Tasman District Council

Rivers
Activity Management Plan

2015 - 2045

February 2015

Quality Assurance Statement		
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For full Quality Assurance Statement, Refer Appendix Z

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1 ACTIVITY DESCRIPTION

1.1 What We Do

Tasman District Council maintains 285 kilometres of the district's X and Y classified rivers in order to carry out its statutory roles to promote soil conservation and mitigate damage caused by floods and riverbank erosion. These classified rivers are funded by a differential river rating system based on land value. The rivers works in the classified rivers, such as stopbanks, are owned, maintained and improved by the Council.

There are many more rivers, streams and creeks that are on private, the Council and Crown (Department of Conservation, Land Information New Zealand) lands, which are not classified. These unclassified rivers have associated river protection works such as rock walls, groynes and river training works that form part of the river system. These are typically owned and maintained by private property owners and may be partly funded by the Council.

The Rivers activity is managed holistically. This approach to rivers management places emphasis on channel management through gravel relocation/repositioning and vegetation and land buffers on the river's edge. The aim is to manage the river channel and catchment so that there is less need to use hard engineering methods to prevent erosion.

This activity does not include stormwater or coastal structures, which are covered as individual activities and have their own Activity Management Plan respectively.

A complete description of the assets included in the rivers activity is in Appendix B.

1.2 Why We Do It

By implementing and maintaining quality river control and flood protection schemes, the Council improves protection to neighbouring properties and mitigates the damage caused during flood events. In 1992 river control functions under the Soil Conservation and Rivers Control Act 1941 for the Tasman District were transferred to the Tasman District Council.

2 COMMUNITY OUTCOMES AND OUR GOAL

The community outcomes that the rivers activity contributes to most are shown in Table 2-1.

Table 2-1: Community Outcomes

Community Outcomes	How Our River Activity Contributes to the Community Outcome
Our unique natural environment is healthy 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 district's natural resources.
Our urban and rural environments are pleasant, safe and sustainably managed.	Our existing rivers protection works and existing 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 infrastructure is safe, efficient and sustainably managed.	Our existing flood protection and mitigation structures are maintained in an environmentally sustainable manner to a level supported by the community.

2.1 Our Goal

We aim to maintain river systems in a cost effective manner in such a way that the community and individual landowners are provided with protection and management systems to a level acceptable to that community, taking into account affordability.

3 KEY ISSUES FOR THE RIVERS ACTIVITY

The most important issues relating to the rivers activity are shown below in Table 1-1.

Table 1-1: Key Issues for the Rivers Activity

Key Issue	Discussion
On-going damage to the flood protection and river control assets from storms and heavy rainfall events.	Since December 2010 and December 2011 where the Tasman District experienced extremely heavy rainfall which led to flooding, slips and debris flows resulting in damage to Council infrastructure and private property, there has been numerous other flood events that have caused erosion damage. Much of the Council funding for river works repairs is likely to come from the Classified Rivers Protection Fund. With the Council's fiscal envelope restricting remediation of erosion, the funds available to those who are in the River Z catchment areas has been lowered. Community expectations of the levels of service the Council will provide to their communities can change dramatically following heavy rainfall and flood events. These increased expectations can be difficult for Council to manage in relation to ratepayers' willingness to pay for flood protection and affordability of rates.
Lower Motueka River flood control project.	Before the 2012 Long Term Plan, the Council had been planning to provide improved flood control for the Lower Motueka River (Brooklyn, Motueka and Riwaka communities) that was acceptable and affordable. The Council undertook consultation with the local communities on the project and considered the communities views. A preferred option for flood control in the Lower Motueka Valley was identified and incorporated in the 2012 Draft Long Term Plan for further consultation. The proposal was to refurbish the existing stopbanks over a 13 year period at a cost of $16.35 million. Refurbishment was to commence in 2017/2018 and be completed in 2029/30.

Key Issue	Discussion
	The Council asked staff to review the scope, proposed risks and levels of flood protection, and funding for the project over the coming years. The project was subsequently reduced to $5 million for the Long Term Plan. Further scoping and consultation was undertaken on the level of flood protection that would be provided. After extensive discussions on the scoping of the project and the level of protection it would offer to all the community, the Council resolved to remove the Lower Motueka Flood Control project from the 2015 Draft Long Term Plan.
Riwaka River flood control project.	The Riwaka community faces risks of flooding from both the Motueka and Riwaka rivers. The Council is planning to investigate the stability of the stopbanks along the lower part of the Riwaka River to better understand their design capacity and ability to protect the Riwaka community from flooding. The original design of the stopbanks is unlikely to meet current best practice. The level of risk to the Riwaka community needs to be considered and addressed, where appropriate. There are also landownership issues and responsibilities associated with the current stopbanks that will need to be resolved to ensure this asset is maintained. The identified project has been deferred beyond the first ten years of this Long Term Plan.
Takaka River flood control project.	The Takaka River poses a flood risk to a number of commercial and residential buildings in Takaka, and to public infrastructure. The Council investigated the flooding issues and land zoning for Takaka over 2010-2012. As part of this work, the Council consulted the Takaka community on the flooding issues. Indicative funding for a project proposed to commence in 2027/28 has been included in this Activity Management Plan. Further investigation, consultation and development of a solution are required. The outcomes from this work will be considered in future Activity Management Plans where more detailed funding options will be proposed for consideration by the community. Previously, feedback from consultation indicted that many in the Takaka community considered flood protection unaffordable.

4 OPERATIONS, MAINTENANCE AND RENEWALS STRATEGY

4.1 Operations and Maintenance

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

The rivers activity is currently maintained under Contract 840. This contract sets out the operations and maintenance requirements for X and Y rated areas over a five year period and which must also be operated in accordance with Resource Consent NN010109 (River Protection and Maintenance Works). Taylors Contracting Co Ltd were awarded Contract 840 in 2011, the contract is a three year, plus one year, plus one year format.

The Council is transitioning to a new model of stakeholder engagement to help inform the annual work programme.

The contractor can also be involved in River Z rated works.

Operation and maintenance is discussed in detail in Appendix E.

4.2 Renewals

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 Manager's judgment on the cost effectiveness of renewing the asset and their assessment of the acceptability of the risk of asset failure.

The renewal programme is reviewed in detail during each Activity Management Plan update (i.e. three yearly), and every year the annual renewal programme is reviewed and planned with the input of the maintenance contractor by the project team. There are no renewals scheduled in this AMP. This will be reviewed in three years time.

Renewals are discussed in Appendix I.

5 EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY

5.1 Population Growth

A comprehensive Growth Demand and Supply Model (GDSM or growth model) has been developed for Tasman District. The growth model is a long term planning tool, providing population and economic projections district wide. The population projections in the growth model have been taken from Statistics New Zealand population projections derived from the 2013 census data, using a "medium" growth rate projection for all settlement areas (see Figure 5-1).

The supply potential is assessed as well as demand, and a development rollout for each settlement is then examined. The ultimate outputs of the GDSM include a projection of the district's population, and forecast of where and when new dwellings and business buildings will be built. The development rollout from the Growth Model informs capital budgets (new growth causes a demand for network services) which feed into the AMPs and in turn underpin the Long Term Plan and supporting policies e.g. Development Contributions Policy.

Population growth within the district does not have a direct effect on the Rivers activity. Therefore, the model outputs are not directly relevant to this activity. However, generally population growth leads to intensification of land use and demand for further housing development in areas vulnerable to flooding. This may lead to a desired increase in the level of flood protection historically provided. The Council addresses the potential increase in community demand by consulting with the affected communities, and management of development through the Tasman Resource Management Plan (TRMP).

The 2014 growth model is a fourth generation growth model with previous versions being completed in 2005, 2008 and 2011. The Growth Demand and Supply Model is described in brief in Appendix F and in more detail in a separate model description report.

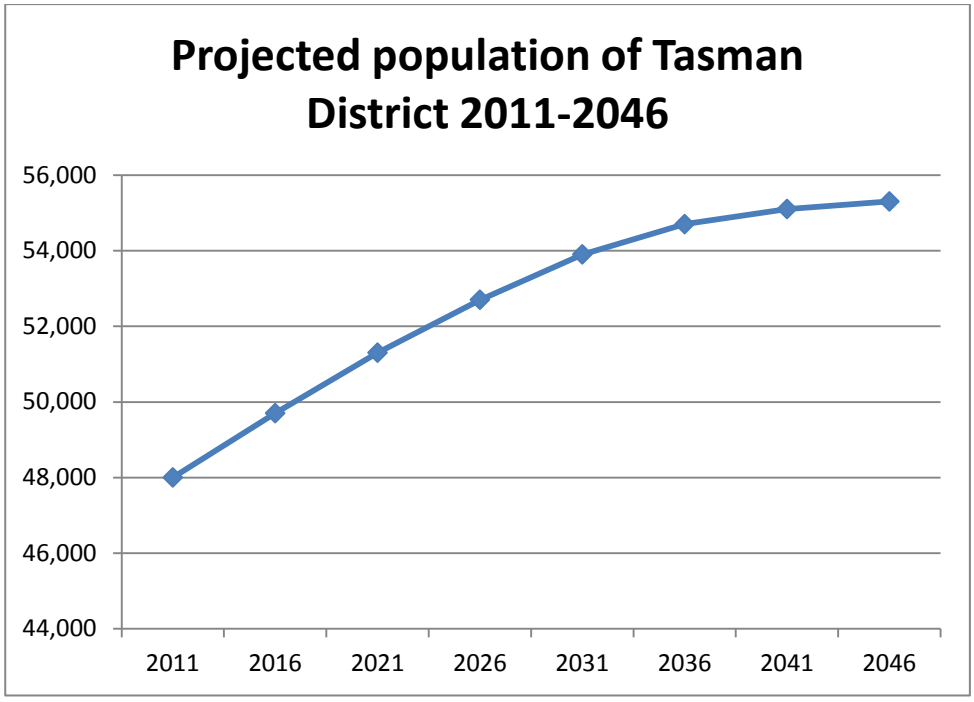


Figure 5-1: Projected Population Growth for Tasman District

5.2 Sustainability

The Local Government Act 2002 requires local authorities to take a sustainable development approach while conducting their business, taking into account the current and future needs of communities for good-quality local infrastructure, and the efficient and effective delivery of services.

Sustainable development is a fundamental philosophy that is embraced in the Council's Vision, Mission and Objectives, and is reflected in the Council's community outcomes. The levels of service and the performance measures that flow from these inherently incorporate the achievement of sustainable outcomes.

Many of the Council's cross-organisational initiatives are shaped around the community well-being (economic, social, cultural and environmental) and take into consideration the well-being of future generations. This is demonstrated in:

- Council's Integrated Risk Management approach which analyses risks and particularly risk consequences in terms of community well-being;
- Council's Growth Demand and Supply Model which seeks to forecast how and where urban growth should occur taking into account opportunities and risks associated with community well-being;
- Council adopting a 30 year forecast in the Activity Management Plans and the 30 year plus Infrastructure Strategy, to ensure the long term financial implications of decisions made now are considered;
- The adoption of a Strategic Challenges framework and work programme that includes consideration of natural hazards, financial sustainability and growth in the District.

At the activity level, a sustainable development approach is demonstrated by the following:

- ensuring minimal impact on the environment by the activity;
- ensuring that the district's likely future river requirements are identified at an early stage and that they and the financial risks and shocks are competently managed over the long term without the Council having to resort to disruptive revenue or expenditure measures;
- enabling potentially flood prone land to be utilised to provide economic benefits to local communities and New Zealand.

6 LEVEL OF SERVICE AND PERFORMANCE MEASURES

The following table summarises the levels of service and performance measures for the rivers activity. Development of the levels of service is discussed in detail in Appendix R. Shaded rows are the levels of service and performance measures to be included in the Long Term Plan.

Table 6-1: Levels of Service

ID	**Levels of Service** (we provide)	**Performance Measures** (We will know we are meeting the level of service if…)	**Current Performance** (to end June 2014)	**Future Performance**			**Future Performance (targets) by Year 10 2024/25**
				Year 1	**Year 2**	**Year 3**	
				2015/16	**2016/17**	**2017/18**	
Community Outcome: Our unique natural environment is healthy and protected.							
1	**River maintenance tasks are carried out in a safe, efficient and sustainable manner.**	*Council holds appropriate consents for the work it does.* *As measured by the number of notices issued to Council's flood protection and rivers control activity.*	**Actual = No notices issued** *Resource consents held are:* *Global* – for works in rivers and some gravel extraction; and vegetation spraying. Contracts include the conditions of the consents and performance measures include requirements to meet the Resource Consent conditions. The Council or its contractor has not received any non-compliance with respect to the resource consents.	*No notices issued*	*No notices issued*	*No notices issued*	*No notices issued*

2	**We manage waste/rubbish in the river system.**	*Complaints about illegal dumping in the X and Y classified rivers and on adjacent beaches on public land are actioned within 5 days.* *As measured through Customer Service Requests in Council's database. CSR's are responded to within 5 days.*	**Actual =** Not currently measured	*100%*	*100%*	*100%*	*100%*
ID	**Levels of Service** (we provide)	**Performance Measures** (We will know we are meeting the level of service if…)	**Current Performance** (to end June 2014)	**Future Performance**			**Future Performance (targets) by Year 10 2024/25**
				Year 1	**Year 2**	**Year 3**	
				2015/16	**2016/17**	**2017/18**	
Community Outcome: Our urban and rural environments are pleasant, safe and sustainably managed.							
3	**We maintain Council's stopbank assets in River X classified areas to deliver flood protection to the level that the stopbanks were originally constructed.**	Our stopbanks are maintained to their original constructed standard. (Riwaka River = 1 in 10 yr flood return in 1950). (Lower Motueka River = 1 in 50 yr flood return in 1950). (Waimea River = 1 in 50 yr flood returnin 1950). No failure of flood protection in the existing stopbank system maintained by Council below the specified design levels	**Actual** Riwaka River = 88% Motueka River = 100% Waimea River = 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%
4	**In River Z rating areas we provide technical support and partial funding assistance when available to protect private property from river damage.**	Council funding for River Z related works is allocated on a first-in, first-served basis and the budget is fully spent/committed by year end. As measured through date of receipt of acceptable proposals for River Z works	**Actual = 14 completed of 29 approved** Because of the significant flood event of 28 December 2010 and subsequent high number of River Z enquiries some of the requests were not able to be responded to within 10 days.	100% completed	100% completed	100% completed	100% completed

		completed.							
Community Outcome: Our infrastructure is safe, efficient and sustainably managed.									
5	**River maintenance works are planned with community input and professionally implemented.**	An annual meeting is held with River care Groups to consider the Annual Maintenance Programme. As recorded in minutes of the meeting.	**Actual =** Council consult with River Care groups, iwi, Fish and Game and DoC on its annual maintenance programmes.			Yes	Yes	Yes	Yes

7 CHANGES MADE TO ACTIVITY OR SERVICE

Table 7-1 summarises the key changes for the management of the rivers activity since the 2012 Activity Management Plan.

Table 7-1: Key Changes

Key Change	Reason for Change
Introduction of more holistic river management philosophy	The holistic approach to river management or ecosystem-based management integrates the ecological, social and economic life of a river. This approach requires several disciplines of knowledge and expertise plus understanding of how diverse influences operate in the river catchment. This approach also requires the various stakeholders to work together. Hard engineering will become the last option in river channel and catchment management. Instead, the Council develop this proactive long-term approach which will over time allow for a river to be channelled (where possible) so that it flows more efficiently and has a larger capacity for holding water without it threatening private property or Council-owned assets. Overall, the advantages of using the holistic approach are that proactive soft engineering options are employed in the first instance; it is sustainable both economically and environmentally. The shift to the holistic approach will require a transition period. Hard engineering options may be utilised while the approach is developed and the management of the river channel aligns to the holistic approach.
Majority of rock protection work is scheduled as new capital works, rather than a split between new capital and renewal works.	Rock protection work is undertaken with durable rock and the rock is generally not lost to the river system. Under flood conditions the rock can be shifted or settled into the bed and then become the toe protection rock for the riverworks that follow a flood. Therefore additional rock is a new asset and is therefore capital works.
The Lower Motueka Flood Control project has been withdrawn from the Long Term Plan.	After further modelling to re-scope the project at the new funding level of $5m, the Council resolved to remove the Lower Motueka Flood Control project from the Long Term Plan. However, existing loan costs still need to be paid through a targeted rate.
Decreased funding allocation to Rivers Z works.	In order to address the Council's debt issue, funding for river works in River Z classified rivers has decreased from $300,000 to $200,000 per annum.

8 KEY PROJECTS

Table 8-1 details the key capital and renewal work programmed for years 2015 to 2025.

Table 8-1: Significant Projects

Project Name	Description	Year 1 ($)	Year 2 ($)	Year 3 ($)	Years 4 to 10 ($)	Project Driver[1]
Brightwater Flood Protection works	Consultation, Design and Construction.	0	0	0	80,000	LoS

Note:

1. See Appendix F for a full detailed list of new capital works projects driven by growth and or an increase in level of service.
2. See Appendix I for a full detailed list of renewal projects.

[1] LoS = Levels of Service

9 MANAGEMENT OF THE ACTIVITY

9.1 Management

The Council undertakes the management of the "classified" rivers system using three levels of classification.

These are described as follows:

- Class X – river sections with stopbanks maintained by Council;
- Class Y – river sections maintained by Council without stopbanks;
- Class Z – the balance of the district (considered to receive an indirect benefit).

The Council has considered the demand management issues listed in Table 9-1 during development of this Activity Management Plan.

Table 9-1: Demand Management Strategies

Factor	Effect	Mitigation Measure
Gravel extraction	Over extraction of gravel may create bank erosion.	Access to the gravel resource is controlled by the Council's staff, with input from external agencies e.g. Fish and Game and Department of Conservation.
Urban development	Increase in impermeable areas may affect the runoff volume (likely to be relevant to small catchments only). Increase in population density may result in an increased demand for protection due to increased value of land and assets being protected.	Managed through the development process and the TRMP conditions. Managed via an increased level of service as developed in consultation with the community and decided by Council.
Land use	Forestry operations such as clear felling may temporarily change catchment characteristics and increase debris runoff, possibly affecting fairway clearing and bank erosion.	Management of forestry operations, and restrictions on sediment control and site clearance through the TRMP, and compliance with the Soil Conservation and Rivers Control Act.
Dams and weirs	Construction of dams (specifically the Waimea Community Dam) is expected to have a positive effect on the management of a river due to the reduced flow peaks and more consistent flows.	Accept.

9.2 Service Delivery Review

Section 17A of the Local Government Act 2002 requires all local authorities to review the cost-effectiveness of its current arrangements for delivering good quality local infrastructure, local public services, and performance of regulatory functions at least every six years.

The Council engaged Morrison Low to review its delivery of services provided by its Engineering Department in 2012. The review recommended a re-organisation of the department to reduce the proportion of asset management services that were provided by external consultants. The re-organisation was implemented during 2013 and has provided cost savings to the Council, an increase in asset knowledge, and greater interaction with customers.

In addition to this review, the Council reviews how it procures and delivers its Rivers services at the time of renewing individual maintenance and renewal contracts. These reviews include consideration of the maintenance specification, how work is packaged together e.g. the size and shape of contact areas.

9.3 Significant Effects

The significant negative and significant positive effects are listed below in Table 9-2 and Table 9-3 respectively.

Table 9-2: Significant Negative Effects

Effect	Description	Mitigation Measures
Gravel extraction	Over extraction of gravel in some areas has the potential to destabilise banks and change groundwater levels.	Gravel availability within the river berms is assessed on various factors, including the annual inspection process and the Council's environment and planning sustainable quota. Generally the sustainable extraction rate of gravel from all rivers has been set at zero by the Council's 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 using weir structures eg. Wai-iti River.
Waste dumping	Inappropriate use of river berms can cause nuisance to the public, for example dumping of refuse and car bodies.	Given the vast uncontrolled areas of river berm (predominately privately owned), there is unfortunately plenty of opportunity for waste dumping activities to occur. The Council has undertaken to trial closing a section of the Waimea River berm (Appleby Bridge to Lower Queen Street, right bank) to 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 River up to the State Highway 6 Bridge at Brightwater. Refer to the Waimea River Park Management Plan, Items 9.1 and 9.2 for further information.

Effect	Description	Mitigation Measures
Cost	The cost of providing the services.	The Council uses competitive tendering processes to achieve best value for money for works it undertakes.
Stopbank condition	Poor compliance managment of stopbank sections.	Improve education to owners and the Council to gain better control of their use.
Cultural impacts	Potential to affect historic and Waahi tapu sites.	The Council undertakes consultation with affected parties prior to undertaking works. The Council also maintains a record of known heritage sites.

Table 9-3: Significant Positive Effects

Effect	Description
Economic development	Provision and maintenance of flood control schemes allow for the development of land for high value uses (e.g. residential or horticultural purposes) thereby allowing economic growth and prosperity in the Tasman District.
Safety and personal security	Flood protection and river control works contribute to community well-being by improving protection of communities, life, property and livelihoods.
Environmental sustainability	The Council aims to achieve environmental sustainability while managing the rivers activity. This is generally managed by the resource consent process, the TRMP, and compliance with the Soil Conservation and Rivers Control Act. Examples of this approach include the native riparian planting programme, the use of less invasive willow species and preventative erosion plantings plus the consideration of less eco-toxic herbicide sprays.
Economic efficiency	The Council's management of the rivers activity using best practice and competitive tendering to provide the best value for money for the ratepayers and provides jobs for contractors.
Gravel extraction	There is no additional lowering of ground water levels through decreased gravel extraction where river beds are already degraded.

9.4 Assumptions

The Council has made a number of assumptions in preparing the Activity Management Plan. These are discussed in detail in Appendix Q. Table 9-4 lists the most significant assumptions and uncertainties that underline the approach taken for this activity.

Table 9-4: Significant Assumptions

Assumption Type	Assumption	Discussion
Financial assumptions	That all expenditure has been stated in 1 July 2014 dollar values and no allowance has been made for inflation and all financial projections are GST exclusive.	The LTP will incorporate inflation factors. This could have a significant impact on the affordability of the plans if inflation is higher than allowed for, but the Council is using the best information practically available from Business and Economic Research Limited (BERL).
Asset data knowledge	That the Council has adequate knowledge of the assets and their condition so that the planned renewal work will allow the Council to meet the proposed levels of service.	There are several areas where the Council needs to improve its knowledge and assessments but there is a low risk that the improved knowledge will cause a significant change to the level of expenditure required.
Growth forecasts	That the district will grow as forecast in the Growth Demand and Supply Model (refer to Appendix F).	If the growth is significantly different it will have a low impact. The reason being population growth in the district does not directly affect the demand for river services.
Major events	That no major flood events occur above the flood protection and erosion control assets ability to cope with.	If a major flood event occurs it may have major effect on the operations and maintenance budgets due to the extent of reinstatement required and associated costs. The Council will need to prioritise expenditure. The risk of this occurring is high. Note a major flood is generally greater than AEP 20%/five year return period for areas without stopbanks.
Timing of capital projects.	That capital projects will be undertaken when planned.	The risk of the timing of projects changing is high due to factors like, resource consents, funding and land purchase. The Council tries to mitigate this issue by undertaking the consultation, investigation and design phases sufficiently in advance of the construction phase. If delays are to occur, it could have significant effects on the level of service.
Funding of capital projects.	That the projects identified will receive funding.	The risk of the Council not funding capital projects is moderate due to community affordability issues. If funding is not secured, it may have significant effect on the levels of service as projects may be deferred. The risk is managed by consulting with the affected community and appropriate distribution of targeted rates.

Assumption Type	Assumption	Discussion
Accuracy of capital project cost estimates.	That the capital project cost estimates are sufficiently accurate enough to determine the required funding level.	The risk of large under estimation is low; however the significance is moderate as the Council may not be able to afford the true cost of the projects. The Council tries to reduce the risk by including a standard contingency based on the projects lifecycle.
Land access.	That the Council will be able to secure land and/or access to enable completion of projects.	The risk of delays to project timing or changes in scope is high due to the possibility of delays in obtaining land. Where possible the Council undertakes land negotiations well in advance of construction to minimise delays. If delays do occur, it may influence the level of service the Council can provide.
Changes in legislation and policy.	That there will be no major changes in legislation or policy.	The risk of major change is high as it is likely to have an impact on the required expenditure. The Council has not mitigated the effect of this.
Resource consents.	That there will be no material change in the need to secure consents for construction activities and that consent costs for future projects will be broadly in line with the cost of consents in the past.	The risk of material change in the resource consent process is low.
Emergency funding.	That the level of funding in these budgets will be adequate to cover work following emergency events.	Funding levels are based on historic requirements. The risk of requiring additional funding is moderate and may have a moderate effect on planned works due to reprioritisation of funds.

