improvement service capability included in the reinstatement.
   III. The programmed replacement cycle of the asset and any proposed change in service capability required.
   IV. The premise that capital works are funded from capital expenditure budgets and maintenance from operational budgets.
   V. The size of any local community or private contribution.
   VI. The scale and magnitude of the event.
   VII. Funds must be used to protect and repair river assets, or to promote or enhance river bank stability with X and Y classified river areas only.

d) Any draw-off from the Fund should be considered for reimbursement from:
   I. Subsequent loan funds raised for reinstatement purposes.
   II. Any insurance proceeds
   III. Any other proceeds received by Council in respect to the event.

Local Authority Protection Programme (LAPP)

The Tasman District Council have joined the LAPP fund in 2008 which may provide additional financial assistance to repair damaged river assets in a significant flood event.

## B.3 Waimea Catchment

### *B.3.1. Description*

The Wai-iti River catchment (270 $km^2$) and Wairoa River Catchment (463 $km^2$) drain steep hill country and join approximately 1km downstream of the Brightwater Bridge (SH6) to become the Waimea River. The river plain formed by the Waimea is intensively farmed.

Redwood Valley and Overflow. A detention dam is located at the head of the Redwoods Valley catchment. This structure was installed by the previous catchment board, however is not maintained under the current River Operations and Maintenance contract.

### *B.3.2. Capacity*

Waimea: A river control scheme utilising stopbanking over the lower 7.5km of the Waimea River was completed in 1962. All stopbanks and land between stopbanks to the outside edge of the bank are reserve land vested in Council for river control purposes. Stopbanking was developed to a 50 year (2% AEP) standard, accommodating a freeboard of 0.6m under a $3:1 State subsidy with the remaining funding sources from a rates classification on the benefit areas. Since then the removal of river gravel has resulted in deepening the bed and therefore increasing its capacity beyond the original $Q_{50}$ design.

Wai-iti and Wairoa: The lower reaches of the Wai-iti and Wairoa are part of the Class Y scheme. The original works were funded from a $3:1 State subsidy with farmers providing the local contribution.

### *B.3.3. Major Event(s)*

Waimea: In January 1986 a large flood of 1466$m^3/s$ (just over a $Q_{50}$ event) caused extensive bank damage, exacerbated by the over-extraction of gravel. There are still areas with narrow berm areas between the stopbanks and the main river channel which may be threatened during a big flood.

## B.4 Upper Motueka Catchment

### *B.4.1. Description*

The Motueka River Catchment covers an area of 2170 km2. The Upper Motueka drains from the mountainous Red Hills Ridge (1629 m) and Beebys Knob (1436 m) area. The river flats and terraces in this area are narrow. The Motupiko and Tadmor Rivers drain the head of the Moutere Depression to be joined at Tapawera by the Wangapeka and Baton Rivers, two major tributaries that drain the watershed in the western most corner of the catchment. The river flows in a narrow valley below Tapawera to follow the foot of the Western Nelson Range (Mt Arthur Range) in a north easterly direction towards Tasman Bay.

### *B.4.2. Capacity*

The Upper Motueka River is a Class Y area (open fairways). In the 1960's the lower sections of the Motupiko, Motueka, Tadmor, Sherry and Dove River received channel works designed to secure the valley floors from erosion and reduce the frequency of flooding. The work was funded by a $3:$1 State subsidy with the local share provided by voluntary contributions, shingle royalties and the classified rivers rate.

## B.5 Lower Motueka Catchment

### *B.5.1. Description*

The lower Motueka River receives run-off from the catchments of the Stanley Brook, Dove, Orinoco and Waiwhero and Brooklyn Stream. The rivers and streams are bounded by wide flats and terraces backed by strongly rolling slopes which rapidly give way to the moderately steep slopes that form the eastern Motueka catchment boundary. The river plains have historically been used for horticultural production i.e. apple and hop production

Stopbanks have been installed in the Lower Motueka River, primarily to protect Motueka Township and surrounding infrastructure. When the Motueka stopbanks were constructed the works were publicly notified at the time of construction and the land owners signed documents ceding the land. However, with a few exceptions, Council never took a separate title for the land and owners are reluctant to release control. The stopbank structures themselves are Council owned.

There is not believed to be a serious issue with Council not owning the land under these stopbanks as the Soil Conservation and Rivers Control Act 1941 gives powers for access to carry out maintenance works. Also, the Resource Management Act 1991 (RMA) prevents owners doing anything to affect rivers (which includes altering a stopbank) without a resource consent.

Note that the Moutere catchment discharges separately at a point south of the Motueka River. However details regarding this river are provided here for consistency.

### *B.5.2. Capacity*

Widespread flooding used to occur frequently in the river plains of the Lower Motueka River. A river control scheme was completed in 1956 comprising stopbanks, channel improvements and bank protection designed to contain a Q50 flood in the Lower Motueka.

The stopbank capacity was analysed in the early 1990's and some areas were found to have a capacity below the design capacity of $Q_{50}$ (includes 0.6mm freeboard). The cost of upgrading the stopbanks to a $Q_{200}$ capacity was also assessed at this time, estimated to cost $1 m (1990).

Further site investigation carried out in 2008 indicates that $18.5 is now needed to provide banks with a capacity to pass a 1% AEP (100yr flood). This includes reworking sections of the stopbank to modern engineering construction standards

### *B.5.3. Major Event(s)*

Recent flood events include:

- 1990 with a peak discharge of 1680 $m^3/s$ recorded at Woodstock, and
- July 1983 with a peak discharge of 2149 $m^3/s$ estimated at the time to be $Q_{50}$ event. Though the flood flow was contained in the main channel through the stopbanked areas, damage to a value of $1 m occurred – generally as lateral erosion along stopbanks

Some concern was raised at the time of the 1990 flood that another flood might threaten to further undercut the stopbanks due to the dual factors of bed degradation and erosion of the berms – in the areas between the stopbanks and active channel.

## B.6 Riwaka Delta Catchment

### *B.6.1. Description*

The rivers network in the Riwaka Delta are a series of streams modified for land drainage purposes (Little Sydney Drain, Scotts Drain, Hamilton Drain and) and Riwaka River. The drainage systems run into the Riwaka estuary via tide gate structures. The Little Sydney tide gate is a reinforced concrete structure constructed in-situ.

Riwaka. A rivers control scheme was completed in 1956 comprised of stopbanks, channel improvements and bank protection designed to contain a $Q_{20}$ (5% AEP) flood in the lower Riwaka. A review of the stopbank carried out in 2005 concluded that present stopbanks on the Riwaka River only provide a level of protection to $Q_{10}$ (10% AEP).

A public consultation process in 2006 concluded that while landowners were happy to see the stopbank system renovated to restore 5% AEP capacity they did not want to have to pay the full cost of the work.

It is intended to further review the Riwaka upgrade scheme and funding options.

## B.7 Aorere Catchment

### *B.7.1. Description*

The main Aorere River catchment drains from the alpine regions of the Kahurangi Park. Its larger tributaries, the 15, 17, and 19 mile creeks (which join the Aorere upstream of Bainham) and the Kaituna River (whose confluence is downstream of Devil's Boot), drain from the steep, bush clad Wakamarama Range. The Aorere River passes through steep rock gorges before discharging into the flat valley area used predominantly for dairy cattle and sheep farming.

The land in these lower catchment reaches is alluvial and highly susceptible to erosion. There are substantial river works, including rock bank protection and riparian management, downstream of Devil's Boot, and all this area is rated Class Y.

### *B.7.2. Capacity*

The Aorere River is one of the largest rivers in the Tasman district with a $Q_{50}$ flow of 3180m³/s at Devil's Boot. In the 1970's a stop bank flood protection scheme was designed but it has never been constructed and is unlikely to in the future. There is some private tidal stopbanking in the Ferntown area.

### *B.7.3. Major Event(s)*

Recent significant flood events include July 1985 when the highest ever flow of 3067m³/s was recorded and October 1996 when around 2400m³/s was recorded. Both these floods caused significant damage in the lower catchment to existing river works and unprotected riverbanks.

Of particular significance is the potential for the river to take a completely new course to the sea over the last few kilometres of its catchment length.

## B.8 Takaka Catchment

### *B.8.1. Description*

The Takaka River catchment drains a mountainous region of around 855 square kilometres into the lower reaches of the Takaka Valley which comprises useful arable land. The main tributaries to the Takaka River are the Cobb River (on which the Cobb Dam is located) and the Waingaro and Anatoki which join the main river near Takaka

During the 1960's a scheme of river channel stabilisation (mainly rock protection) and channel widening was introduced over a 37 km length. These works controlled the rate of erosion of farm land and now form part of the Class Y classification scheme.

The initial 1960's scheme was funded on a $3 to $1 State subsidy with the local share provided by a Takaka Valley rating. Subsequent work was carried out from the classified rivers rate. In 1973 a scheme was planned to divert the tidal reach of river straight to sea with stop banking constructed to protect the township. Shortly afterwards, and through natural processes, a channel formed from the Waitapu Bridge to the sea. The NCB maintained this new alignment to protect the Waitapu wharf which was in danger of being washed away by other secondary channels that could potentially form.

Following the 1983 event a Catchment Control Scheme which included 50 year stop bank flood protection and catchment control scheme was designed and costed at around $7.5million in today's terms (Whole Takaka Flood Relief Scheme). Despite a 70% State subsidy the scheme was turned down through a loan poll. Subsequent reduced schemes have been proposed by the Community Board but have not been proceeded with to date. The schemes suffer from poor economic returns and adverse effects caused for others.

Future investigation and public input may lead to multi discipline review and management process for the protection for Takaka.

### *B.8.2. Capacity*

The Waingaro is the largest of the contributing rivers with a $Q_{50}$ of 1145m³/s compared with 681m³/s and 693m³/s from the Anatoki (20 km upstream of the confluence with the Takaka) and Takaka (at the Waingaro confluence).

### *B.8.3. Major Event(s)*

Prior to the 1960's severe flooding of the lower floodplain areas was frequent and there was extensive bank erosion along the Takaka, Waingaro and Anatoki because of the highly erosive nature of the alluvial soils. In July 1983 a flood of over 2000m³/s was recorded past Takaka village (varying between $Q_{30}$ and $Q_{50}$ across the catchment) which caused extensive damage to surrounding land and property.

## B.9 Buller Catchment (Not Maintained)

The Buller River drains from the Nelson Lakes through Murchison to the West Coast at Westport, however TDC's jurisdiction ends at the district boundary at 8 mile Creek. There are no river rating areas in the Buller Catchment, and any river works that have been carried out are isolate sections of work funded through the River Z subsidised scheme.

There have been occasional proposals for flood protection schemes for Murchison, but none have proceeded due to local reluctance to fund the schemes.

## B.10 Overall Asset Condition

### *B.10.1. Base Asset Data*

The following tables draw on infrastructural asset data held by Council. While a majority of Rivers asset data has been recorded, it is understood that the data set has not been maintained consistently since the early 1990's. At a minimum a desktop review of Councils aerial rivers maps is required to determine the dataset's accuracy in respect to asset quantities and age followed by physical inspection where uncertainties still exist.

### *B.10.2. Condition Assessment and Monitoring*

A summary of the assessment of current asset condition is provided below in Table B-3. The assessment of condition is based on discussions during a series of workshops held in October 2003 between the incumbent rivers contractor, Councils Engineering Consultant and the TDC Asset Engineer Rivers.

While Appendix E refers to annual inspection and monitoring works, selected parts of the assets condition are monitored on a daily basis, generally during maintenance operations. On a weekly basis an exception report is forwarded to the Asset Manager summarising these observations e.g. further failure of rock work. All information is collated for inclusion into the draft Annual Operations and Maintenance Programme (AOMP).

**Table B-3: District Assets Condition Assessment**

| Asset Type | Asset Component | Condition Grading (0-5) | Condition Data Confidence (0-5) | Established Age (yrs) | Expected Economic Life (yrs) |
|---|---|---|---|---|---|
| Stopbanks | Lower Motueka | 2 | 1 | 1960 | - |
| | Brooklyn | 4 | 1 | 1960 | - |
| | Riwaka | 4 | 1 | varies | - |
| | Wai-iti | 2 | 1 | 1967 | - |
| | Waimea | 2 | 1 | varies | - |
| Outfalls | Lower Motueka | 3 | 1 | varies | |
| | Wai-iti - Barton | 3 | 1 | 1975 | 2 |
| | Waimea - Pearl Creek | 3 | 1 | 1975 | 1 |
| | Waimea- River Rd | 3 | 1 | 1975 | 2 |
| | Waimea-Bartlett Rd | 3 | 1 | 1975 | 2 |
| | Moutere | 3 | 1 | 1970 | 26 |
| | Riwaka | 3 | 1 | 1970 | 26 |
| Railway Irons | Motupiko | 0 | 5 | varies | - |
| | Tadmor | 0 | 5 | varies | - |
| | Upper Motueka | 0 | 5 | varies | - |
| Willow Plantings | Anatoki | 3 | 2 | varies | - |
| | Aorere | 3 | 2 | varies | - |
| | Kaituna | 3 | 2 | varies | - |
| | Waingaro | 3 | 2 | varies | - |
| | Dove | 3 | 2 | varies | - |
| | Lower Motueka | 3 | 2 | varies | - |
| | Moutere | 3 | 2 | varies | - |
| | Brooklyn | 3 | 2 | varies | - |
| | Riwaka | 3 | 2 | varies | - |
| | Motupiko | 3 | 2 | varies | - |
| | Sherry | 3 | 2 | varies | - |
| | Tadmor | 3 | 2 | varies | - |
| | Upper Motueka | 3 | 2 | varies | - |
| | Wai-iti | 3 | 2 | varies | - |
| | Waimea | 3 | 2 | varies | - |
| | Wairoa | 3 | 2 | varies | - |
| | Eves/Redwood Valley | 3 | 2 | varies | - |
| Poles & Posts | Anatoki | 3 | 2 | 2002 | - |
| | Aorere | 3 | 2 | 2002 | - |
| | Kaituna | 3 | 2 | 2002 | - |
| | Takaka | 3 | 2 | 2002 | - |
| | Waingaro | 3 | 2 | 2002 | - |
| Wands | Takaka | 2 | 2 | 2002 | - |
| | | | | | |
| Weighted Felled Trees | Takaka | 0 | 5 | 1975 | - |
| | Dove | 0 | 5 | varies | - |
| | Motupiko | 0 | 5 | varies | - |
| | Tadmor | 0 | 5 | varies | - |
| | Upper Motueka | 0 | 5 | varies | - |

| Asset Type | Asset Component | Condition Grading (0-5) | Condition Data Confidence (0-5) | Established Age (yrs) | Expected Economic Life (yrs) |
|---|---|---|---|---|---|
| | Wai-iti | 0 | 5 | varies | - |
| | Waimea | 0 | 5 | 1975 | - |
| | Wairoa | 0 | 5 | 1975 | - |
| Rock Protection | Anatoki | 2 | 1 | varies | - |
| | Aorere | 2 | 1 | varies | - |
| | Kaituna | 2 | 1 | varies | - |
| | Takaka | 2 | 1 | varies | - |
| | Waingaro | 2 | 1 | varies | - |
| | Dove | 2 | 1 | varies | - |
| | Lower Motueka | 2 | 1 | varies | - |
| | Moutere | 2 | 1 | varies | - |
| | Brooklyn | 2 | 1 | varies | - |
| | Riwaka | 2 | 1 | varies | - |
| | Motupiko | 2 | 1 | varies | - |
| | Sherry | 2 | 1 | varies | - |
| | Tadmor | 2 | 1 | varies | - |
| | Upper Motueka | 2 | 1 | varies | - |
| | Wai-iti | 3 | 1 | varies | - |
| | Waimea | 3 | 1 | varies | - |
| | Wairoa | 3 | 1 | varies | - |
| | Eves/Redwood Valley | 3 | 1 | varies | - |
| Gabion Baskets | Takaka | 0 | 4 | 1975 | 2 |
| | Wai-iti | 0 | 4 | 1975 | 2 |
| | Wairoa | 0 | 4 | 1975 | 2 |
| | Eves/Redwood Valley | 0 | | varies | 2 |

Notes:

1.

0 = Non-existent
1 = Very Good
2 = Good
3 = Fair
4 = Poor
5 = Very Poor

2. Expected economic Life. Currently all rivers assets excluding gabion baskets and outfalls are depreciated.

## B.11 River Z – General Works

In addition to the operations and maintenance works carried out under Contract 666, Council annually allocates funds for Z rated areas. The majority of works in these areas are carried out on a part funding basis (i.e., a combination of land user and rivers account funding). Some of the River Z rates collected are spent in the River Z classified area with the majority of the funding being proportioned to the X&Y classified area as a regional benefit factor. The decision on which works are carried out is constrained by the annual budget and the following criteria:

1. Is there a "community" benefit different from a benefit to the landowner/occupier only?
2. Is what the owner/occupier wants to do "sound"? Will it achieve a desirable outcome, will it work, and is it cost effective?
3. Is what is proposed achievable under the River works Consent?
4. Is it possible that by not offering financial support, work of a standard not desirable or outside the River works Consent could eventuate?
5. Will the work encourage upstream and downstream neighbours to be more proactive with their stream maintenance or drainage?
6 Is there a direct benefit to the TDC in terms of its assets and services?
7. Is it necessary to involve neighbours at an early stage to be proactive to achieve a desirable outcome?
8. Is the property owner/occupier happy to enter into a cost share arrangement and complete the standard form - Application for assistance for River Protection Works?
9. Is there anything left in the budget to give financial support, which if there is would normally be up to 50%?

## B.12 List of Privately Owned Stopbanks in the Class Y Rating Area

### UPPER MOTUEKA RIVER

**(1) Tapawera Community Bank.**

This starts at Motueka Valley Highway Mill Stream crossing and continues across paddocks out to the river bank and then following the river channel on the landward side of the willow planting downstream to River Distance 56250.

The downstream side of this bank is on property belonging to Mr J Rodgers. It was funded by the Ministry of Education and Governments Isolated Works Grant constructed early 75 following the 1974 flood but with inconsistent free board

In 1985 there was 600mm freeboard at the upstream end and zero freeboard at the downstream end for an event with a $Q_{20}$ return period.

There are several short sections of stopbanks on the true right bank upstream of Mill Creek to the Kohatu Bridge. These are stopbanks constructed across old overflow channels to contain the river within its fairway, constructed from high point to high point. These would have been constructed along with willow planting works as part of the works programme. These are landowner constructed stopbanks on right bank from 49450 to 53000

### MOTUPIKO RIVER

**(2) Krammers Bank RD 4100L to 4600L**

This stopbank was constructed in1976 to have freeboard of 600 mm from the flood profile of the 1974 event. Funded from Catchment Board Isolated Works grant and local funding and extended in 2006.
In 2007 the existing Krammer stopbank with landowner funding was further extended upstream for approximately 150 metres.

### MIDDLE MOTUEKA RIVER

**(3) Ing and Others Bank RD 28100 L to 28450 L**

Constructed in 1974/75 with a freeboard upgrade in 1987 funded by the Catchment Board under the Isolated Works Grant and Local Share funding. Original design based on 1974 flood profile. Not maintained by TDC.

**(4) Name unknown RD 18950 R to 20400 R**

Date of construction not known but thought to be late 40s early 50s with financial support from the Tobacco Board. It was upgraded in 1984 with Isolated Works Funding from the Catchment Board and local share funding. Not maintained by TDC.

**(5) Myttons Reach RD 17100 R to 17800 R**

Date of actual construction unknown but thought to be as per the previous bank. It was breached in the 83 event and upgraded/repaired in 1984. Not maintained by TDC.

**(6) Hurleys Bank RD 9800 R to 11700 R**

Constructed as part of the Motueka Stopbank Scheme and maintained by TDC Land behind the bank is classified Class X, date not clear but late 1950's as part of the Lower Motueka Scheme.

**(7) Macleans Bank RD 8000 R to 8900 R**

Constructed 1986 as a private bank and funded by local funding.

The standard was lower than the bank on the true left bank which protects Peach Island and the freeboard of that bank is less than that of the Lower Motueka Bank, designed to $Q_{50}$ with 600mm of freeboard. Not maintained by TDC.

**WAI-ITI RIVER**

There are banks on this river other than the banks of the $Q_{50}$ designed Waimea Stop Bank Scheme

**(8) Wai West Bridge upstream to Pitfure Confluence RD 2950 to 3125 R**

Constructed by the landowner when the confluence of the two watercourses was changed. Date unknown. This bank is not maintained by TDC.

**(9) Barton Lane to Wakefield Village River Distance 7100 to 10100 right bank**

Constructed in the early 1970's as an Isolated Works Funded scheme. There have been several upgrades as a result of damage after flood events again funded from local share and Isolated Works Funding. The last being in 1986 at R Distance 9500 to 9650 R. This bank is not maintained by TDC.

**TAKAKA RIVER**

**(10) Lower Takaka River Distance 0300 L to 0700 L and 0300 R to 1000 R**

Training banks built to contain the lower Takaka River to prevent "new" channels forming in particular on the right bank, heading in the direction of the Waitapu Wharf. The bank and associated edge protection works are maintained by TDC.

**(11) River Distance 2000 to 3400 R. Waitapu Bridge training banks**

Constructed at the same time at the new Waitapu Bridge. State Highway No 60. Other than weed and vegetation control no formal maintenance work is carried out by the TDC.

**(12) River Distance 3100 to 3400 R Pages Cut Training Bank**

A channel realignment of the Takaka River in 1950 required a training bank to support that work, some additional earthworks were undertaken to strengthen the bank in 1985 by the Catchment Board. There is no maintenance work requirement as the bank and berm are grazed as part of the farm management.

**(13) McKenzie/Bridges Hollow Reach River Distance 6200 to 6900 R**

This low level flood protection bank first constructed on the upstream side of the Takaka Township constructed 1948/9. The bank was strengthened by the current property owner in 1987/88 by widening and flattening of the side slopes with material from TNZ projects. Despite advice to the contrary the top of the bank was planted with willow posts and Toi Toi bushes. The bank was extended at its downstream and upstream ends at the same gradient as the existing bank. The TDC does not undertake any maintenance of this bank.

## UPPER TAKAKA RIVER

**(14) Lindsays Bridge/Cooks Creek River Distance 22650 L to 23000 L including 350 lineal metres along the right bank of Cooks Creek**

The bank along the Takaka River was constructed prior to 1926 and repaired after the 1926 flood. The 350 lineal .metre training bank was constructed as part of the Cooks Creek realignment works in conjunction with the Golden Bay County Council as an Isolated Works Scheme. To date no maintenance work has been required but TDC may be involved because of Golden Bay CC involvement in the original scheme should some become necessary.

**(15) Harts/Hill Reach River Distance 22650 R to 23550 R**

In 1983 there were a number of "break outs" from the Takaka River during the July event, causing paddock and highway washouts. A small earth bund was pushed up to follow the River gradient filling the low points and providing some freeboard. The funding of this work is unknown and no TDC maintenance has been involved. There is some disagreement between locals as to the existence of a bank on the true right prior to 1932!

**(16) Rosser Holdings Training Bank River Distance 26900 L to 27300 L but physically only 350 lineal metres long**

A gravel bank was pushed up at an unknown date but believed to be pre Catchment Board time. From discussions with current landowners its function is to prevent overflow from the Takaka River through old overflow channels and low lying land at the bottom end of the farms. There has been no maintenance involvement by TDC.

## APPENDIX C: ASSESSMENT OF ALL MAINTAINED RIVERS IN THE DISTRICT

The Rivers Activity has relevance to Part 7 Local Government Act 2002.

# APPENDIX D: ASSET VALUATIONS

## D.1 Background

The Local Government Act 1974 and subsequent amendments contain a general requirement for local authorities to comply with Generally Accepted Accounting Practice ("GAAP").

The Financial reporting Act 1993 sets out a process by which GAAP is established for all reporting entities and groups, the Crown and all departments, Offices of Parliament and Crown entities and all local authorities. Compliance with the New Zealand Equivalent to International Accounting Standard 16; Property, Plant and Equipment (NZ IAS 16) and IAS 36 (Impairment of Assets is one of the current requirements of meeting GAAP.

The purpose of the valuations is for reporting asset values in the financial statements of TDC.

TDC requires its infrastructure asset register and valuation to be updated in accordance with Financial Reporting Standards and the AMP improvement plan (i.e. three yearly updates)

The valuations summarised below have been completed in accordance with the following standards and are suitable for inclusion in the financial statements for the year ended June 2007.

- NAMS Group Infrastructure Asset Valuation Guidelines – Edition 2.0
- New Zealand Equivalent to International Accounting Standard 16; Property, Plant and Equipment (NZ IAS 16) and IAS 36 (Impairment of Assets

### *D.1.1. Depreciation*

Depreciation of assets must be charged over their useful life.

- *Depreciated Replacement Cost* is the current replacement cost less allowance for physical deterioration and optimisation for obsolescence and relevant surplus capacity. The *Depreciated Replacement Cost* has been calculated as:

$$\frac{\text{Remaining useful life}}{\text{Total useful life}} \times \text{replacement cost}$$

- *Depreciation* is a measure of the consumption of the economic benefits embodied in an asset. It distributes the cost or value of an asset over its estimated useful life. Straight-line depreciation is used in this valuation.
- *Total Depreciation to Date* is the total amount of the asset's economic benefits consumed since the asset was constructed or installed.
- The *Annual Depreciation* is the amount the asset depreciates in a year. It is defined as the replacement cost minus the residual value divided by the estimated total useful life for the asset.
- The *Minimum Remaining Useful Life* is applied to assets which are older than their useful life. It recognises that although an asset is older than its useful life it may still be in service and therefore have some value. Where an asset is older than its standard useful life, the minimum remaining useful life is added to the standard useful life and used in the calculation of the depreciated replacement value.

### *D.1.2. Revaluation*

The revaluations are based on accurate and substantially complete asset registers and appropriate replacement costs and effective lives. The basis of the data inputs used is described in detail in the attached report.

(a) The lives are generally based upon NZ Infrastructure Asset Valuation and Depreciation Guidelines – Edition 2. In specific cases these have been modified where in our, and Council's opinion a different life is appropriate. The changes are justified in the valuation report.

(b) The component level of the data used for the valuation is sufficient to calculate depreciation separately for those assets that have different useful lives.

## D.2 Overview of Asset Valuations

Assets are valued every three years, and historic asset valuations reports are held with Council.

The Rivers assets were last re-valued in June 2007 and the data are reported under separate cover[1]. The total replacement value of the water assets as of 30 June 2007 is given in Table D-1.

Key assumptions in assessing the asset valuations are described in detail in the valuation report.

River protection assets have been broken down into the following components:

- Rock protection
- Stop banks $Q_{50}$
- Stop banks $Q_{20}$
- Back Channel Planting
- Willow planting – Main Rivers
- Willow planting – Small Rivers
- Weighted Felled Trees
- Gabion baskets
- Iron Rails
- Outfalls

**Table D-1: River works Asset Valuation Summary (30/6/2007)**

| Asset Group | Optimised Replacement Value | Optimised Depreciated Replacement Value | Total Depreciation to Date | Annual Depreciation |
|---|---|---|---|---|
| **River works** | $32,384,664 | $31,799,097 | $585,567 | $19,232 |

**Table D-2: River Assets Valuation by Catchment**

| | Replacement Value ($) | Annual Depreciation ($/yr) | Total Depreciation to Date ($) | Optimised Depreciated Replacement Value ($) |
|---|---|---|---|---|
| **CATCHMENT 1** | | | | |
| Anatoki River | 475254 | 0 | 0 | 475,254 |
| Aorere River | 1965614 | 0 | 0 | 1,965,614 |
| Kaituna River | 452171 | 0 | 0 | 452,171 |
| Takaka River | 3242271 | 3926 | 98146 | 3,144125 |
| Waingaro River | 785387 | 0 | 0 | 785,387 |
| | 6,920,697 | 3,926 | 98,146 | 6,822,551 |
| | | | | |
| **CATCHMENT 4** | | | | |
| Dove River | 672400 | 0 | 0 | 672,400 |
| Lower Motueka | 5841638 | 7415 | 201813 | 5,639,825 |
| Moutere River | 879970 | 396 | 14611 | 865,359 |

[1] Infrastructural Asset Revaluation, June 2007 – MWH report for Tasman District Council

| | Replacement Value ($) | Annual Depreciation ($/yr) | Total Depreciation to Date ($) | Optimised Depreciated Replacement Value ($) |
|---|---|---|---|---|
| Brooklyn Stream | 610190 | 0 | 0 | 610,190 |
| Riwaka River | 1580468 | 422 | 15619 | 1,564,849 |
| | 9,584,666 | 8,233 | 232,043 | 9,352,623 |
| | | | | |
| **CATCHMENT 5** | | | | |
| Motupiko River | 771354 | 2172 | 66663 | 704,691 |
| Sherry River | 118943 | 0 | 0 | 118,943 |
| Tadmor River | 908895 | 820 | 25996 | 882,899 |
| Upper Motueka | 1020281 | 2243 | 76405 | 943,876 |
| | 2,819,473 | 5,235 | 169,064 | 2,650,409 |
| | | | | |
| **CATCHMENT 6** | | | | |
| Wai-iti River | 4276780 | 1073 | 26826 | 4,249,953 |
| Waimea River | 4262051 | 1201 | 38078 | 4,223,973 |
| Waimea-Wairoa River | 4396585 | 550 | 13740 | 4,382,844 |
| Eves/Redwoods Valley | 124414 | 92 | 2290 | 122,124 |
| | 13,059,830 | 2,916 | 80,934 | 12,978,894 |

# APPENDIX E: MAINTENANCE AND OPERATING ISSUES

## E.1 Operations and Maintenance Components

The Rivers asset is currently maintained under Contract 666. This contract sets out the operations and maintenance conditions for X & Y rated areas over a five year period and must also be operated in accordance with Resource Consent NN010109 (River Protection and maintenance Works). Sicon Ltd were awarded Contract 666 in 2006, with an expiry date in 2011.

As detailed in Contract 666, the Contractor is required to undertake an annual assessment of the classified rivers network (prior to the start of the financial year), providing a works draft programme to council and affected parties for review. During the assessment a priority ranking of P1, P2 or P3 is given to each proposed work item – Section O. The draft programme also includes identification of gravel sites where extraction will facilitate river management. The contractor can also be involved in Z rated works, as detailed in Section B12.

The major objectives of river control and the associated drainage systems is to safely pass a given flow. The system can be broken down into component assets, with sub-objectives for each component and identification of works required to maintain and upgrade that component:

i. River and Drainage Channels

These need to be sufficiently deep and wide to carry drainage flows and/or the majority of the flood flow and kept clear of restrictions such as willows and aquatic weeds

ii. River and Drainage Bank Edge Protection

The edges of the channel require preventative maintenance where subject to erosion and/or slumping. The methods used include strengthening with rock, gabions, trees and retards. In the case of drainage systems i.e. Swamp Rd – Riwaka, timber structural walls have been used because of the restriction between the road edge and creek bank.

The structures are coming to the end of their usefully life and will require replacement.

iii. River Berms

Where stopbanks have been constructed a physical buffer (land) between the main river channel and stopbanks is highly desirable. Careful management of the vegetation on the berm is required to facilitate slow non-scouring water velocities over them but without creating a restriction to flood flows in significant events. Guide banks, spur banks and berm shaping may also be used to control velocities

iv. Stopbanks

Usually earthen banks of sufficient height to prevent flood overflow and of adequate structural integrity and requiring a good grass surface to inhibit erosion

v. Flow control and miscellaneous structures

Culverts, floodgates, control gates, pipe headwalls, spillways, weirs e.g. Wai-iti River, drop structures, bridges, etc

The Council currently contracts out to commercial contractors the day-to-day operation and maintenance of the X & Y classified river works assets with the aim of maintaining required levels of service. The Council's Operation and Maintenance contracts are let through competitive tendering to ensure a true market value.

## E.2 Operations and Maintenance Aims

The Council contracts are designed to:

i) Achieve maintenance efficiencies and cost effectiveness by allowing the maintenance contractor to be innovative in managing the maintenance activities.

ii) Encourage pro-active maintenance practices rather than reactive practices.

iii) Ensure compliance with legislative, monitoring and resource consent requirements.

The key aspects of the rivers contract are:

i) Spirit of Partnering:

ii) Emphasis on Innovation

iii) Performance Criteria

iv) Measurement of Performance

v) Proactive Maintenance

The implementation of the proactive maintenance work is managed in the following way:

i) The Contractor prepares an Annual Operation and Maintenance Programme (AOMP) that consists of monthly programmes of all proactive maintenance that is prioritised and priced.

ii) The draft programme is provided to Fish & game, Iwi, Environment & Planning and to River care groups through consultative meetings for comment

iii) The Engineer to the Contract (Council's Consultants) in conjunction with the Council reviews the programme against the budgets and then negotiates with the Contractor to agree any deferrals or amendments.

iv) The Contractor then implements the works according to monthly schedules.

The above maintenance strategy is intended to achieve the current levels of service with respect to river works asset condition and functionality whilst minimising costs. There is however no formal system of prioritisation and maintenance activities are programmed on an ad-hoc basis (judgement calls based on 30+ years of experience from incumbent contractor, consultant and Council staff). This approach has its limitations. A formal works assessment system would assist in prioritising of the work programming.

Council are progressively working towards a more formal works assessment system and it is intended to have this in place within the next two years. This should allow Council to have better control over the maintenance of the river assets with proactive maintenance better reflecting the following;

a) the age of assets relative to expected economic life cycle

b) the risk of failure of critical assets

c) the nature and timing of asset upgrading / development works.

Operations and Maintenance works are provided in Table E-1. The completion of these activities is required to meet the assets minimum service potential. Historically budgetary constraints impact on the ability of the rivers contractors to consistently meet the objectives. Given the dearth of damaging flood events since 1983, an opportunity has been created to "catch up" with deferred maintenance works.

**Table E-1: Operations & Maintenance Activities**

| Work Type | Maintenance Activities | Maintenance Objectives |
|---|---|---|
| **Stopbank Maintenance (Class X only)** | • grading of access tracks and bank tops<br>• gravelling access tracks<br>• battering, sowing and top dressing<br>• mowing and slashing<br>• removal of scrub/trees<br>• reconstruction of damaged banks<br>• maintenance of drainage culverts and flap gates under stopbanks | • to prevent significant obstruction to flow along the banks.<br>• to maintain drainage through and/or around the stopbanks.<br>• maintain good access<br>• ensure controlled overflow from rivers<br>• ensure minimum damage if overflows<br>• appearance |
| **Lengths of Damaged Stopbanks** | • decline in standard of stopbanks from stock use | • to ensure that stopbanks meet their design capacity |
| **Floodgates & Culverts** | • ongoing cleaning, repair, replacement | • ensure fully functional during exceptional events e.g. closed<br>• at replacement stage floodgates need to provide for fish passage |
| **Rock / Gabion** | • repair, restacking and replenishment | • to prevent lateral erosion and breakout of rivers. |
| **Willow planting/ layering** | • willow trimming<br>• willow release cutting, spraying or swabbing<br>• partial severance to encourage new growth along felled trunks. | • to prevent significant obstruction in the main channel.<br>• to maintain willows in good height<br>• to protect willows against weeds such as old man's beard |
| **Flood Damage Repair** | • required following flood damage<br>• replacement/replenishment of part of all of the flood protection assets | • to maintain the asset and remedy damage after flood events |
| **Channel Maintenance** | • removal of trees and other obstructions and growth from the river or stream bed/fairway.<br>• berm and bank vegetation clearance<br>• channel grading | • to prevent significant obstruction to flow along the main channel.<br>• to increase the capacity of the channel |
| **Drain Cleaning** | • cleaning via machine excavation, spraying or by hand | • to maintain hydraulic efficiency of drains |
| **Channel Realignment** | • channel alignment after erosion of a section of bank or secondary channel forming after flood | • to provide a stable channel<br>• to reduce/eliminate back channels created by flood overflow |
| **Fencing, Gates, Access Tracks** | • stopbank and berm control measures | • to provide Council access to carry out its work<br>• control public recreational use<br>• provide control of animal grazing |

## E.3 Maintenance Standards

The work to be performed and materials to be used shall comply with the latest edition of the following standards:

a) Contract 666 (from 1 July 2006)
b) Operations and Maintenance Manuals
c) TDC Engineering Standards 2008

Council has implemented a number of processes and systems to enhance the operation of the river works system, including Customer Services Requests (CSRs). These are logged into the Council's Customer Services software and are processed and tracked with the aim to respond to the customer as soon as possible. During the annual rivers inspection, required works are identified and prioritised as follows:

### *E.3.1. Priority 1*

*Reactive work* required to restore river works assets to their original condition and original level of protection or to restore significant erosion of natural soils and inhibit even further damage. There is a high chance that failure to carry out this work would lead to the total loss of the original work, which would then need total replacement at a probable higher cost. The result could be a significant channel alignment which could endanger other works and inhibit land use options adjacent to river channels.

*Proactive work* where it has been difficult to maintain what was originally reactive work. For example, maintenance of stopbanks, drainage and tidal outfalls to sustain discharges. Also the clearing of floodways to prevent damage to other structures.

### *E.3.2. Priority 2*

*Reactive works* as for Priority 1 but in the engineer's opinion the asset or river bank has a lower chance of failure in the following year or there is a lower consequence of failure.

### *E.3.3. Priority 3*

Pro-active (preventative) work where there has been no adverse erosion to date but which will prevent or mitigate potential flood damage in the future, either from bank failure or flood overflow, or works to support existing work and reduce the long term maintenance costs of an asset.

The annual budget (which has usually been set prior to the completion of the rivers inspection) is the ultimate constraint on how many works will be carried out. If, as is usually the case, there are insufficient funds to carry out all priority 1 works, the works are further prioritised as Priority 2 or 3. These works are then added later if budget allows or reviewed at preparation of the following year's programme.

## E.4 Projected Operations and Maintenance Costs

Table E-2 details the projected operations and maintenance costs for the next 20 years.

Note that all projections assume an absence of significant flood events (generally greater than AEP 0.2% / 5 yr return).