The major capital projects and their potential uncertainties are listed in Appendix Q.

9.5 Risk Management

The Council's risk management approach is described in detail in Appendix Q.

The risk assessment framework was developed in 2011 to be consistent with *AS/NZS IS 4360:2004 Risk Management.* It assesses risk exposure by considering the consequence and likelihood of each risk event. Risk exposure is managed at three levels within the Council organisation:

- Level 1 – Corporate Risks
- Level 2 – Activity Risks
- Level 3 – Operational Risks.

At an activity level (Level 2), the Council has identified key risks to the activity. These are listed in 9-4.

Table 9-4: Significant Risks and Control Measures

Risk Event	Mitigation Measures
Access to stopbanks and rivers through private property	Current: • Stakeholder management; • Works entry agreements; • Use of the Council's property team to undertake land purchase negotiations; • Public Works Act.
Ineffective stakeholder engagement e.g. iwi, Historic Places Trust, community groups.	Current: • The Council holds regular iwi meetings; • The Council's GIS software includes layers identifying cultural heritage sites and precincts. Council staff apply for Historic Places Trust authorities when these known sites are at risk of damage or destruction; • Project management processes and the Council's consultation guidelines are followed; • Annual river care meetings are held in each catchment with stakeholders.
Failure to adequately prepare infrastructure for climate change and resulting in unacceptable flood hazard.	Current: • Reactive inspections and maintenance/repairs following extreme weather events. Proposed: • Development of the Council's 'holistic' river care management policy.
Customer perception of the Council not doing enough to protect private property and public assets.	Current: • Introduction of the interim coastal policy statement; • Regular contact with communities; • Management of resource consents and CSRs.

In 2014 the Council developed a draft rivers critical asset framework to identify the critical asset hierarchy of an asset. Assets are classified as either primary or secondary criticality, or non-critical. The framework is largely complete but is yet to be finalised and implemented. It is planned to implement the framework during 2015 to test the draft weightings and respective scores. It is likely that the framework will be refined after this initial test run.

The critical asset hierarchy will be a key input that informs asset life-cycle decisions, especially when considering how much the Council should prolong the life of an asset.

9.6 Improvement Plan

This Activity Management Plan document was subject to a peer review in its draft format by Waugh Infrastructure Management Ltd in February 2015. The document was reviewed for compliance with the requirements of the LGA 2002. The findings and suggestions will be assessed and prioritised by the asset management team and either implemented in the final version of this document or added to the Improvement Plan.

The Improvement Plan is currently under development and will be included in Appendix V in the final version of this document.

10 SUMMARY OF COST FOR ACTIVITY

The following figures have been generated from the Funding Impact Statement held in Appendix L and the Public Debt and Loan Servicing Cost information held in Appendix K. Further detail is held in Appendix E, F and I for operating and maintenance, new capital and renewal costs respectively. All of the following graphs include inflation.

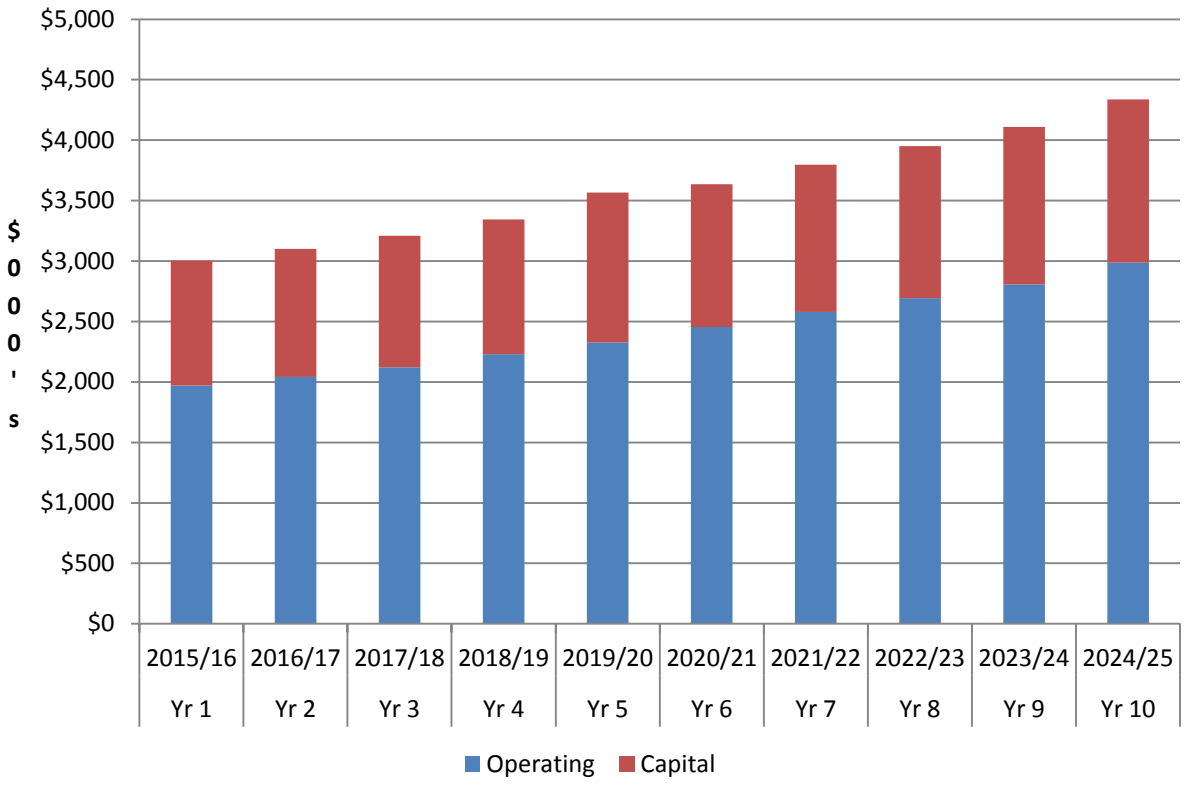


Figure 10-1: Total Expenditure

Operating expenditure increases from $3 to $4.3 million over the 10 year period. This is solely due to inflation.

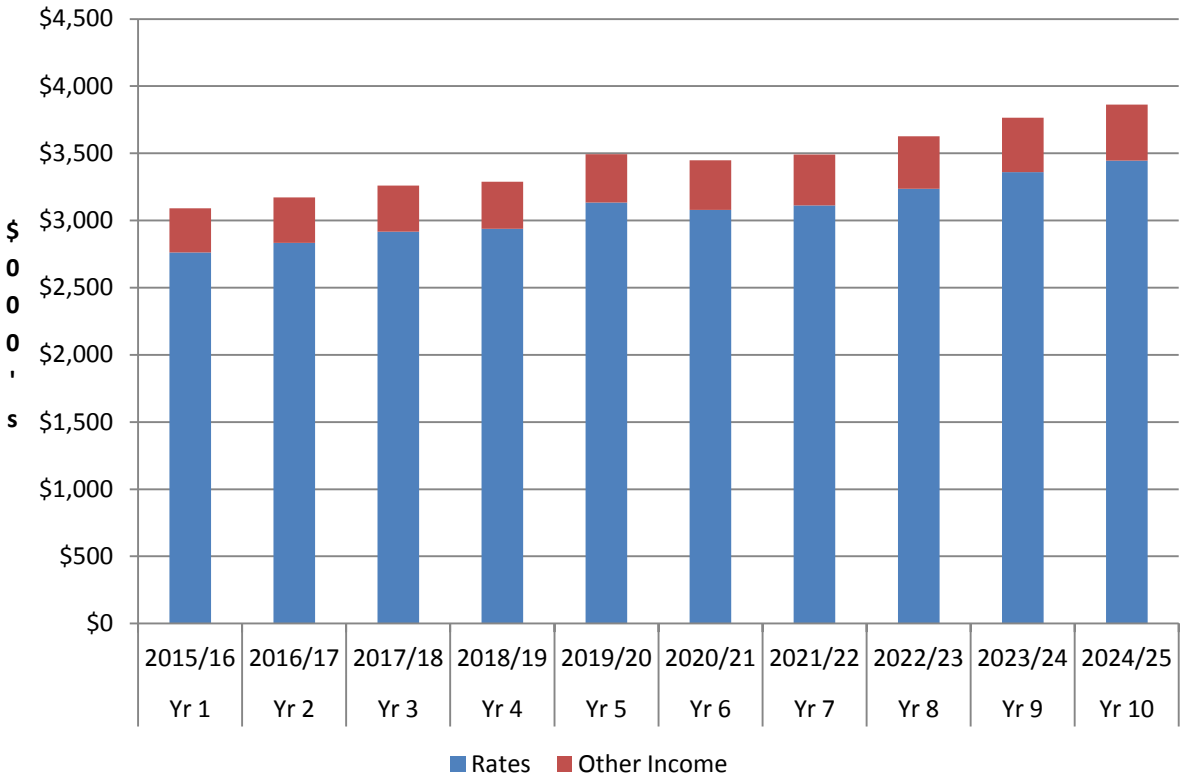


Figure 10-2: Total Income

The income proposed for the next 10 years corresponds with the proposed expenditure in Table 10-1.

Rate increases account for the majority of the increase in income.

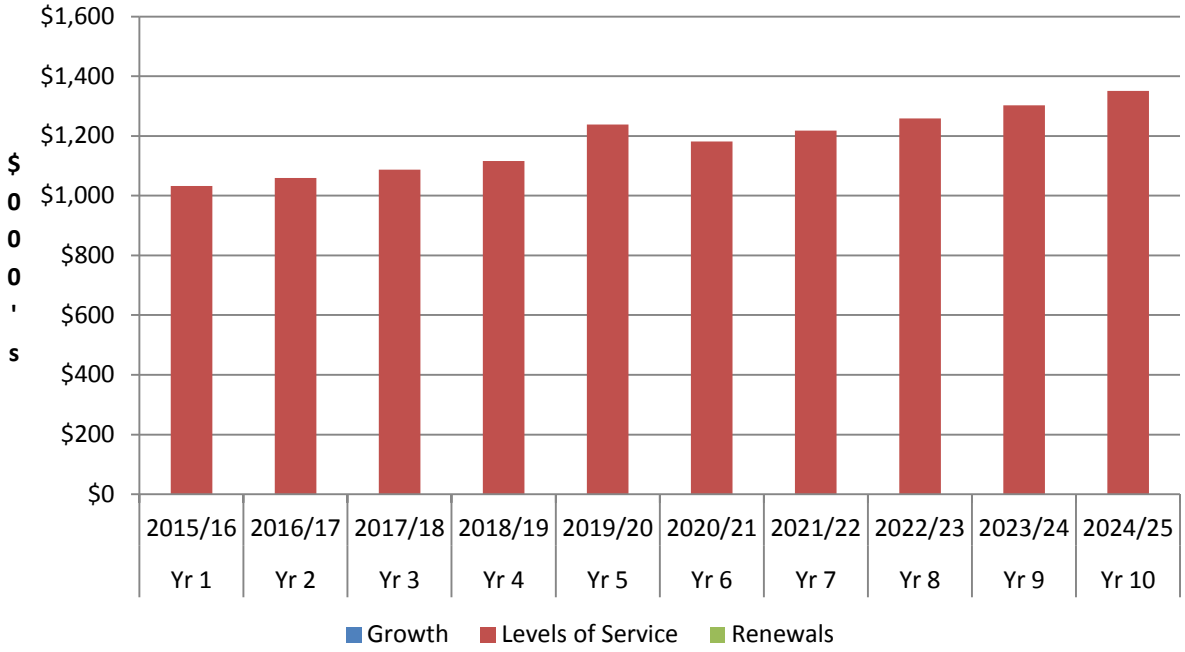


Figure 10-3: Capital Expenditure

The apparent lack of renewals is associated the majority of rock protection works being scheduled as new capital, rather than a split between new capital and renewal. The reason for this has been discussed in Table 7-1.

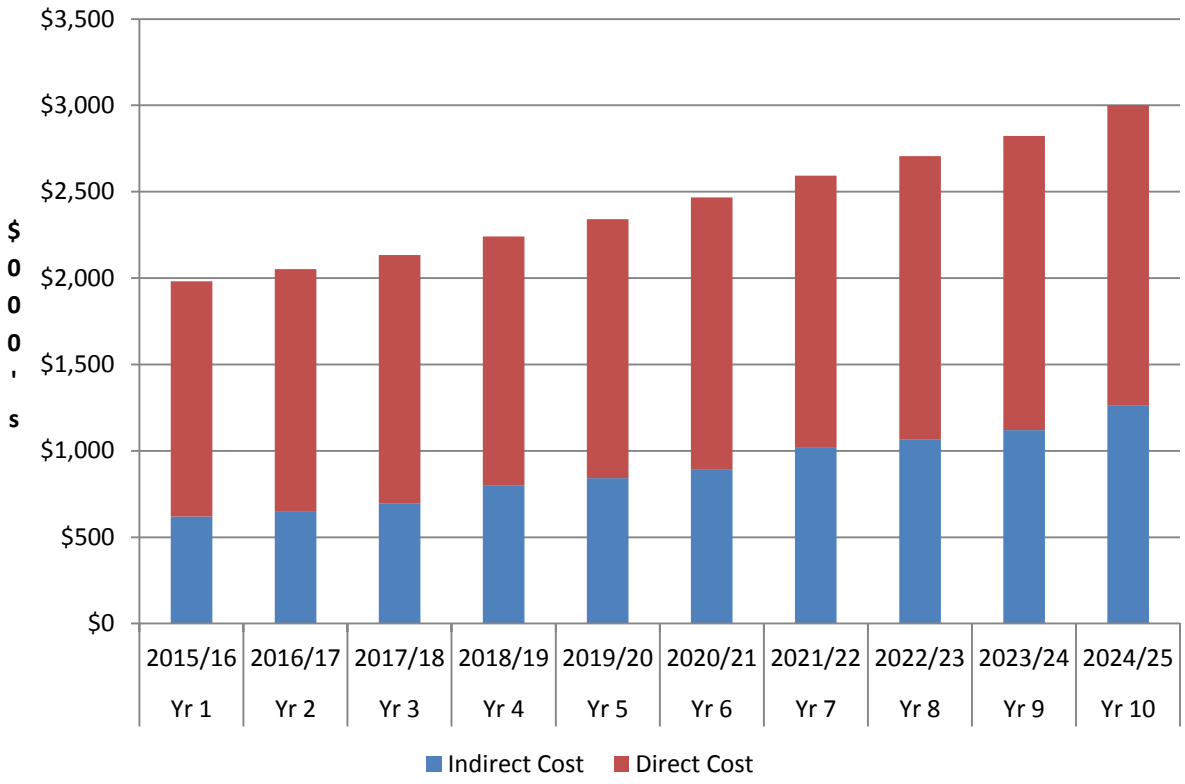


Figure 10-4: Operating Expenditure

Indirect costs relate to staff costs and professional services and direct costs relate to operations and maintenance activities.

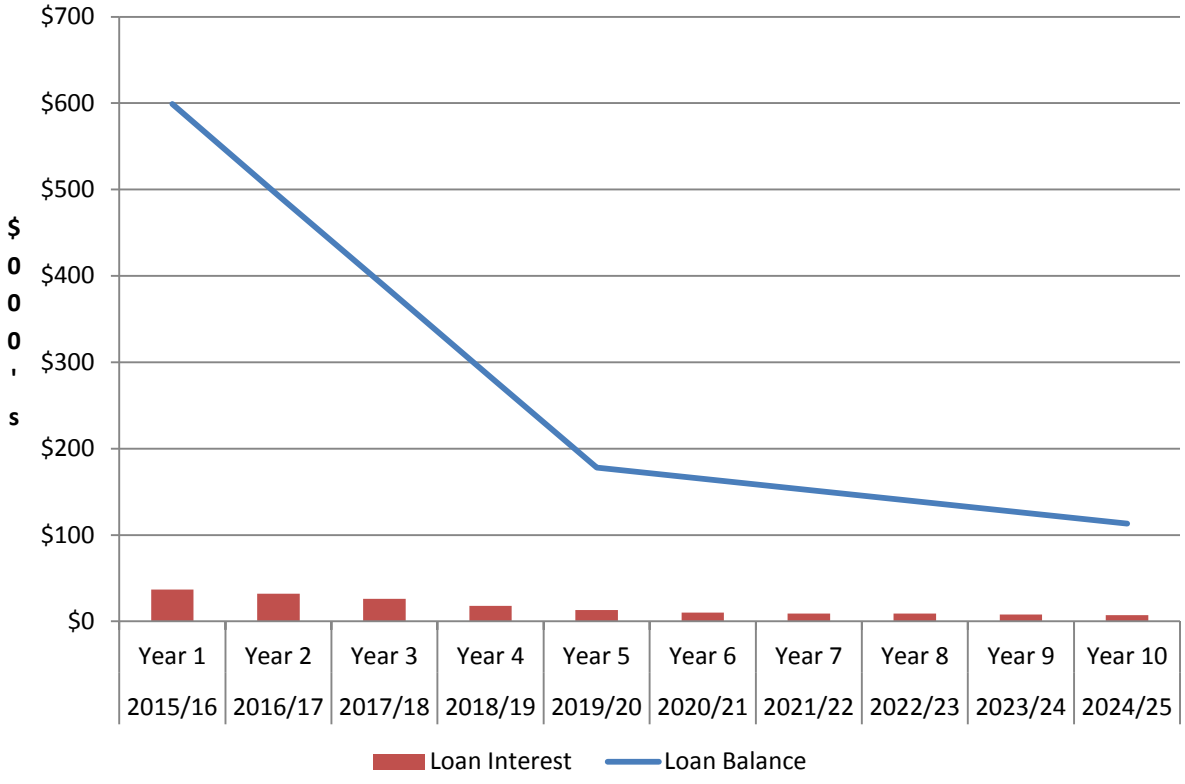


Figure 10-5: Debt

Council's debt associated with the Rivers activity is forecast to decrease from $0.85 to $0.1 million over the next 10 years. This will also decrease the debt servicing costs as shown.

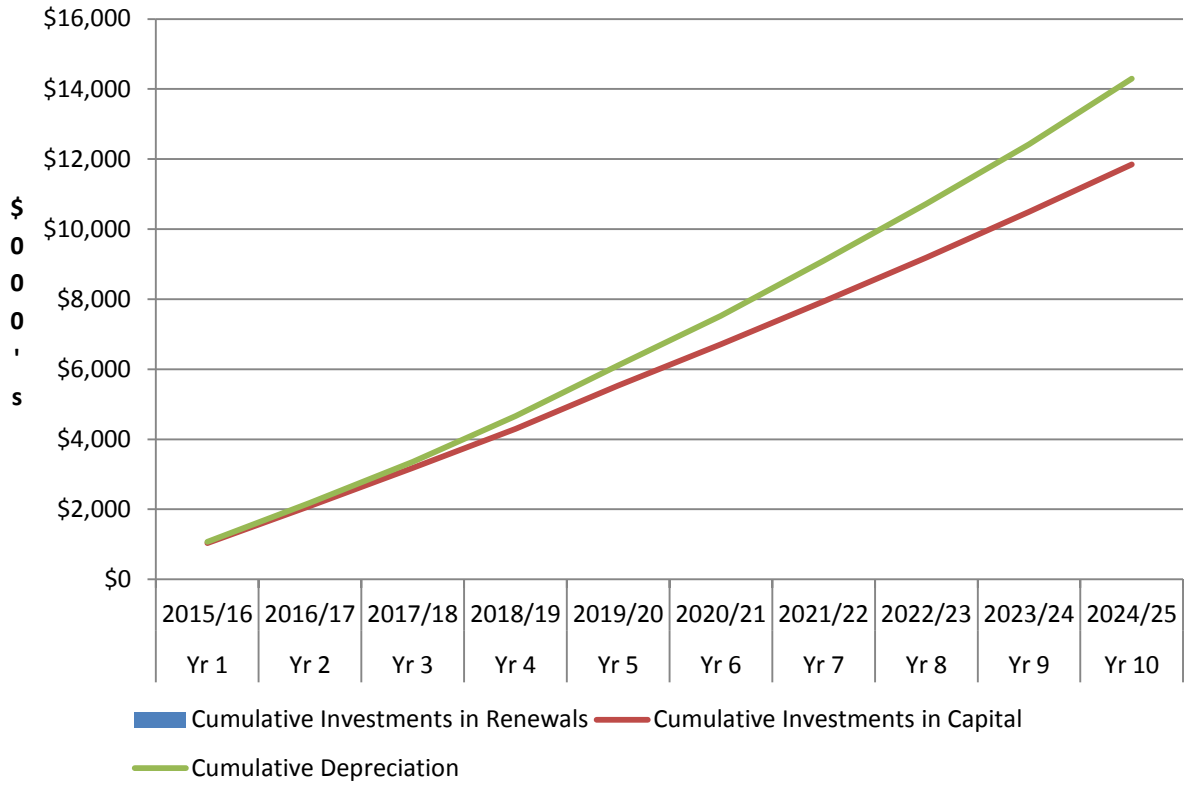


Figure 10-6: Investment in Renewals

The apparent lack of renewals is primarily associated with Council's decision to classify the majority of rock protection works as new capital. This is discussed further in Appendix I.

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

A.1 Introduction

The purpose of this Activity Management Plan (AMP) is to outline and to summarise in one place, the Council's strategic and long-term management approach for the provision and maintenance of its river systems and assets.

The AMP 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 AMP combines management, financial, engineering and technical practices to ensure that the levels of service required by customers is provided at the lowest long-term cost to the community and is delivered in a sustainable manner.

The service provides many public benefits including 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 rivers services in the district in accordance with its respective legislative requirements and responsibilities.

The target audience of this AMP is the Tasman District community, Tasman District Councillors and Council staff. The appendices provide more in depth information for the management of the activity and are therefore targeted at the Activity Managers. The document is publicly available on the Council's website.

In preparing this AMP the project team has taken account of:

- **National Drivers** – for example the drivers for improving asset management through the Local Government Act 2002;
- **Local Drivers** – Community desire for increased level of service balanced against the affordability;
- **Industry Guidelines and Standards**;
- **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, Industry Standards, and Statutory Planning Documents

A.2.1. Legislation

The Acts below are listed by their original title for simplicity however all Amendment Acts shall be considered in conjunction with the original Act, these have not been detailed in this document. For the latest Act information refer to http://www.legislation.govt.nz/.

- The Local Government Act 2002 – especially Schedule 10 and the requirement to consider all options and to assess the benefits and costs of each option, and the consultation requirements
- The Soil Conservation and Rivers Control Act 1941
- The Biosecurity Act 1993
- The Bylaws Act 1910
- The Civil Defence Emergency Management Act 2002 (Lifelines)
- The Resource Management Act 1991
- The Local Government Act (Rating) 2002
- The Health and Safety in Employment Act 1992
- The Building Act 2004

- The Local Government Act 1974 (retained sections)
- The Land Drainage Act 1908
- The Construction Contracts Act 2002
- The Climate Change Response Act 2002

A.2.2. National Policies, Regulations and Strategies

- The New Zealand Coastal Policy Statement 2010 http://www.rma.co.nz
- The Building Regulations http://www.legislation.govt.nz/
- The Local Government (Financial Reporting) Regulations 2011 http://www.legislation.govt.nz/
- NAMS Manuals and Guidelines http://www.nams.org.nz
- Office of the Auditor General's publications http://www.oag.govt.nz

A.2.3. Standards New Zealand (for all refer to http://www.standards.co.nz)

- AS/NZS ISO 31000:2009 Risk Management Principals and Guidelines
- AS/NZS ISO 9001:2008 Quality Management Systems
- AS/NZS 4801:2001 Occupational Health and Safety Management Systems
- AS/NZS9401:2008 Managing Flood Risk – A Process Standard

A.2.4. Local Policies, Regulations, Standards and Strategies

- Tasman District Council District Plan – Tasman Resource Management Plan (TRMP) http://www.tasman.govt.nz
- Tasman Regional Policy Statement (TRPS) http://www.tasman.govt.nz
- Tasman District Council Engineering Standards and Policies 2013 http://www.tasman.govt.nz
- Tasman District Council Procurement Strategy
- Global Resource Consents – NN010109 and NN000425 (Ground Based Spraying) and RM120610 (Aerial Spraying)
- Existing established policies of the Council (outside those contained in this Activity Management Plan itself) regarding this activity.

A.3 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 Plan (LTP). It also provides a guide for the preparation of each Annual Plan and other forward work programmes.