## Table E-2: Projected Operations and Maintenance Costs for the Next 20 Years

| 20 year Financial Plan - Riverworks | This Year | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCHEME | 2008/09 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
| CLASS X OPERATIONS | | | | | | | | | | | | | | | | | | | | | |
| Lower Motueka 3000-14250m | $61,000.00 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 55,400 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 | 60,000 |
| Riwaka | $21,000.00 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 23,200 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| Wai-iti 10250-12500m | $5,000.00 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 4,700 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| Brooklyn | $15,500.00 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 8,400 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Little Sydney Stream | $7,300.00 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 20,400 | 8,200 | 8,800 | 8,800 | 8,800 | 8,800 | 8,800 | 8,800 | 8,800 | 7,500 | 7,500 | 7,500 |
| Hamilton Drain | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scotts Drain | $3,400.00 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,700 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 | 3,900 |
| Waimea 3500-10500m | $22,000.00 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 14,900 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 | 16,000 |
| | $135,200.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 118,500.00 | $ 130,700.00 | $ 118,500.00 | $ 127,700.00 | $ 127,700.00 | $ 127,700.00 | $ 127,700.00 | $ 127,700.00 | $ 127,700.00 | $ 127,700.00 | $ 126,400.00 | $ 126,400.00 | $ 126,400.00 |
| CLASS Y OPERATIONS | | | | | | | | | | | | | | | | | | | | | |
| Upper Motueka | $54,500.00 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 73,900 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 | 80,000 |
| Waingaro | $20,000.00 | 23,100 | 23,100 | 23,100 | 23,100 | 23,100 | 23,100 | 23,100 | 22,200 | 22,200 | 22,200 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 | 24,000 |
| Anatoki | $13,000.00 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 15,800 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 | 17,000 |
| Motupiko | $28,500.00 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 34,300 | 10,000 | 37,000 | 37,000 | 37,000 | 37,000 | 37,000 | 37,000 | 37,000 | 37,000 | 37,000 |
| Tadmor | $24,100.00 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 |
| Takaka | $90,600.00 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 69,400 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 | 75,000 |
| Lower Motueka 14250-31250m | $21,000.00 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Moutere | $17,650.00 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 48,100 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 | 52,000 |
| Wai-iti 12500-40000m | $0.00 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 51,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 | 55,000 |
| Eve's Valley Drain | $2,000.00 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 | 2,200 |
| Redwoods Valley Stream | $6,400.00 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 6,600 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 | 7,100 |
| Redwoods Valley Overflow | $1,800.00 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 1,900 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Aorere | $28,000.00 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 |
| Wairoa 10500-16500m | $12,000.00 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 13,900 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 |
| Sherry | $16,500.00 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 19,400 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 | 21,000 |
| Dove | $22,500.00 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 18,600 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Kaituna | $28,000.00 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 27,800 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 |
| | $386,550.00 | $ 480,200.00 | $ 480,200.00 | $ 480,200.00 | $ 480,200.00 | $ 480,200.00 | $ 480,200.00 | $ 480,200.00 | $ 479,300.00 | $ 479,300.00 | $ 479,300.00 | $ 490,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 | $ 517,300.00 |
| Professional Services | | 59,870 | 59,870 | 59,870 | 59,870 | 59,870 | 59,870 | 59,870 | 59,780 | 61,000 | 59,780 | 61,800 | 64,500 | 64,500 | 64,500 | 64,500 | 64,500 | 64,500 | 64,370 | 64,370 | 64,370 |
| Berm Land Maintenance | | | | | | | | | | | | | | | | | | | | | |
| Asset Management | | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| Flood Contingency Fund | | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| TOTAL OPERATIONS | $ - | $ 783,570.00 | $ 783,570.00 | $ 783,570.00 | $ 783,570.00 | $ 783,570.00 | $ 783,570.00 | $ 783,570.00 | $ 782,580.00 | $ 796,000.00 | $ 782,580.00 | $ 804,800.00 | $ 834,500.00 | $ 834,500.00 | $ 834,500.00 | $ 834,500.00 | $ 834,500.00 | $ 834,500.00 | $ 833,070.00 | $ 833,070.00 | $ 833,070.00 |

*N.B does not include inflation*

## E.5 Operations & Maintenance – 20 Year Plan Base Data

The 20 year plan Operations and Maintenance Forward Programme has been prepared from a Council workshop held in December 2008 involving the collection of knowledge of council, MWH and Sicon staff.

The notes from this workshop are a comprehensive list of desirable works. The quantities of work have been adjusted in the 20 year budgets to reflect funding available. The base data is reviewed annually as part of the annual programme preparation.

## E.6 Effect of Gravel Extraction on Operation and Maintenance

Previously under the annual programme gravel extraction within classified lengths of rivers was included in the programme. Following concerns raised by the Environmental & Planning section of Council, supported by research by the council's resource scientist, it has been evident that gravel extraction over sustainable limits will have significant effects in ground water levels. Accordingly, the tendency now is to limit gravel extraction in sensitive areas such as Waimea and Motueka River catchments to small quantities.

## E.7 Riparian Management

In 2006 the council approved in principle a staged programme to remove and replace Crack Willows (*salix fragilis*) with more suitable species either bitter or shrub willows and in some cases native species. The recent inclusion of Crack Willow on the Unwanted Organisms Register backs up the need to manage a programme of eradication over the next 10-20 years.

## E.8 Risk Management

Management of flood risk around New Zealand is in the process of being formalized into an official document with the backing of the government. Local authorities, professional engineers and consultants, as the costs of flood damage increase each year, pressure to conform to some standard of risk mitigation will come from quarters such as the insurance industry, land owners, emergency response groups and business. Building Regulations 1992 which are included in the Building Act 2004, state that surface water from a storm having a 2% probability of occurring annually shall not enter buildings.

While the operations and maintenance programme (limited by constraints of resource consent NN010109) essentially aims to maintain the existing river channel to the level of an annual event, the council is also willing to investigate options to increase this to the 2% level (with the establishment and maintenance of a stopbank system) particularly in areas such as Motueka and Riwaka where development has historically taken place within the 2% AEP ($Q_{50}$) area.

# APPENDIX F: DEMAND AND FUTURE NEW CAPITAL REQUIREMENTS

## F.1 Growth Supply – Demand Model

A comprehensive population growth supply/demand model has been developed in 2008. This replaces the previous "AMPlan/LTCCP Growth Maps – November 2005". There are now two volumes namely:

Volume 1 TDC Growth Supply - Demand Model 2009/10 to 2018/19 to 2029.
Volume 2 Infrastructure Activity Outputs

The model projects development within the time periods:

- Year 1 to 3 - term until the next LTCCP review
- Year 4 to 10 - 10 year timeframe of LTCCP
- Year 11 to 20 - for future infrastructure planning
- Year 20 plus - for future infrastructure planning.

The status of the assessments of the many Development Areas for the model process remains subservient to the TRMP.

The population projections provide useful information for reference, but the drivers for capital expenditure in the rivers activity is not directly related to population growth.

## F.2 Capital Works

Capital Works are works that improve the service standard provided by the assets. Capital works include:

- Raising of low stopbanks and new stopbanks
- Strengthening weak stopbanks of inadequate initial design
- New rock work (in new areas)
- New bank edge planting and tree retards
- New flow control structures
- Berm shaping or guide bank works
- New berm planting e.g. saw-fly resistant species
- Floodway land purchase

A demand model was not considered critical to the 20 year expenditure review exercise, given that demands on river works are not as affected population growth e.g. compared with water, wastewater and roading infrastructure. However the aforementioned infrastructure is protected from specific AEP events in some areas (Motueka, Waimea) by stopbanks. It is installation and extension of these banks which may form the predominant component of future new capital works.

## F.3 Future New Capital Requirements

For each scheme, the future capital works are established under these headings:

- Increased Level of Service
- Growth

This is necessary for two reasons as follows:

- Schedule 13(1)(a) of the Local Government Act requires the local authority to identify the total costs it expects to have to meet relating to increased demand resulting from growth when intending to introduce a Development Contributions Policy.
- Schedule 10(2)(1)(d)(I)-(iv) of the Local Government Act requires the local authority to identify the estimated costs of the provision of additional capacity and the division of these costs between changes to demand for, or consumption of, the service, and changes to service provision levels and standards.

A copy of each proposed capital stopbank work is provided. All cost estimates include, where required, a standard % on top of the construction cost estimate:

- Asset management and professional services fees = 15%
- Land purchase = 1%
- Resource consents = 2%
- General contingency (depending on stage of scheme) = 30%

The creation of new assets is approached differently depending on whether it is adjacent to an urban development within or adjacent to an existing classified stopbanks system, or whether it is the introduction of a new stopbank system into a previously unprotected area.

The creation of entirely new stopbanks and the significant expansion of existing stopbanked systems are driven by the Asset Manager, based on public demand, political drivers or technical requirements.

## F.4 20 Year Forecasts

During November and December 2008, a number of key workshops were held to discuss each river works scheme. The incumbent rivers contractor and a consultant and TDC Asset Engineer are the key sources of data and vision for the next 20 years and beyond. The workshops considered current capacity and performance, future demand, operations and maintenance and renewals.

Twenty-year forecast costs for new capital works are set out in Table F-1.

## Table F-1: Projected Capital Expenditure Update from Financials

| SCHEME | 2008/09 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLASS X RENEWALS | | | | | | | | | | | | | | | | | | | | | |
| Lower Motueka 3000-14250m | $70,500.00 | 76,000 | 86,000 | 111,300 | 91,300 | 91,300 | 91,300 | 91,300 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 |
| Riwaka | $12,000.00 | 24,000 | 24,000 | 73,000 | 33,000 | 23,000 | 23,000 | 23,000 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 |
| Wai-iti 10250-12500m | $0.00 | 27,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 |
| Brooklyn | $0.00 | 0 | 0 | 0 | 6,500 | 6,500 | 6,500 | 6,500 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| Little Sydney Stream | $5,200.00 | 54,000 | 54,000 | 6,500 | 6,500 | 6,500 | 6,500 | 6,500 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| Hamilton Drain | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scotts Drain | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waimea 3500-10500m | $23,000.00 | 83,000 | 35,000 | 37,500 | 37,500 | 37,500 | 37,500 | 37,500 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 |
| | $110,700.00 | $ 264,000.00 | $ 229,000.00 | $ 258,300.00 | $ 204,800.00 | $ 194,800.00 | $ 194,800.00 | $ 194,800.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 |
| CLASS Y RENEWALS | | | | | | | | | | | | | | | | | | | | | |
| Upper Motueka | $70,000.00 | 85,000 | 97,000 | 106,000 | 106,000 | 106,000 | 106,000 | 106,000 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 |
| Waingaro | $18,500.00 | 9,000 | 10,000 | 11,500 | 11,500 | 11,500 | 11,500 | 11,500 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 |
| Anatoki | $8,000.00 | 9,000 | 9,000 | 11,500 | 11,500 | 11,500 | 11,500 | 11,500 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 |
| Motupiko | $23,000.00 | 35,000 | 37,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 |
| Tadmor | $2,000.00 | 6,000 | 7,000 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Takaka | $42,660.00 | 80,000 | 91,000 | 98,100 | 98,100 | 98,100 | 98,100 | 98,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 |
| Lower Motueka 14250-31250m | $30,000.00 | 75,000 | 85,000 | 91,300 | 91,300 | 91,300 | 91,300 | 91,300 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 |
| Moutere | $34,000.00 | 18,000 | 21,000 | 24,500 | 24,500 | 24,500 | 24,500 | 24,500 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 |
| Wai-iti 12500-40000m | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Eve's Valley Drain | $5,800.00 | 6,500 | 7,500 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Redwoods Valley Stream | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redwoods Valley Overflow | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aorere | $33,500.00 | 27,000 | 31,000 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 |
| Wairoa 10500-16500m | $85,000.00 | 75,000 | 80,000 | 91,200 | 91,200 | 91,200 | 91,200 | 91,200 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 |
| Sherry | $3,200.00 | 8,500 | 10,000 | 11,400 | 11,400 | 11,400 | 11,400 | 11,400 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 |
| Dove | $750.00 | 6,700 | 8,000 | 9,100 | 9,100 | 9,100 | 9,100 | 9,100 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| Kaituna | $33,500.00 | 28,000 | 32,000 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 |
| | $389,910.00 | $ 468,700.00 | $ 525,500.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 |
| | | | | | | | | | | | | | | | | | | | | | |
| Professional Services | | 73,270 | 75,450 | 83,770 | 78,420 | 77,420 | 77,420 | 77,420 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 |
| Asset Management | $ - | 60,000 | 75,450 | 83,770 | 78,420 | 77,420 | 77,420 | 77,420 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 |
| | | | | | | | | | | | | | | | | | | | | | |
| TOTAL RENEWALS | | $ 865,970.00 | $ 905,400.00 | $ 1,005,240.00 | $ 941,040.00 | $ 929,040.00 | $ 929,040.00 | $ 929,040.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| CLASS X ASSET CREATION | | | | | | | | | | | | | | | | | | | | | |
| Lower Motueka 3000-14250m Cap | $19,500.00 | $ 24,000.00 | $ 24,000.00 | $ 39,000.00 | $ 59,000.00 | $ 59,000.00 | $ 39,000.00 | $ 39,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 | $ 43,000.00 |
| Lower Motueka 3000-14250m Stopban | $0.00 | $ 260,000.00 | $ 200,000.00 | $ 140,000.00 | $ 2,340,000.00 | $ 50,000.00 | $ 2,722,000.00 | $ 50,000.00 | $ 2,730,000.00 | $ 50,000.00 | $ 2,881,000.00 | $ 50,000.00 | $ 2,663,000.00 | $ 50,000.00 | $ 2,325,000.00 | $ 50,000.00 | $ 1,983,000.00 | $ - | $ - | $ - | $ - |
| Riwaka Capital | $0.00 | 8,500 | 10,000 | 11,500 | 11,500 | 11,500 | 11,500 | 11,500 | 12,700 | 112,700 | 112,700 | 112,700 | 112,700 | 112,700 | 12,700 | 12,700 | 12,700 | 12,700 | 12,700 | 12,700 | 12,700 |
| Wai-iti 10250-12500m Capital | $0.00 | 15,000 | 18,000 | 19,500 | 19,500 | 19,500 | 19,500 | 19,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 | 21,500 |
| Brooklyn Capital | $0.00 | 20,000 | 25,000 | 32,600 | 26,100 | 26,100 | 26,100 | 26,100 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 | 28,700 |
| Little Sydney Stream Capital | $0.00 | 2,500 | 3,000 | 3,300 | 3,300 | 3,300 | 3,300 | 3,300 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 | 7,200 |
| Hamiltons & Scotts Drains | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waimea 3500-10500m Capital | $0.00 | 12,000 | 13,500 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 | 16,500 |
| | $ 19,500.00 | $ 342,000.00 | $ 293,500.00 | $ 260,900.00 | $ 2,474,400.00 | $ 184,400.00 | $ 2,836,400.00 | $ 164,400.00 | $ 2,856,000.00 | $ 276,000.00 | $ 3,107,000.00 | $ 276,000.00 | $ 2,889,000.00 | $ 276,000.00 | $ 2,451,000.00 | $ 176,000.00 | $ 2,109,000.00 | $ 126,000.00 | $ 126,000.00 | $ 126,000.00 | $ 129,600.00 |
| CLASS Y ASSET CREATION | | | | | | | | | | | | | | | | | | | | | |
| Upper Motueka Capital | $23,000.00 | 32,000 | 35,000 | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 | 42,500 |
| Waingaro Capital | $0.00 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 |
| Anatoki Capital | $5,000.00 | 4,000 | 4,000 | 4,900 | 4,900 | 4,900 | 4,900 | 4,900 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 | 5,400 |
| Motupiko Capital | $18,500.00 | 14,000 | 15,500 | 17,100 | 17,100 | 17,100 | 17,100 | 17,100 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 | 19,000 |
| Tadmor Capital | $10,500.00 | 6,000 | 7,000 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Takaka Capital | $0.00 | 60,000 | 64,000 | 73,400 | 73,400 | 73,400 | 73,400 | 73,400 | 80,700 | 80,700 | 80,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 | 330,700 |
| Lower Motueka 14250-31250m Cap | $0.00 | 30,000 | 34,000 | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 |
| Moutere Capital | $0.00 | 6,000 | 7,000 | 8,100 | 8,100 | 8,100 | 8,100 | 8,100 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 | 8,900 |
| Wai-iti 12500-40000m Capital | $0.00 | 12,000 | 14,000 | 16,400 | 16,400 | 16,400 | 16,400 | 16,400 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 |
| Eve's Valley Drain Capital | $0.00 | 3,000 | 3,500 | 4,200 | 4,200 | 4,200 | 4,200 | 4,200 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 | 4,600 |
| Redwoods Valley Stream Capital | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redwoods Valley Overflow Capital | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aorere Capital | $13,000.00 | 12,000 | 12,500 | 14,700 | 14,700 | 14,700 | 14,700 | 14,700 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 |
| Wairoa 10500-16500m Capital | $0.00 | 31,000 | 36,000 | 39,000 | 39,000 | 39,000 | 39,000 | 39,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 | 43,000 |
| Sherry Capital | $0.00 | 3,500 | 4,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 | 5,500 |
| Dove Capital | $0.00 | 3,000 | 3,500 | 4,000 | 4,000 | 4,000 | 4,000 | 4,000 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| Kaituna Capital | $13,000.00 | 11,500 | 13,000 | 14,700 | 14,700 | 14,700 | 14,700 | 14,700 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 | 16,200 |
| | | $233,000.00 | $258,000.00 | $292,700.00 | $292,700.00 | $292,700.00 | $292,700.00 | $292,700.00 | $321,900.00 | $321,900.00 | $321,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 | $571,900.00 |
| | | | | | | | | | | | | | | | | | | | | | |
| CLASS Z ASSET CREATION | | | | | | | | | | | | | | | | | | | | | |
| Rivers General Z Capital | | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Class Z Professional Services | | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 | 22,000 |
| | $ - | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 | $122,000.00 |
| | | | | | | | | | | | | | | | | | | | | | |
| Rivers -Cap- P/Services | $ - | 31,500 | 35,150 | 41,360 | 42,710 | 42,710 | 40,710 | 40,710 | 44,790 | 54,790 | 54,790 | 79,790 | 79,790 | 79,790 | 69,790 | 69,790 | 69,790 | 69,790 | 69,790 | 70,150 | |
| Rivers -Cap- Asset Mgmt | | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| TOTAL ASSET CREATION | $ - | $753,500.00 | $733,650.00 | $741,960.00 | $2,956,810.00 | $666,810.00 | $3,316,810.00 | $644,810.00 | $3,369,690.00 | $799,690.00 | $3,630,690.00 | $1,074,690.00 | $3,687,690.00 | $1,074,690.00 | $3,239,690.00 | $964,690.00 | $2,897,690.00 | $914,690.00 | $914,690.00 | $914,690.00 | $918,650.00 |

## APPENDIX G: DEVELOPMENT CONTRIBUTIONS / FINANCIAL CONTRIBUTIONS

Information on Development Contributions and Financial Contributions can be found in the Council's Long Term Council Community Plan (LTCCP) document.

There are no specific development contributions applicable to the Rivers activities.

Development affecting the rivers assets is considered on a case by case basis with appropriate consents and consultation which will include the basis of funding requirements.

# APPENDIX H: RESOURCE CONSENTS

## H.1 Consents Held

TDC is the Catchment Board for the Tasman area in terms of the Water Conservation and Rivers Control Act 1941. TDC carries out a range of river protection and fairway maintenance works on all rivers within Tasman District that currently require consent under the Resource Management Act 1991. TDC holds resource consents for those works and activities as listed in Table H-1 below.

**Table H-1: River Works Resource Consent Summary**

| Consent Reference | Consent Description | Expiry Date |
|---|---|---|
| **NN010109** | River Protection and Maintenance works (Classified X, Y & Z except in Buller River catchment). | 30 June 2011 |
| **NN000425** | Discharge of Herbicide Spray for Control of Vegetation | 1 May 2015 |

Council's annual works programme comprises a large number of small individual jobs at many different locations. Typically 300-400 minor jobs are carried out during a non-flood event year. Immediately after a damaging flood a revised programme must be prepared involving new works at previously unidentified locations. Although there are many separately priced jobs in the annual works operations and maintenance programme (AOMP), generally only a few different types of activity are involved. The two "global" resource consents listed in Table 14 eliminate the need to apply for separate consents at each work site

Monitoring and reporting of actual performance against the applicable consent conditions is undertaken jointly by Councils incumbent consultant and the Asset Engineer (Rivers). The extent to which Council has been able to meet all of the conditions described in each consent, is reported in its Annual Report each year. There are no known non-compliance issues to date.

## H.2 Resource Consent NN010109

Consent NN010109 covers operations and maintenance works in X and Y Classified areas and specifically permits the river bank protection and channel stabilisation measures and maintenance listed in Table H-2 below.

**Table H-2: Activities Authorised by Consent NN010109**

| | |
|---|---|
| • Weighted Willows and other tree species | • Driven willow and poplar posts |
| • Mechanical and hand planted willows, poplars and other | • Layering and cutting of willows |
| • Rock riprap, continuous and as groynes | • Gabions, continuous and as groynes |
| • Driven railway iron/steel/wooden retards, continuous and as groynes | • Mechanical Beach Clearance and fairway maintenance |
| • Removal of stranded trees and debris from channels and fairways | • Clearance and control of vegetation on banks and berms |

Consent NN010109 covers basic river protection and maintenance works on rivers listed as covered by the General Works Rate, namely "Z" Classified areas including the Buller River.