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

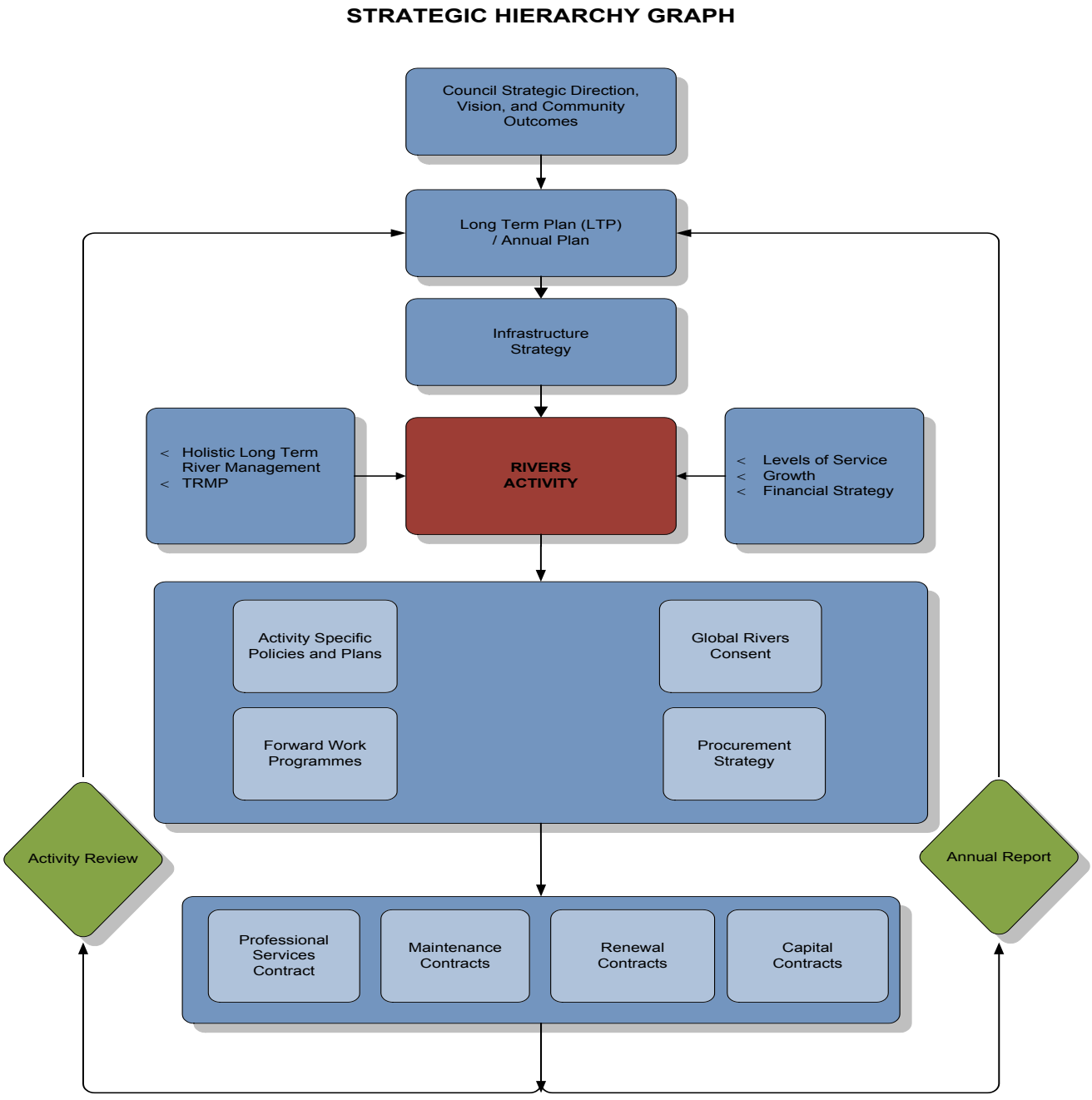


Figure A-1: Hierarchy of Council Policy, Strategy and Planning

A.4 Strategic Direction

The Council's strategic direction is outlined in the Vision, Mission and Community Outcomes.

Vision: Thriving communities enjoying the Tasman lifestyle.

Mission: To enhance community well-being and quality of life.

Community Outcomes:

Table A-1 shows the community outcomes and haw the rivers activity relates to them.

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.

Table A-1: Community Well-beings, Outcomes, Council Objectives, Groups and Activities

Community Outcomes	Council Objectives	Council Groups of Activities	Council Activities
Community Well-being – Environmental			
Our unique natural environment is healthy and protected	To ensure sustainable management of natural and physical resources and security of environmental standards.	Environment & Planning	• Resource Policy • Environmental Information • Resource Consents and Compliance • Environmental Education, Advocacy and Operations • Regulatory services • Rivers and Flood Management
Our urban and rural environments are pleasant, safe and sustainably managed.			
Our infrastructure is safe, efficient and sustainably managed.	To sustainably manage infrastructural assets relating to Tasman district.	Transportation	• Regional Cycling and Walking Strategy • Land Transportation • Coastal Structures • Aerodromes
		Sanitation, drainage and water supply	• Solid Waste • Wastewater • Stormwater • Water Supply
Community Well-being - Social and Cultural			
Our communities are healthy, resilient and enjoy their quality of life.	To enhance community development and the social, natural, cultural and recreational assets relating to Tasman district.	Cultural services and grants.	• Cultural services and community grants
Our communities respect regional history, heritage and culture.		Recreation and leisure	• Community recreation

Community Outcomes	Council Objectives	Council Groups of Activities	Council Activities
Our communities have access to a range of cultural, social, educational and recreational services.			• Camping grounds • Libraries • Parks and Reserves
Our communities engage with Council's decision-making processes.		Community support services	• Community facilities • Emergency management • Community housing • Governance
Community Well-being - Economic			
Our developing and sustainable economy provides opportunities for us all.	To implement policies and financial management strategies that advance. To promote sustainable development in the Tasman district.	Council Enterprises	• Forestry • Property • Council controlled organisations.

The table below (Table A-2) describes how the rivers activity contributes to Community Outcomes.

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

Community Outcomes	How our River Activity Contributes to the Community Outcome
Our unique natural environment is healthy and protected	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.
Our urban and rural environments are pleasant, safe and sustainably managed.	Existing rivers protection works and existing 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 infrastructure is safe, efficient and sustainably managed.	Existing flood protection and mitigation structures are maintained in an environmentally sustainable manner to a level supported by the community.

Table A-3 outlines the strategic documents utilised by the Council as part of the planning process.

Table A-3: Strategic Documents Used in the Planning Process

Long Term Plan (LTP)	The LTP is the Council's 10-year planning document. It sets out the broad strategic direction and priorities for the long term development of the District; identifies the desired community outcomes; describes the activities the Council will undertake to support those outcomes; and outlines the means of measuring progress.
Activity Management Plan (AMP)	AMPs describe the infrastructural assets and the activities undertaken by the Council and outline the financial, management and technical practices to ensure the assets are maintained and developed to meet the requirements of the community over the long term. AMPs focus on the service that is delivered as well as the planned maintenance and replacement of physical assets.
Annual Plan	A detailed action plan on the Council's projects and finances for each financial year. The works identified in the AMP form the basis on which annual plans are prepared. With the adoption of the LTP, the Annual Plan mainly updates the budget and sources of funding for the year.
Financial and Business Plans	The financial and business plans requirement by the Local Government Amendment Act. The expenditure projections will be taken directly from the financial forecasts in the AMP.
Contracts and agreements	The service levels, strategies and information requirements contained in the AMP are the basis for performance standards in the current Maintenance and Professional Service Contracts for commercial arrangements and in less formal "agreements" for community or voluntary groups..
Operational plans	Operating and maintenance guidelines to ensure that the asset operates reliably and is maintained in a condition that will maximise useful service life of assets within the network.

Corporate information	Quality asset management is dependent on suitable information and data and the availability of sophisticated asset management systems which are fully integrated with the wider corporate information systems (eg. financial, property, GIS, customer service, etc). The Council's goal is to work towards such a fully integrated system.

A.5 Our Goal

The Council aims to maintain river systems in a cost effective manner in such a way that the community and individual landowners are provided with protection through the adoption of a longer term (holistic) management system to a level acceptable to that community, taking into account affordability.

APPENDIX B AN OVERVIEW OF ALL CLASSIFIED RIVERS SYSTEM IN THE DISTRICT

B.1 Overview

B.1.1. River Classifications

River sections are grouped into three classes, either X, Y or Z based on the classification policy. The policy adopted at the Special Council meeting of 23 May 1996 is summarised below.

> *That the 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).*

Legal boundary descriptions for classified works areas (X, Y) are provided in Table B-1.

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
Pawley 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	
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.1.1.1 Joining the Class X and Y Schemes

X Classification: To join the Class X scheme, landowners who directly benefit from the scheme must fund two thirds of the costs to construct minimum standard stopbanks (which would be subsidised one third from the rivers account). There are a number of private stopbanks and catchment board banks that are located around the district. Generally these are found in Class Y areas and are not maintained by the 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 the rivers account).

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

B.1.1.2 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.

B.1.1.3 Resource Consents

The 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). These consents have expired but are valid until the new consents are granted. The new consents are:

- RM100851-RM100857 Global Consent Riverworks – lodged. Submission hearing 2015.
- RM Gravel Extraction – yet to be lodged.
- RM140869-RM140870 Aerial and Ground based spraying – lodged. Submission hearing 2015.
- RM120610 Aerial spraying 2013 – expires May 2015. To be replaced by RM140869-RM140870.

B.1.2. River System Overview

For the purposes of this AMP, Tasman district's rivers and associated drainage network has been divided into specific zones. These zones generally follow geographical boundaries. The zones are outlined in Table B-2.

Table B-2 River Network Overview

River / Stream / Drainage System	Class	Maintained Length (km)	Total Stopbank Length- both sides of the river
(km)			
Waimea			
Redwood Valley Stream	X	5.75	-
Redwood Valley Overflow	X	3.00	-
Eves Valley Stream	X	9.50	-
O'Connor's Creek	X	1.80	-
Wai-iti River	Y	30.15	1.4
Waimea River (including Wairoa)	X	13.25	18.1

River / Stream / Drainage System	Class	Maintained Length (km)	Total Stopbank Length- both sides of the river
(km)			
Upper Motueka			
Motupiko River	Y	14.50	-
Tadmor River	Y	33.00	-
Sherry River (including Wangapeka)	Y	14.50	-
Upper Motueka River	Y	20.00	-
Lower Motueka (incl. Riwaka Delta and Moutere)			
Dove River	Y	18.60	-
Brooklyn Stream	X	3.00	5.0
Lower Motueka River	X	11.25	26.2
Little Sydney Drain	X	4.25	-
Scotts Drain	X	0.80	-
Hamilton Drain	X	3.00	-
Riwaka River	X	5.00	8.25
Moutere River	Y	12.00	-
Moutere Creek Ditch	Y	7.00	-
Pawley Creek	Y	2.25	-
Aorere			
Kaituna River	Y	5.75	-
Aorere River	Y	12.00	-
Takaka			
Waingaro River	Y	5.25	-
Anatoki River	Y	5.25	-
Takaka River	Y	28.00	-
Buller System			
Buller River and tributaries	Z	NIL	-

B.1.2.1 River System Risks

In general all (maintained) river systems in the district are subject to failure from one or a series of major flooding events. Class Z rivers have a higher rate of risk. 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.

Willow sawfly is assessed as a minor risk to river bank tree willows in Tasman. Willow sawfly now has an established population in Tasman and affects mostly crack willow rather than other tree willows such as Matsudana derived species. Basket and shrub willows of which Tasman has a large number, are not affected. If climatic conditions change there could be a population explosion with whole trees defoliated and killed such as what happened in the Hawkes Bay. With the reduced reliance on the use of crack willow for a number of decades this would be unlikely to have a great effect on the fully funded river network.

Crack willow is no longer propagated or planted for river works since it was placed on the Unwanted Organisms Register within the last decade. In 2012 the Council rescinded its policy to eradicate crack willow

from the fully funded river network due to landowner opposition and increased bank erosion at removal sites. In high energy gravel bearing rivers with frequent small to medium sized floods experienced such as the majority of Tasman Rivers, crack willow doesn't appear to provide any greater threat than other willow and weed species as far as channel blockage is concerned. In recent years, the Council's regular summer river spraying programme has been effective in controlling unwanted fairway vegetation including crack willow to low levels.

In late 2013, the giant willow aphid was discovered in the North Island. Within months its presence was confirmed in the South Island as far down as South Canterbury, including Tasman. So far it appears to mainly be affecting crack willows, with sticky exudates similar in appearance to a diesel slick found under infested trees. The aphids went to ground in autumn 2014 and as of December 2014, have yet to reappear. It is thought that there could be weakening of some willows and an increased chance of washout during floods with the reduced root mass, as the aphids can consume up to 30% of the tree sap.

In summary, climate change-related effects provide the biggest risk which is difficult to quantify. There are risks due to new diseases, pests and weeds that could affect river plantings and flood capacity. Higher temperatures and thus higher intensity rainfalls lead to proportionally higher flood flows, and longer dry spells between events will also lead to higher run-off. Recent weather bomb events in Pohara, December 2011 and Richmond, April 2013, which had amongst the highest recorded rainfall intensities in New Zealand (48 hours and 1 hour respectively) along with a spate of high flow events in the Motueka west bank tributaries in more recent times, may indicate that flood events are less likely in the main rivers with severe but smaller more localised events more prevalent. Funding repairs from these events could be problematic given that they are unlikely to trigger LAPP being small dollar value, and being in areas with fewer public assets. Also the current river rating system allocates most of the expenditure to the fully funded rivers.

B.2 Catchments

In general all (maintained) river systems in the district are subject to failure from one or a series of major flooding events.

The following catchments are described in detail in the sections listed below.

B.3 Waimea Catchment

B.4 Upper Motueka Catchment

B.5 Lower Motueka Catchment

B.6 Aorere Catchment

B.7 Takaka Catchment

B.8 Buller Catchment

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.

Fairway lines – In 2014, a set of fairway lines (design channel and alignment) were drawn up for the Waimea based on a 65-135 metre channel and a vegetation buffer measuring 15-35 metres.

Redwood Valley and Overflow: A detention dam is located at the head of the Redwood Valley catchment. This structure was installed by the previous catchment board, however it 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 the Council for river control purposes. Stopbanking was developed to a 50-year (2% AEP) standard, accommodating a freeboard of 0.6m. 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.

Figure B-1: Waimea River

B.3.3. Major Events

Waimea: In January 1986 a large flood of 1466m^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. The left bank below the Appleby Bridge was raised in 1988 in response to the 1986 flood. The most recent large event in the Waimea was in December 2011 of 1295m^3/s (Q13). At the same time the Wai-iti experienced a flood event of 344m^3/s or Q13.

Figure B-2: Wai-iti River

B.4 Upper Motueka Catchment

B.4.1. Description

The Motueka River catchment covers an area of 2170 km^2. 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.

In 2014, fairway lines were drawn up for this river. The channel was 90-110 metres and the vegetation buffer was 25-30 metres wide.

Fairway lines were also drawn up for the Motupiko in 2014, with a channel of 65 metres and a vegetation buffer of 20 metres width.

B.4.2. Major Events

The Tadmor experienced a Q_{18} flood event in July 2012 ($105m^3/s$).

The Motupiko experienced a Q_7 flood event in October 2013 ($65m^3/s$).

Figure B-3: Upper Motueka Looking Upstream to Tapawera

B.4.3. Capacity

The Upper Motueka River is a Class Y area (open fairways). In the 1960s the lower sections of the Motupiko, Motueka, Tadmor, Sherry and Dove Rivers received channel works designed to secure the valley floors from erosion and reduce the frequency of flooding.

B.5 Lower Motueka Catchment

B.5.1. Description

The Lower Motueka River receives run-off from the catchments of the Stanley Brook, Dove River, Orinoco, Waiwhero and Brooklyn Streams. 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 ie, apple, tobacco and hop production.

Stopbanks have been installed in the Lower Motueka River, primarily to protect the 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, the Council never took a separate title for the land and owners are reluctant to release control. The stopbank structures themselves are Council-owned assets.

It is not believed to be a serious issue with the 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.

Figure B-4: Lower Motueka Looking Downstream over Bluegum Corner

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 Q_{50} flood in the Lower Motueka.

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

The Motueka Flood Control project is no longer proceeding as the Council decided in 2012 that the small benefit provided was not worth the cost ($16 million). The proposal involved widening and raising the banks along the river side in order to withstand a long duration 1% AEP event where the main failure risk was the saturation and collapse of the stopbanks.

B.5.3. Major Events

Flood events include:

- 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 million occurred, generally as lateral erosion along stopbanks.
- 1990 with a peak discharge of 1680 m^3/s recorded at Woodstock.
- December 2011 with a peak discharge of 1295m^3/s (Q_{13}) in the Lower Motueka.
- The Wangapeka River is a major tributary and has had multiple (three Q_5 to Q_{10} floods) since the major December 2010 flood (930m^3/s or Q_{16}). The Wangapeka is a steep, wild river that experiences west coast like rainfall in the upper catchment.

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 is a series of streams modified for land drainage purposes – Little Sydney Drain, Scotts Drain, Hamilton Drain and the 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. The intake screens were replaced in 2013.

Figure B-5: Riwaka River Looking Upstream from the State Highway Bridge

B.6.2. Capacity

A river control scheme was completed in 1956 comprising 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), and in some places up to Q_{20} (5% AEP). Refer to the Riwaka River Stopbanks 20 Year Capacity report prepared for the Council.

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.

B.6.3. Major Events

The Riwaka and West Bank tributaries have had several high flow events recently with the Motueka River being largely unaffected (ie, Graham Valley stream, the Pokororo and Shaggery)

In June 2013, the Riwaka experienced a Q_{15} flood event ($156m^3/s$) followed by a Q_{12} flood event in October 2013 and a Q_9 flood event in May 2014.

The October 2013 event overtopped the left bank a few hundred metres upstream of the state highway bridge, contributing to surface flooding at properties on Cook's Corner and further along the road to Kaiteriteri. This was due to vegetation being cleared because of a new hop garden stay. Fill has since been placed to raise this low spot.

B.7 Moutere Catchment

B.7.1. Description

The Moutere River catchment (168 km^2) drains moderate hill and flat valley country and joins the sea at the Moutere Stream Bridge on SH60 at the south entrance to Motueka. Much of the upper catchment is plantation forestry. The rolling hill country is used for sheep farming, vineyards/orchards, and the flat valley bottoms are used for hop-gardens, orchards and other intensive horticulture.

The Moutere River was originally hand dug by settlers in the 1880's being about two yards wide and one yard deep. Today it is up to 30 m wide and up to 10 m deep. Sections of the river system are managed as a classified river, and are maintained under the current river operations and maintenance contract. Historical minor extraction of river gravel has led to zero sustainability for the gravel policy today.

B.7.2. Capacity

During the last 100 years concentrating runoff from the catchment into a single greatly straightened channel has resulted in channel capacity increasing decade after decade from the erosion forces. The annual flood as noted from historical data is approximately 60 m^3/sec.

Figure B-6: Moutere River Looking Towards the Old House Road Bridge

B.7.3. Major Events

The river has experienced a flood event of 150 m^3/sec during the time that a recorder and gauging reach existed. This gauge site has been decommissioned.

The Upper Moutere area has experienced a spate of high flow events since 2011.

B.8 Aorere Catchment

B.8.1. Description

The main Aorere River catchment drains from the alpine regions of the Kahurangi National 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 Whakamarama Range. The Aorere River passes through steep rock gorges before discharging into the flat valley area used predominantly for dairy and sheep farming. The catchment size is 573 km^2.

Figure B-7: Aorere River Looking Upstream Above the Confluence with the Kaituna

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.8.2. Capacity

The Aorere River is one of the largest rivers in the Tasman district with a Q_{50} flow of 3180m^3/s at Devil's Boot. In the 1970s a stop bank flood protection scheme was designed but it has never been constructed and is unlikely to be in the future. There is some private tidal stopbanking in the Ferntown area.

B.8.3. Major Events

In December 2010 the highest ever flow of 3561m^3/s (1:187 year flood) was recorded. This resulted in extensive damage to private property approximately 2 km downstream of the Rockville Bridge. There was damage to existing bank protection and channel realignment. The remaining maintained river length sustained significant damage including damage to existing bank protection and further bank erosion. This event also took out the bridge on the James Road Right Branch.

Other significant flood events include July 1985 when a flow of 3067m^3/s was recorded and October 1996 when around 2400m^3/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.9 Takaka Catchment

B.9.1. Description

The Takaka River catchment drains a mountainous region of around 855km^2 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 1960s 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.

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 Nelson Catchment Board 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 proceeded to date. The schemes suffer from poor economic returns and adverse effects caused for others.

In 2012, the Council resolved to stop any further planning on this protection and a project was included in the LTP. Periodic reviews of this project are required.

Figure B-8: Takaka River Near Payne's Ford

B.9.2. 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.9.3. Major Events

Prior to the 1960s 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.

The most recent large event was a Q_{17} flood in the Waingaro (780m^3/s) in April 2014. The Takaka River (further downstream) only measured a Q_7 flood event.

B.10 Buller Catchment (Not Maintained)

The Buller River drains from the Nelson Lakes through Murchison to the West Coast at Westport, however the Council'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 isolated 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 the reluctance of landowners to fund the schemes.

The Buller catchment also experienced a flood in late December 2010. This was a 910m^3/s or Q_5 flood event. Repairs were undertaken on the Buller, Tutaki and Matakitaki Rivers.

More recently, there was a Q_7 flood event in July 2012.

Figure B-9: Middle Buller Looking Downstream Toward Rait Road Bridge

B.11 Tide and Flap Gates

There are approximately thirty flap gates maintained as river assets. The majority of these are associated with the stopbank schemes on the Waimea and Lower Motueka rivers to allow areas outside the banks to drain the river.

Three of these are tide gates (at Pearl Creek in the Waimea, Little Sydney in Riwaka and Atua Stream on the way to Kaiteriteri).

The old wooden screens in the inlet side of the twin Little Sydney gates were damaged in 2013 and have now been replaced with galvanised steel.

The Atua twin cell gate currently has a fish friendly counterweight device installed to slow the rate of closure allowing a longer window of fish passage upstream on the rising tide. So far this is working well with more sediment build-up on the side with the counterweight and some extension of the saltwater prism beyond the gates.

All gates are inspected on a varying frequency depending on their criticality, then cleared or repaired as necessary under the river maintenance contract.

A number of other gates associated with the urban stormwater or road network are maintained by other departments within the Council.

Figure B-10: Atua Gates

B.12 Overall Asset Condition

B.12.1. Base Asset Data

The majority of rivers asset data has been recorded. It is understood that the data set has not been maintained consistently since the early 1990s, this is made difficult by the changing nature of the rivers systems. The asset data is held in the Council's Confirm database. As-built data is now provided electronically on a monthly basis by the river maintenance contractor for the X and Y rated areas, as part of their claim. As-built data on River Z assets is also now being collected and stored in Confirm.

Although, the Council does not consider itself the owner of these assets (even though they have part funded them), the information is required for any future central government claims due to extreme flood events.

B.12.2. Condition Assessment and Monitoring

Asset condition is assessed on an ad-hoc basis, usually following a recent flood event. There is no benefit to recording asset condition. Assets are assessed on a pass/fail basis and are repaired as deficiencies are found.

APPENDIX C PRIVATE STOPBANK STRUCTURES

C.1 General

There are a number of privately owned structures within the river systems. Development of a private asset inventory has been included in Appendix V – Improvement Plan. These assets are not maintained by the Council. However there are provisions under Rivers Z for the installation of new structures at a cost share (50:50) with the Council and the landowner.

Refer to Appendix E – Section E.4 for a detailed description of the Rivers Z process.

C.2 List of Privately Owned Stopbanks in the Class Y Rating Area

C.2.1. Upper Motueka River

Tapawera Community Bank River Distance 49450 to 53000

This starts at Motueka Valley Highway Mill Creek 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 private property. The bank was funded by the Ministry of Education and Governments Isolated Works Grant. It was constructed in early 1975 following the 1974 flood but with inconsistent freeboard.

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 stopbank 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. There are landowner constructed stopbanks on the right bank from 49450 to 53000.

C.2.2. Motupiko River

Krammers Bank River Distance 4100L to 4600L

This stopbank was constructed in 1976 to have a freeboard of 600 mm from the flood profile of the 1974 event. It was funded from the Catchment Board Isolated Works grant and local funding and extended in 2006.

In 2007 the existing Krammers stopbank was further extended upstream for approximately 150 metres, with landowner funding.

C.2.3. Middle Motueka River

Ing and Others Bank River Distance 28100 L to 28450 L

This stopbank was constructed in 1974/75 with a freeboard upgrade in 1987. It was funded by the Catchment Board under the Isolated Works Grant and Local Share funding. The original design was based on the 1974 flood profile. This bank is not maintained by the Council.

Name Unknown River Distance 18950 R to 20400 R

The date of construction is not known, but thought to be late 1940s early 1950s with financial support from the Tobacco Board. It was upgraded in 1984 with Isolated Works Funding from the Catchment Board and local share funding. This bank is not maintained by the Council.

Myttons Reach River Distance 17100 R to 17800 R

The date of actual construction is unknown but thought to be as per the previous bank. It was breached in the 1983 event and upgraded/repaired in 1984. This bank is not maintained by the Council.

Hurleys Bank River Distance 9800 R to 11700 R

Constructed as part of the Motueka Stopbank Scheme and maintained by the Council. Land behind the bank is classified Class X. The construction date is not clear but probably in the late 1950s as part of the Lower Motueka Scheme.

Macleans Bank River Distance 8000 R to 8900 R

This was constructed in 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. This bank is not maintained by the Council.

C.2.4. Wai-iti River

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

Waimea West Bridge Upstream to Pitfure Confluence River Distance 2950 to 3125 R

Constructed by the landowner when the confluence of the two watercourses was changed. The date of construction is unknown and this bank is not maintained by the Council.

Barton Lane to Wakefield Village River Distance 7100 to 10100 right bank

This was constructed in the early 1970s 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 in 1986 at R Distance 9500 to 9650 R. This bank is not maintained by the Council.

C.2.5. Takaka River

Lower Takaka River Distance 0300 L to 0700 L and 0300 R to 1000 R

Training banks were 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 the Council.

Waitapu Bridge Training Banks River Distance 2000 to 3400 R.

These were constructed at the same time as the new Waitapu Bridge on State Highway 60. Other than weed and vegetation control no formal maintenance work is carried out by the Council.

Pages Cut Training Bank River Distance 3100 to 3400 R

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.

McKenzie/Bridges Hollow Reach River Distance 6200 to 6900 R

This low level flood protection bank was first constructed on the upstream side of the Takaka township in 1948/49. The bank was strengthened by the current property owner in 1987/88 by widening and flattening of the side slopes with material from NZ Transport Agency 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 Council does not undertake any maintenance of this bank.

C.2.6. Upper Takaka River

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 the Council may become involved because of the Golden Bay County Council involvement in the original scheme.

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 Council maintenance has been involved. There is some disagreement between locals as to the existence of a bank on the true right prior to 1932.

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 the Council.

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 International Public Sector Accounting Standard 17; Property, Plant and Equipment (PBE IPSAS 17) and PBE IPSAS 21 (Impairment of Non Cash Generating Assets) is the one of the current requirements of meeting GAAP.

The purpose of the valuations is for reporting asset values in the financial statements of Tasman District Council.

The Council requires its infrastructure asset register and valuation to be updated in accordance with Financial Reporting Standards and the AMP improvement plan.

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 ending June 2015:

- NAMS Group Infrastructure Asset Valuation Guidelines – Edition 2.0;
- New Zealand International Public Sector Accounting Standard 17; Property, Plant and Equipment (PBE IPSAS 17) and PBE IPSAS 21 (Impairment of Non Cash Generating 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 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;

- 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. Historic asset valuations reports are held with the Council.

D.3 2012 Valuation - Rivers

The river protection assets were last re-valued in June 2012 and we reported under separate cover[1]. Key assumptions in assessing the asset valuations are described in detail in the valuation report.

D.2.1. Asset Data

The majority of information for valuing the assets was obtained from the Council's Confirm database. This is the first time the database has been used to revalue the Council's assets. In the past, asset registers based on excel spreadsheets have been used. The data confidence is detailed in Table D-1 below.

Table D-1: Data Confidence

Asset Description	Confidence	Comments
River Assets	B - Reliable	Assets that are depreciated include gabion blocks and outlets. Condition assessment should be included.

Based on NZ Infrastructure Asset Valuation and Depreciation Guidelines – Edition 2, Table 4.3.1: Data confidence grading system.

D.2.2. Asset Lives

The *Base Useful Lives* for each asset type as published in the NZ Infrastructure Asset Valuation and Depreciation Guidelines Manual were used as a guideline for the lives of the assets in the valuation. Generally lives are taken as from the mid-range of the typical lives indicated in the Valuation Manual where no better information is available. Lives used in the valuation are presented in Table D-2 below.

Table D-2: Asset Lives

Item	Life (years)	Minimum Remaining Life (years)
River Protection Assets		
Stop banks Q_{50}	Not depreciated	
Stop banks Q_{20}	Not depreciated	
Drainage/tidal outfalls	60	5
Willow planting/layering	Not depreciated	
Wand/poles/posts	Not depreciated	
Weighted felled trees	Not depreciated	
Gabion baskets	30	5
Rock protection	Not depreciated	
Railway irons	50	5

D.2.3. 2012 Valuation

The Optimised Replacement Value, Optimised Depreciated Replacement Value, Total Depreciation to Date and Annual Depreciation of the river protection assets are summarised in Table D-3.

[1] Infrastructural Asset Revaluation, June 2009 – MWH New Zealand Ltd report for Tasman District Council

Table D-3: River Protection Asset Valuation Summary 30 June 2012

	Optimised Replacement Value ($)	Optimised Depreciated Replacement Value ($)	Total Depreciation to Date ($)	Annual Depreciation ($/yr)
Rivers 2009	32,384,664	31,799,097	585,567	19,232
Rivers 2012	38,719,478	38,077,253	642,224	19,764
% Increase	19.56%	19.74%	9.68%	2.77%

Overall the river protection assets have increased in Optimised Replacement Value by 19.56% since the 2009 valuations. The increase in the replacement values is due to the following reasons:

- inflation over the two year period (ie. % as calculated by the construction fluctuation adjustment);
- the addition of new assets to the utilities since 2007;
- migration of data from asset registers contained in spreadsheets into the Confirm database and subsequent updating of the data resulting in the improved accuracy of the captured data.

The Optimised Replacement Value, Optimised Depreciated Replacement Value, Total Depreciation to Date and Annual Depreciation for the river systems is summarised in Table D-4.

Table D-4: River Protection Asset Valuation Summary by River System 30 June 2012

	Optimised Replacement Value ($)	Optimised Depreciated Replacement Value ($)	Total Depreciation to Date ($)	Annual Depreciation ($/yr)
Eves/Redwood Valley	139,583	136,952	8,131	67
Wai iti River	4,932,979	4,902,670	8,131	891
Wairoa River	5,471,166	5,455,642	8,131	457
Waimea River	9,898,958	9,817,984	16,263	2,405
Motupiko River	881,108	804,425	76,683	2,345
Sherry River	139,989	139,989	-	-
Tadmor River	1,051,548	1,021,703	29,845	886
Upper Motueka River	1,368,894	1,281,537	87,357	2,422
Brooklyn Stream	666,475	666,475	-	-
Dove River	768,171	768,171	-	-
Lower Motueka	6,819,074	6,602,432	216,642	7,415
Moutere River	1,078,908	1,063,507	15,401	395
Riwaka River	1,784,674	1,768,211	16,463	422
Anatoki River	589,004	589,004	-	-
Aorere River	31,860	31,860	-	-
Kaituna River	16,740	16,740	-	-
Takaka River	80,460	80,460	-	-
Waingaro River	993,410	993,410	-	-

APPENDIX E MAINTENANCE AND OPERATING ISSUES

E.1 Maintenance Contract

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

The rivers activity is currently maintained under Contract 840. This contract sets out the operations and maintenance requirements for X and Y rated areas over a five year period and which must also be operated in accordance with Resource Consent NN010109 (River Protection and Maintenance Works). Taylors Contracting Co Ltd was awarded Contract 840 in 2011; the contract is a 3+1+1 format.

The Council is transitioning to a new model of stakeholder engagement to help inform the annual work programme.

The contractor can be involved in River Z rated works, as detailed in Section E.4.

E.1.1. Maintenance Objectives

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

E.1.1.1 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 be kept clear of restrictions such as willows and aquatic weeds.

E.1.1.2 River and Drainage Bank Edge Protection

The edges of the channel require preventative maintenance where subject to erosion and/or slumping. The methods used largely include rock protection structures and willow tree layering. In the case of drainage systems eg, Swamp Road, Riwaka where timber structural walls have been used because of the restriction between road edge and the creek bank.

E.1.1.3 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, rock retards and berm shaping may also be used to control velocities.

E.1.1.4 Stopbanks

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

E.1.1.5 Flow Control and Miscellaneous Structures

These are culverts, floodgates, control gates, pipe headwalls, spillways, weirs (eg. Wai-iti River), drop structures, bridges, etc.

E.1.2. Maintenance Contract Activities

The maintenance contract includes.

i) The maintenance and renewals of existing protection works and the construction of new works as necessary to maintain the specified sections of rivers in the Tasman District Council's area.

ii) Existing protection works includes stopbanks, rock protection, flood and tide gates, selected willow cutting and layering, riparian management and any other structures or plantings that affords protection to river banks and channels.

iii) There are 285 km of classified river areas in the district.

- X classified rivers afford flood protection to adjacent land by stop banks;
- Y classified rivers have river channel training and alignment works involving riparian work (rock, selective willow layering, etc.);
- the balance of the main waterways in the Tasman district is part of the Rivers Z classification.

The key aspects of the rivers contract are.

i) Maintain the river system to a consistent standard in accordance with the Activity Management Plan (AMP).

ii) Construct new assets that will form part of the protection system for the rivers network.

iii) Develop and maintain working relationships with adjacent and affected landowners which foster a partnership with Tasman District Council.

iv) Be respectful of the landowners, their property, stock and pastures where access is required to complete the contract works.

The implementation of maintenance work is currently undergoing change. The rivers engineers and contractors aim to follow the maintenance programme listed below.

i) Some maintenance items are undertaken on a regular or seasonal basis, for example:

- stopbank mowing;
- flapgate inspections;
- native planting, site preparation;
- fairway spraying.

ii) Some maintenance items are on an ad-hoc basis, for example:

- responding to urgent erosion or flooding;
- clearing fairways of debris;
- responding to fly tipping.

iii) Other work is planned on a longer time frame (that may also be undertaken on a seasonal basis), for example:

- major in-stream works such as gravel extraction or location;
- less time spent on non-critical work such as weed control outside the fairway;
- improvement of access for river maintenance and/or recreational purposes;
- discouragement of fly tipping;
- restoration of riparian vegetation.

Longer timeframe works are undertaken on a limited and opportunistic basis in order to preserve sufficient budget to deal with future potential flood events and reactive requirements.

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.

Table E-1: Operations and Maintenance Activities

Work Type	Maintenance Activities	Maintenance Objectives
Stopbank Maintenance (Class X only)	• grading of access tracks and bank tops; • gravelling access tracks; • battering, sowing and top dressing; • mowing and slashing; • removal of scrub/trees; • reconstruction of damaged banks; • maintenance of drainage culverts and flap gates under stopbanks.	• to prevent significant obstruction to flow along the banks; • to maintain drainage through and/or around the stopbanks; • to maintain good access; • to ensure controlled overflow from rivers; • to ensure minimum damage if overflows; • for appearance.
Lengths of Damaged Stopbanks	• rectify the decline in standard of stopbanks from stock use by ensuring large stock are excluded.	• to ensure that stopbanks meet their design capacity.
Floodgates and Culverts	• ongoing cleaning, repair, replacement.	• To ensure fully functional during exceptional events e.g. closed; • 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; • willow release cutting, spraying or swabbing; • partial severance to encourage new growth along felled trunks.	• to prevent significant obstruction in the main channel; • to maintain willows in good height; • to protect willows against weeds such as old man's beard.
Flood Damage Repair	• required following flood damage; • 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; • berm and bank vegetation clearance; • channel grading.	• to prevent significant obstruction to flow along the main channel; • 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; • to reduce/eliminate back channels created by flood overflow.
Native Riparian Revegetation	• responsible land management to exclude weeds that can spread to private land; • restore wildlife and biodiversity values; • enhance amenity of conspicuous areas.	• site preparation: fencing, slashing, spraying; • new planting; • maintenance of existing plantings.

Work Type	Maintenance Activities	Maintenance Objectives
Fencing, Gates, Access Tracks	• stopbank and berm control measures.	• to provide Council access to carry out its work; • to control public recreational use; • to provide control of animal grazing.

E.2 Maintenance Standards

The work to be performed and materials to be used shall comply with best practice and Contract 840 (from 1 July 2011). The specification for all of the activities listed in Table E-1 is clearly documented in Section G.4 – Technical Issues of the Contract Document. This section also includes specific material test standards to be complied with.

The operations and maintenance programme allows for maintenance of the river systems to the level imposed in the current resource consent. Historically, only minor maintenance (eg, mowing and vegetation control) has been undertaken on stopbanks. In future the Council intended to increase the level of maintenance undertaken to include structural maintenance with the aim of maintaining the constructed level of service.

The 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 processed and tracked with the aim of responding to the customer as soon as possible.

E.2.1. Rivers Z General Works

In addition to the operations and maintenance works carried out under Contract 840, the Council annually allocates funds for Z rated areas. The majority of works in these areas are carried out on a part funding basis (ie, 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 and 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.

- Is there a “community” benefit different from a benefit to the landowner/occupier only?
- Is what the owner/occupier wants to do “sound”? Will it achieve a desirable outcome, will it work and is it cost effective?
- Is the proposed work achievable under the river works consent?
- Is it possible that by not offering financial support, work of a standard not desirable or outside the river works consent could eventuate?
- Will the work encourage upstream and downstream neighbours to be more proactive with their stream maintenance or drainage?
- Is there a direct benefit to the Council in terms of its assets and services?
- Is it necessary to involve neighbours at an early stage to be proactive to achieve a desirable outcome?
- 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?
- Is there anything left in the budget to give financial support, if so, this would normally be up to 30%?

E.2.2. Effect of Gravel Extraction on Operation and Maintenance

Engineering Service staff are currently working on an application for a separate consent solely for the extraction of river gravels, as the previous global consent that included gravel extraction has expired.

This will be based on a gravel envelope approach allowing the Council to extract gravel only if current Mean Bed Levels (MBLs) are above historical MBLs for any particular site in the fully maintained river network. This will ensure sustainable extraction is achieved to limit bed degradation, which could otherwise lead to loss of groundwater and headward erosion that could threaten upstream bank protection and structures such as bridges.

Flood capacity constraints in the stopbanked scheme areas will also provide an upper limit that will trigger extraction.

A sediment transport analysis is being carried out in order to provide independent information on the typical quantity this entails on our main rivers with a view to including other rivers over the life of the consent as appropriate.

E.2.3. Riparian Management

Council staff manage a yearly programme of maintaining and creating new plantings to exclude weed species within the X and Y rated river network. In places this may include improving access and amenity for the public.

Landowners in River Z areas wishing to undertake native riparian planting (or planting of other suitable non-commercial species) are supported under the River Z policy with a subsidy available for plant supply, fencing and weed control and other protection or preparation works as appropriate.

E.2.4. Deferred Maintenance

Deferred maintenance is:

- the shortfall in rehabilitation or refurbishment work required to maintain the service potential of the asset;

or

- maintenance and renewal work that was not performed when it should have been, or when it was scheduled to be and which has therefore been put off or delayed for a future period.

The current budget levels are believed to be sufficient to provide the proposed levels of service and therefore no maintenance work has been deferred. However this is subject to the changes in levels of service and expectations of customers.

E.2.5. Asset Management System

The Confirm software suite is used to process claims and make payments, and to record a-built data.

E.2.6. Other Work in Progress

i) Development of fairway lines and appropriate policy:
   - design channel and alignments to guide river management and land use;
   - lines have already been drawn up for the Upper Motueka, Motupiko and Waimea catchments.
   - the Lower Motueka catchment is in progress.

ii) Extension of the 2D hydraulic model for the Waimea catchment (Brightwater to the mouth).

iii) Electronic surveillance trial to discourage fly tipping.

iv) Ongoing application to gain a new combined aerial and ground based spraying consent (lodged October 2014).

v) A new global consent was consulted on during October-November 2014.

vi) A new gravel extraction consent is still to be lodged.

E.3 Forecast Operations and Maintenance Expenditure

Figure E-1 and Table E-3 detail the projected operations and maintenance expenditure for the next 30 years.

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

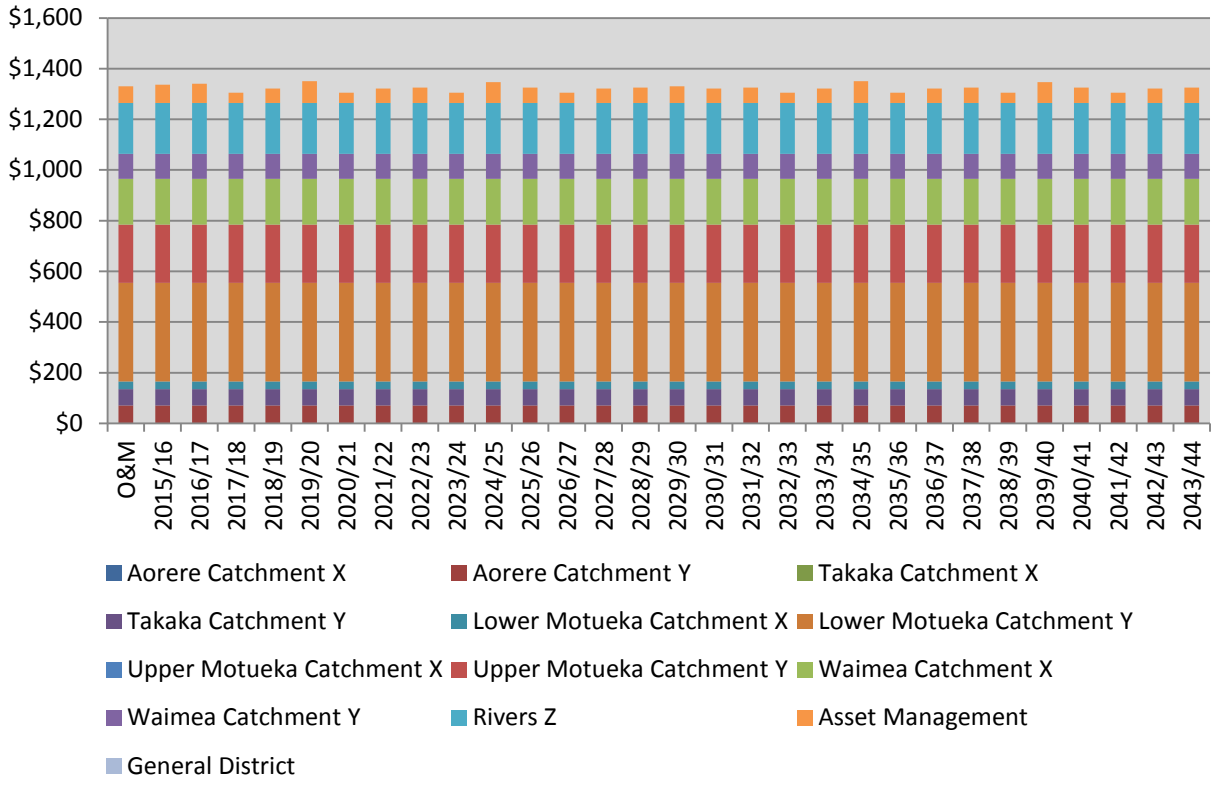


Figure E-1: Rivers 30 Year Operations and Maintenance Expenditure ($000)

Table E-2: Rivers 30 Year Operations and Maintenance Expenditure Forecast ($000)

ID	Project Name	Project Description	Category	GL Code	% O&M	O&M Estimate	Total Project Estimate	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	Year 21 to Year 30	Beyond Year 30
								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	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35		
130001	Class Z Operations	Rivers General Z	Rivers Z	33542401	100%	6,000	6,000	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	2,000	-
130002	Class Y Operations	Aorere Operations	Aorere Catchment Y	33072401	100%	2,100	2,100	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	700	-
130003	Class Y Operations	Lower Motueka Operations	Lower Motueka Catchment Y	3310240102	100%	11,700	11,700	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	3,900	-
130004	Class Y Operations	Upper Motueka Operations	Upper Motueka Catchment Y	33092401	100%	6,900	6,900	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	2,300	-
130005	Class Y Operations	Takaka Operations	Takaka Catchment Y	33042401	100%	1,950	1,950	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	650	-
130006	Class Y Operations	Waimea Operations	Waimea Catchment Y	3301240103	100%	2,970	2,970	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	990	-
130007	Class X Operations	Lower Motueka Operations	Lower Motueka Catchment X	33102401	100%	900	900	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	300	-
130008	Class X Operations	Waimea Operations	Waimea Catchment X	33012401	100%	5,400	5,400	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	1,800	-
130021	Asset Management	Activity Management Plan Update	Asset Management	3331220309	100%	300	300	-	10	20	-	10	20	-	10	20	-	10	20	-	10	20	-	10	20	-	10	110	-
130022	Asset Management	Improvement Plan maintenance	Asset Management	3331220316	100%	36	36	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	-
130023	Asset Management	Asset Revaluation	Asset Management	33312205	100%	60	60	-	6	-	-	6	-	-	6	-	-	6	-	-	6	-	-	6	-	-	6	18	-
130024	Asset Management	New Maintenance Contract	Asset Management	3331220319	100%	60	60	10	-	-	-	-	10	-	-	-	-	10	-	-	-	-	10	-	-	-	-	20	-
130025	Asset Management	Resource Consent Procurement & Professional Services	Asset Management	3331220320	100%	420	420	25	25	25	10	10	25	10	10	10	10	25	10	10	10	10	25	10	10	10	10	130	-
130027	Asset Management	Rivers LAPP Insurance	Asset Management	33002506	100%	898	898	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	299	-
	TOTALS					39,694	73,142	1,330	1,336	1,340	1,305	1,321	1,350	1,305	1,321	1,325	1,305	1,346	1,325	1,305	1,321	1,325	1,330	1,321	1,325	1,305	1,321	13,229	-

NB does not include inflation

APPENDIX F DEMAND AND FUTURE NEW CAPITAL REQUIREMENTS

F.1 Growth Demand and Supply Model

F.1.1. Model Summary

A comprehensive Growth Demand and Supply Model (GDSM or growth model) has been developed for the Tasman District. The growth model is a long term planning tool, providing population and economic projections district wide. The supply potential is assessed as well as demand, and a development rollout for each settlement is then examined. The development rollout from the Growth Model informs capital budgets (new growth causes a demand for network services) which feed into the AMPs and in turn underpin the Long Term Plan and supporting policies e.g. Development Contributions Policy.

The 2014 growth model is a fourth generation growth model with previous versions being completed in 2005, 2008 and 2011. In order to understand how and where growth will occur, the growth model is built up of a series of Settlement Areas which contain Development Areas. A Settlement Area (SA) is defined for each of the main towns and communities in the district. There are 17 Settlement Areas for the present version of the growth model. Each Settlement Area is sub-divided into a number of Development Areas. Each Development Area is defined as one continuous polygon within a Settlement Area that if assessed as developable, is expected to contain a coon end-use and density for built development.

The growth model organises and integrates the assessments of demand and supply of built development. The development is categorised as residential or business demand and supply, with business including all industrial, commercial and retail uses.

For residential demand and supply:

- the ‘demand’ for residential buildings (dwellings) is assessed from population and household growth forecasts based on Statistics New Zealand’s latest census release;
- the ‘supply’ of lots for future dwellings is assessed from analysis of the Development Areas in each settlement Area and how many lots could feasibly be developed for residential end use over a twenty year time period, after accounting for a number of existing characteristics of the Development Area.

For business demand and supply:

- the ‘demand’ for business premises is assessed from economic and employment growth forecasts, and associated land requirements;
- the ‘supply’ of lots for future business premises is assessed from analysis of the Development Areas in each Settlement Area overtime in a similar way as that for future dwellings.

The Development Areas and Settlement Areas are the building blocks that allow the growth model to spread demand for new dwellings and business premises, and assess where there is capacity to supply that demand.

The growth model is not just an isolated tool that calculates a development forecast. It is a number of linked processes that involve assessment of base data, expert interpretation and assessment, calculation and forecasting. The key input data, assessment and computational processes, and outputs of the growth model are captures in a database called the Growth Model Database.