Council also has the authority under consent NN010109 to identify sites where gravel extraction is beneficial for river management purposes. As specified in the consent up to 40,000m$^3$ of material can be identified for extraction on an annual basis within the district. By-laws under Soil Conservation & Rivers Control Act 1946 Amendment allowed collection of Supervision and Administration charges from permit holders. Prescribed charges have been set for specific rivers catchments on a per cubic metre ($/m$^3$) basis for extraction of this material.

Table H-3 sets out the monitoring and reporting programme specific to consent NN010109:

**Table H-3: NN010109 Monitoring & Reporting Programme**

| Consent Section | Task | Timeframe (to E& P) |
|---|---|---|
| | **Annually** | |
| **17.2**<br><br>**3** | AOMP Programme, including:<br>a) Annual Works Programme<br>b) Gravel Extraction Programme<br>c) Affixing copy of restrictions schedule | 2nd week May to Iwi, DoC, F&G, E&P (15 working days)<br>Final Programme by 25 June annually. |
| **19.4** | Advertisement of Annual River Works Programme (Newsline, Nelson Mail) | 10 days before start of period |
| | **4 Monthly** | |
| **17.3.1** | Submit copy of AOMP – Gravel, Quarterly gravel returns, Completed Works Reports (site specific) | Oct, Feb, June |
| | **3 Monthly** | |
| | Report on Completed Works | Sept, Dec, Mar, June |
| **17.3** | Daily record of gravel removal (to E& P customer service section) | Sept, Dec, Mar, June |
| | **Bi-Monthly** | |
| | | Periods: Jul/Aug, Sept/Oct, Nov/Dec, Jan/Feb, Mar/Apr, May/June |
| **2.4**<br>**19.3** | 2 monthly Works Programme<br>(includes remedial emergency works) | 3 days before start of period |
| **19.3** | Outstanding Works Programme (Carry forward). | 3 days before start of period |
| | **Monthly** | |
| **19.3** | On-going Works Report | 3 days before start of period |
| **1.3** | Remediation of defective works – Log of inspections maintained: | Within 4 weeks of inspection |
| | **Other** | |
| **11.3** | Spill of petroleum contaminants (to E&P Manager) | Immediate |
| **19.5** | Consent holder to compile detailed file of meetings etc regarding river works programmes / related issues | As required. |
| **20.1** | Consent holder to hold complaints register. | As required - CSR / Confirm system |

## H.3 Resource Consent NN000425

As part of the river control programme, the Council controls vegetation on the beds and banks of many rivers throughout the District. Consent NN000425 provides the Council with a consent to spray herbicides within 5m of most major water courses via handgun, boom and brush application to the applicable vegetation. Table H-1 sets out the monitoring and reporting programme for consent NN000425.

**Table H-4: NN000425 Monitoring & Reporting Programme**

| Consent Clause | Task | Timeframe |
|---|---|---|
| **Annually** | | |
| **3** | Spray programme via vehicle | November to April |
| **3, 17** | Public Notification – Nelson Mail and Newsline. | 10 days before start of November |
| **20** | Copy of spray schedule to Iwi | 10 days before start of November |
| **Other** | | |
| **17** | Advertisement for Annual Spray programme | 7 days from publication (to E& P) |
| **17** | Objections to advertised programme | 1 day from being received by engineer (to E& P) |
| **15** | Spray diary – details as per s3 | As required (to E&P) |

## H.4 Water Conservation Orders

### *H.4.1. Buller River*

A Water Conservation Order exists for the Buller River. Gazetted in 2001, this order details the catchment areas covered and the restrictions placed on activities in that river. In particular this Conservation Order requires fish passage to be maintained, and generally restricts the granting of resource consents for activities that would exceed water quality standards such as turbidity.

The Order does not restrict or prevent the grant of consents for the purpose of the construction or maintenance of soil conservation and river protection works undertaken in accordance with the Soil Conservation and Rivers Control Act 1941. However, any discharge of sediment within the river should comply with the aim of maintaining for the outstanding natural features of the Buller River.

### *H.4.2. Motueka River.*

A Water Conservation Order exists for the Motueka River. Gazetted in 2004, this order details the catchment areas covered and the restrictions placed on activities in that river. The order extends down to "Woodman Bend" in the Lower Motueka. In particular this Conservation Order requires fish passage to be maintained, and generally restricts the granting of resource consents for activities that would exceed water quality standards such as turbidity.

The Order does not restrict or prevent the grant of consents for the purpose of the construction or maintenance of soil conservation and river protection works undertaken in accordance with the Soil Conservation and Rivers Control Act 1941. However, any discharge of sediment within the river should comply with the aim of maintaining adequate water quality for the outstanding brown trout fishery in the Motueka River.

## H.5 Other resource consent matters

Changes proposed to the river control assets and maintenance activities described in Appendix B, particularly the stopbanks and outfalls, and gravel management, may be subject to resource consent requirements, depending on how those proposals fit with provisions of the Resource Management Act 1991 and the imminent Part IV: Rivers and Lakes of the Tasman Resource Management Plan.

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# APPENDIX I: CAPITAL REQUIREMENTS FOR FUTURE RENEWALS

## I.1 Introduction

Renewal expenditure is major work that does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original capacity. Work over and above restoring an asset to original capacity is new works expenditure.

Assets are considered for renewal as they near the end of their effective working life or where the cost of maintenance becomes uneconomical. Renewal decisions are based on the Asset Managers judgement on the cost effectiveness of renewing the asset and their assessment of the acceptability of the risk of asset failure.

As part of the improvement programme the Council is developing a more rigorous asset management system to determine renewal needs in a more systematic way. Renewal decisions are supported by the Consultant's and Maintenance Contractor's annual report and programme of work based on their knowledge of the systems. In addition, the theoretical life expectances of asset components have been used for the purpose of financial projections.

## I.2 Forecast of Renewals Expenditure for next 20 years

See Table I-1 River Activity Financials for projection of final expenditure on renewals

## I.3 Deferred Renewals

Renewal works identified may be deferred if the cost is beyond the community's ability to fund it. This can occur when higher priority works are required on other infrastructure assets, or there are short term peaks in expenditure or if an inadequate rating base exists.

When renewal works is deferred the impact of the deferral on economic inefficiencies and the system's ability to achieve the required service standards will be assessed. Although the deferral of some renewal works may not impact significantly on the operation of assets, repeated deferral will create a liability in the longer term.

## Table I-1: River Activity Financials for Projection of Final Expenditure on Renewals

| SCHEME | 2008/09 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 | Year 12 | Year 13 | Year 14 | Year 15 | Year 16 | Year 17 | Year 18 | Year 19 | Year 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLASS X RENEWALS | | | | | | | | | | | | | | | | | | | | | |
| Lower Motueka 3000-14250m | $70,500.00 | 76,000 | 86,000 | 111,300 | 91,300 | 91,300 | 91,300 | 91,300 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 |
| Riwaka | $12,000.00 | 24,000 | 24,000 | 73,000 | 33,000 | 23,000 | 23,000 | 23,000 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 | 25,300 |
| Wai-iti 10250-12500m | $0.00 | 27,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 |
| Brooklyn | $0.00 | 0 | 0 | 0 | 6,500 | 6,500 | 6,500 | 6,500 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| Little Sydney Stream | $5,200.00 | 54,000 | 54,000 | 6,500 | 6,500 | 6,500 | 6,500 | 6,500 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| Hamilton Drain | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scotts Drain | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waimea 3500-10500m | $23,000.00 | 83,000 | 35,000 | 37,500 | 37,500 | 37,500 | 37,500 | 37,500 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 | 41,300 |
| | $110,700.00 | $ 264,000.00 | $ 229,000.00 | $ 258,300.00 | $ 204,800.00 | $ 194,800.00 | $ 194,800.00 | $ 194,800.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 | $ 214,500.00 |
| CLASS Y RENEWALS | | | | | | | | | | | | | | | | | | | | | |
| Upper Motueka | $70,000.00 | 85,000 | 97,000 | 106,000 | 106,000 | 106,000 | 106,000 | 106,000 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 | 116,600 |
| Waingaro | $18,500.00 | 9,000 | 10,000 | 11,500 | 11,500 | 11,500 | 11,500 | 11,500 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 |
| Anatoki | $8,000.00 | 9,000 | 9,000 | 11,500 | 11,500 | 11,500 | 11,500 | 11,500 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 | 12,600 |
| Motupiko | $23,000.00 | 35,000 | 37,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 | 44,000 |
| Tadmor | $2,000.00 | 6,000 | 7,000 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Takaka | $42,660.00 | 80,000 | 91,000 | 98,100 | 98,100 | 98,100 | 98,100 | 98,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 | 108,100 |
| Lower Motueka 14250-31250m | $30,000.00 | 75,000 | 85,000 | 91,300 | 91,300 | 91,300 | 91,300 | 91,300 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 | 100,500 |
| Moutere | $34,000.00 | 18,000 | 21,000 | 24,500 | 24,500 | 24,500 | 24,500 | 24,500 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 | 27,000 |
| Wai-iti 12500-40000m | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Eve's Valley Drain | $5,800.00 | 6,500 | 7,500 | 8,200 | 8,200 | 8,200 | 8,200 | 8,200 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 | 9,000 |
| Redwoods Valley Stream | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redwoods Valley Overflow | $0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aorere | $33,500.00 | 27,000 | 31,000 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 |
| Wairoa 10500-16500m | $85,000.00 | 75,000 | 80,000 | 91,200 | 91,200 | 91,200 | 91,200 | 91,200 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 | 100,300 |
| Sherry | $3,200.00 | 8,500 | 10,000 | 11,400 | 11,400 | 11,400 | 11,400 | 11,400 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 | 12,500 |
| Dove | $750.00 | 6,700 | 8,000 | 9,100 | 9,100 | 9,100 | 9,100 | 9,100 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| Kaituna | $33,500.00 | 28,000 | 32,000 | 34,200 | 34,200 | 34,200 | 34,200 | 34,200 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 | 37,600 |
| | $389,910.00 | $ 468,700.00 | $ 525,500.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 579,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 | $ 637,400.00 |
| | | | | | | | | | | | | | | | | | | | | | |
| Professional Services | | 73,270 | 75,450 | 83,770 | 78,420 | 77,420 | 77,420 | 77,420 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 |
| Asset Management | $ - | 60,000 | 75,450 | 83,770 | 78,420 | 77,420 | 77,420 | 77,420 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 | 85,190 |
| | | | | | | | | | | | | | | | | | | | | | |
| TOTAL RENEWALS | | $ 865,970.00 | $ 905,400.00 | $ 1,005,240.00 | $ 941,040.00 | $ 929,040.00 | $ 929,040.00 | $ 929,040.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 | $ 1,022,280.00 |

## APPENDIX J: DEPRECIATIONS AND DECLINE IN SERVICE POTENTIAL

Depreciation is the decline in service potential (future economic benefits) of the asset spread over the useful life of the asset.

It is Council policy to operate the rivers activity to meet a desired level of service. Council will monitor and assess the state of the rivers infrastructure and upgrade or replace parts over time to counter the decline in service potential at the optimum times.

### J.1 Rivers Assets

These have been valued at optimised depreciated replacement cost by MWH as at 30 June 2007 Subsequent additions to these assets have been valued at cost.

### J.2 Depreciation – Infrastructural Assets

Depreciation is provided on a straight line basis on all infrastructural assets at rates which will write off the cost (or valuation) of the assets to their estimated residual values, over their useful lives.

Lives used in the valuation of the river assets are as detailed below.

**Table J-1: Lives**

| Item | Life (years) | Minimum Remaining Life (years) |
|---|---|---|
| Stopbanks | Not depreciated | N/A |
| Drainage/tidal outfalls | 60 | 5 |
| Willow planting / layering | Not depreciated | N/A |
| Wand / poles / posts | Not depreciated | N/A |
| Weighted felled trees | Not depreciated | N/A |
| Gabion baskets | 30 | 5 |
| Rock protection | Not depreciated | N/A |
| Railway irons | 50 | 5 |

### J.3 Decline in Service Potential

Overall the rivers are expected to increase in value over the 10 year period. This is because the programmed investment in new assets will be greater than the depreciation. During the 10 year period there will be continued community consultation to assess the needs and levels of service. Some new works and renewals may therefore be deferred.

# APPENDIX K: PUBLIC DEBT AND ANNUAL LOAN SERVICING COSTS

## K.1 General Policy

The Council borrows as it considers prudent and appropriate and exercises its flexible and diversified funding powers pursuant to the Local Government Act 2002. The Council approves, by resolution, the borrowing requirement for each financial year during the annual planning process. The arrangement of precise terms and conditions of borrowing is delegated to the Corporate Services Manager.

> ***The Council has significant infrastructural assets with long economic lives yielding long term benefits. The Council also has a significant strategic investment holding. The use of debt is seen as an appropriate and efficient mechanism for promoting intergenerational equity between current and future ratepayers in relation to the Council's assets and investments. Debt in the context of this policy refers to the Council's net external public debt, which is derived from the Council's gross external public debt adjusted for reserves as recorded in the Council's general ledger.***

Generally, the Council's capital expenditure projects with their long term benefits are debt funded. The Council's other district responsibilities have policy and social objectives and are generally revenue funded.

The Council raises debt for the following primary purposes:

- Capital to fund development of infrastructural assets
- Short term debt to manage timing differences between cash inflows and outflows and to maintain the Council's liquidity.
- Debt associated with specific projects as approved in the Annual Plan or LTCCP. The specific debt can also result from finance which has been packaged into a particular project.

In approving new debt, the Council considers the impact on its borrowing limits (refer Section 3.2) as well as the size and the economic life of the asset that is being funded and its consistency with Council's long term financial strategy.

The detailed Borrowing Policy is found in Section 3 of Council's Treasury Management Policy that was last reviewed by Council in April 2004.

## K.2 Loans

Loans to fund Capital works over the next 10 years are projected to add up to the following costs:

| Rivers | 2009/10 Year 1 | 2010/11 Year 2 | 2011/12 Year 3 | 2012/13 Year 4 | 2013/14 Year 5 | 2014/15 Year 6 | 2015/16 Year 7 | 2016/17 Year 8 | 2017/18 Year 9 | 2018/19 Year 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Loans Raised (x 1,000)** | 260 | 200 | 140 | 2,340 | 50 | 2,722 | 50 | 2,730 | 50 | 2,881 |
| **Opening Loan Balance** | 0 | 257 | 448 | 575 | 2,870 | 2,846 | 5,459 | 5,366 | 7,918 | 7,755 |

***Note: Figures do not include for inflation and are in thousands of dollars (i.e. x1000)***

## K.3 Cost of Loans

Council funds the principal and interest costs of past loans and these are added to the projected loan costs for the next 10 years in the following table.

The projected annual loan repayment costs over the next 10 years are:

| Rivers | 2009/10 Year 1 | 2010/11 Year 2 | 2011/12 Year 3 | 2012/13 Year 4 | 2013/14 Year 5 | 2014/15 Year 6 | 2015/16 Year 7 | 2016/17 Year 8 | 2017/18 Year 9 | 2018/19 Year 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Loan Interest (x 1,000)** | 9 | 25 | 37 | 124 | 206 | 299 | 390 | 478 | 564 | 653 |
| **Loan Principal** | 3 | 9 | 13 | 44 | 74 | 109 | 143 | 178 | 213 | 250 |

***Note: Figures do not include for inflation and are in thousands of dollars (i.e. x1000)***

# APPENDIX L: SUMMARY OF THE OVERALL FINANCIAL POSITION INCLUDING EXPENDITURE AND INCOME

## L.1 Overview

Council has a policy of user pays, with rating levels set depending on the standard of protection (X, Y or Z). All of the river works classified catchments servicing the district belong to a district Group Rivers Account. This is operating as a 'closed account' which commenced in the 2006/2007 financial year with a credit or debit balance reported annually.

## L.2 A Statement of Financial Performance for the Next 10 Years

The future overall financial requirements for the rivers account for the next 10 years are summarised in Table L-1 below:

## Table L-1: Projected Overall Operating and Capital Expenditure

| Rivers | 2008/2009 Budget $ | 2009/2010 Budget $ | 2010/2011 Budget $ | 2011/2012 Budget $ | 2012/2013 Budget $ | 2013/2014 Budget $ | 2014/2015 Budget $ | 2015/2016 Budget $ | 20016/2017 Budget $ | 2017/2018 Budget $ | 2018/2019 Budget $ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| INCOME | | | | | | | | | | | |
| General Rate | - | 1,249 | 3,436 | 5,005 | 16,826 | 27,991 | 40,777 | 53,313 | 65,639 | 77,714 | 90,264 |
| Targeted Rate | 2,148,930 | 2,102,233 | 2,372,493 | 2,557,061 | 2,617,594 | 2,714,745 | 2,815,495 | 2,932,126 | 3,196,345 | 3,417,458 | 3,514,854 |
| Fees & Recoveries | 219,524 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 | 212,000 |
| Sundry Income | 75,864 | 72,976 | 74,564 | 76,145 | 76,205 | 76,268 | 76,334 | 76,342 | 76,290 | 76,237 | 76,188 |
| TOTAL INCOME | 2,444,318 | 2,388,458 | 2,662,493 | 2,850,211 | 2,922,625 | 3,031,004 | 3,144,606 | 3,273,781 | 3,550,274 | 3,783,409 | 3,893,306 |
| OPERATING COSTS | | | | | | | | | | | |
| General District | 1,753,881 | 1,858,704 | 1,910,985 | 2,015,395 | 1,945,411 | 1,937,289 | 1,940,506 | 1,937,132 | 2,050,816 | 2,057,638 | 2,031,378 |
| Loan Interest | - | 9,243 | 25,362 | 36,801 | 124,011 | 205,790 | 298,997 | 389,710 | 478,212 | 564,213 | 653,079 |
| Depreciation | 25,741 | 28,270 | 30,122 | 29,649 | 27,154 | 26,779 | 29,266 | 29,153 | 31,658 | 31,411 | 33,574 |
| TOTAL OPERATING COST | 1,779,622 | 1,896,217 | 1,966,469 | 2,081,845 | 2,096,576 | 2,169,858 | 2,268,769 | 2,355,995 | 2,560,686 | 2,653,262 | 2,718,031 |
| NET COST OF SERVICE (SURPLUS | (664,696) | (492,241) | (696,024) | (768,366) | (826,049) | (861,146) | (875,837) | (917,786) | (989,588) | (1,130,147) | (1,175,275) |
| TOTAL FUNDS REQUIRED | | | | | | | | | | | |
| NET COST OF SERVICE (SURPLUS | (664,696) | (492,241) | (696,024) | (768,366) | (826,049) | (861,146) | (875,837) | (917,786) | (989,588) | (1,130,147) | (1,175,275) |
| Capital | 431,547 | 833,500 | 813,650 | 821,960 | 3,036,810 | 746,810 | 3,396,810 | 724,810 | 3,449,690 | 879,690 | 3,710,690 |
| Loan Principal | - | 3,250 | 9,000 | 13,250 | 44,250 | 74,125 | 108,775 | 143,425 | 178,175 | 212,925 | 249,563 |
| Transfer to Reserves | 258,890 | 171,802 | 178,496 | 177,805 | 112,143 | 116,990 | 121,518 | 128,704 | 123,381 | 118,943 | 129,596 |
| | 25,741 | 516,311 | 305,122 | 244,649 | 2,367,154 | 76,779 | 2,751,266 | 79,153 | 2,761,658 | 81,411 | 2,914,574 |
| SOURCE OF FUNDS | | | | | | | | | | | |
| Restricted Reserves Applied | - | 223,061 | 70,339 | 68,465 | - | - | - | - | - | - | - |
| Loans Raised | - | 260,000 | 200,000 | 140,000 | 2,340,000 | 50,000 | 2,722,000 | 50,000 | 2,730,000 | 50,000 | 2,881,000 |
| | - | 483,061 | 270,339 | 208,465 | 2,340,000 | 50,000 | 2,722,000 | 50,000 | 2,730,000 | 50,000 | 2,881,000 |
| NON FUNDED DEPRECIATION | | | | | | | | | | | |
| Depreciation to be funded at income statement level | 25,741 | 28,270 | 30,122 | 29,649 | 27,154 | 26,779 | 29,266 | 29,153 | 31,658 | 31,411 | 33,574 |
| | 25,741 | 28,270 | 30,122 | 29,649 | 27,154 | 26,779 | 29,266 | 29,153 | 31,658 | 31,411 | 33,574 |
| | 25,741 | 511,331 | 300,461 | 238,114 | 2,367,154 | 76,779 | 2,751,266 | 79,153 | 2,761,658 | 81,411 | 2,914,574 |