The outputs of the growth model are located on a shared browser site that all Council staff have access to. The browser contains:

- all the various input data sets and calculated outputs;
- maps defining the Settlement Areas and Development Areas with those;
- an updated model description describing the model working in detail; assumptions and planned improvements.

The review process is also mapped in ProMapp.

Population growth within the district does not have a direct effect on the rivers activity. Therefore the model outputs are not as relevant to this activity. However, generally population growth leads to intensification of land use and demand for further housing development in areas vulnerable to flooding. This may lead to a desired increase in the level of flood protection historically provided. Council addresses the potential

increase in community demand by consulting with the affected communities, and management of development through the Tasman Resource Management Plan (TRMP).

F.1.2 Overall Population Growth and Trends

Richmond is the largest and fastest growing town in the District with an estimated 13,606 residents, as at 2014. Motueka is the next largest town, with 6,687 residents. Another five settlements are relatively small, with populations ranging from 1,239 in Takaka up to 2,498 in the Coastal Tasman area. Nine settlements have populations of less than 500 people.

Tasman District is a popular destination for the older age group or "retirees". A high proportion of population growth results from people moving to the Tasman District from elsewhere, rather than from current residents having children. The growth modelling shows that older people moving to the Tasman District are choosing to live in larger areas with easier access to services, hence the larger settlements are growing and the smaller ones are not. As shown in Table F-1, Richmond, Brightwater and Wakefield are predicted to grow by 500 people or more over the next 25 years. Overall, Tasman's population is expected to increase by 7,700 people by 2039. The Council's planning also takes into consideration the decrease in the number of persons per household and provides for an increase in the number of holiday homes. The latter is particularly important for holiday settlements such as Kaiteriteri and Pohara/Ligar Bay.

The population projection in the growth model has been taken from Statistics New Zealand population projections derived from the 2013 census data, using a "medium" growth rate projection for all settlement areas (refer Table F-1). The population projections are used to determine a demand for new dwellings in each settlement area.

Table F-1: Population Projections used in the Growth Model

Settlement Area	Population in 2014	Population projection for 2039	Increase or decrease in people by 2039
Brightwater	1835	2412	577
Coastal Tasman Area	2498	2903	405
Collingwood	232	250	18
Kaiteriteri	377	382	5
Mapua/Ruby Bay	2028	2506	478
Marahau	119	120	1
Motueka	6687	6810	123
Murchison	413	365	-48
Pohara/Ligar/Tata	543	583	40
Richmond	13606	16396	2790
Riwaka	591	636	45
St Arnaud	101	93	-8
Takaka	1239	1056	-183
Tapawera	284	320	36
Tasman	189	210	21
Upper Moutere	148	177	29
Wakefield	1939	2471	532
Ward Remainder (Area Outside Ward Balance)	282	303	19
Ward Remainder Golden Bay	3023	3248	225
Ward Remainder Lakes Murchison	2418	2722	304
Ward Remainder Motueka	3096	3597	501
Ward Remainder Moutere Waimea	4248	4937	689
Ward Remainder Richmond	1612	2704	1092
Total for District	**47508**	**55201**	**7693**

Projected Population data derived from Statistics NZ 2013 Census Data (adjusted for Growth Model). Base projection series applied = medium

Table F-2 summarises some key statistics for Tasman's population, based on Statistics New Zealand medium growth projections (2006 base, updated in June 2013).

Table F-2: Population Change in Tasman District

Key Statistics	2006	2013	2031
Population	45,800	48,800	53,900
Median age (years)	40.3	44.2	47.3
Proportion of population aged over 65	13.6%	17.9%	29.1%
Number of households	17,900	18,261	23,500
Working age population	29,810	30,500	29,170

Additional information from the 2013 census about Tasman District:

- Tasman's population is 1.1% of New Zealand's total population;
- 93.1% of population is European;
- 7.6% of population is Māori;
- 20% of population are aged under 15 years;
- 75% of households in occupied private dwellings owned the dwelling or held it in a family trust (this is the highest rate of home ownership in New Zealand).

As shown in Table F-2, Tasman's population is expected to be about 53,900 by 2031. Like the rest of New Zealand, the median age of Tasman's population is also increasing. The first of the baby boomers (those born between 1946 and 1964) commenced retiring in 2011 and fertility rates have also decreased over the last 20 years. The median age is projected to increase from 44.2 in 2013 to 47.3 in 2031. By 2031, the number of people aged over 65 in Tasman is projected to comprise 29.1 percent of the population, compared to 17.9 percent in 2013. Twenty years ago the figure was less than 10 percent. These demographic changes raise a number of challenges for the Council.

As Tasman's population increases, the Council needs to provide more services. However, many of the retired population will be on fixed incomes and unable to pay for increases in services (rates are a tax on property, not income, and if a property value is high the rates can take a significant portion of this fixed income payment). The Council's Growth Strategy considers whether our community can afford to support growth in all 17 settlements and what form this growth will take.

Communities with an older population are likely to have different aspirations to the communities with a younger median age. This may include:

- where they wish to live, possibly closer to main settlement areas where medical and social services are more readily available;
- an increase in the demand for smaller properties and a decrease in the demand for lifestyle or larger properties, particularly given the projected increase in the number of single households;
- the type of facilities and the levels of service requested, including more informal recreation facilities and the increased demand for "free" or low cost services such as libraries;
- their ability and willingness to pay for services and facilities may be lower, given that incomes are expected to be lower.

The Council has taken these factors into account in the development of this AMP and the LTP.

F.2 Projection of Demand for Rivers Services

F.2.1. Effect of Population Growth on the Rivers Activity

The link between population growth and the demand for river activities is not as direct as it is for the other activities, however generally population growth leads to intensification of land use and demand for further housing development in areas vulnerable to flooding. This may lead to a desired increase in the level of flood protection historically provided.

F.2.2. Future Growth in the Classified Rivers Network

F.2.2.1 Class Y

It is unlikely there will be significant growth of the Class Y scheme due to additional landowners joining the scheme. The reason for this being that it is generally not an affordable option for the private parties involved.

F.2.2.2 Class X – Stopbanks

New schemes or extensions to Class X schemes (stopbanks) are anticipated in the next 20 years. The areas where these works might occur include Riwaka and Takaka. However, they are not driven by growth.

There are no growth related projects currently programmed in the 20 year forecast.

F.2.3. Implications of Changes in 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 and affordability issues. The extent of the future demand will be determined by investigations and community consultations.

F.2.4. Implications of Technological Change

Technological change has the ability to impact on the demand for a service. These changes can increase the efficiency of river works infrastructure to “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:

- changes to rock protection methodologies to enhance bank protection and reduce on-going 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.

F.2.5. Implications of 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 the Council’s ability to meet required standards and can require improvements to infrastructure assets are outlined below:

- Resource Management Act 1991;
- rivers and lakes Section 4 of the Tasman Regional Management Plan (TRMP);
- NZS 4910 New Zealand Flood Risk Management;
- Local Authority Protection Programme.

The Council is not legally required to adopt NZS 4910 New Zealand Flood Risk Management however, it is used as a guideline to manage flood risk along with known best practice.

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

F.2.6. Implications of Climate Change

Climate change is likely to affect the rainfall intensity, frequency, and duration of flood events. This may affect rock demand for bank protection, channel clearing and stopbank free board. At present, the Council has not factored the potential effects of climate change into its 30 year programme of works.

F.3 Assessment of New Capital Works

During May to July 2014, a workshop with the project team was held to identify any new work requirements. New works were identified by:

- reviewing levels of service and performance deficiencies;
- reviewing risk assessments;
- reviewing previously completed investigation and design reports, as well as analysing recent flood modelling data;
- using the collective knowledge and system understanding of the project team.

Each project identified was developed with a scope and a project cost estimate. Common project estimating templates were developed to ensure consistent estimating practices and rates were used. This is described in Appendix Q. The project estimate template includes:

- physical works estimates;
- professional services estimates;
- consenting and land purchase estimates;
- contingencies for unknowns.

All estimates are documented and filed in an Estimates file to be held by Council.

The information from the estimates has then been entered into the Capital Forecast spreadsheet/database that enables listing and summarising of the Capital Costs per project, per scheme, per project driver and per year. This has been used as the source data for input into the Council's financial system for financial modelling.

F.4 Determination of Project Drivers and Programming

All expenditure must be allocated against at least one of the following project drivers.

Operation and Maintenance:	operational activities which have no effect on asset condition but are necessary to keep the asset utilised appropriately and on-going day-to-day work required keeping assets operating at required service levels[1].
Renewals:	significant work that restores or replaces an existing asset towards its original size, condition or capacity[1].
Increase Level of Service:	works to create a new asset to upgrade or improve an existing asset beyond its original capacity or performance to improve the level of service provided to existing customers.
Growth:	works to create a new asset to upgrade or improve an existing asset beyond its original capacity or performance to provide for the anticipated demands of future growth.

This is necessary for two reasons:

(a) 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.

[1] Definition from International Infrastructure Management Manual – Version 3.0, 2006, pg 3.114

(b) Schedule 10(2)(1)(d)(l)-(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.

All new works have been assessed against these project drivers. Some projects may be driven by a combination of these factors and an assessment has been made of the proportion attributed to each driver. A guideline was prepared to ensure a consistent approach to how each project is apportioned between the drivers.

Some projects may be driven fully or partly by needs for renewal. These aspects are covered in Appendix I.

The projects have been scheduled out across the 30 year period, primarily based on their drivers. They were then loaded into Mapinfo along with projects from all other engineering activities to allow programme managers to assess any programme clashes or optimisation opportunities.

F.5 Cross Activity Projects

There are several projects that span across more than one of the Engineering department activities. These projects are strongly linked because one project causes the need for another and/or it makes sense to undertake the projects either sequentially or in parallel. By managing related projects as a group, the Programme Delivery team will ensure that the overall cost and disruption caused by the works is minimised. Highlighting the linkages also helps to reduce the risk of a dependent project being rescheduled independently.

Table F-3 summarises cross activity projects including the predominant year of physical works and project cost.

Table F-3: Cross Activity Projects

Project ID	Activity	Project Description	Year	Project Cost
Richmond Town Centre Projects				**$8,916,490**
110077	Transportation	Upgrade of the Richmond Town Centre (Queen Street) to provide improved traffic calming and shared spaces	2016/17	$4,653,000
150129	Water	Renewal of existing 300mm and 100mm diameter pipes	2016/17	$1,837,000
160036	Stormwater	Renewal of existing pipes, plus additional capacity to reduce CBD flooding	2016/17	$2,214,000
140035	Wastewater	Upgrade of pipes between 202 Queen Street to Sundial Square	2016/17	$212,490
Oxford Street – Richmond				**$3,714,268**
160033	Stormwater	Partial pipe upgrade	2022/23	$1,754,924
110093	Transportation	Widening of Oxford Street between Wensley Road and Gladstone Road	2022/23	$872,000
140034	Wastewater	Pipeline upgrade	2022/23	$772,600
150126	Water	Replace 100mm with 150mm main Wensley Road to Gladstone Road	2022/23	$314,744

Project ID	Activity	Project Description	Year	Project Cost
Queen Street and Salisbury Road Intersection – Richmond				**$1,716,055**
110096	Transportation	Upgrade intersection to improve efficiency	2019/20	$1,041,000
160073	Stormwater	Rework stormwater at intersection	2016/17	$432,004
150131	Water	Rework water at intersection	2019/20	$243,051
Salisbury Road – Richmond				**$1,240,476**
160076	Stormwater	Extend pipe to William Street	2021/22	$640,476
110095	Transportation	Upgrade intersection to improve efficiency	2021/22	$550,000
150246	Water	Renew old copper laterals	2021/22	$50,000
Gladstone Road – Richmond				**$1,983,670**
150118	Water	New 250mm main from Queen Street to Three Brothers Corner	2026/27	$1,651,370
140031	Wastewater	Upgrade from WWSF-1709 to WWSF-1708	2026/27	$332,300
Pipe Works – Mapua				**$4,200,000**
150237	Water	Replace existing water pipe in the same trench	2027/28	$3,700,000
140017	Wastewater	New rising main along Aranui Road and across channel	2027/28	$500,000
Flood Mitigation Works – Brightwater				**$2,535,534**
160002	Stormwater	Mt Heslington stream diversion	2020/21	$2,235,534
160138	Stormwater	Drainage repair works	2020/21	$300,000
130020	Rivers	Removal of the railway embankment	2020/21	$80,000
Murchison Town Centre Projects				**$1,344,000**
160019	Stormwater	Ned's Creek flood mitigation works	2019/20	$750,000
110084	Transportation	Town centre upgrade (potential link)	2023/24	$594,000
160070	Stormwater	Pipe renewals	2020/21	$200,000

F.6 Project Prioritisation

All projects identified as potential solutions to meet future demand, increase levels of service, or as renewal were discussed in workshops during May to July 2014. These workshops were attended by key council staff. Each project identified was assigned an initial project priority of either non-discretionary or discretionary where:

A non-discretionary investment is one that relates to:

- a critical asset, that without investment is likely or almost certain to fail within the next three years, with a medium, major or extreme impact;
- any asset that has a regulatory requirement to make the proposed investment.

A discretionary investment is one that relates to:

- a non-critical asset with no regulatory requirement to make the proposed investment;
- a critical asset where asset failure is possible, unlikely or very unlikely to occur within the next three years with no regulatory requirement to make the proposed investment;
- a critical asset where asset failure has only a negligible or minor impact with no regulatory requirement to make the proposed investment.

The Council is currently reviewing the way that work programmes are prioritised. This review is reflected in this AMP. Further development will occur over the next three years and be implemented during the next AMP update.

F.7 Forecast of New Capital Work Expenditure

The capital programme that has been forecast for this activity where the primary driver is classed as new works (i.e. growth or levels of service) is shown in the Figures F-1 and F-2 and Table F-1. The expenditure is 100% driven by an increase in the level of service; there are no growth projects included within the 30 year forecast.

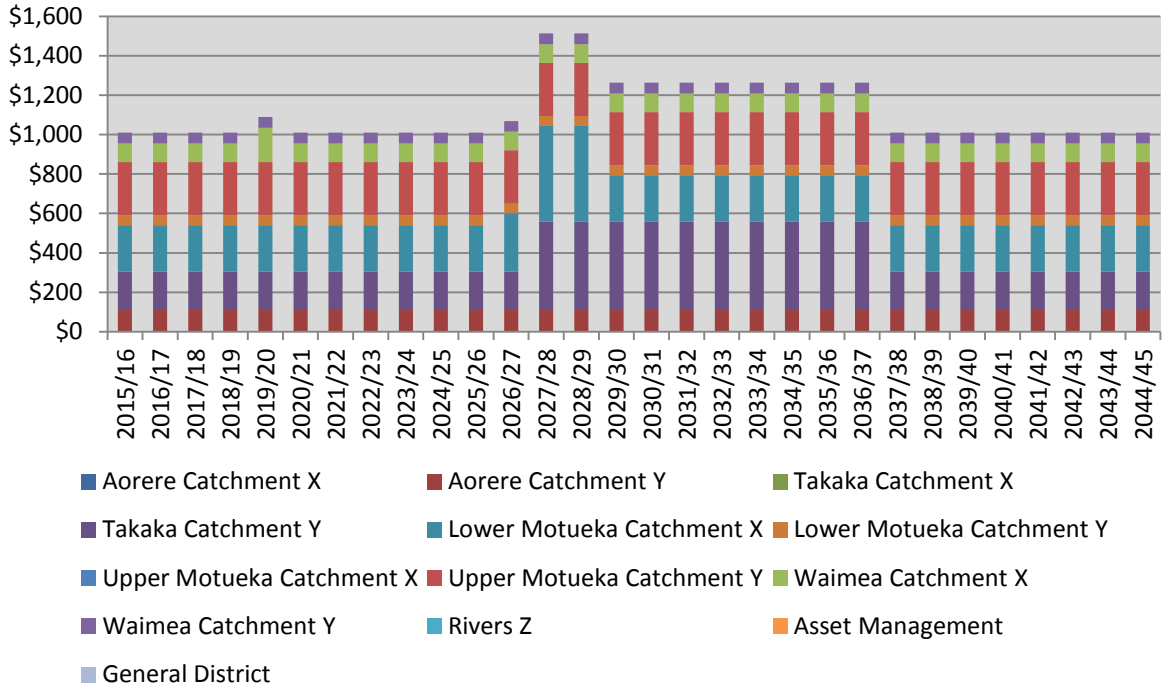


Figure F-1: Rivers 30 Year New Capital Expenditure ($000) – By Area

Table F-1: Rivers 30 Year New Capital Expenditure Forecast ($000)

ID	Project Name	Project Description	Category	GL Code	% Growth	% LOS	New Capital Estimate	Total Project Estimate	Year 1 2015/16	Year 2 2016/17	Year 3 2017/18	Year 4 2018/19	Year 5 2019/20	Year 6 2020/21	Year 7 2021/22	Year 8 2022/23	Year 9 2023/24	Year 10 2024/25	Year 11 2025/26	Year 12 2026/27	Year 13 2027/28	Year 14 2028/29	Year 15 2029/30	Year 16 2030/31	Year 17 2031/32	Year 18 2032/33	Year 19 2033/34	Year 20 2034/35	Year 21 to Year 30	Beyond Year 30
130010	Class Y Asset Improvement	Lower Motueka Asset Improvement	Lower Motueka Catchment Y	3310620805	0%	100%	1,500	1,500	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	500	-
130011	Class Y Asset Improvement	Upper Motueka Asset Improvement	Upper Motueka Catchment Y	3309620802	0%	100%	8,100	8,100	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	270	2,700	-
130012	Class Y Asset Improvement	Waimea Asset Improvement	Waimea Catchment Y	3301620804	0%	100%	1,650	1,650	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	550	-
130013	Class Y Asset Improvement	Takaka Asset Improvement	Takaka Catchment Y	3304620803	0%	100%	5,850	5,850	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	195	1,950	-
130014	Class Y Asset Improvement	Aorere Asset Improvement	Aorere Catchment Y	3307620802	0%	100%	3,300	3,300	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	1,100	-
130015	Class X Asset Improvement	Lower Motueka Asset Improvement	Lower Motueka Catchment X	3310620806	0%	100%	7,050	7,050	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	235	2,350	-
130016	Class X Asset Improvement	Waimea Asset Improvement	Waimea Catchment X	3301620805	0%	100%	2,820	2,820	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	94	940	-
130017	Class Y Projects	Takaka Stopbank Project - Consultation, Design and moni	Takaka Catchment Y	3304620802	0%	100%	254	254	-	-	-	-	-	-	-	-	-	-	-	-	25	25	25	25	25	25	25	25	51	-
130018	Class Y Projects	Takaka Stopbank Project - Construction	Takaka Catchment Y	3304620801	0%	100%	2,284	2,284	-	-	-	-	-	-	-	-	-	-	-	-	228	228	228	228	228	228	228	228	457	-
130019	Class X Project	Riwaka Flood Protection project	Lower Motueka Catchment X	3310620807	0%	100%	560	560	-	-	-	-	-	-	-	-	-	-	-	60	250	250	-	-	-	-	-	-	-	-
130020	Class X Project	Brightwater Flood Protection works	Waimea Catchment X	3301620806	0%	100%	80	80	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	TOTALS						33,448	73,142	1,009	1,009	1,009	1,009	1,089	1,009	1,009	1,009	1,009	1,009	1,009	1,069	1,513	1,513	1,263	1,263	1,263	1,263	1,263	1,263	10,598	-

APPENDIX G DEVELOPMENT CONTRIBUTIONS / FINANCIAL CONTRIBUTIONS

Tasman District Council's full Development Contribution Policy can be found on our website at http://www.tasman.govt.nz/policy/policies/development-contributions-policy.

The Policy was adopted in conjunction with the Council's Long Term Plan (LTP) and will come into effect on 1 July 2015.

The Policy sets out the development contributions payable by developers, how and when they are to be calculated and paid, and a summary of the methodology and rationale used in calculating the level of contributions.

The key purpose of the Development Contribution Policy is to ensure that growth, and the cost of infrastructure to meet that growth, is funded by those who cause the need for and benefit from the new or additional infrastructure, or infrastructure of increased capacity.

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 Introduction

The statutory framework defining what activities require resource consent is the Resource Management Act (RMA) 1991. The RMA is administered locally by Tasman District Council, a Unitary Authority, through the Tasman Resource Management Plan (TRMP).

H.2 Resource Consents

Resource consents for rivers activities held by Engineering are listed in Table H-2 below. Please note that the list may not be exhaustive, is accurate at the time of compilation (November 2014), and is subject to change. Short term consents required from time to time are not included in Table H-2.

Table H-2: Resource Consents Relating to the Rivers Activity

Location	Consent No.	Consent Type	Expiry Date
District wide	NN000425	Discharge – river spraying	01/05/2015 - Replacement consent application RM140871 awaiting outcome
District wide	NN010109	Land Use – River protection & maintenance	30/06/2011- Replacement consent application RM100362 awaiting outcome
District wide	RM120610	Discharge – river spraying (aerial)	Replacement consent application RM140869 awaiting outcome
Aorere	RM130737	Gravel removal	2 years after works commence. Consent granted July 2014
Motupiko	RM120807	Gravel relocation	2015

The 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 Operations and Maintenance Programme (AOMP), generally only a few different types of activity are involved. The "district wide" resource consents listed in Table H-2 eliminate the need to apply for separate consents at each work site.

H.3 Resource Consent Reporting and Monitoring

The Council aims to achieve minimum compliance with all consents and/or operating conditions. Use of the Napier Computer System (NCS) monitoring database allows the accurate programming of all actions required by the consents included renewal prior to expiry. The database is actively updated to ensure all consent conditions are complied with and that all relevant reporting requirements are adhered to.

H.3.1. Council's Annual Report

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

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 granting 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’s Bend” in 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 granting 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 Property Designations

There are no current designations in place for rivers.

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 its original capacity is classed as new works expenditure.

I.2 Renewal Strategy

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 judgment on the cost effectiveness of renewing the asset and their assessment of the acceptability of the risk of asset failure.

In river control it is very difficult to assign works into 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, new capital or maintenance.

Replacement rock protection work was originally considered to be renewal. This has recently changed to new capital due to the following reasons.

- rock protection work is generally undertaken with durable rock which is not expected to wear as poorer quality rock would;
- during flood conditions the rock can be shifted or settled into the bed, becoming the toe protection rock while remaining an asset to the river system;
- very little rock is lost to the river system during flood conditions.

In summary, where the river asset is added to, for example topping up existing rock work, it is classified as new capital expenditure. If the rock work replaces deteriorated or lost sections of protection it is classified as renewal expenditure.

Historically rock protection largely formed the renewals programme; due to the above change very little quantity of work is now allocated to renewals. This work is typically renewal of flood gates or similar structures. The renewal programme for these assets has been developed by the following:

- taking the asset age and remaining life predictions from the valuation database, calculating when the remaining life expires, field validation of the current condition, and converting that into a programme of replacements based on current unit rates;
- reviewing and justifying the renewals forecasts using the accumulated knowledge and experience of asset operations and asset management staff.

The renewal programme is reviewed in detail during each AMP update (ie, every three years), and every year the annual renewal programme is reviewed and planned by the project team. There are no renewals scheduled in this AMP. This will be reviewed in three years time.

I.3 Delivery of Renewals

Minor renewal projects are typically carried out by the relevant operation and maintenance contractor. Contracts for larger value renewal projects are tendered in accordance with the Procurement Strategy. Prior to the asset being renewed, the operations and maintenance contractor will inspect these assets to confirm whether renewal is actually necessary. In the event it does not need to be renewed, a recommended date of

renewal is then entered into the Confirm database. This new date will then be included in the next AMP update.

I.4 Renewal Standards

Renewals are undertaken in accordance with the Council's Engineering Standards and Policies and best practice to suit site-specific conditions.

I.5 Deferred Renewals

Deferred renewals is the shortfall in renewals required to maintain the service potential of the assets. This can include:

- renewal work that is scheduled but not performed when it should have been and which has been put off for a later date (this can often be due to cost and affordability reasons)
- an overall lack of investment in renewals that allows the asset to be consumed or run-down, causing increasing maintenance and replacement expenditure for future communities.

I.5.1. Assessment of Deferred Renewals

The extent of deferred renewals can be identified by comparing the accumulated investment in renewals with accumulated annual depreciation. This information then forms the basis of a renewals strategy. Figure I-1 shows the cumulative investment in Capital, and Renewals and allows comparison with cumulative depreciation. The Council is yet to complete a strategic review of this information for this activity and hence it has been included in the improvement plan.

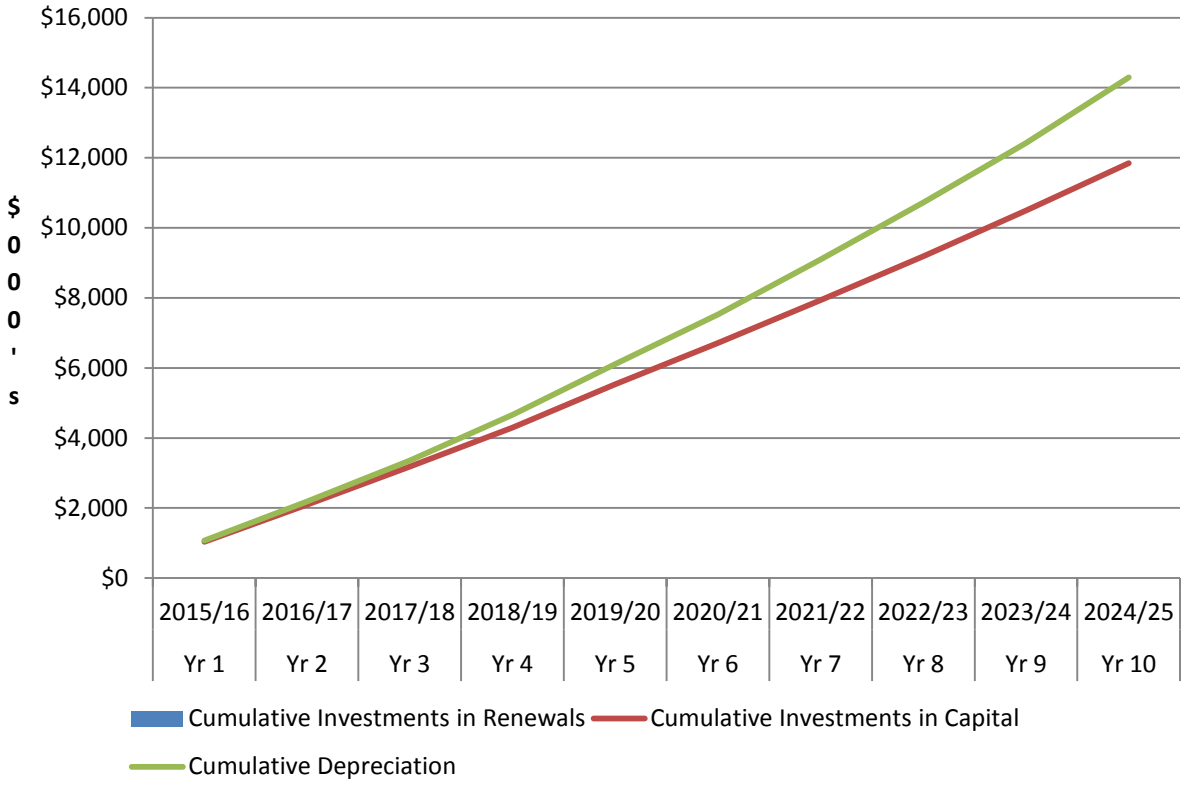


Figure I-1: Cumulative Capital Expenditure and Depreciation for all Rivers Assets

There is no renewal expenditure in the Rivers activity area.

I.5.2. Management and Mitigation of Deferred Renewals

Whilst the exact extent of deferred renewals is not identified, the Council can manage potential effects on levels of service by routinely undertaking condition rating and reviewing the renewals programme.

Comment on depreciation graph

APPENDIX J DEPRECIATIONS AND DECLINE IN SERVICE POTENTIAL

J.1 Depreciation of Infrastructural Assets

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

The remaining useful lives and associated rates for the rivers infrastructure have been summarised in Appendix D – Asset Valuations. However, the following river assets are not depreciated:

- stopbanks;
- willow planting / layering;
- wand / poles / posts;
- weighted felled trees;
- rock protection.

J.2 Decline in Service Potential

The decline in service potential is a decline in the future economic benefits (service potential) embodied in an asset.

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

J.3 Council's Borrowing Policy

The Council's borrowing policy was that it only funds capital and renewal expenditure through borrowing, normally for 20 years, but shorter terms are used for some assets depending on how long they are expected to last before they need to be replaced.

The Council has now made a decision to start phasing in the funding of depreciation. Effectively this will create a reserve to fund the replacement of assets. This method means that debt will not be raised to fund asset replacement. This is being phased-in over ten years and is more fully explained in the Financial Strategy which is part of supporting information associated with the 2015 LTP.

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 LTP. 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 as well as the size and the economic life of the asset that is being funded and its consistency with the Council's long term financial strategy.

The Borrowing Policy is found in Volume 2 of the Council’s LTP.

K.2 Loans

Loans to fund capital works over the next 10 years add up to the following costs detailed in Table K-1.

Table K-1: Projected Capital Works Funded by Loan for next 10 Years

Rivers & Flood Protection	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	$	$	$	$	$	$	$	$	$	$
Loans Raised	0	0	0	0	0	0	0	0	0	0
Opening Loan Balance	844	739	634	529	424	319	306	293	280	267

Figures do not include for inflation and are in thousands of dollars (ie. x1000)

K.3 Cost of Loans

The 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 Table K-2.

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

Table K-2: Projected Annual Loan Repayments Costs for next 10 Years

Rivers & Flood Protection	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	$	$	$	$	$	$	$	$	$	$
Loan Interest	55	48	41	34	28	21	20	19	18	17
Principal Repaid	105	105	105	105	105	13	13	13	13	13

Figures do not include for inflation and are in thousands of dollars (ie. x1000)

APPENDIX L SUMMARY OF THE OVERALL FINANCIAL REQUIREMENTS

L.1 Overall Financial Summary

Table L-1 presents a summary of the overall financial requirements for the rivers activity in the Tasman district.

Table L-1: Funding Impact Statement

Tasman District Council											
Funding Impact Statement - Flood Protection and River Control Works											
For the Long Term Plan 2015-25											
	2014/15 Budget $000	**2015/16 Budget $000**	**2016/17 Budget $000**	**2017/18 Budget $000**	**2018/19 Budget $000**	**2019/20 Budget $000**	**2020/21 Budget $000**	**2021/22 Budget $000**	**2022/23 Budget $000**	**2023/24 Budget $000**	**2024/25 Budget $000**
SOURCES OF OPERATING FUNDING											
General rates, uniform annual general charges, rates penalties	32	35	33	32	30	29	0	0	0	0	0
Targeted rates (other than a targeted rate for water supply)	3,006	2,726	2,800	2,884	2,909	3,105	3,078	3,112	3,235	3,360	3,445
Subsidies and grants for operating purposes	0	0	0	0	0	0	0	0	0	0	0
Fees, charges and targeted rates for water supply	0	0	0	0	0	0	0	0	0	0	0
Internal charges and overheads recovered	0	0	0	0	0	0	0	0	0	0	0
Local authorities fuel tax, fines, infringement fees, and other receipts	402	259	267	275	283	293	303	313	325	337	349
TOTAL OPERATING FUNDING	**3,440**	**3,021**	**3,100**	**3,191**	**3,223**	**3,426**	**3,381**	**3,425**	**3,560**	**3,697**	**3,794**
APPLICATIONS OF OPERATING FUNDING											
Payments to staff and suppliers	1,554	1,520	1,564	1,608	1,613	1,678	1,762	1,762	1,840	1,908	1,950
Finance costs	49	37	32	26	18	13	10	9	9	8	7
Internal charges and overheads applied	429	300	314	337	341	359	381	388	402	426	433
Other operating funding applications	0	0	0	0	0	0	0	0	0	0	0

	2014/15 Budget $000	2015/16 Budget $000	2016/17 Budget $000	2017/18 Budget $000	2018/19 Budget $000	2019/20 Budget $000	2020/21 Budget $000	2021/22 Budget $000	2022/23 Budget $000	2023/24 Budget $000	2024/25 Budget $000
TOTAL APPLICATIONS OF OPERATING FUNDING	**2,032**	**1,858**	**1,909**	**1,971**	**1,973**	**2,051**	**2,153**	**2,160**	**2,251**	**2,342**	**2,390**
SURPLUS (DEFICIT) OF OPERATING FUNDING	**1,409**	**1,163**	**1,191**	**1,220**	**1,250**	**1,375**	**1,227**	**1,265**	**1,309**	**1,355**	**1,404**
SOURCES OF CAPITAL FUNDING											
Subsidies and grants for capital expenditure	0	0	0	0	0	0	0	0	0	0	0
Development and financial contributions	0	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in debt	(27)	(105)	(105)	(105)	(105)	(105)	(13)	(13)	(13)	(13)	(13)
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Lump sum contributions	0	0	0	0	0	0	0	0	0	0	0
TOTAL SOURCES OF CAPITAL FUNDING	**(27)**	**(105)**	**(105)**	**(105)**	**(105)**	**(105)**	**(13)**	**(13)**	**(13)**	**(13)**	**(13)**
APPLICATIONS OF CAPITAL FUNDING											
Capital expenditure											
- to meet additional demand	0	0	0	0	0	0	0	0	0	0	0
- to improve the level of service	1,068	1,032	1,059	1,087	1,116	1,238	1,182	1,218	1,258	1,302	1,351
- to replace existing assets	0	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in reserves	314	26	27	28	29	32	33	35	38	40	41
Increase (decrease) in investments	0	0	0	0	0	0	0	0	0	0	0
TOTAL APPLICATIONS OF CAPITAL FUNDING	**1,382**	**1,058**	**1,086**	**1,115**	**1,145**	**1,270**	**1,215**	**1,253**	**1,297**	**1,342**	**1,392**
SURPLUS (DEFICIT) OF CAPITAL FUNDING	**(1,409)**	**(1,163)**	**(1,191)**	**(1,220)**	**(1,250)**	**(1,375)**	**(1,227)**	**(1,265)**	**(1,309)**	**(1,355)**	**(1,404)**
FUNDING BALANCE	**(0)**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

L.2 Total Expenditure

Figure L-1 and Figure L-2 show the total expenditure for the rivers activity for the first 10 and 30 years respectively.

Expenditure increases in line with inflation.

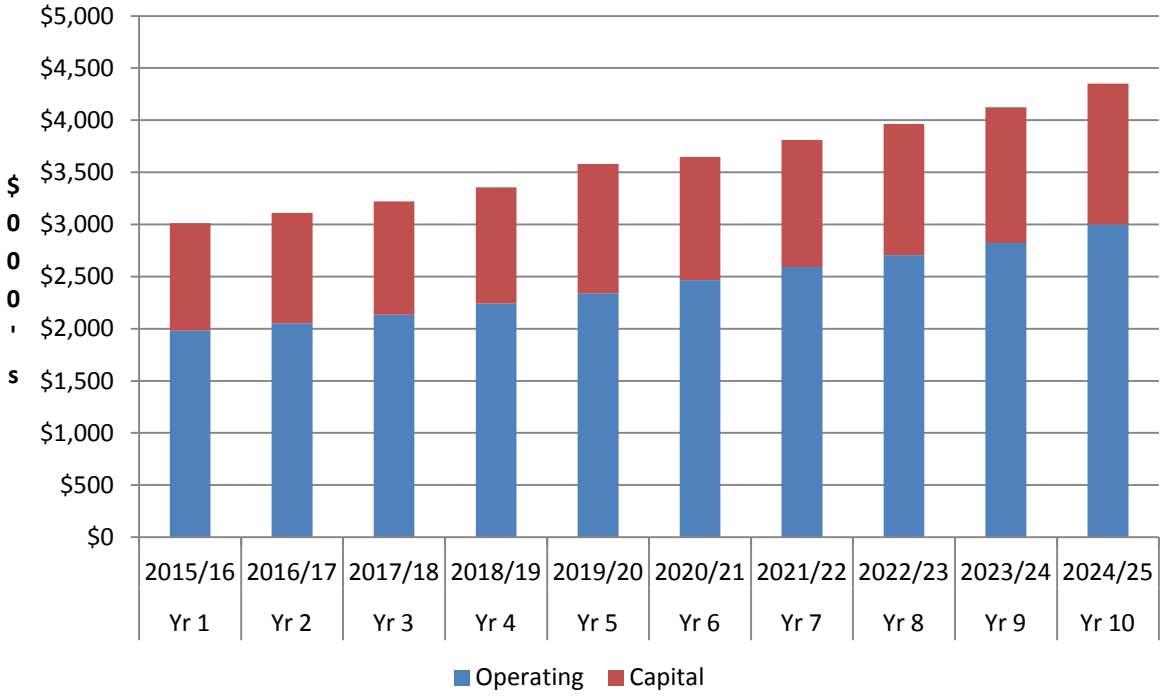


Figure L-1: Total Annual Expenditure Years 1 to 10

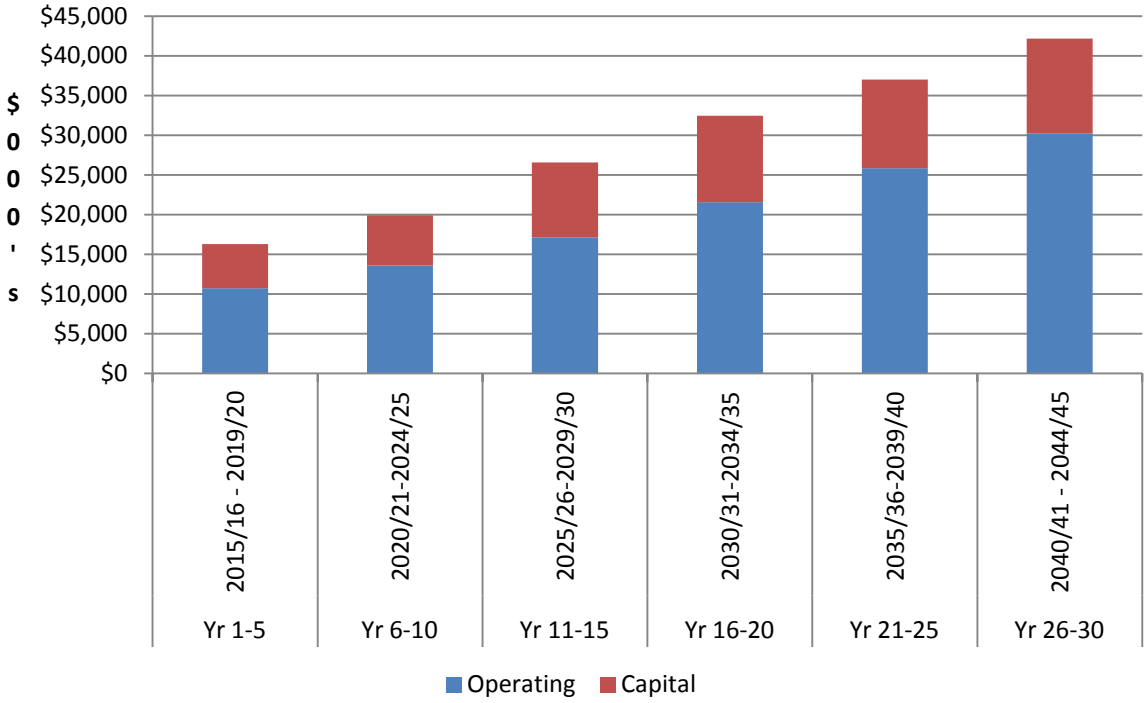


Figure L-2: Five Yearly Total Expenditure Years 1 to 30

L.3 Total Income

Figure L-3 and Figure L-4 show the total income for the rivers activity for the first 10 and 30 years respectively.

Rate increase accounts for the majority of income increase.

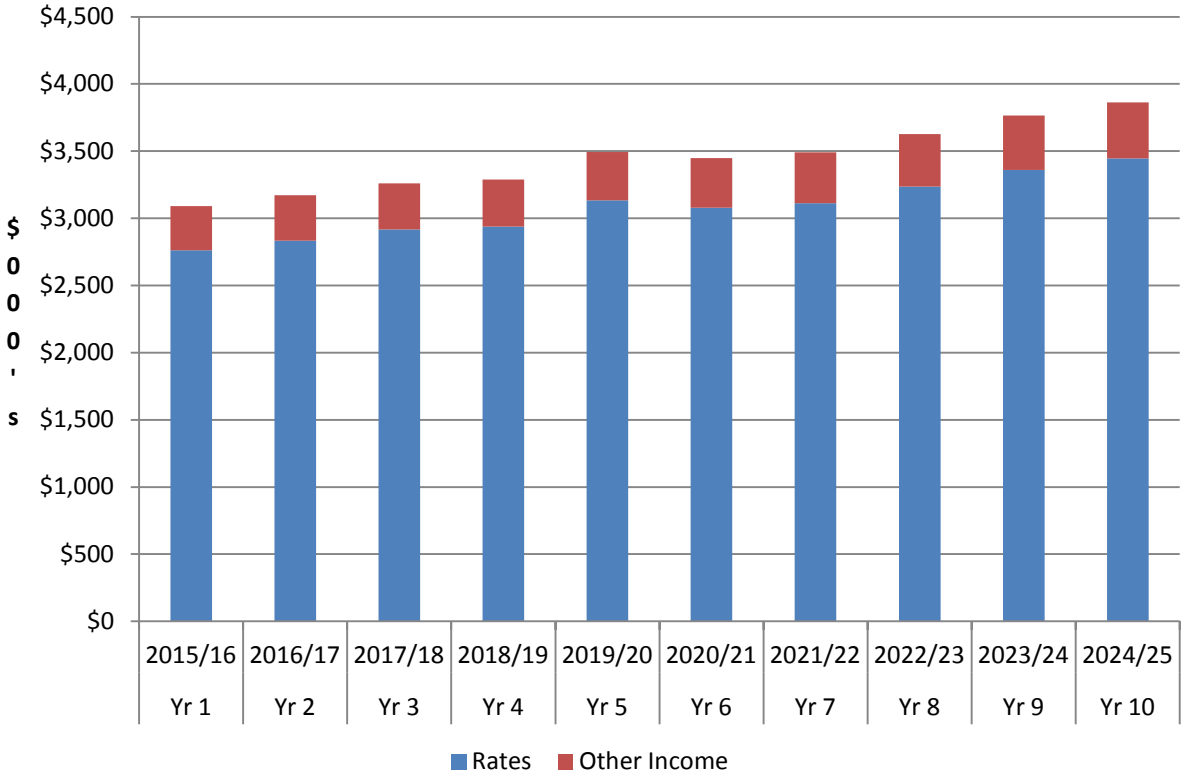


Figure L-3: Total Annual Income Years 1 to 10

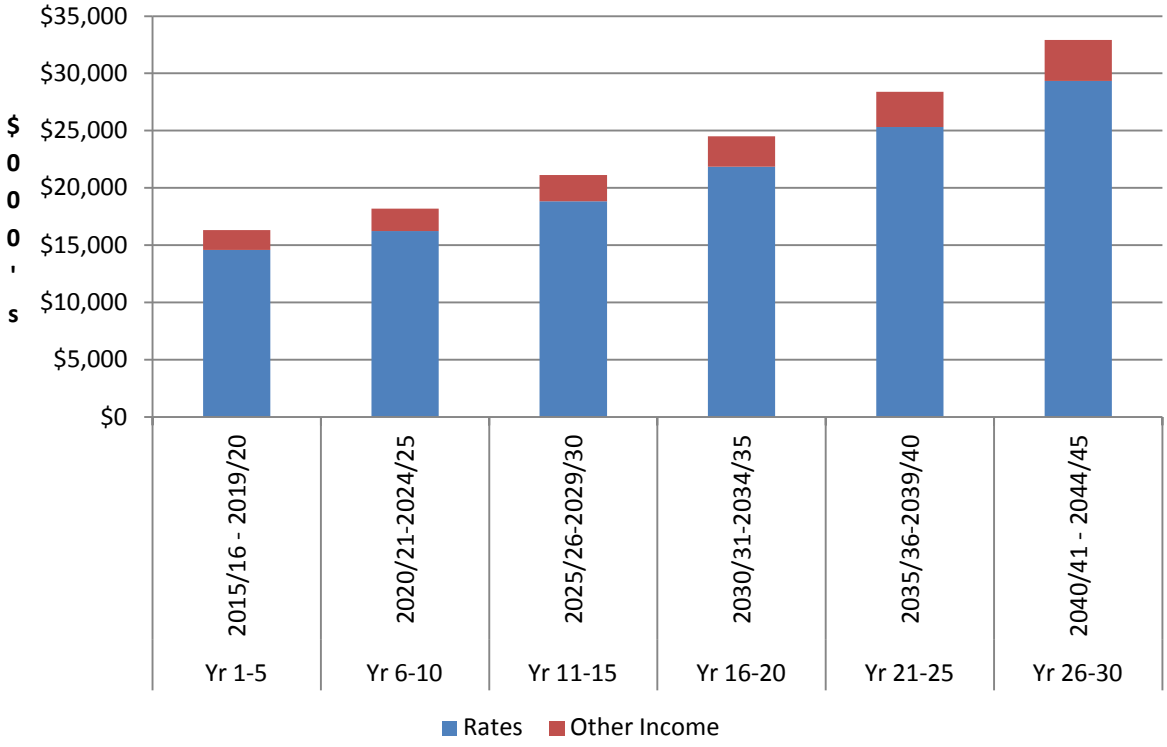


Figure L-4: Five Yearly Total Income Years 1 to 30

L.4 Operational Costs

Figure L-5 and Figure L-6 show the total operating expenditure for the rivers activity for the first 10 and 30 years respectively.

Costs are forecast to increase by 4.7% per year over the first 10 years and by 4.2% per year over 30 years. This is driven by a high annual increase in depreciation. Direct costs increase by 2.75% per year on average for the first 10 years.