*N.B. Figures do not include for inflation*

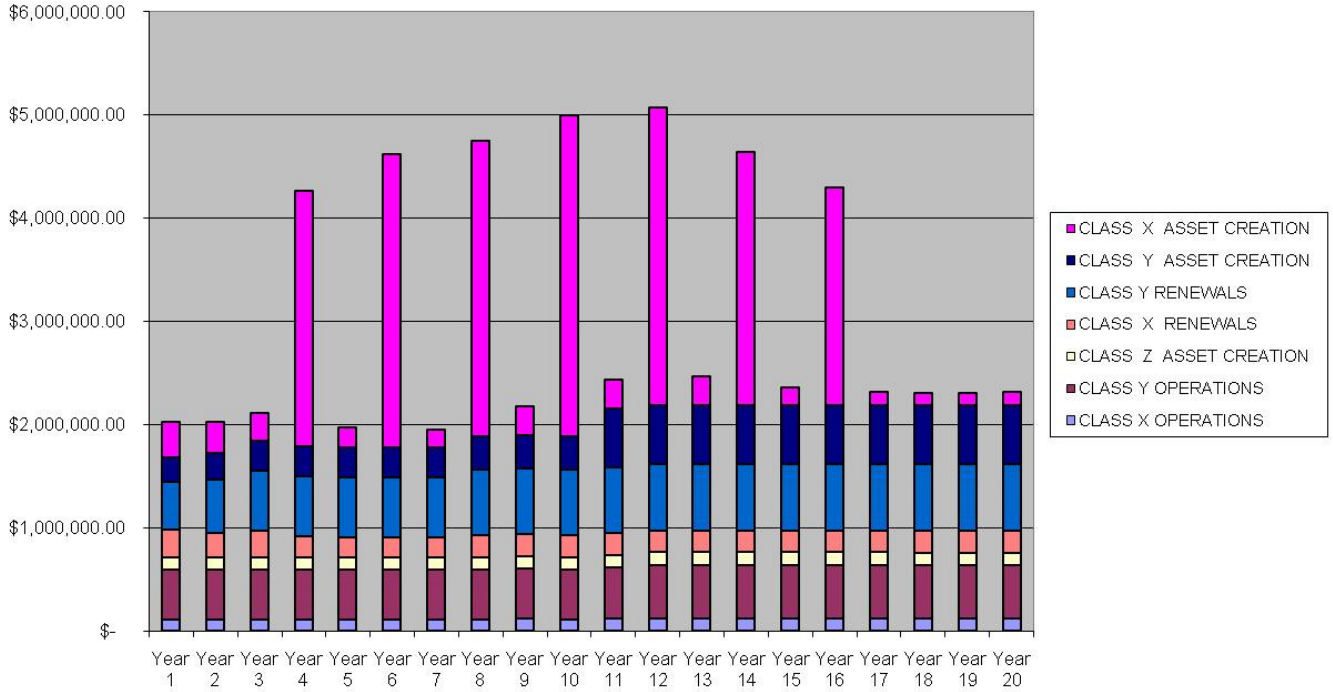



**Figure L-1: River Works 20 year Financial Plan**

## L.3 An Explanation of the Council's Funding Policy for the Activity

Rivers expenditure is funded by:

- Berm rental income
- Gravel royalty
- Non-lump sum rates
- Loans (where future capital works are required).

The rivers assets are funded in the main from a targeted rate depending on the area of river classification that property lies in. The rivers asset is therefore predominantly funded by any general rate appropriation. The rivers account also attracts some sundry income (dividends, berm rental etc).

Major capital projects may be loan funded. When loans are made, the loan is taken for a fixed period, usually 20-30 years.

## L.4 Renewal Works

In river control and drainage it is very difficult to assign works in to a *renewal* category as opposed to *capital* or *maintenance.* It should be noted that river control works are different from other Council infrastructure assets. In general river control and drainage works do not have steady deterioration with time. The main parameters that cause substantial deterioration to river control assets are:

- Large floods causing flood damage – particularly to bank protection works
- Channel degradation or aggradations that substantially affect channel edge stability or capacity.

Flood damage repair could be classed as renewal works or maintenance items. The magnitude of the event and effect on particular infrastructural item will determine whether the works are renewal or maintenance i.e., total failure of rocked channel edge is renewal.

## L.5 Upgrading and Development Programme

Stopbank renewal and greenfield installation is the major item included in the Rivers development programme.

Five rivers systems have been identified as benefiting from repair and installation of new or upgraded stopbanks, namely:

- Brooklyn Stream
- Riwaka River
- Takaka River (Lower Takaka)
- Lower Motueka River
- Waimea River

Priority has been given to investigation and possible future development works in the catchments Riwaka and Lower Motueka. These catchments have been promoted given a significant increase in infrastructure asset values behind the existing stopbanks (where they exist).

## L.6 Riwaka Development Programme

A significant level of investigation and community consultation work will be required before physical works commence. In the case of the Riwaka stopbanks, a 4 stage Stopbank Audit process has been confirmed, including:

1. Data gathering, age/condition walk-over, surveys and hazard/risk profile production
2. Construction of a hydraulic model
3. Undertaking additional surveys, geotechnical tests and analyses
4. Preparation of preliminary estimates for upgrade options to meet levels of service e.g. 20 yr, 50yr and 100yr protection

This work was completed up to stage 4 in September 2005. The Council has subsequently resolved to present the various upgrade options to the community which determined that there was little local support for the scheme

## L.7 Takaka Development Programme

Takaka Township is not protected by any Council maintained stopbanks, several flood protection schemes have been proposed in the past 60 years in the Takaka catchment. The most significant was one proposed in 1985, however this was rejected by ratepayers.

## L.8 Lower Motueka and Brooklyn Development Programme

Investigation and possible stopbank development works have been identified from RD 0000-11400. Following review of past reports and the October 2008 workshop discussions, some ongoing concerns regarding the standard i.e. capacity of existing stopbanks, and protection level of banks in some areas, investigation works have been undertaken.

## L.9 Unmaintained Stopbanks – Register

It is possible that any one of the unmaintained stopbanks may be included as a future capital upgrade item. However several critical steps must occur before any “new” stopbank is considered for such works: (1) Council must formally take ownership of the stopbank (2) Those landowners who gain benefit from the bank will be required to contribute financially towards it upgrade – standard to be determined.

## APPENDIX M: SCHEDULE OF FEES AND CHARGES

Council sets a targeted rate for river works. This rate is based on the land value of each rating unit and is set differentially based on classification of the land in terms of the rivers rate, as shown Table M-1.

**Table M-1: Rivers Targeted Rates**

| Category | 2008/2009 Inc GST | 2009/2010 Inc GST |
|---|---|---|
| Classification X - in cents per $ of Land Value | 0.1119 cents | 0.0978 cents |
| Classification Y - in cents per $ of Land Value | 0.1119 cents | 0.0978cents |
| Classification Z - in cents per $ of Land Value | 0.0222 cents | 0.0208 cents |
| Motueka Stopbank A (Direct) | 0 | 0.0024 cents |
| Motueka Stopbank B (Ward) | 0 | 0.0005 cents |

The following resource management (administration, monitoring and supervision) charges are detailed in Table M-2 below.

**Table M-2: Rivers Schedule of Fees and Charges**

| Gravel / Shingle Extraction Fees | Standard Charge per Consent (GST inc.) $/m$^3$ |
|---|---|
| Waimea / Wairoa Rivers | 5.15 |
| Wai-iti | 5.15 |
| Upper Motueka (including all tributaries above Baton Bridge) | 5.15 |
| Lower Motueka (including all tributaries below Baton Bridge) | 5.15 |
| Moutere | 5.15 |
| Riwaka/Marahau/Sandy Bay | 5.15 |
| Takaka and Tributaries | 5.15 |
| Aorere and Tributaries and other Golden Bay Rivers | 3.65 |
| Buller | 2.65 |
| Other Rivers, Stream and Coastal Marine Areas | 3.65 |
| Gravel Extraction outside of the above-listed areas or on freehold land | Actual and reasonable monitoring charged at $125.00 per hour. |
| Sand in Lower Motueka River (including all tributaries below Baton Bridge) | 2.05 |

Charges are authorised under section 36 of the RMA91.

# APPENDIX N: DEMAND MANAGEMENT

## N.1 An Explanation of the Council's Demand Management Policies for the Activity

The objective of demand management (sometimes called non-asset solutions) is to actively seek to modify customer demands for services in order to:

- Optimise utilisation/ performance of existing assets.
- Reduce or defer the need for new assets.
- Meet the organisation's strategic objectives (including social, environmental and political).
- Delivery a more sustainable service.
- Respond to customer needs.

Demand management techniques are traditionally applied to Councils roading, water, sewer and stormwater services. When applying demand management techniques to rivers assets, the following components are considered relevant:

- Operation – including types of river maintenance techniques i.e. mechanical layering
- Regulation – as described in Resource Consents NN010109 and NN000425.

With respect to gravel, the resource is currently allocated from within the berms on the following basis:

- The Asset Management Department may allocate up to 40,000 $m^3$/yr of material from within the river system where it is desirable to remove it for river management purposes
- The Environment and Planning Department may allocate a sustainable quantity of material
- Any interested party may apply for a resource consent to extract metal from within the berm.

Therefore access to the gravel resource is controlled by Councils staff, with input from external agencies e.g. Fish and Game, Department of Conservation.

The customers using the rivers asset include 4WD groups, recreational walkers, Fish & Game, Iwi etc. While the "customers" are given the opportunity to take part in the consultation process (River Care Groups) the primary objective for this asset is maintain the system to contain specified flood events. Generally this is an annual flood. Other customers are those afforded protection from the river management systems.

The Council will set the levels of service in consultation with the community. Possible demand management options for river management could be the use of planning restrictions on buildings or specific development in certain areas.

## APPENDIX O: NOT RELEVANT TO THIS ASSET

## APPENDIX P: SIGNIFICANT NEGATIVE EFFECTS

An assessment of significant negative effects that the river works activity may have as provided below - effects include those on the social, economic, environmental or cultural wellbeing of the community.

- Gravel extraction. Gravel availability within the river berms is assessed on various factors, including via the annual inspection process and via TDC environment and planning sustainable quota. Over extraction in some areas has been linked to the requirement for rock stabilisation of banks (a cost to the rivers programme) and changes in groundwater levels. Generally the sustainable extraction rate of gravel from all rivers has been set at zero by the TDC Rivers Scientist.

  Gravel available for relocation or extraction is assessed using river cross-section data, river management purposes and resource consent criteria (NN010109). The lowering of groundwater levels has been mitigated via weir structures e.g. Wai-iti.

- The requirement for the eradication of crack will by MAF over the next 10 years may have a significant negative effect on the bank protection work if an alternative suitable replacement tree species cannot be found.

- Inappropriate use of river berms. A continuing issue along the river berm is dumping of refuse and car bodies. Given the vast uncontrolled areas of river berm (predominantly privately owned), there is unfortunately plenty of opportunity for these activities to occur. Council has undertaken to trial closing a section of the river berm – Waimea River (Appleby Bridge to Lower Queen St, right bank) and determine what benefit this has on increasing the standard of recreational use in that area. This concept has been included in a proposal to develop a regional park from the estuary on the Waimea up to the SH6 Bridge at Brightwater.

# APPENDIX Q: SIGNIFICANT ASSUMPTIONS, UNCERTAINTIES AND RISK MANAGEMENT

This appendix is in two parts:

- Assumptions and Uncertainties
- Risk Management

## Q.1 Assumptions and Uncertainties

This AMP and the financial forecasts within it have been developed from information that has varying degrees of completeness and accuracy. In order to make decisions in the face of these uncertainties, assumptions have to be made. This section documents the uncertainties and assumptions that Council consider could have a significant affect on the financial forecasts, and discusses the potential risks that this creates.

### *Q.1.1. Asset Data Knowledge*

While the Council has asset registers and many digital systems, processes and records, Council does not have complete knowledge of the assets it owns. To varying degrees the Council has incomplete knowledge of asset location, asset condition, remaining useful life and asset capacities. This requires assumptions to be made on the total value of the assets owned, the time at which assets will need to be replaced and when new assets will need to be constructed to provide better service.

Notwithstanding this, Council considers these assumptions and uncertainties constitute only a small risk to the financial forecasts because:

- Significant amounts of asset data is known
- Asset performance is well known from experience
- There are plans to upgrade significant extents of poorly performing assets

### *Q.1.2. Growth Forecasts*

Growth forecasts are inherently uncertain and involve many assumptions. The growth forecasts also have a very strong influence on the financial forecasts, especially in Tasman District where population growth is higher than the national average. The growth forecasts underpin and drive:

- the asset creation programme
- Council income forecasts including rates and development contributions
- funding strategies

### *Q.1.3. Timing of Capital Projects*

The timing of many capital projects can be well defined and accurately forecast because there are few limitations on the implementation other than the community approval through the LTCCP/Annual Plan processes. However, the timing of some projects is highly dependent on some factors which are beyond the Council's ability to fully control. These include factors like:

- obtaining resource consent, especially where community input is necessary
- obtaining the community consent
- obtaining subsidy from central government
- securing land to construct new assets on

Where these issues may become a factor, allowances have been made to complete in a reasonable timeframe, however these plans are not always achieved. The effect of this will be to defer expenditure. The impact of this on the financials is not considered significant.

### *Q.1.4. Future Costs*

Predicting the long term costs of maintaining the rivers assets has an inherently high level of uncertainty. The future costs depend on the extent and severity of flooding and on the often unpredictable way rivers respond to those events. Council has approached this matter by joining the LAPP fund and maintaining an Emergency Flood Relief Fund. $50,000 is allocated annually from river rates to this closed relief fund, to be used for repair of flood damage. The uncertainty arises that this fund will be insufficient to cover necessary repairs. It might therefore be prudent to either:

- Increase the level of funding to the Flood Relief Fund to cover more repair works, or
- Reduce the level of funding to the Flood Relief, instead spending more on river works now. The intention would be that an improved extent/level of fairway, berm and bank maintenance will result in reduced repair costs after a flood event.

The main goal of the current river works is where at all possible to mitigate the effects of flooding on the main channels capacity to convey future floods. In other words the works primarily based on post foreshore flood event clean up, main channel alignment, bank stability and fairway clearance.

The Rivers Global Consent only permits maintenance across the channel up to the level of an annual flood. Any flood in excess of this has the potential to sustain damage over a wider flood plain.

### *Q.1.5. Funding of Capital Projects*

Funding of capital projects is crucial to a successful project. When forecasting projects that will not occur for a number of years, a number of assumptions have to be made about how the scheme will be funded.

Funding assumptions are made about:

- whether projects will qualify for subsidies

### *Q.1.6. Accuracy of Capital Project Cost Estimates*

The financial forecasts contain many projects, each of which has been estimated from the best available knowledge. The level of uncertainty inherent in each project is different depending on how much work has been done in defining the problem and determining a solution. In many cases, only a rough order cost estimate is possible because little or no preliminary investigation has been carried out. It is not feasible to have all project estimates in the next 20 years advanced to a high level of estimate accuracy. However, it is preferable to have projects in the next 3 years advanced to a level that provides reasonable confidence about the accuracy of the estimate.

To get consistency and formality in cost estimating, the following practices have been followed:

- A project estimating template has been developed that provides a consistent means of preparing estimates
- Where practical, a common set of rates has been determined
- Specific provisions have been included to deal with non-construction costs like contract preliminary and general costs, engineering costs, Council staff costs, resource consenting costs, land acquisition costs.
- Specific provisions have been included to deal with estimate accuracy. These are described as follows.

A 15% provision has been included to get a “Base Project Estimate” to reflect the uncertainties in the unit rates used. A further provision has been added to reflect the uncertainties in the scope of the project – i.e. is the solution adopted the right solution. Often detailed investigation will reveal the need for additional works over and above that initially expected. The amount added depends on the amount of work already done on the project. Each project has been assessed as being at the project lifecycle stage as detailed below, and from this an estimate accuracy assessed. The estimate accuracy is added to the Base Project Estimate to get the Total Project Estimate – the figure that is carried forward into the financial forecasts.

**Table Q-1: Life Cycle Estimate Accuracies**

| Stage in Project Lifecycle | Estimate Accuracy |
|---|---|
| Concept / Feasibility | ± 30% (±20% for projects >$1m) |
| Preliminary Design / Investigation | ± 20% (±15% for projects >$1m) |
| Detailed Design | ± 10% |
| Construction | ± 5% |
| Commissioning | ± 0% |

## Q.2 Uncertainties and Risk Management

In July 2008 workshops were held with key stakeholders to review the condition of the maintained rivers asset. The stakeholders were:

- Tasman District Council (Asset Engineer Rivers, Transportation Manager)
- Rivers Contractor (Rivers Supervisor and Maintenance Staff)
- Engineering Consultants MWH NZ Limited (Nelson)
- District Wide River Care Groups

The review covered Operations and Maintenance, Renewals, Asset Creation, Investigations (including assessment of uncertainties and risks) and assumptions. Based on these workshops, a 10-year financial plan was produced. The LTCCP process has used information from these stake holders to produce a 10 year financial plan.

The development of detailed, rigorous risk assessments and risk mitigation strategies are recommended in the Improvement Plan, Appendix U.

Council is risk conscious and has the following in place to mitigate risk:

- Council's main professional services consultant operates under a Quality Assurance manual and has ISO 9001 certification.
- Council requires its facilities network maintenance contractors to have quality control procedures in place.
- Council and its agents have Health and Safety Plans in place.
- Traffic Management Plans are required when working on a road.
- There are a number of Emergency Procedures response manuals in place including:
- - Council Flood Response Plan
- - TDC-MWH Emergency Procedures Manual
- NZ Government initiative to establish a flood mitigation protocol, NZS Flood Risk Management and a national policy statement on flood risk will also become important.

Through Call Care, Council's consultants and contractors there is continuous 24 hour coverage to react to emergency situations.

- There is a rivers emergency response procedure and Council places a high priority on providing support under these procedures.
- Council operates a Customer Services Request system where requests or complaints are logged and investigated and if necessary actioned and closed out.

### *Q.2.1. Asset Risk Plan / Business Continuity / Lifelines*

Council has not prepared an asset risk plan for each of the rivers systems. It intends to prepare a business continuity plan that outlines:

- The critical assets and any issues relating to them
- Assess the systems vulnerability to various hazards;
- Identify the consequences of asset failure;
- Identify the economic cost of likely failure events;
- Identify the probability of failure.

This Business Continuity Plan will address all of Council's lifelines responsibilities under the Civil Defence Emergency Management Act.

- A basic risk assessment for each river system (catchment) will been undertaken in accordance with NZ Government initiative to establish a flood mitigation protocol, NZS Flood Risk Management and a national policy statement on flood risk will also become important.