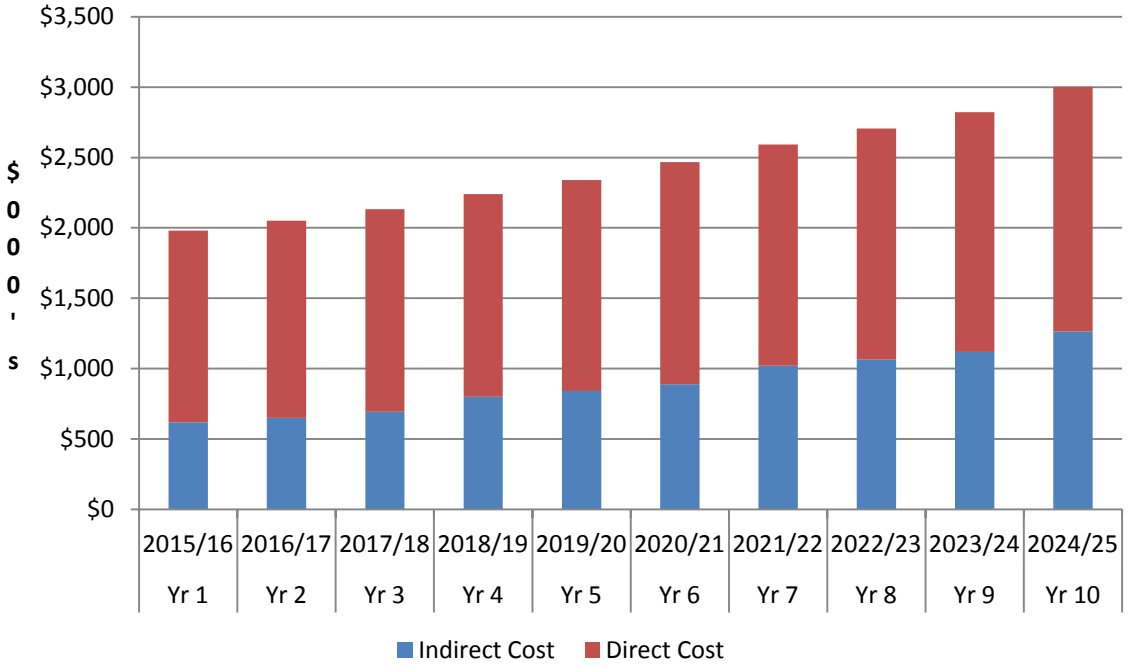


Figure L-5: Annual Operating Costs Years 1 to 10

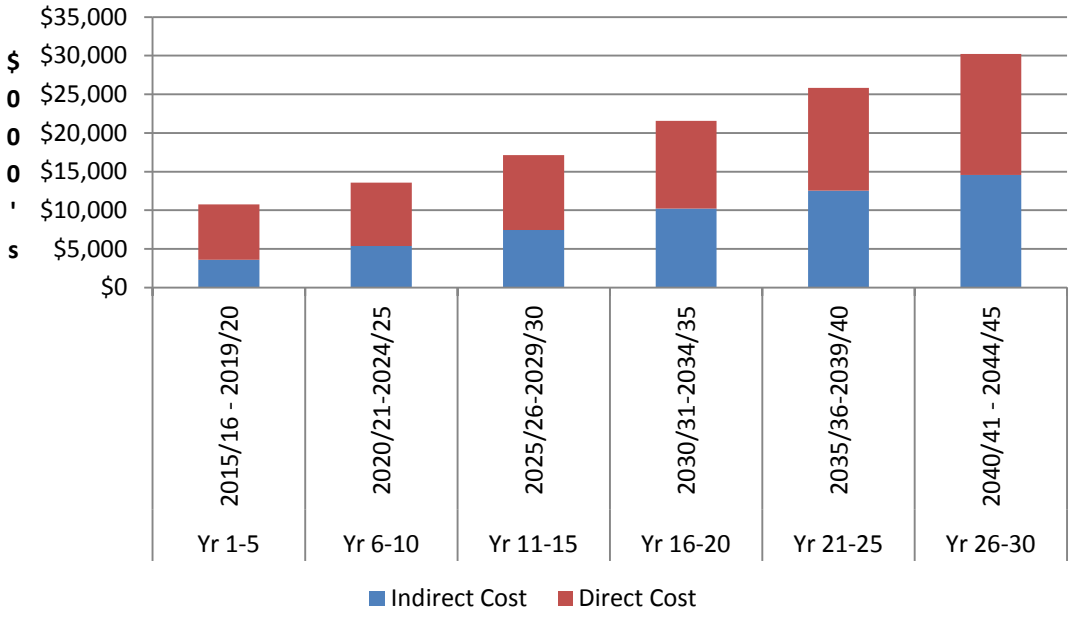
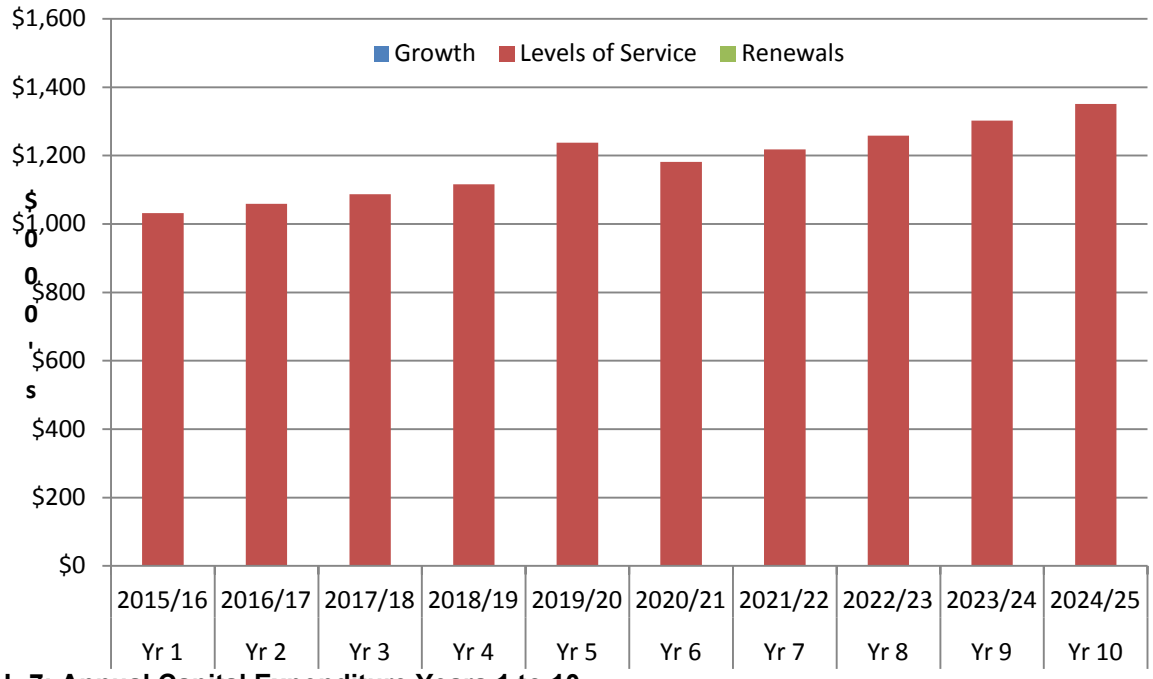


Figure L-6: Five Yearly Operating Costs Years 1 to 30

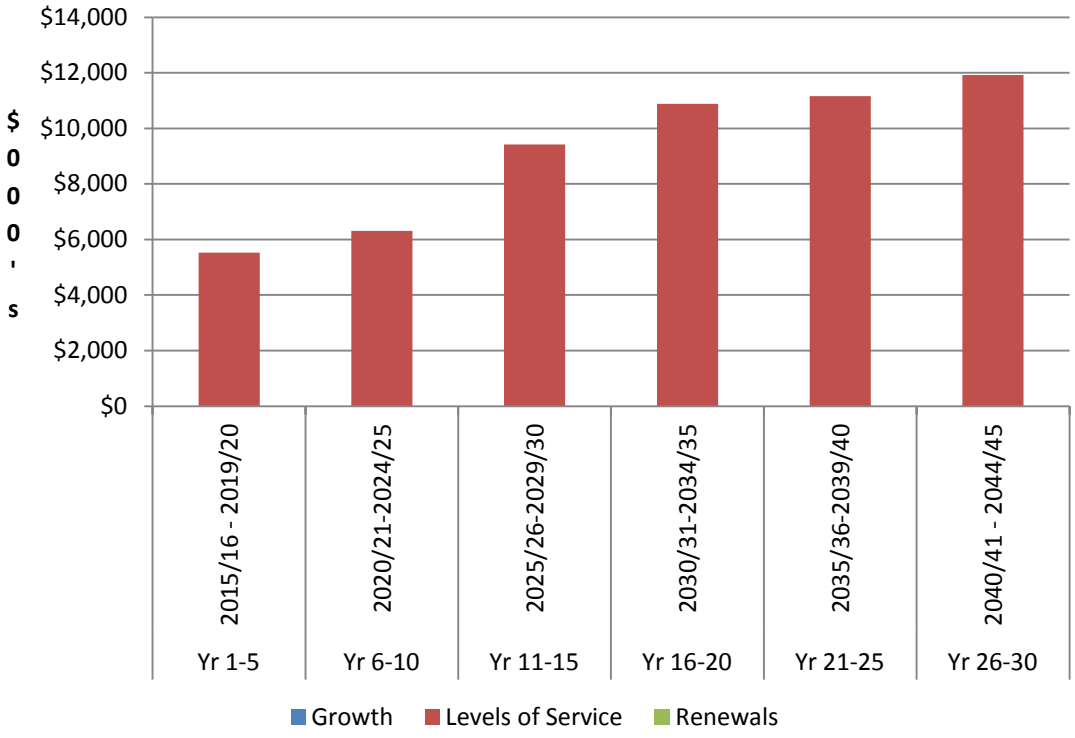
L.5 Capital Expenditure

Figure L-7 and Figure L-8 show the total capital expenditure for the rivers activity for the first 10 and 30 years respectively.

Capital expenditure is forecast to grow by 3.1% per year in the first 10 years and 3.6% per year in the long term. All expenditure is classified as new capital due to the nature of the assets, which involves rock revetment being improved rather than replaced or renewed.



L-7: Annual Capital Expenditure Years 1 to 10



L-8: Five Yearly Capital Expenditure Years 1 to 30

APPENDIX M SCHEDULE OF FEES AND CHARGES

M.1. Funding Strategy

The 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.

Rivers expenditure is funded by the following sources:

- 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.

M.2 Classified Rivers Protection Fund

M.2.1 Purpose

The purpose of the Classified Rivers Protection Fund is the reinstatement of river works (assets) following a major unforeseen event, such as natural disaster. This will relate to damage or destruction of river works in the X and Y rivers areas.

- To provide an immediate cash resource

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

- 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.

M.2.2 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.

M.2.3 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.

M.2.4 Contingency

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

M.2.5 Criteria

1. All calls on the fund should be authorised by resolution of the 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.
2. This is a “last resort fund”. Prior to the use of this fund, the Council should first use 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.
3. Factors to consider in determining the extent to which the fund should be called on are:
    - the impact or potential draw-off from the fund particularly for a single event;
    - the degree of replacement/improvement service capability included in the reinstatement;
    - the programmed replacement cycle of the asset and any proposed change in service capability required;
    - the premise that capital works are funded from capital expenditure budgets and maintenance from operational budgets;
    - the size of any local community or private contribution;
    - the scale and magnitude of the event;
    - 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.
4. Any draw-off from the Fund should be considered for reimbursement from:
    - subsequent loan funds raised for reinstatement purposes;
    - any insurance proceeds;
    - any other proceeds received by the Council in respect to the event.

M.3 Local Authority Protection Programme (LAPP)

The LAPP Disaster Fund is a mutual pool created by local authorities to cater for the replacement of infrastructure following catastrophic damage by natural disaster.

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

M.4 Schedule of Fees and Charges

The 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. Targeted areas for river rates can be found in the Funding Impact Statement in the Long Term Plan.

Rivers Schedule of Fees and Charges (mainly for gravel extraction) can be found in the Annual Plan.

Charges are authorised under Section 36 of the RMA (1991).

APPENDIX N DEMAND MANAGEMENT

N.1 Introduction

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);
- deliver a more sustainable service;
- respond to customer needs.

N.2 Council's Approach to Demand Management

When applying demand management techniques to river 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.

Access to gravel resources is controlled by the Council's staff, with input from external agencies eg, Fish and Game and the Department of Conservation. The resource is currently extracted from within the berms on the following basis:

- the Engineering Department may allocate for extraction 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;
- Environment and Planning staff may allocate for extraction a sustainable quantity of material;
- any interested party may apply for a resource consent to extract metal from within the berm.

The customers using the rivers asset include 4WD groups, recreational walkers, Fish and Game, iwi etc. While the "customers" are given the opportunity to take part in the consultation process (River Care Groups) the primary objective of this asset is to 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.

N.1.1 Other Demand Management Factors

During the preparation of the financial forecasts for this AMP, the factors listed in Table N-1 were considered.

Table N-1: Summary of Rivers Demand Management

Factor	Effect	Mitigation Measure
Gravel extraction	Over extraction of gravel may create bank erosion.	Access to the gravel resource is controlled by Council staff, with input from external agencies eg, Fish and Game and the Department of Conservation.
Urban development	An increase in impermeable areas may affect the runoff volume (likely to be relevant to small catchments only). An increase in population density may result in an increased demand for protection due to the increased value of land and assets being protected.	Managed through the development process and the TRMP conditions. Managed via an increased level of service as developed in consultation with the community and decided by Council.
Land use	Forestry operations such as clear felling may temporarily change catchment characteristics and increase debris run-off, possibly affecting fairway clearing and bank erosion.	Management of forestry operations, and restrictions on sediment control and site clearance through the TRMP, and compliance with the Soil Conservation and Rivers Control Act.
Dams	Construction of dams (specifically the Waimea Community Dam) is expected to have a positive effect on the management of a river due to the reduced flow peaks and more consistent flows.	Accept.

N.3 Climate Change

The RMA 1991 states, in Section 7, that a local authority shall take account of the effects of climate change when developing and managing its resources. The Local Government Act 2002 also contains requirements to "to meet the current and future needs of communities for good quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses". "Good quality" means infrastructure, services, and performance that are efficient and effective and appropriate to present and anticipated future circumstances.

This appendix summarises climate change information available to the Council for asset and activity planning. Key information sources include:

- Climate Change Effects and Impacts Assessment: A Guidance Manual for Local Government in NZ, MfE (2008);
- Climate Change and Variability in the Tasman District, NIWA (2008);
- Mean High Water Springs report, NIWA (2013);
- Fifth Assessment Report, IPCC (2013);
- Extreme sea-level elevations from storm-tides and waves: Tasman and Golden Bay coastlines, NIWA (2014).

N.3.1 Changing Climatic Patterns

To assist local authorities, the Ministry for the Environment (MfE) prepared a report[1] to support councils' assessing expected effects of climate change, and to help them prepare appropriate responses when necessary.

[1] Climate Change Effects and Impacts Assessment A Guidance Manual for Local Government in NZ (MfE, May 2008)

In 2008, Tasman District Council commissioned NIWA to provide local interpretation[2]. The report examined the impacts of expected climate changes for the Tasman-Nelson region.

Subsequently, the Intergovernmental Panel on Climate Change (IPCC) has produced its fifth assessment report AR5 (2013). The AR5 is a result of substantial collective international science over the past five years, and has synthesised the current physical science basis for climate change understanding. The report covers the scope and significance of expected impacts, vulnerabilities and adaptation challenges arising at an international level, and national level.

AR5 does not fundamentally change our understanding of how global climate impacts will manifest themselves locally in Tasman; however the Council will undertake a similar exercise to that of 2008 to commission NIWA to produce a Climate Change and Variability report specific to the Tasman District.

N.3.2 Temperature Change

Table N-2 shows that the mean annual temperatures in Tasman-Nelson are expected to increase in the future.

Table N-2: Projected Mean Temperature Change (Upper and Lower Limits) in Tasman-Nelson (in °C)

	Summer	Autumn	Winter	Spring	Annual
Projected changes 1990-2040	0.2 – 2.2	0.2 – 2.3	0.2 – 2.0	0.1 – 1.8	0.2 – 2.0
Projected changes 1990-2090	0.9 – 5.6	0.6 – 5.1	0.5 – 4.9	0.3 – 4.6	0.6 – 5.0

Source: Climate Change and Variability – Tasman District (NIWA, June 2008)

It is the opinion of NIWA[2] scientists that the actual temperature increase this century is very likely to be more than the 'low' scenario given here. Under the mid-range scenario for 2090, an increase in mean temperature of 2.0°C would represent annual average temperature in coastal Tasman in 2090.

N.3.3 Rainfall Patterns

Table N-3 shows an expected increase in mean annual precipitation in Tasman-Nelson from 1990 to 2090.

Table N-3: Projected Mean Precipitation Change (Upper and Lower Limits) in Tasman-Nelson (in %)

	Summer	Autumn	Winter	Spring	Annual
Projected changes 1990-2040	-14, 27	-2, 19	-4, 9	-8,9	-3,9
Projected changes 1990-2090	-13, 30	-4, 18	-2, 19	-20, 19	-3, 14

Source: Climate Change and Variability – Tasman District (NIWA, June 2008)

N.3.4 Heavy Rainfall

A warmer atmosphere can hold more moisture (about 8% more for every 1°C increase in temperature), so there is an obvious potential for heavier extreme rainfall under climate change.

More recent climate model simulations confirm the likelihood that heavy rainfall events will become more frequent.

N.3.5 Evaporation, Soil Moisture and Drought

From their report, NIWA conclude that there is a risk that the frequency of drought (in terms of low soil moisture conditions) could increase as the century progresses, for the main agriculturally productive parts of Tasman district.

[2] Climate Change and Variability – Tasman District (NIWA, June 2008)

N.3.6 Climate Change and Sea Level

The MfE Report provides guidance for local government on coastal hazards and climate change. The report recommends:

For planning and decision timeframes out to the 2090s (2090–2099):

1) a base value sea-level rise of 0.5 m relative to the 1980–1999 average should be used, along with;

2) an assessment of the potential consequences from a range of possible higher sea-level rises (particularly where impacts are likely to have high consequence or where additional future adaptation options are limited). At the very least, all assessments should consider the consequences of a mean sea-level rise of at least 0.8 m relative to the 1980–1999 average. Guidance on potential sea-level rise uncertainties and values at the time (2008) is provided within the Guidance Manual to aid this assessment.

For planning and decision timeframes beyond the 2090s where, as a result of the particular decision future adaptation options will be limited, an allowance for sea-level rise of 10 mm per year beyond 2100 is recommended.

Since the MfE guidance was published in 2008, the NZ Coastal Policy Statement has been updated requiring identification of areas in the coastal environment that are potentially affected by coastal hazards over at least 100 years, taking into account the effects of climate change (Policy 24).

The two values of sea-level rise to be considered as a minimum number of rises for assessing risk of 0.5 m and 0.8 m by the 2090s in the 2008 MfE guidance are equivalent to rises of 0.7 m and 1.0 m extended out to 2115, which is “at least 100 years” from the present. These projections are for mean sea levels.

In 2013 the Council commissioned NIWA to prepare a report on mean high water springs (MHWS) for Tasman District, and includes a range of sea level rise scenarios[3]. Ongoing sea-level rise will require updates of the MHWS levels and for projecting MHWS levels into the future, whereby the appropriate sea-level rise is simply added to the ‘present day’ MHWS levels. The report includes worked examples for sea-level rise magnitudes of 0.7 m and 1.0 m, which extend the equivalent tie-point values for the 2090s (0.5 m and 0.8 m) in the Ministry for the Environment (2008) guidance out to 2115 to cover at least a 100-year period.

Subsequently, Tasman District Council was granted an Envirolink medium advice grant (1413-TSDC99)[4] for NIWA to develop defensible coastal inundation elevations and likelihoods as a result of combinations of elevated storm-tide, wave setup and wave run-up, along the “open coast” of the Tasman Bay and Golden Bay coastlines. The study excludes inlets and the west coast of Tasman District. The report includes an interactive ‘calculator’ which allows council to accommodate various predicted sea level rise scenarios and different beach profiles.

The extent of coastal inundation in Motueka is being modelled at the time of writing this AMP (2014-2015). The model is an extension of the modelling work undertaken on the movement of the Motueka Sandspit and impacts on Jacket Island. The Motueka modelling is expected to show the depth and extent of land affected by sea water inundation.

Mapua and Ruby Bay have also been subject to inundation modelling as a result of TRMP Plan Change 22. Future urban locations for inundation modelling have yet to be determined.

A wider coastal hazard assessment project for Tasman District commenced in 2014. The project will consider options for risk mitigation and adaptation. The results will be integrated into land use and infrastructure planning.

N.3.7 Potential Impacts on the Council’s Infrastructure and Services

Table N-4 lists the potential impacts of climatic change on the Council’s infrastructure and services.

[3] NIWA Report: Mean High Water Spring (MHWS) levels including sea-level rise scenarios: Envirolink Small Advice Grant (1289-TSDC95), 4 September 2013 (revised 30 April 2014)
[4] NIWA Report: Extreme sea-level elevations from storm-tides and waves: Tasman and Golden Bay coastlines, March 2014.

Table N-4: Local Government Functions and Possible Negative Climate Change Outcomes

Function	Affected Assets of Activities	Key Climate Influences	Possible Effects
Water supply and irrigation	Infrastructure	Reduced rainfall, extreme rainfall events and increased temperature. Sea level rise.	Reduced security of supply (depending on water source). Contamination of water supply. Saltwater intrusion into coastal wells.
Wastewater	Infrastructure	Increased rainfall. Sea level rise.	More intense rainfall (extreme events) will cause more inflow and infiltration into the wastewater network. Wet weather overflow events will increase in frequency and volume. Longer dry spells will increase the likelihood of blockages and related dry weather overflows. Disruption of WWTPs due to coastal inundation or erosion impacts.
Stormwater	Reticulation Stopbanks	Increased rainfall Sea-level rise	Increased frequency and/or volume of system flooding. Increased peak flows in streams and related erosion. Groundwater level changes. Saltwater intrusion in coastal zones. Changing flood plains and greater likelihood of damage to properties and infrastructure.
Transportation	Road network and associated infrastructure (power, telecommunications, drainage).	Extreme rainfall events, extreme winds, high temperatures. Sea-level rise.	Disruption due to flooding, landslides, falling trees and lines. Direct effects of wind exposure on heavy vehicles. Melting of tar. Increased coastal erosion or storm induced damage.
Planning/policy development	Management of development in the private sector. Expansion of urban areas. Infrastructure and communications planning.	All	Inappropriate location of urban expansion areas. Inadequate or inappropriate infrastructure, costly retro-fitting of systems.
Land management	Rural land management	Changes in rainfall, wind and temperature.	Enhanced erosion. Changes in type/distribution of pest species. Increased fire risk. Reduction in water availability for irrigation. Changes in appropriate land use. Changes in evapotranspiration. Increase in crop pests.

Function	Affected Assets of Activities	Key Climate Influences	Possible Effects
Water management	Management of watercourses/lakes/ wetlands	Changes in rainfall and temperature.	More variation in water volumes possible. Reduced water quality. Sedimentation and weed growth. Changes in type/distribution of pest species.
Coastal management	Infrastructure. Management of coastal development.	Temperature changes leading to sea-level changes. Extreme storm events.	Coastal erosion and flooding. Disruption in roading, communications. Loss of private property and community assets. Effects on water quality.
Civil defence and emergency management	Emergency planning and response, and recovery operations.	Extreme events.	Greater risks to public safety, and resources needed to manage flood, rural fire, landslip and storm events.
Biosecurity	Pest management.	Temperature and rainfall changes.	Changes in the range and density of pest species.
Open space and community facilities management	Planning and management of parks, playing fields and urban open spaces.	Temperature and rainfall changes. Extreme wind and rainfall events.	Changes/reduction in water availability. Changes in biodiversity. Changes in type/distribution of pest species. Groundwater changes. Saltwater intrusion in coastal zones. Need for more shelter in urban spaces.
Public Transport	Management of public transport. Provision of footpaths, cycleways etc.	Changes in temperatures, wind and rainfall.	Changed maintenance needs for public transport infrastructure. Disruption due to extreme events.
Waste management	Transfer stations and landfills.	Changes in rainfall and temperature.	Increased surface flooding risk. Biosecurity changes. Changes in ground water level and leaching.
Water supply and irrigation	Infrastructure.	Reduced rainfall, extreme rainfall events and increased temperature.	Reduced security of supply (depending on water source). Contamination of water supply.

Source: Climate Change Effects and Impacts Assessment (MfE, May 2008)

The Council has incorporated the potential impacts of climate change in the 2013 update of the Engineering Standards and Policies.

APPENDIX O NOT RELEVANT TO THIS ACTIVITY

APPENDIX P POTENTIAL SIGNIFICANT EFFECTS

P.1 Potential Significant Negative Effects

Potential significant negative effects and the proposed mitigation measures for the rivers activity are listed below in Table P-1.

Table P-1: Potential Significant Negative Effects

Effect	Description	Mitigation Measures
Gravel extraction	Over extraction of gravel in some areas has the potential to destabilise banks and change groundwater levels.	Gravel availability within the river berms is assessed on various factors, including the annual inspection process and the Council's environment and planning sustainable quota. Generally the sustainable extraction rate of gravel from all rivers has been set at zero by the Council's 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 using weir structures eg. Wai-iti River.
Burning of crack willow	The burning of crack willow following removal can create an air pollution issue if suitable weather conditions are not present. A new pathogen may devastate willow plantings.	The Council's contractor monitors weather conditions and undertakes burning of the crack willow when suitable weather conditions are present. This effect is mitigated by the use of a range of species and ongoing research by the Willow and Poplar Institute.
Waste dumping	Inappropriate use of river berms can cause nuisance to the public, for example dumping of refuse and car bodies.	Given the vast uncontrolled areas of river berm (predominately privately owned), there is unfortunately plenty of opportunity for waste dumping activities to occur. The Council has undertaken to trial closing a section of the Waimea River berm (Appleby Bridge to Lower Queen Street, right bank) to 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 River up to the State Highway 6 Bridge at Brightwater. Refer to the Waimea River Park Management Plan, Items 9.1 and 9.2 for further information.

Effect	Description	Mitigation Measures
Cost	The cost of providing the services.	The Council uses competitive tendering processes to achieve best value for money for works it undertakes.
Stopbank condition	Poor condition of stopbank sections.	Improve education to owners and the Council to gain better control of their use.
Cultural impacts	Potential to affect historic and Waahi tapu sites.	The Council undertakes consultation with affected parties prior to undertaking works. The Council also maintains a record of known heritage sites.

P.2 Significant Positive Effects

The potential significant positive effects are listed below in Table P-2.

Table P-2: Potential Significant Positive Effects

Effect	Description
Economic development	Provision and maintenance of flood control schemes allow for the development of land for high value uses (e.g. residential or horticultural purposes) thereby allowing economic growth and prosperity in the Tasman District.
Safety and personal security	Flood protection and river control works contribute to community well-being by improving protection of communities, life, property and livelihoods.
Environmental sustainability	The Council aims to achieve environmental sustainability whilst managing the rivers activity. This is generally managed by the resource consent process, the TRMP, and compliance with the Soil Conservation and Rivers Control Act. Examples of this approach include the native riparian planting programme, the use of less invasive willow species and preventative erosion plantings plus the consideration of less eco-toxic herbicide sprays.
Economic efficiency	The Council's management of the rivers activity using best practice and competitive tendering to provide the best value for money for the ratepayers and provides jobs for contractors.
Gravel extraction	There is no additional lowering of ground water levels through decreased gravel extraction where river beds are already degraded.