The intention is that this risk assessment will cover determination of the:

- Impact of failure
- Probability of Failure
- Management Options to reduce a) the probability of failure, and b) reduce the impact of failure
- Costings of management compared with savings from risk reduction (where relevant)

The Risk Assessment for the Rivers Activity is proposed to be in line with the NZ Flood Risk Management Protocol once this has been approved by Government.

## Q.3 Risk Management

Council is adopting an Integrated Risk Management (IRM) framework and process as the means for managing risk within the organisation. The process integrates with the Long Term Council Community Plan (LTCCP) process as illustrated in Figure Q-1.

The strategic goal of integrated risk management is:

"*To integrate risk management into Council's organisational decision making so that it can achieve its strategic goals cost effectively while optimising opportunities and reducing threats.*"

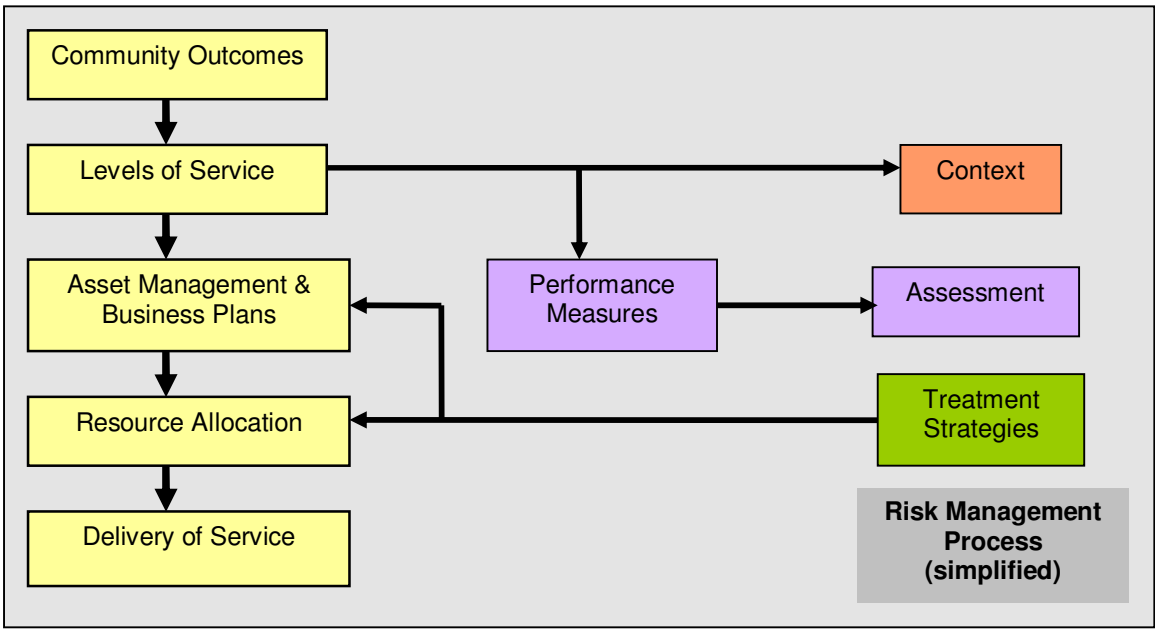



**Figure Q-1: Integration of Risk Management Process into LTCCP Process**

The IRM process and framework is intended to:

- To demonstrate responsible stewardship by TDC on behalf of its customers and stakeholders.
- To act as a vehicle for communication with all parties with an interest in TDC's organisational and asset management practices.
- Provide a focus within TDC for ongoing development of good management practices.
- Demonstrate good governance.
- Meet public expectations and compliance obligations.
- Manage risk from an organisational perspective.
- Facilitate the effective and transparent allocation of resources to where they will have most effect on the success of the organisation in delivering its services.

The risk management framework adopted by TDC is consistent with AS/NZS 4360:2004 Risk Management and assesses risk exposure by considering the consequence and likelihood of each risk which is identified as having an impact on the achievement of organisational objectives Figure Q-2.

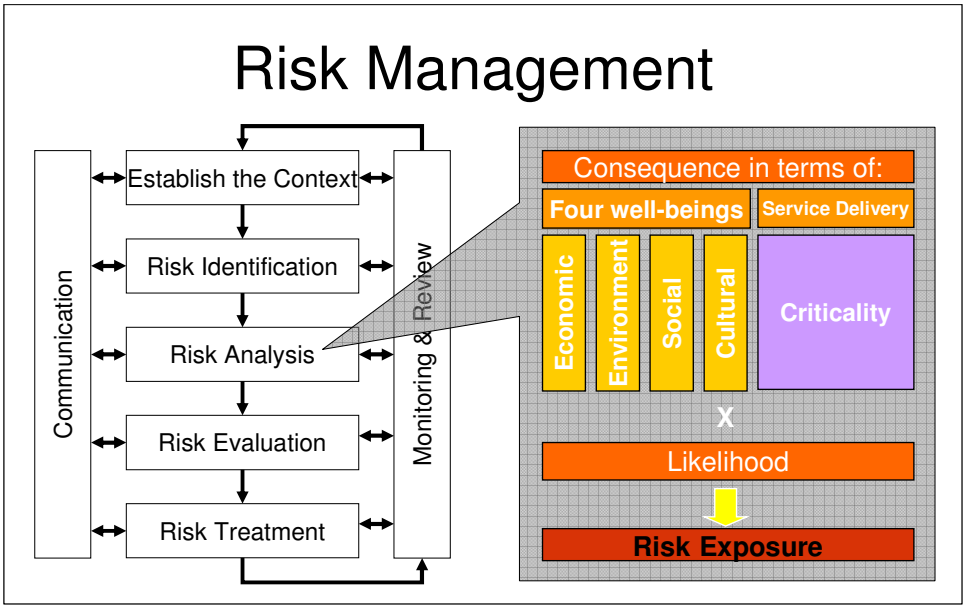



**Figure Q-2 Integrated Risk Management Process**

Consequence categories have been developed to reflect the impact of risk events on the four well-beings and each consequence category is scored as either "extreme", "major", "medium", "minor", or "negligible". These categories address common consequences across any asset or project, however, they do not specifically account for the differences in assets. Therefore an additional category "Service Delivery" is used to reflect the essential reason for the ownership or management of any asset within the local authority – the delivery of a service. This means that the consequence of failure to deliver the service in question (the criticality of the service) can be used to weight the consequences to reflect the relative importance of the asset to the community and in turn to Council.

**Table Q-2: Consequence Categories**

| Category | | Description |
|---|---|---|
| Service Delivery | | Assessment based on the asset's compliance with Performance Measures and value in relation to outcomes and resource usage |
| Social/ Cultural | Health & Safety | Assessment of impact as it relates to death, injury, illness, life expectancy and health |
| | Community Safety & Security | Assessment of impact based on perceptions of safety and reported levels of crime |
| | Community / Social / Cultural | Assessment of impact based on damage and disruption to community services and structures, and effect on social quality of life and cultural relationships |
| | Compliance / Governance | Assessment of effect on governance and statutory compliance of Council |
| | Reputation / Perceptions of Council | Assessment of public perception of Council and media coverage in relation to Council |
| Environment | Natural Environment | Effect on the physical and ecological environment, open space and productive land |
| | Built Environment | Effect on the amenity, character, heritage and cultural, and economic aspects of the built environment and level of satisfaction with the amenity of the built environment |
| Economic | Direct Cost / Benefit | Direct cost (or benefit) to Council |
| | Indirect Cost / Benefit | Direct cost (or benefit) to wider community |

Similarly, the likelihood of the risk occurring is scored on a scale from "almost certain" to "unlikely" with associated probabilities and frequencies provided for guidance.

The risk exposure is then determined for each identified risk by multiplying the consequence and likelihood, and is presented using semantic descriptions ranging from “extreme” to “negligible”

Treatment strategies, or strategic plans, that mitigate each risk can then be identified, and prioritised based on the risk exposure.

The consequence, likelihood scoring and risk matrix tables are all located in a separate report, TDC Integrated Risk Management - Engineering Activities. This document also contains the outputs from the Level 1 and Level 2 Risk Assessments.

There are essentially three levels of risk assessment that should be considered for each activity within Council:

- Level 1 - Organisational Risk Assessment
- Level 2 - Asset Group Risk Assessment
- Level 3 - Critical Asset Risk Assessment

*Level 1 - Organisational Risk Assessment*

The Organisational Risk Assessment focuses on identification and management of significant operational risks that will have an impact beyond the activity itself and will affect the organisation as a whole. This approach allows the Integrated Risk Management framework to address risks at the organisational level, as well as at both the management and operational levels within the particular Council activities.

During the process of developing the integrated risk management process, Council identified a number of risk events and issues at organisational level. These are relatively generic across all activities, but have been reviewed against each particular activity to ensure relevance and adjusted to suit. The decision to implement the treatment measures identified will be at an organisational level, not activity level.

*Level 2 - Asset Group Risk Assessment*

The same principal and consequence tables have been applied, but the focus has been at an Activity Level.

Major asset groups within the activity have been identified. An analysis of risk events was then undertaken to determine the issues arising that may prevent the assets delivering the required service. At this level of risk assessment, the risk events considered are physical events only as management and organisational risk events formed part of the earlier organisational risk assessment. Treatment strategies that mitigate each risk for asset groups have been identified.

The outcome from this process is summarised in Table Q-3, as a checklist of mitigation measures that should be considered for each type of asset group.

**Table Q-3: Mitigation Measures to be Considered for River Works**

| Mitigation Measures to be considered | Asset Group | | | |
|---|---|---|---|---|
| | Bank Protection | Stop Banking | Fairway Cleaning | Berm Management |
| Emergency Response Plan | ✓ | ✓ | ✓ | ✓ |
| Telemetry | | ✓ | | |
| Formal Warning System | ✓ | ✓ | ✓ | ✓ |
| Channel Clearance Management | | | | ✓ |
| Rock Protection | ✓ | | | |
| Berm Planting | | | | ✓ |
| Monitoring | ✓ | ✓ | ✓ | ✓ |
| Land Use Restrictions | | ✓ | ✓ | ✓ |
| Flood Plan Zoning | | ✓ | ✓ | ✓ |
| Channel Profile/Surveying | ✓ | ✓ | ✓ | ✓ |
| Raise Stopbanks | | | ✓ | |
| Improve Channel Capacity | | ✓ | ✓ | |
| Improve Channel Alignment | ✓ | ✓ | ✓ | ✓ |
| Selected Tree Species | | | | ✓ |

*Level 3 - Critical Assets Risk Assessment*

The next step in the Integrated Risk Management Approach will be to consider each of the individual critical assets within the asset groups of an activity. Each asset will be reviewed in terms of the consequences initially identified and mitigation measures required. The output from the process will be a recommendation of projects or operational strategies to address shortfalls.

At this time, this level of risk management has not been implemented but has been included for completion in the Improvement Plan.

# APPENDIX R: LEVEL OF SERVICE, PERFORMANCE MEASURES AND RELATIONSHIP TO COMMUNITY

## R.1 Community Outcomes

Through Consultation, the Council identified eight Community Outcomes. These Community Outcomes are linked to the four well beings and Council Objectives as shown in Table R-1.

## R.2 Levels of Service

Levels of service are described in Section 2, Table 2-1.

## R.3 Performance Measurement

Table R-2 contains an assessment of current performance against the levels of service, and a forecast of the performance planned for within the next 3 years, and within the next 10 years.

**Table R-1: The Four Wellbeings, Interim Community Outcomes, Council Objectives, Groups and Activities.**

| Community Wellbeing | Community Outcomes | Council Objectives | Council Groups and Activities | Council Activities |
|---|---|---|---|---|
| **Environmental wellbeing** | 1. Our unique and special natural environment is bountiful, healthy, clean and protected.<br><br>2. Our built urban and rural environments are functional, pleasant, safe and sustainably managed.<br><br>3. Our transport and essential services are sufficient, efficient and sustainably managed. | To ensure sustainable management of natural and physical resources and security of environmental standards.<br><br>To sustainably manage infrastructural assets relating to Tasman District. | Environment and Planning<br><br>Transportation<br><br>Sanitation, drainage and water supply | Resource Policy<br>Resource Information<br>Resource Consents and Compliance<br>Environmental Education, Advocacy and<br>Operations Regulatory services<br>Mapua Rehabilitation<br>Regional Cycling and Walking Strategy.<br><br>Land Transportation<br>Coastal Structures, Aerodromes<br><br>Refuse<br>Wastewater<br>Stormwater management<br>Rivers<br>Water Supply |
| **Social and Cultural Wellbeing** | 4. Our vibrant community is safe, well, enjoys an excellent quality of life and supports those with special needs.<br><br>5. Our community understands regional history, heritage and culture.<br><br>6. Our diverse community enjoys access to a range of spiritual, cultural, social, educational and recreational services.<br><br>7. Our participatory community contributes to district-decision making and development. | To enhance community development and the social, natural, cultural and recreational assets relating to Tasman District. | Cultural services and grants.<br><br>Recreation and leisure.<br><br>Community support services. | Libraries<br>Cultural services and community grants<br><br>Community recreation<br>Camping grounds<br>Parks and Reserves<br>Development impact levies<br><br>Community facilities<br>Emergency management<br>Community housing<br>Governance |
| **Economic Wellbeing** | 8. Our growing and sustainable economy provides opportunities for us all. | To implement policies and financial management strategies that advance.<br>To promote sustainable development in the Tasman District. | Council Enterprises. | Forestry<br>Property<br>Council controlled organisations. |

## R.4 Table R-2: Assessment of Current Performance Against Levels of Service and Intended Future Performance

| Levels Of Service | We will know we are meeting The Levels of Service if…. | Current Performance | Forecast Performance by Year 3 | Forecast Performance by Year 10 |
|---|---|---|---|---|
| 1. Our river protection and flood mitigation activities are carried out so that the impacts on the natural river environments are minimised to a practical but sustainable level, and use best practices in the use of the District's natural resources. | All river maintenance and construction activities comply with any required resource consents | A global consent is held for all river structures to be maintained up to an annual event.<br><br>Existing approved stopbanks are able to be maintained to the existing design standard. Consents are held for all maintenance works and all current capital works | 100% | 100% |
| | The 285kms of X and Y classified rivers are cleared of Crack Willow (pest tree species) at a rate of 15kms of river length per year. | Council has commenced crack willow clearing as part of the AOMP scheduled works<br><br>Council is presently achieving a total of 5kms of river length per year. | Year 1 = 15km<br>Year 2 = 30km<br>Year 3 = 45km<br><br>(cumulative totals) | 150km (cumulative total) |
| 2. We provide flood protection to a level that the community is prepared to fund. | Council prepares and investigates new schemes in line with the community needs. | Hydraulic analysis, catchment modeling, flood inspections and catchment planning investigations show flood mitigation schemes perform in accordance with the designed level of service. | 100% | 100% |
| | The Riwaka River stopbanks are maintained to a one-in-20 year flood return standard | 30% of the Riwaka stopbanks are presently maintained to a one-in-20 year flood return standard. | 30% | 60% |
| | The Lower Motueka River stopbanks is maintained to a one-in-100 year flood return standard. | 30% of the Lower Motueka River stopbanks are maintained to a one-in-100 year flood return standard. | 30% | 65% |

| Levels Of Service | We will know we are meeting The Levels of Service if…. | Current Performance | Forecast Performance by Year 3 | Forecast Performance by Year 10 |
|---|---|---|---|---|
| | The Waimea River stopbanks are maintained to a one-in-50 year flood return standard. | The Waimea River stopbanks are maintained to a one-in-50 year flood return standard. | 100% | 100% |
| 3. We manage the river alignment to minimise bank erosion up to an annual event in the X and Y rating areas. | Rivers are maintained within the X and Y classification area to the annual allocated budget.<br>Capital projects are carried out on time, within budget and to the appropriate standard. | Council maintains the X and Y classified river areas to council standards and within 10% of the annual approved budget. | 100% | 100% |
| 4. In River Z rating areas we provide technical support and funding assistance when available. | All River Z rating enquires will be responded to within 10 working days. | Council presently respond to River Z related enquires within 10 days 95% of the time. | 100% | 100% |
| 5. Existing access to the rivers are maintained in a safe and efficient manner. | The public are able to access the Council's rivers systems unless for safety reasons they are restricted by the undertaking of annual river maintenance works programme. | Council maintains public access to the maintained river systems throughout the District 95% of the time. | 100% | 100% |
| 6. River works are planned with community input and professionally implemented. | An annual rivers maintenance programme as agreed with the communities is constructed to Council standards. | Council consults with all interest groups annual in accordance with Resource Consent NN010109 on the proposed AOMP schedule of works. | In place and operating | In place and operating |

| Levels Of Service | We will know we are meeting The Levels of Service if…. | Current Performance | Forecast Performance by Year 3 | Forecast Performance by Year 10 |
|---|---|---|---|---|
| | River Care Groups, Iwi, Fish & Game and DoC are consulted annually on the rivers annual maintenance programme. | River Care group meetings are held annually to discuss the AOMP maintenance programme.<br>Councils Rivers Activity Management Plan and 10 Year Plan are available to the public in the Council Libraries and service centres. | continue to do the same | continue to do the same |
| 7. Enquires relating to our river systems are responded to promptly. | We are able to respond to enquiries within timeframes specified within our operations and maintenance contracts.<br>We receive less than 12 complaints per year relating to the maintenance of river works. | Council staff are available to respond to customer enquiries during office hours.<br>Facility for receiving and handling emergency calls after hours.<br>Council receive less than 12 complaints relating to river works per year. | 100% | 100% |
| 8. There are adequate measures in place to know when flooding may occur and provide a limited response during a flood event. | We have a facility for receiving and handling emergency calls after office hours. | Council has an afterhours call centre that receives calls 24/7 and contractors and system managers have duty staff who are contactable to respond to emergencies | 100% | 100% |
| | We have a monitoring system in place to provide information of the key river flows | Council is presently developing a new rainfall and river flow data system which will supply up to date information through the internet on a 24 hour bases. | 100% | 100% |
| | The Council's rivers Maintenance Contractor have adequate resources available in case of major flood damage. The rivers maintenance contractor is available to respond to emergencies. | All Contractors have approved emergency response processes and adequate resources available on a 24 hour standby. | 100% | 100% |

# APPENDIX S: COUNCIL'S DATA MANAGEMENT, ASSET MANAGEMENT PROCESSES AND SYSTEMS

This appendix gives an overview of:

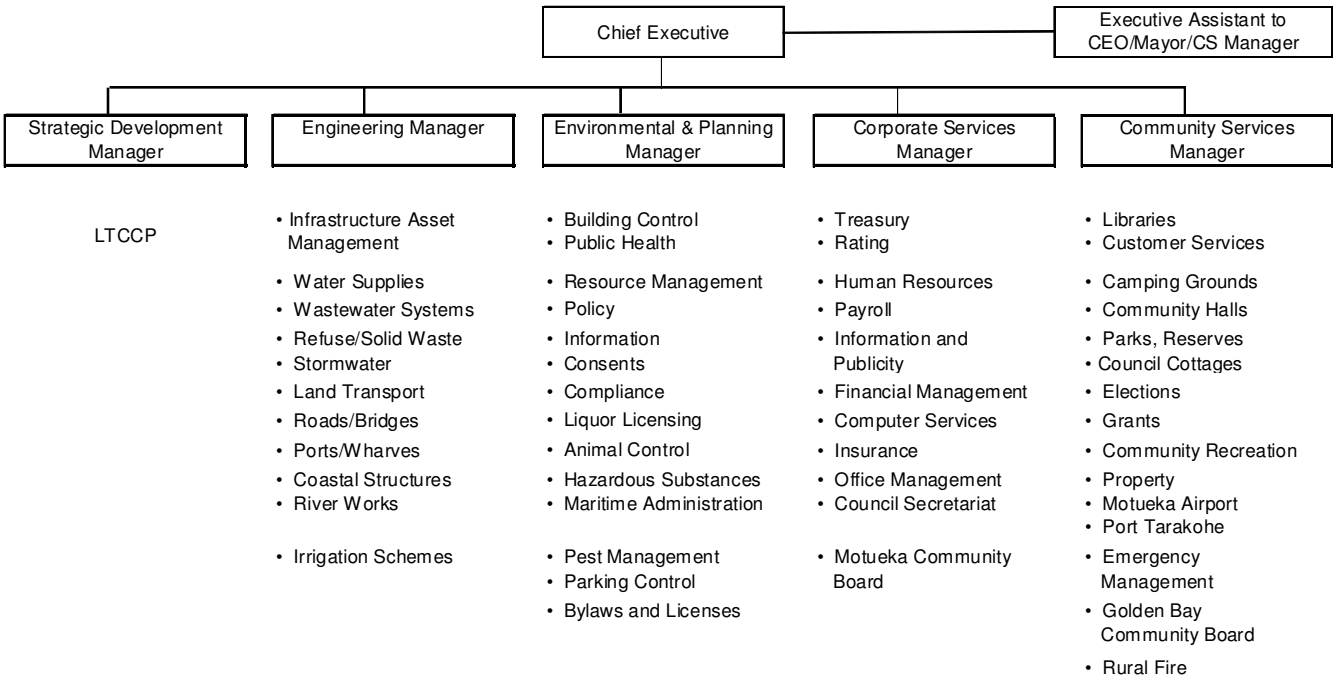
- Council's organisational structure
- How asset data is managed
- What asset management systems and processes are used
- How decisions are made.

## S.1 Organisational Structure

The Engineering Manager is principal advisor to the Engineering Services Committee that has delegated powers from the Council. The Engineering Services Committee has responsibility for roads and bridges, footpaths, car parks, water supplies, refuse collection and disposal, wastewater treatment and disposal, stormwater, river works, ports and wharves, and aerodromes.

The Tasman District Council organisational structure is shown in Figure S-1. As the chart shows, the asset management function for the water supply asset management plan falls under the Engineering Manager.

**Figure S-1: Tasman District Council Organisation Structure**




## S.2 Asset Data

The Council's corporate Asset Management System (AMS) is Confirm Enterprise. The Engineering Department uses it to record and track customer enquiries, maintain its asset register, and for tracking non-routine maintenance of assets. Valuations of all assets other than Roading will be done from Confirm.

The Asset Information team, Asset Managers, TDC's consultants and contractors all have access to the system with levels of access appropriate to their needs. Asset information is delivered to the Council via Explore Tasman, TDC's web-based GIS browser application. Performance and operational reports are delivered via a web-based reporting system.

Confirm has links to other core Council applications:

- NCS (Napier Computer System) for property data and water meter details
- SilentOne document management system for construction and As-built plans.

A more detailed breakdown of Roading Assets is held in RAMM (Road Asset and Maintenance Management) which is maintained by MWH on behalf of TDC.

Table S-3 summarises the various data sources and how they are managed. It also provides a grading on the data accuracy and completeness where this is appropriate. The accuracy grade is based on the IIMM grading as shown in Table S-1, the completeness grade is based on the grading as shown in Table S-2.

**Table S-1: Asset Data Accuracy Grade**

| Grade | Description | Accuracy |
|---|---|---|
| 1 | Accurate | 100% |
| 2 | Minor inaccuracies | ± 5% |
| 3 | 50% estimated | ± 20% |
| 4 | Significant Data estimated | ± 30% |
| 5 | All data estimated | ± 40% |

**Table S-2: Asset Data Completeness Grade**

| Grade | Description | Completeness |
|---|---|---|
| 1 | Complete | 100% |
| 2 | Minor Gaps | 90 – 99% |
| 3 | Major Gaps | 60 – 90% |
| 4 | Significant Gaps | 20 – 60% |
| 5 | Limited Data Available | 20% or less |

**Table S-3: Council Asset Data Types and Confidence**

| Data Type | Data Storage | Management Strategy | Data Confidence | |
|---|---|---|---|---|
| | | | Accuracy | Completeness |
| Asset location (stopbanks, protection works etc) | Confirm | Asset loaded into Confirm however this is not linked at this stage to GIS. | 3 | 3 |
| | Asset Data/As-builts | Asset data is recorded for maintenance works and As-builts are recorded for Capital Projects and are incorporated into SILENTONE. This allows digital retrieval of as-builts from the GIS system. Early as-builts are to a lesser quality, however in recent years as-builts quality has been significantly improved and are now prepared to specific standards and reviewed/audited on receipt. | n/a | n/a |
| Asset Condition | Contractor Audit Reports | The Contractor is required to monitor the river assets and maintain them in a functional state. The Contractor is audited by the consultant. The Consultant therefore observes the asset condition and programmes and implements maintenance work to keep the assets in good condition. | n/a | n/a |
| | Asset Register | The asset register prepared for valuation purposes contains information on asset extent, age, remaining life, condition etc. It has been spreadsheet based but it is being transferred into Confirm in a controlled manner so that future valuations can be done from Confirm. | 3 | 3 |
| Maintenance History | Confirm | It is intended that maintenance history will be held in Confirm; however this is not in place yet. | n/a | n/a |
| | Contractor Reports and Claims | The Contractor reports all maintenance activities through their reports and their monthly claims | n/a | n/a |
| | CMS | Contractor claims are processed in CMS – the consultant's Contract Management System which is a database that holds a full record of all work claimed. | n/a | n/a |
| Financial Information | NCS | Council Accounting and Financial systems are based on Napier Computer Systems (NCS) software and GAAP Guidelines. Long term financial decisions are based on the development of 10-year financial plans. | n/a | n/a |
| Reports | | A variety of investigative and design reports have been prepared and are held by various asset managers as appropriate. | n/a | n/a |
| System Records | | Council paper records are kept in files in the Records Room. These are classified by utility type and area. Files are kept for Rivers, Roads, Bridges, Utilities and Resource Consents. | n/a | n/a |

## S.3 Asset Management Processes and Systems

The way the Council develops its Asset Management Strategies is in general alignment with the IIMM manual as diagrammatically shown in Figure S-2 below:

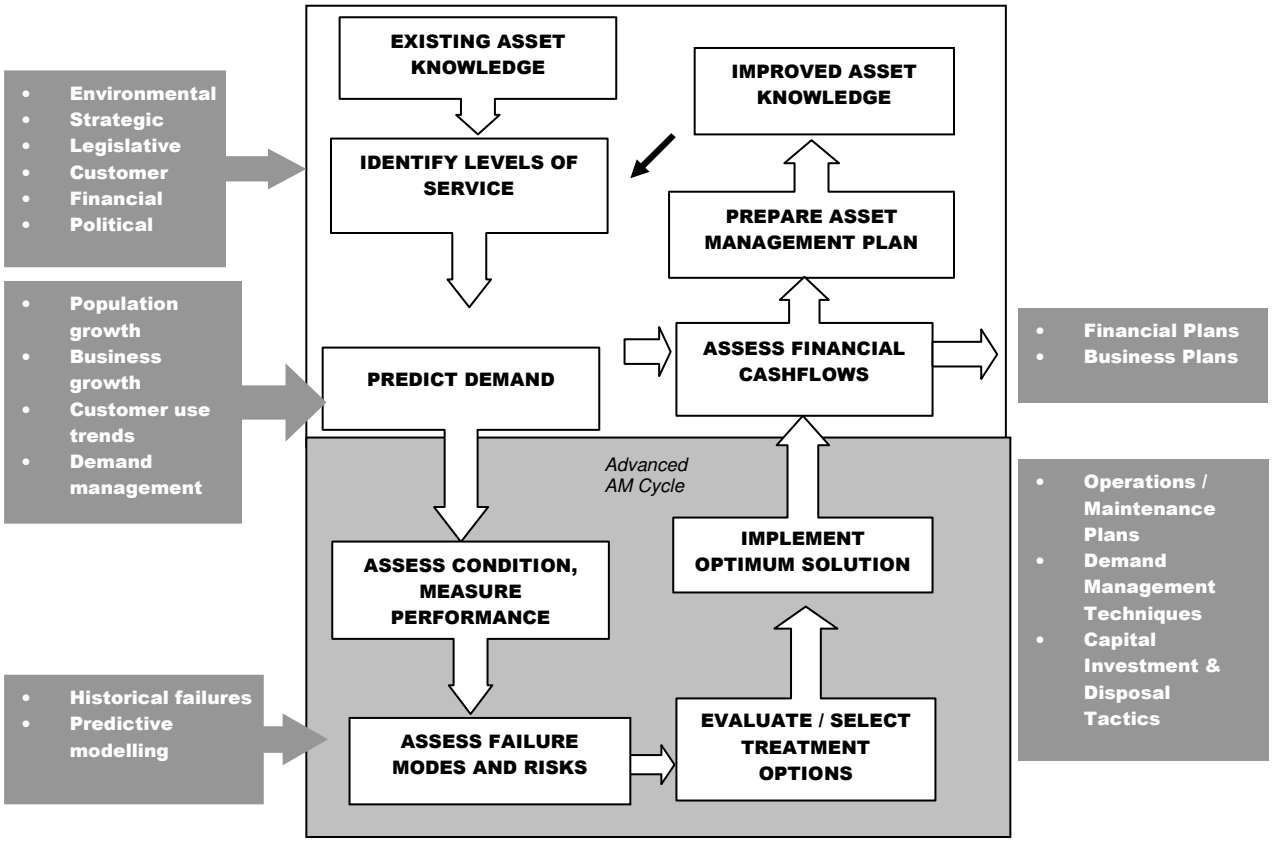



**Figure S-2: Asset Management Process and Developing Asset Management Strategies (Source IIMM)**

The specific processes and systems used are summarised as follows:

| Process Step | Processes and Systems |
|---|---|
| Identify Levels Of Service | • Levels of Service identified taking account of Community Outcomes, Legislative Requirements, Financial constraints (affordability) and knowledge of asset performance.<br>• Reviewed and confirmed on a 3 year basis – when AMP and LTCCP updated |
| Predict Demand | • Population Forecasting undertaken as described in Section 5 and Appendix F<br>• Demand Forecasting undertaken as described in Section 5 and Appendix F<br>• Demand Management undertaken as described in Section 11 and Appendix N |
| Assess Condition, Measure Performance | • Council undertook a comprehensive condition assessment of its river assets in a valuation exercise in 2005. Subsequent valuations have used the pre-existing condition assessment, but reviewing and amending with the asset management knowledge and experience gained through operation of the assets. This draws from knowledge based on:<br>• Annual inspections carried out in November-December to schedule and prioritise maintenance needs for the following financial year. A Priority 1 and Priority 2 ranking is evolved to ensure that all Priority 1 works can be funded in the following year.<br>• This process was carried out by the Contractor but from 2008-09 the Consultant will be the key instigator with input by both the Contractor, Tasman District Asset Engineer Rivers and the various district river care groups where required.<br>• Going forward an above ground asset condition assessment will be performed by the maintenance contractor on a 3 yearly basis<br>• Performance against levels of service measured through a combination of operational activities, specific technical investigations and customer surveys |
| Renewals Management | • Renewals are identified during the annual inspection and maintenance scheduling process.<br>• Optimising review undertaken to identify opportunities for:<br>○ "bundling" with other projects – across assets and services – e.g. roading, wastewater, power, telecom<br>○ Optimized replacement – i.e. whether the replacement asset should be the same size, capacity or manufacture, or are there justifications to replace with something different<br>○ Smoothing of expenditure<br>• On an annual basis renewal work is programmed for implementation and managed as a programme – either through the Operations and Maintenance contract, or through specific tendered construction projects |
| Asset Creation Management | • Asset creation forecasts are developed every 3 years when updating this AMP.<br>• The 10 year forecast from the last update of the AMP is taken as a starting point, and then the outcomes of growth and demand forecasts, level of service and performance review, the risk management and a workshop with asset managers are used to identify upgrade projects needed.<br>• All capital projects identified are listed and a cost estimate developed. For consistency, a cost estimating spreadsheet has been developed and a series of base rates developed after consultation with suppliers and recent contract prices for the more common work elements. The cost estimating spreadsheets require:<br>○ Assessment of construction and non-construction costs (i.e. Engineering, consenting costs, land costs)<br>○ An assessment of contingency needed – on a consistent basis between estimates<br>○ An evaluation of the project drivers – increased level of service, backlog, growth or renewal.<br>○ An evaluation of a programme of implementation – spanning years to ensure appropriate time allowed for developing the project<br>○ A statement of the scope of the upgrade and a statement of risks and assumptions made in preparing the estimate |

| Process Step | Processes and Systems |
|---|---|
| | • Once estimated the forecasts are combined in a capital expenditure forecast database that records the outcomes of the estimate in a manner that allows summation of the work value against various criteria – scheme, project driver (growth, backlog, increased LOS or renewal), year or project. It is also used as an input into Council's financial system.<br>• The funding of the capital forecast is modeled in Council's financial system NCS, and the implications for the forecast review at Council officer level and Councilor level. Any changes made to the projection in terms of deferring, adding or deleting projects is recorded and the implications on risk, growth or level of service stated.<br>• The records of the individual project estimate sheets and the overall capital forecast spreadsheet are filed and retained. |
| Risk Assessment and Management | • Council have developed an Integrated Risk Management framework to manage risks – refer to Section 13.2 and Appendix Q for description. |
| Optimised Decision Making | • Maintenance activities are optimised by applying in field judgement of common practice and application of basic design guides e.g. rock work layback angles.<br>• Capital works (Stopbanks) are designed using HEC-RAS flood flow modeling techniques and current climate variability predictions. |

## S.4 Standards and Guidelines

Council utilises the Nelson-Marlborough and West Coast Regional Operative Plans. Sections of the Tasman District Scheme have recently become Operative Plans. Council will consider using the Managing Flood Risk draft NZ Mitigation Protocol, "NZS9401 Managing Flood Risk", and the National Policy Statement on Flood Risk Management when required.

## APPENDIX T: BYLAWS

Assessment of river works is provided under the Nelson –Marlborough Transitional Regional Plan and West Coast Regional Councils Proposed Regional Plans (for areas west of Hope Saddle).

# APPENDIX U: STAKEHOLDERS AND CONSULTATION

## U.1 Consultation

The Council's knowledge of customer expectations and preferences is based on:

- feedback from surveys,
- public meetings,
- feedback from elected members, advisory groups and working parties,
- analysis of customer service requests and complaints, and
- consultation via the Annual Plan process (now LTCCP).

A customer survey (Communitrak™) was carried out in September 2008 by the National Research Bureau Ltd[2], and a report was prepared as part of the public feedback programme for Tasman District Council. The survey assessed levels of satisfaction with key services, but does not include river management.

## U.2 Stakeholders

Stakeholders are those individuals and organisations that have an interest in the management and/or operation of the assets. Stakeholders include, but are not limited to:

- the elected representatives (Councillors and Community Boards)
- the Tasman community of owners, residents and ratepayers
- recreational groups including kayaking clubs and Kennel Club
- Tangata Whenua
- regulatory and monitoring bodies including Tasman District Council (E&P), Ministry for the Environment, Department of Conservation, Audit NZ
- Environmental and Recreation Interest Groups including Fish and Game New Zealand, Royal Forest and Bird Protection Society
- Tasman District Council employees
- Consultants and Contractors.

The Council endeavours to accommodate the interests of the stakeholders and will involve them in the decision process at a level in the accordance with the Council's Consultation policy and as required by statute.

The Local Government Act 2002 has introduced the requirement for a LTCCP and it is appropriate that TDC reviews and updates its policy on community consultation.

**River Care Groups**

River Care groups have been formed in the following catchments, namely Takaka Waingaro/Anatoki, Aorere/Kaituna, Upper Motueka, Motupiko, Dove, Lower Motueka, Riwaka & Little Sydney. The Golden Bay groups were facilitated by the NCB and have been established since the late 1980's. The remaining groups have been established from the early 1990's.

River Care groups are selected informally within each community to represent landowners adjacent to rivers. They are consultative groups which liaise with Council regarding the management of the district's rivers. Each group meets annually with Council representatives to share information relating to the rivers, make recommendations on the priority of work in the annual programme and discuss gravel extraction allocations. In early 1997 the Rivers Task Force presented a policy to River Care groups for the establishment of more formal committees with an elected convenor and secretary.

[2] Communitrak™ : Public Perceptions and Interpretations of Council Services/Facilities and Representation, NRB Ltd, October 2008.

The proposal was rejected unanimously by all the River Care groups (reflecting satisfaction with the existing informal arrangement) with the exception of the Upper Motueka group.

River Care Groups include:

- Upper Motueka catchment– with representation from Upper Motueka River, Motupiko, Sherry and Tadmor
- Lower Motueka catchment - (Motueka Community Board abdicated late 2006 following the setup of a landowner represented committee)
- Riwaka catchment – with representation from Brooklyn Stream
- Takaka catchment – with representation from Waingaro and Anatoki
- Aorere catchment – including Kaituna River
- Dove catchment

During the meeting the River Care groups are presented with the draft annual operations and maintenance forward programme (AOMP). The members are provided with the opportunity to re-prioritise the proposed works, including addition to or deletion of items in that programme. In 2006 a River Care Group Charter was developed particularly to help guide the establishment of the new Lower Motueka Group.

## APPENDIX V: IMPLEMENTATION AND IMPROVEMENT PROGRAMME

Activity management improvements are necessary to achieve the appropriate (and desired) level of activity management planning sophistication. Since the last AMP review, improvements to service delivery have been made in a number of areas. Table V-1 details improvements that have been achieved from the last AMP Improvement Plan. Other improvements that have been achieved are:

- Review of Levels of Service,
- Review of Engineering Standards and Policies,
- Developed the wastewater resource consent registers into a database - NM2,
- Migrated all historical monitoring data associated with the wastewater asset onto Hilltop,
- Began using Samplyzer for managing sample collection.

**Table V-1: Improvements to Activity Management Systems since the 2005 AMP**

| Improvement | Achievement |
|---|---|
| Integrated Asset Management System | Council has developed its Asset Management System (Confirm) and use it to track and record customer enquiries, maintains its asset register, and track non-routine maintenance of assets. Confirm has been integrated with other asset management tools such as Silent One and Council's GIS (Explore Tasman). |
| Creating a Policy on Council ownership of River assets | TDC Policy development on Rivers assets ownership shall be developed for the Motueka Stopbanks Project with the view to extending the policy to other river catchments. |
| Resource Consents | Review the requirements for the preparation for the global Resource Consent for the renewal of the Resource Consent Application with TDC Environment and Planning. A review shall be completed in time to have the resource consent process lodged and mediated prior to 2011. |
| Determine appropriate Risk Management Approach | Council has adopted a risk management approach, refer to Appendix Q. |
| Asset Renewals/Asset Valuation | An asset revaluation register/database has been created in June 2008. |
| Levels of Service | Current levels of service are to be updated to allow for increasing levels of service for flood mitigation policy. |

Table V-2 details the proposed short to medium term improvements, discusses why these improvements are needed, and when they are planned to be achieved. For each improvement:

- Options have been considered and the listed improvement has been concluded as the best practicable option.
- Costs to implement each improvement have been estimated and included in the 10 year financial forecast.

**Table V-2: Planned Activity Management Improvement Programme**

| Item | Improvement | Benefits | Estimated Cost in 10 Year Financial Forecast ($) | Priority |
|---|---|---|---|---|
| AMP Update | Review and update AMP on a 3 year cycle. Next due in 2011. | Needed to comply with L.G. Act 2002 requirements. | $30,000 every 3 years | High |
| Asset Valuations | Review and update wastewater Asset Valuation on a 3 yearly cycle. Next due in 2010. | Needed to comply with L.G. Act 2002 requirements. | $10,000 every 3 years | High |
| Asset Insurance | Prepare regional flood risk curves for rivers maintained. | Will help quantify flood risks and consequences, and provide information for management of insurances, lowering premiums and improving success of damage claims. | Intended to initial in 2008/09 and continue into 09/10 at $50,000 | Medium |
| Risk Management | The Council intends to apply a consistent approach to risk management across all asset groups and will complete a risk assessment at three levels, Organisational, Asset Group and Critical Assets.<br>Through the above improvement on Asset Insurance, for Rivers this improvement will be to integrate the flood risk curves into the Council wide risk management system. | Identifies actions/ improvements required to be made to the organisation or operation or provision of Councils assets in order that:<br>• Council's ability to maintain levels of service as a result of organisational change and external physical events is maximised.<br>• Council's operational systems are robust. | $10,000 - 2010/2011 | High |
| Asset Management System Development | Continue to develop Council's Asset Management System and integration with its related asset information systems, GIS, Silent One, etc.... | Confirm enables a 'one stop shop' for Asset Management. It increases the knowledge and understanding of the Council's asset, asset performance and assists with efficient operation and maintenance of the assets. | Ongoing, no separate budget provided. Included within Council annual O&M budgets | High |
| Rating System Review | Review the current Rivers rating strategy to address the inconsistencies between the River X, Y and Z rating levels and re-assess the rating areas. | To ensure the rating strategy matches the expectation of the community and that the system can be sustainably managed. | No separate budget provided. Included within Council annual O&M budgets | High |
| Resource Consents | The 2 consents Council holds will be due for renewal in May 2011 and 2015. | Required for maintenance activities. | $50k per year in 09/10 and 10/11 and $30k in year 14.15. | High |
| Land Drainage Bylaws | Review the need for a Land Drainage Bylaw. | The Council could review the need for a Land Drainage Bylaw. Council's policy on Land Drainage is governed by the Proposed Tasman Resource Management Plan (notified 1996) and relevant sections that have become operative in 2008. | End of 09/10 – included within operating budget | Medium |

## APPENDIX W: DISPOSALS

Disposal of river assets is not a common occurrence. Probably the most significant item which may be considered for disposal are river protection works i.e. stopbanks. Council must consider liability issues which may flow from its ability to discontinue such works.

Following a request from a West Coast community to stop works in their areas, the West Coast Regional Council sought legal advice regarding the implications. The assessment was carried out against the Local Government Amendment Act 1996, Soil Conservation and Rivers Control Act 1941 (1941 Act) and the Resource Management Act 1991 (1991 Act). In short the legal advice obtained stated:

- Under the financial management provisions of the LGA (Part XX) it is open to Council to prioritise its activities and determine which it can/cannot afford to maintain
- There is no express statutory authority for discontinuing an existing river protection scheme under the 1941 Act
- Statutory provisions relating to the discontinuance of other activities include elaborate procedural requirements, and sometimes provisions as to future liability. Thus there are some unresolved risk relating to the discontinuance of river schemes
- In the absence of an express procedure, any decision to discontinue a river scheme must follow some process which specifically sought the informed views of affected ratepayers
- While there is no guarantee that the decision will ultimately be immune from challenge (judicial review or private action) the risk of a successful review can be moderated by reasonableness of the process
- A claim for damages is unlikely to succeed under s145 of the 1941 Act (failure). Section 148(1) of the 1941 Act also offers significant protection for a council from the failure of unmaintained works given applicable considerations (omission to maintain)

Based on the summary above, it is reasonably likely that should the ratepayers wish to dispose of a scheme, and Council take all reasonable steps to advise them of the consequences then Council will have limited liability concerns. However this matter is yet to be tested by judicial review or private action in New Zealand. In any case, no disposal is planned within the next 10 years.

## APPENDIX X: GLOSSARY OF TERMS

### ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| 1941 Act | Soil Conservation and Rivers Control Act 1941 |
| AM Plan | Activity Management Plan |
| LGA | Local Government Act |
| LTCCP | Long Term Council Community Plan |
| TRMP | Tasman Regional Management Plan |
| RMA 91 | Resource Management Act 1991 (& amendments) |
| TDC | Tasman District Council |

| | |
|---|---|
| **Activity** | An activity is the work undertaken on an asset or group of assets to achieve a desired outcome. |
| **Activity Management Plan** | Activity Management Plans are key strategic documents that describe all aspects of the management of assets and services for an activity. The documents feed information directly in the Council's LTCCP, and place an emphasis on long term financial planning, community consultation, and a clear definition of service levels and performance standards. |
| **Advanced Asset Management** | Asset management that employs predictive modeling, risk management and optimised renewal decision-making techniques to establish asset lifecycle treatment options and related long term cash flow predictions. (See Basic Asset Management). |
| **AM Plan** | See Activity Management Plan. |
| **Annual plan** | The Annual Plan provides a statement of the direction of Council and ensures consistency and co-ordination in both making policies and decisions concerning the use of Council resources. It is a reference document for monitoring and measuring performance for the community as well as the Council itself. |
| **Asset** | A physical component of a facility that has value enables services to be provided and has an economic life of greater than 12 months. |
| **Asset Management (AM)** | The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner. |
| **Asset Management System (AMS)** | A system (usually computerised) for collecting analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets. |
| **Asset Management Plan** | A plan developed for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified level of service. A significant component of the plan is a long-term cash flow projection for the activities. |
| **Asset Management** | A strategy for asset management covering, the development and implementation of plans and programmes for asset creation, operation, |

| | |
|---|---|
| **Strategy** | maintenance, renewal, disposal and performance monitoring to ensure that the desired levels of service and other operational objectives are achieved at optimum cost. |
| **Asset Register** | A record of asset information considered worthy of separate identification including inventory, historical, financial, condition, construction, technical and financial information about each. |
| **Basic Asset Management** | Asset management which relies primarily on the use of an asset register, maintenance management systems, job/resource management, inventory control, condition assessment and defined levels of service, in order to establish alternative treatment options and long term cashflow predictions. Priorities are usually established on the basis of financial return gained by carrying out the work (rather than risk analysis and optimised renewal decision making). |
| **Benefit Cost Ratio (B/C)** | The sum of the present values of all benefits (including residual value, if any) over a specified period, or the life cycle of the asset or facility, divided by the sum of the present value of all costs. |
| **Business Plan** | A plan produced by an organisation (or business units within it) which translate the objectives contained in an Annual Plan into detailed work plans for a particular, or range of, business activities. Activities may include marketing, development, operations, management, personnel, technology and financial planning |
| **Capital Expenditure (CAPEX)** | Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential. CAPEX increases the value of an asset. |
| **Condition Monitoring** | Continuous or periodic inspection, assessment, measurement and interpretation of resulting data, to indicate the condition of a specific component so as to determine the need for some preventive or remedial action |
| **Critical Assets** | Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets. |
| **Current Replacement Cost** | The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. |
| **Deferred Maintenance** | The shortfall in rehabilitation work required to maintain the service potential of an asset. |
| **Demand Management** | The active intervention in the market to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure. Demand management is based on the notion that as needs are satisfied expectations rise automatically and almost every action taken to satisfy demand will stimulate further demand. |
| **Depreciated Replacement Cost (DRC)** | The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset. |
| **Depreciation** | The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes. It is accounted for by the allocation of the historical cost (or revalued amount) of the asset less its residual value over its useful life. |

| | |
|---|---|
| **Disposal** | Activities necessary to dispose of decommissioned assets. |
| **Economic life** | The period from the acquisition of the asset to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service. The economic life is at the maximum when equal to the physical life however obsolescence will often ensure that the economic life is less than the physical life. |
| **Facility** | A complex comprising many assets (e.g. swimming pool complex, etc.) which represents a single management unit for financial, operational, maintenance or other purposes. |
| **Geographic Information System (GIS)** | Software which provides a means of spatially viewing, searching, manipulating, and analysing an electronic data-base. |
| **Infrastructure Assets** | Stationary systems forming a network and serving whole communities, where the system as a whole is intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and refurbishment of its components. The network may include normally recognised 'ordinary' assets as components. |
| **I.M.S.** | Infrastructure Management System - Computer Database |
| **Level of service** | The defined service quality for a particular activity (i.e. water) or service area (i.e. Water quality) against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost. |
| **Life** | A measure of the anticipated life of an asset or component; such as time, number of cycles, distance intervals etc. |
| **Life Cycle** | Life cycle has two meanings:<br>The cycle of activities that an asset (or facility) goes through while it retains and identifies a particular asset i.e. from planning and design to decommissioning or disposal.<br>The period of time between a selected date and the last year over which the criteria (e.g. costs) relating to a decision or alternative under study will be assessed. |
| **Life Cycle Cost** | The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs. |
| **Life Cycle Maintenance** | All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal. |
| **Long Term Council Community Plan** | The Long Term Council Community Plan (LTCCP) is the primary strategic document through which Council communicates its intentions over the next 10 years for meeting community service expectations and how it intends to fund this work. The LTCCP is a key output required of Local Authorities under the Local Government Act 2002. |
| **Long Term Financial Strategy** | The Long Term Financial Strategy has been superseded by the Long Term Council Community Plan. |

| | |
|---|---|
| **LTCCP** | See Long Term Council Community Plan. |
| **Maintenance Plan** | Collated information, policies and procedures for the optimum maintenance of an asset, or group of assets. |
| **Objective** | An objective is a general statement of intention relating to a specific output or activity. They are generally longer-term aims and are not necessarily outcomes that managers can control. |
| **Operation** | The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials. Operation costs are part of the life cycle costs of an asset. |
| **Optimised Renewal Decision Making (ORDM)** | An optimisation process for considering and prioritising all options to rectify performance failures of assets. The process encompasses NPV analysis and risk assessment. |
| **Performance Indicator (PI)** | A qualitative or quantitative measure of a service or activity used to compare actual performance against a standard or other target. Performance indicators commonly relate to statutory limits, safety, responsiveness, cost, comfort, asset performance, reliability, efficiency, environmental protection and customer satisfaction. |
| **Performance Monitoring** | Continuous or periodic quantitative and qualitative assessments of the actual performance compared with specific objectives, targets or standards. |
| **Planned Maintenance** | Planned maintenance activities fall into 3 categories :<br>Periodic – necessary to ensure the reliability or sustain the design life of an asset.<br>Predictive – condition monitoring activities used to predict failure.<br>Preventive – maintenance that can be initiated without routine or continuous checking (e.g. using information contained in maintenance manuals or manufacturers' recommendations) and is not condition-based. |
| **Recreation** | Means voluntary non-work activities for the attainment of personal and social benefits, including restoration (recreation) and social cohesion. |
| **Rehabilitation** | Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Generally involves repairing the asset using available techniques and standards to deliver its original level of service without resorting to significant upgrading or replacement. |
| **Renewal** | Works to upgrade, refurbish, rehabilitate or replace existing facilities with facilities of equivalent capacity or performance capability. |
| **Renewal Accounting** | A method of infrastructure asset accounting which recognises that infrastructure assets are maintained at an agreed service level through regular planned maintenance, rehabilitation and renewal programmes contained in an asset management plan. The system as a whole is maintained in perpetuity and therefore does not need to be depreciated. The relevant rehabilitation and renewal costs are treated as operational rather than capital expenditure and any loss in service potential is recognised as deferred maintenance. |

| | |
|---|---|
| **Repair** | Action to restore an item to its previous condition after failure or damage. |
| **Replacement** | The complete replacement of an asset that has reached the end of its life, so as to provide a similar or agreed alternative, level of service. |
| **Remaining Economic Life** | The time remaining until an asset ceases to provide service level or economic usefulness. |
| **Risk Cost** | The assessed annual cost or benefit relating to the consequence of an event. Risk cost equals the costs relating to the event multiplied by the probability of the event occurring. |
| **Risk Management** | The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence. |
| **Routine Maintenance** | Day to day operational activities to keep the asset operating (replacement of light bulbs, cleaning of drains, repairing leaks, etc.) and which form part of the annual operating budget, including preventative maintenance. |
| **Service Potential** | The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset. |
| **Strategic Plan** | Strategic planning involves making decisions about the long term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation and identify major targets, actions and resource allocations relating to the long term survival, value and growth of the organisation. |
| **Unplanned Maintenance** | Corrective work required in the short term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity. |
| **Upgrading** | The replacement of an asset or addition/ replacement of an asset component which materially improves the original service potential of the asset. |
| **Valuation** | Estimated asset value that may depend on the purpose for which the valuation is required, i.e. replacement value for determining maintenance levels or market value for life cycle costing. |

## APPENDIX Y: BOUNDARIES AND FACILITIES

The catchment boundaries and facilities managed under the rivers activity are detailed in Appendix B and shown on the plans held by the Council Asset Manager.

# APPENDIX Z: AMP STATUS AND DEVELOPMENT PROCESS - RIVERS

## Z.1 AMP Status

| Version | Status | Document Approval | Signature | Date |
|---|---|---|---|---|
| 1 | Working Draft | | | |
| 2 | Draft for Council Officer Review | Name: Richard Lester<br>Authority: Project Manager | | 15/12/08 |
| 3 | Draft for Council Review | Name: Peter Thomson<br>Authority: Asset Manager | | 3/2/09 |
| 4 | Draft for Public Consultation | Name: Peter Thomson<br>Authority: Engineering Manager | | 3/2/09 |
| 5 | Final Plan Adopted by Council Council Resolution | Name: Richard Kempthorne<br>Authority: Mayor<br>Reference: _____ | | |

## Z.2 AMP Development Process

| | |
|---|---|
| Project Sponsor: | Peter Thomson |
| Asset Manager: | Peter Thomson/Philip Drummond |
| Project Manager: | Richard Lester |
| AMP Author: | Rick Lowe |
| Project Team: | Philip Drummond |
| | Ray Firth |
| | Rick Lowe |

## Z.3 Quality Plan

This quality plan comprises 3 parts:

1. Quality Requirements and Issues – identification of the quality standards required and the quality issues that might arise.
2. Quality Assurance – the planned approach to ensure quality requirements are pro-actively met – i.e. get it right first time
3. Quality Control – the monitoring of the project implementation to ensure quality outcomes are met.

## Z.4 Quality Requirements and Issues

| | Issues and Requirements | Description |
|---|---|---|
| 1 | Fitness For Purpose | The AMP has to be "fit for purpose". It has to comply with Audit NZ expectations of what an AMP should be to provide them the confidence that the Council is adequately managing the Council activities. |
| 2 | AMP Document Consistency | TDC want a high level of consistency between AMPs so that a reader can comfortably switch between plans. |
| 3 | AMP Document Format | The documents need to be prepared to a consistent and robust format so that the electronic documents are not corrupted (as happens to large documents that have been put together with a lot of cutting and pasting) and can be made available digitally over internet. |
| 4 | AMP Text Accuracy and Currentness | The AMPs are large and include a lot of detail. Errors or outdated statements reduce confidence in the document. The AMPs need to be updated to current information and statistics. |
| 5 | AMP readability | The AMPs in their current form have duplication – where text is repeated in the "front" section and the Appendices. This needs to be rationalised so that the front section is slim and readable and the Appendix contains the detail without unnecessary duplication. |
| 6 | Completeness of Required Upgrades/Expenditure elements | The capital expenditure forecasts and the operations and maintenance forecasts need to be complete. All projects and cost elements need to be included. |
| 7 | Accuracy of Cost Estimates | Cost estimates need to be as accurate as the data and present knowledge allows, consistently prepared and decisions made about timing of implementation, drivers for the project and level of accuracy the estimate is prepared to. |
| 8 | Correctness Of Spreadsheet Templates | The templates prepared for use need to be correct and fit for purpose. |
| 9 | Assumptions and Uncertainties | Assumptions and uncertainties need to be explicitly stated on the estimates. |
| 10 | Changes made after submission to Financial Model | If Council makes decisions on expenditure after they have been submitted into financial model, the implications of the decisions must be reflected in the financial information and other relevant places in the AMP – e.g. Levels of service and performance measures, improvement plans etc. |
| 11 | Improvement Plan Adequate | Improvements identified, costed, planned and financially provided for in financial forecasts |

## Z.5 Quality Assurance

| | Issues and Requirements | Quality Assurance Approach | Responsible Person |
|---|---|---|---|
| 1 | Fitness For Purpose | Conduct various reviews of critical elements up front and plan to up upgrade the plans to specific requirements:<br>1. Scoping of AMP Upgrade Project<br>2. Review Of Levels Of Service<br>3. Review of Document Upgrade Needs | Richard Lester |
| | | Conduct a Peer Review | Peter Thomson |
| 2 | AMP Document Consistency | Review documents in advance and prepare instructions to authors on how to upgrade | Becky Marsay |
| 3<br>4 | AMP Document Format<br>AMP readability | Central Review Of AMP document deliverables | Becky Marsay |
| 5 | AMP Text Accuracy and Currentness | Authors to review each AMP in detail | AMP authors |
| 6 | Completeness of Required Upgrades/Expenditure elements | AMP Authors to workshop with relevant project team members to ensure all projects/cost elements covered | AMP authors |
| | | Central list of issues (called a "Parking Lot") that need to be considered in each AMP | Becky Marsay |
| 7 | Accuracy of Cost Estimates | Independent Review of all cost estimates | AMP authors |
| 8 | Correctness Of Spreadsheet Templates | Independent Review of all templates | Richard Lester |
| 9 | Assumptions and Uncertainties and Risk Assessments | Independent Review of all cost estimates | AMP authors |
| 10 | Changes made after submission to Financial Model | Protocol prepared to ensure Quickplace is used and all parties follow instructions on how changes are made | Becky Marsay |
| | | Ensure there is a place in the AMP documents to record any changes made and the implications of changes | Richard Lester |
| | | AMP Authors to manage a change log for changes after submission | AMP Authors |
| 11 | Improvement Plan Adequate | Prepare template in advance to ensure consistent approach | Richard Lester |
| | | Central Review Of Improvement Plans | Richard Lester |

## Z.6 Quality Control

Quality Control Checks and Reviews are scheduled on the attached Tables. These shall be progressively completed as the AMP is developed and incorporated in the final AMP Plan in Appendix Z.

| Check or Review | Date | Person Responsible | Authority | Signature |
|---|---|---|---|---|
| Scope Of AMP Upgrade Project Complete | 9/12/08 | Peter Thomson | Engineering Manager | |
| Levels Of Service prepared to Instructions | 15/12/08 | Richard Lester | Project Manager | |
| Levels Of Service Asset Manager Acceptance | | Philip Drummond / Peter Thomson | Asset Manager | |
| AMP Document prepared to instructions | 15/12/08 | Becky Marsay | Assistant PM | |
| AMP Text Accuracy and Currentness | | Rick Lowe | AMP Author | |
| Capital Upgrade List Complete | | Rick Lowe | Programme Manager | |
| Capital Upgrade List Complete - Asset Manager Acceptance | | Philip Drummond | Asset Manager | |
| Capex Expenditure Spreadsheet Template Reviewed | | Rick Lowe | Project Manager | |
| Project Estimate Spreadsheet Template Reviewed | | Rick Lowe | Programme Manager | |
| All Capex Estimates Reviewed and including assessment of Programme, Project Drivers, Levels of Accuracy and assumptions/uncertainty | | Rick Lowe | AMP Author | |
| Opex Costs Spreadsheet Arithmetic Review | | Rick Lowe | AMP Author | |
| Opex Cost forecast – fitness for purpose | | Philip Drummond | Asset Manager | |
| Improvement Plan Prepared to instructions | 15/12/08 | Richard Lester | Project Manager | |
| Improvement Plan Asset Manager Acceptance | | Philip Drummond / Peter Thomson | Asset Manager | |
| Capital Forecast Accepted for Input to NCS | | Philip Drummond / Peter Thomson | Asset Manager | |
| Change log complete and changes appropriately dealt with – after Council review | | Rick Lowe | AMP Author | |
| Change log complete and changes appropriately dealt with – after Public consultation | | Philip Drummond | Asset Manager | |
| Peer Review Completed | | Peter Thomson | Engineering Manager | |