APPENDIX Q SIGNIFICANT ASSUMPTIONS, UNCERTAINTIES AND 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 the Council considers could have a significant effect on the financial forecasts, and discusses the potential risks that this creates.

Q.1.1. Financial Assumptions

The following assumptions have been made:

- all expenditure is stated in dollar values as at 1 July 2014, with no allowance made for inflation;
- all costs and financial projections are GST exclusive.

Q.1.2. Asset Data Knowledge

While the Council has asset registers and many digital systems, processes and records, the 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 a better service.

The 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.

The assumptions that have been made that are considered significant include:

- operations and maintenance budgets assume the absence of a significant flood event (generally greater than AEP 20% / five year return period);
- the majority of the river systems are in satisfactory condition.

Q.1.3. 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 the 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.

The significant assumptions in the growth forecasts are covered in the explanation on method and assumptions in Appendix F: Demand and Future New Capital Requirements.

Q.1.4. Timing of Projects

The timing of many projects can be well-defined and accurately forecast because there are few limitations on the implementation other than the community approval through the LTP/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 community support;
- obtaining a subsidy from central government;
- securing land purchase and / or land entry agreements;
- the timing of large private developments;
- the rate of population growth.

Where these issues may become a factor, allowances have been made to complete in a reasonable timeframe. However, these plans are not always achieved and projects may be deferred as a consequence.

Q.1.5. Funding of Projects

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

Funding assumptions are made about:

- whether projects will qualify for subsidies;
- whether major beneficiaries of the work will contribute to the project, and if so, how much will they pay;
- whether the Council will subsidise the development of the projects.

Q.1.6. Accuracy of Project Cost Estimates

The financial forecasts have 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 projects in the next 30 years advanced to a high level of accuracy. It is general practice for all projects in the first three years and projects over $500,000 in the first 10 years to be advanced to a level that provides reasonable confidence with the estimate.

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

- applying the financial assumptions listed in Q.1.1;
- 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 and land acquisition costs;
- Specific provisions have been included to deal with construction contingency, project complexity and estimate accuracy as described below;
- where capital items from the 2012 AMP have been retained, the estimates have not been revised in detail. Capital costs for the works have been increased by 8.5%.

A 10% construction contingency 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 – ie. 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 in Table Q-1 below, and from this an estimated 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.

Project complexity ratings of “simple”, “normal” or “complex” lead to different cost estimate multipliers of 0.8, 1.0 and 1.3 respectively. In the 2015-2025 AMP preparation cycle, contingencies were reduced to allow for

the reduced risk of full cost overruns on a programme-wide basis. Individual projects are now more likely to go over budget and Council has specifically accepted this risk .

Table Q-1: Life Cycle Estimate Accuracies

Stage in Project Lifecycle	Estimate Accuracy
Concept / Feasibility	± 20%
Preliminary Design / Investigation	± 10%
Detailed Design	± 5%

Q.1.7. Land Purchase and Access

The Council has made the assumption that it will be able to purchase land and/or secure land to complete projects. The risk of delays to project timing is high due to possible delays in obtaining the land or securing access. The Council works to mitigate this issue by undertaking consultation with landowners sufficiently in advance of the construction phase of a project. The consequence of not securing land and/or land access for projects may require redesign which can have a moderate cost implication. If delays do occur, it may influence the level of service the Council can provide.

Q.1.8. Future Changes in Legislation and Policy

The legal and planning framework under which local government operates frequently changes. This can significantly affect the feasibility of projects, how they are designed, constructed and funded. The Council has assumed that there will be no major changes in legislation or policy. The risk of significant changes remains high owing to the nature of government policy formulation. If major changes occur it will impact on required expenditure and the Council has not provided mitigation for this effect.

Q.1.9. Resource Consents

The need to secure and comply with resource consents can materially affect asset activities and the delivery of projects.

Complying with resource consent conditions can affect the cost and time required to perform an activity, and in some instances determine whether or not the activity can continue. The Council has assumed that there will be no material change in operations due to consenting requirements over the period of the AMP.

There may be some risk of change in the following areas of the activity:

- maintenance and LOS improvement of the stopbanks eg, Riwaka;
- global rivers consent;
- gravel removal.

Securing resource consent is often a significant task in the successful delivery of a project or in the management of a particular activity. Consent applications may consume considerable time and resources, particularly in the instance of a publicly-notified application or where a decision is subject to appeal.

The Council has assumed that there will be no material change in the need to secure consents for activities and that consent costs for future projects will be broadly in line with the cost of consents in the past.

Exceptions to this assumption or projects with significant risks include:

- asset improvements to the stopbanks.

Q.1.10. Disaster Fund Reserves

The level of funding held in Council's disaster fund reserves and available from insurance cover will be adequate to cover reinstatement following emergency events. The risk of inadequate reserves and recovery from insurance claims would mean deferral of future capital projects to provide any financial shortfall required to cover reinstatement costs.

Q.1.11. Significant Assumptions and Uncertainties for Projects Assigned Over the Next Three Years

There are no significant projects scheduled for the next three years.

Q.1.12. 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. The Council has approached this matter by joining the Local Authority Protection Programme (LAPP) Disaster Fund and maintaining a Classified Rivers Protection Fund. The Council policy is to maintain $1 million within the fund by a $100,000 annual contribution, as the fund is presently in excess of $1 million this amount has been reallocated elsewhere (Rivers Z) until required. 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 Classified Rivers Protection Fund to cover more repair works;
- reduce the level of funding to the Classified Rivers Protection Fund, 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 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.1.13. Major Events

A major flood event generally has an Annual Exceedance Probability (AEP) greater than 20% (five year return period) for areas without stopbanks.

The financial forecasts have been prepared under the assumption that no major events will occur above the flood protection and erosion control assets ability to cope with. If a major flood event does occur it may have a major effect on the operations and maintenance budgets due to the extent of reinstatement required and associated costs. The Council will need to prioritise expenditure if a situation such as this arises, the risk of which is high.

Q.2 Risk Management

Q.2.1. Why we do Risk Management

Risk management is the systematic process of identifying, analysing, evaluating, treating and monitoring risk events so that they are mitigated as far as possible, refer to Figure Q-1.

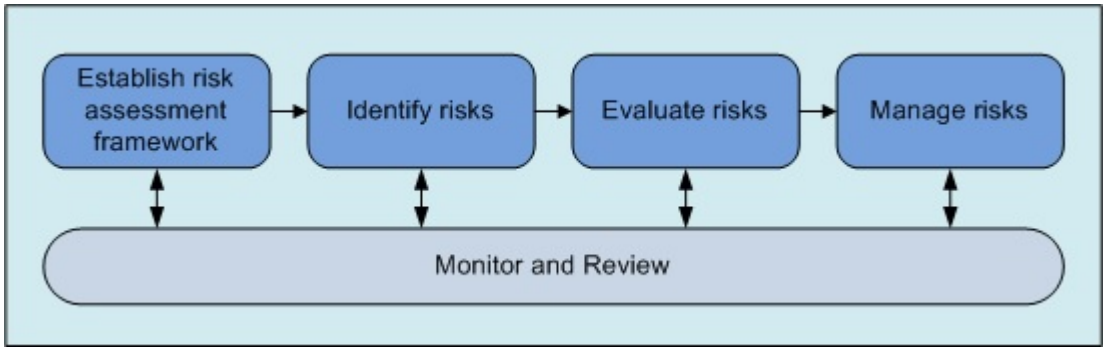


Figure Q- 1: Risk Management Process

Risk management involves assessing each risk event and identifying an appropriate treatment. Treatments are identified to try and manage or reduce the risk. There are some risk events for which it is near impossible or not feasible to reduce the likelihood of the event occurring, or to mitigate the effects of the risk event if it

occurs eg, extreme natural hazards. In this situation the most appropriate response may be to accept the risk as is, or prepare response plans and consider system resilience.

If risks are well managed it can reduce:

- disruption to infrastructure assets and services;
- financial loss;
- damage to the environment;
- injury and harm;
- legal obligation failures.

Q.2.2. Our Approach to Risk Management

Q.2.2.1 Risk Assessment Framework

The Council's risk assessment framework was developed in 2011 to be consistent with *AS/NZS IS 4360:2004 Risk Management.* It assesses risk exposure by considering the consequence and likelihood of each risk event. Risk exposure is managed at three levels within the Council organisation, refer to Figure Q-2:

- Level 1 – Corporate Risks;
- Level 2 – Activity Risks;
- Level 3 – Operational Risks.

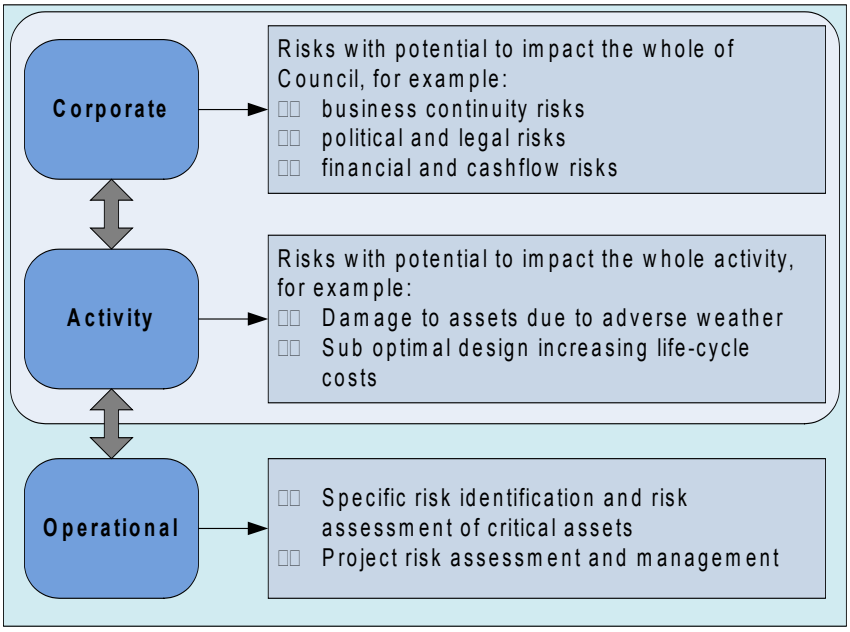


Figure Q-2: Levels of Risk Assessment

The risk assessment framework discussed in Section Q.2.2.1 and Q.2.2.2 is applied to corporate and activity specific risks. There are some risk events which could be interpreted as either corporate or activity level risks. For example, a risk event may have the potential to impact the Council organisation as a whole or many parts of the organisation if it was to occur. In the first instance this type of risk would be classified as a corporate risk. There is however a secondary consideration that needs to be given, that is, "is the risk best managed in different ways within the separate activities?" For example, a large seismic event will likely impact the Council organisation as a whole however each activity will prepare for and manage these risks differently; eg, water reservoirs may be strengthened to minimise the risk of collapse, or corporate services may prepare a business continuity plan.

The Council is yet to implement consistent risk management processes at the operational risk level. Development of the critical asset framework is discussed in Section Q.2.5. The Council plans to develop a framework for assessing maintenance and project risks in 2015.

Q.2.2.2 Risk Identification and Evaluation

The risk management framework requires the activity management team to identify activity risks and to then assess the risk, likelihood and consequence for each individual event. The definitions of risk, likelihood and consequence are defined Figure Q- 3.

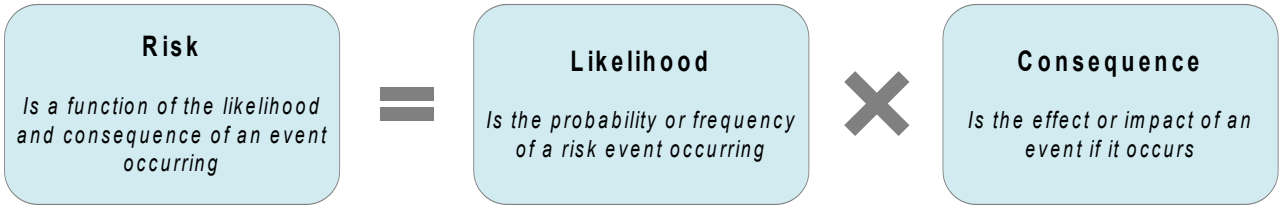


Figure Q-3: Risk Assessment Definitions

The Council has developed objective-based scales to assist asset managers when determining the likelihood and consequence scores for all risk events. The consequence of each risk event is assessed on a scale of one-to-100 for all of the consequence categories listed in Table Q-3 and the respective consequence rating score (Table Q-4) is selected.

Table Q-2: Risk Consequence Categories

Category		Sub Category	Description
Consequence Categories	Service Delivery	N/A	Asset's compliance with Performance Measures and value in relation to outcomes and resource usage.
	Social / Cultural	Health and Safety	Impact as it relates to death, injury, illness, life expectancy and health.
		Community Safety and Security	Impact on perceived safety and reported levels of crime.
		Community / Social / Cultural	Damage and disruption to community services and structures, and effect on social quality of life and cultural relationships.
		Compliance / Governance	Effect on the Council's governance and statutory compliance.
		Reputation / Perception of Council	Public perception of the Council and media coverage in relation to the Council.
	Environment	Natural Environment	Effect on the physical and ecological environment, open space and productive land.
		Built Environment	Effect on amenity, character, heritage, cultural, and economic aspects of the built environment.
	Economic	Direct Cost	Cost to the Council.
		Indirect Cost	Cost to the wider community.

Table Q-3: Consequence Ratings

Consequence Rating					
Description	Extreme	Major	Medium	Minor	Negligible
Rating	100	70	40	10	1

Table Q-5 provides a summary of the likelihood assessment criteria.

Table Q-4: Likelihood Ratings

Likelihood Rating			
Description	**Frequency**	**Criteria**	**Rating**
Almost certain	Greater than every 2 years	The threat can be expected to occur **or** A very poor state of knowledge has been established on the threat	5
Likely	Once per 2-5 years	The threat will quite commonly occur **or** A poor state of knowledge has been established on the threat	4
Possible	Once per 5-10 years	The threat may occur occasionally **or** A moderate state of knowledge has been established on the threat	3
Unlikely	Once per 10-50 years	The threat could infrequently occur **or** A good state of knowledge has been established on the threat	2
Very Unlikely	Less than once per 50 years	The threat may occur in exceptional circumstances **or** A very good state of knowledge has been established on the threat	1

Using the existing risk management framework summarised in Table Q-6, the risk score is calculated by multiplying the likelihood of the risk event with the highest rated individual consequence category for that risk event to generate a risk score, as shown in Table Q-6.

Table Q-5: Risk Scores

Risk Scoring Matrix		Consequence				
		Negligible	Minor	Medium	Major	Extreme
Likelihood	Almost Certain	5	50	200	350	500
	Likely	4	40	160	280	400
	Possible	3	30	120	210	300
	Unlikely	2	20	80	140	200
	Very Unlikely	1	10	40	70	100

Risk Score
Extreme
Very High
High
Moderate
Low
Negligible

An example of how the risk score is calculated is below.

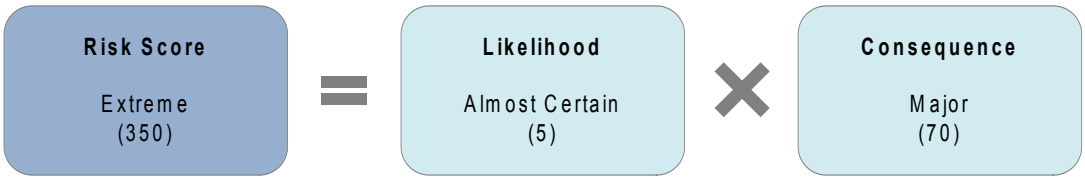


Figure Q-4: Risk Score Calculation

Risk scores are generated for inherent risk, current risk and target risk.

- inherent risk is the raw risk score without taking into consideration any current or future controls;
- current risk is the level of risk to the Council after considering the effect of existing risk management controls;
- target risk is the level of risk the Council expects and wants to achieve after applying the proposed risk management controls;

In some cases it is not feasible to reduce the inherent risk and in this case the Council would accept the inherent risk level as the current and target risk levels.

Q.2.2.3 Limitations

The processes outlined above forms a conservative approach to evaluating risk and could been seen as representing the worst case scenario. It also provides limited ability to differentiate the priority of risks due to the potential to score highly in at least one of the consequence categories; this tends to create a smaller range of results. For example two events with a likelihood of "Almost Certain (5)" have been compared below:

- **Event A** – scores "Major (70)" for one consequence category and "Negligible (1)" in all the remaining consequence categories, this will generate an inherent risk score of "Extreme (350)".
- **Event B** – scores "Medium (40)" in all 10 consequence categories, this will generate an inherent risk score of "Very High (200)".
- **Event C** – scores "Major (70)" in all 10 consequence categories, this will generate an inherent risk score of "Extreme (350)".

These examples show that there are limitations for the Council when prioritising risk events, especially those that may have a wider impact on the activity e.g. Event B or C. Consequently, the Council acknowledges that there are some downfalls in its existing framework and it has proposed to undertake a full review of its risk management framework during 2015.

Q.2.3. Corporate Risk Mitigation Measures

Q.2.3.1 Asset Insurance

Tasman District Council has various mechanisms to insure assets against damage. These include:

- Tasman District Council insures it's above ground assets, like buildings, through private insurance which is arranged as a shared service with Nelson City and Marlborough District Councils.
- Tasman District Council is a member of the Local Authority Protection Programme (LAPP) which is a mutual pool created by local authorities to cater for the replacement of some types of infrastructure assets following catastrophic damage by natural disasters like earthquake, storms, floods, cyclones, tornados, volcanic eruption and tsunami. These infrastructure assets are largely stopbanks along rivers and underground assets like water and wastewater pipes and stormwater drainage.
- Taman District Council has a Classified Rivers Protection Fund, which is a form of self-insurance. The fund is used to pay the excess on the LAPP insurance, when an event occurs that affects rivers and stopbank assets.

- Tasman District Council has a General Disaster Fund, which is also a form of self-insurance. Some assets, like roads and bridges, are very difficult to obtain insurance for or it is prohibitively expensive if it can be obtained. For these reasons the Council has a fund that it can tap into when events occur which damage the Council's assets that are not covered by other forms of insurance. Some of the cost of damage to these assets is covered by central government, for example the New Zealand Transport Agency covers around half the cost of damage to local roads and bridges (as set out in the co-investment rate/financial assistance rate).
- Refer to the Council's Financial Strategy for insurance disclosures as required under Section 31 of the Local Government Act.

Q.2.3.2 Civil Defence Emergency Management

The Civil Defence Emergency Management Act 2002 was developed to ensure that the community is in the best possible position to prepare for, deal with, and recover from local, regional and national emergencies. The Act requires that a risk management approach be taken when dealing with hazards including natural hazards. In identifying and analyzing these risks the Act dictates that consideration is given to both the likelihood of the event occurring and its consequences. The Act sets out the responsibilities for Local Authorities. These are:

- ensure you are able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency;
- plan and provide for civil defence emergency management within your own district.

Tasman District Council and Nelson City Council jointly deliver civil defence as the Nelson Tasman Civil Defence Emergency Management (CDEM) Group. The vision of the CDEM Group is to build "A resilient Nelson Tasman community".

Civil Defence services are provided by the Nelson Tasman Emergency Management Office. Other council staff are also heavily involved in preparing for and responding to civil defence events. For example, the Council monitors river flows and rainfall, and has a major role in alleviating the effects of flooding.

The Nelson Tasman Civil Defence Emergency Management Group developed a Regional Plan in 2012. The Plan sets out how Civil Defence is organised in the region and describes how the region prepares for, responds to and recovers from emergency events. A review is scheduled for 2016/2017.

Q.2.3.3 Engineering Lifelines

The Nelson Tasman Engineering Lifelines (NTEL) project commenced in 2002. The NTEL Group formed in 2003. Its report *Limiting the Impact* was reviewed in 2009. The purpose of the report was:

- to help the Nelson Tasman region reduce its infrastructure vulnerability and improve resilience through working collaboratively;
- to assist Lifeline Utilities with their risk reduction programmes and in their preparedness for response and recovery;
- to provide a mechanism for information flow during and after an emergency event.

The NTEL Group is in the process of applying for funding to hold a further review to begin in 2015.

The project was supported and funded by the two controlling authorities, Nelson City Council and Tasman District Council. Following the initial start-up forum in 2002, a Project Steering Group was formed and initial project work was completed. The initial work to investigate risks and assess vulnerabilities from natural hazard disaster events was divided amongst five task groups:

- Hazards Task Group;
- Civil Task Group;
- Communications Task Group;
- Energy Task Group;
- Transportation Task Group.

These groups were then tasked with assessing the risk and vulnerability of segments of their own networks against the impacts of major natural hazard disaster events. These natural hazards included:

- earthquake;
- landslide;
- coastal/ flooding.

The Nelson Tasman region is geotechnically complex with high probabilities of earthquake, river flooding and landslides. By identifying impacts that these hazards may have on the local communities, the NTEL Group aim to have processes in place to allow the community to return to normal functionality as quickly as possible after a major natural disaster event.

To date the project has identified the impacts of natural hazards and the critical lifelines of the regions service networks including communication, transportation, power and fuel supply, water, sewerage, and stormwater networks. The initial NTEL assessment work is the first stage of an on-going process to gain a more comprehensive understanding of the impacts of natural hazards in the Nelson Tasman region.

Q.2.4. Recovery Plans

These plans are designed to come into effect in the aftermath of an event causing widespread damage and guide the restoration of full service.

The Recovery Plan for the Nelson Tasman Civil Defence and Emergency Management Group (June 2008) identifies recovery principles and key tasks, defines recovery organisation, specifies the role of the Recovery Manager, and outlines specific resources and how funds are to be managed.

Information about welfare provision in the Nelson-Tasman region is contained in a Welfare Plan (December 2005), which gives an overview of how welfare will be delivered during the response and recovery phases of an emergency.

The plan is a coordinated approach to welfare services for both people and animals in the Nelson Tasman region following an emergency event.

Q.2.5. Business Continuance

- The Council has a number of processes and procedures in place to ensure minimum impact to coastal structures services in the event of a major emergency or natural hazard event.
- The Council has limited business continuity plans that were developed around influenza pandemic planning in 2014.
- The Council's contractors have up to date Health and Safety Plans in place.

Q.2.6. Rivers Risks

In order to identify the key activity risks the asset management team has applied a secondary filter to the outcomes of the risk management framework. This is necessary to overcome the limitations of the framework. To apply this secondary filter the asset management team has used their rivers knowledge and engineering judgement to identify the key activity risks. The key risks relevant to the rivers activity are summarised in Table Q-7.

Table Q-6: Key Risks

Risk Event	Mitigation Measures
Access to stopbanks and rivers through private property	**Current** • Stakeholder management. • Works entry agreements. • Use of the Council's property team to undertake land purchase negotiations. • Public Works Act.

Risk Event	Mitigation Measures
Ineffective stakeholder engagement e.g. iwi, Historic Places Trust, community groups	**Current** • The Council holds regular iwi meetings. • The Council's GIS software includes layers identifying cultural heritage sites and precincts. Council staff apply for Historic Places Trust authorities when these known sites are at risk of damage or destruction. • Project management processes and Council's consultation guidelines are followed. • Annual river care meetings are held in each catchment with stakeholders.
Failure to adequately prepare infrastructure for climate change and resulting in unacceptable flood hazard	**Current** • Reactive inspections and maintenance/repairs following extreme weather events. **Proposed** • Development of the Council's 'holistic' river care management policy.
Customer perception of the Council not doing enough to protect private property and public assets	**Current** • Introduction of the interim coastal policy statement. • Regular contact with communities. • Management of resource consents and CSRs.

An asset management improvement item included in Appendix V is to review all inherent, current and target risk scores following the adoption of the amended framework.

Q.2.6.1 Other Risks Mitigation Measures

General risk mitigation is fostered by continual staff and system development to progressively improve the "what" and "how" we are undertaking the activity.

Q.2.7. Critical Assets

The draft rivers critical asset framework was developed in 2014. The framework is largely complete but is yet to be finalised and implemented. It is planned to implement the framework during 2015 to test the draft weightings and respective scores. It is likely that the framework will be refined after this initial test run.

Figure Q-5 represents the process used by the rivers activity planning team to assess rivers assets for criticality.

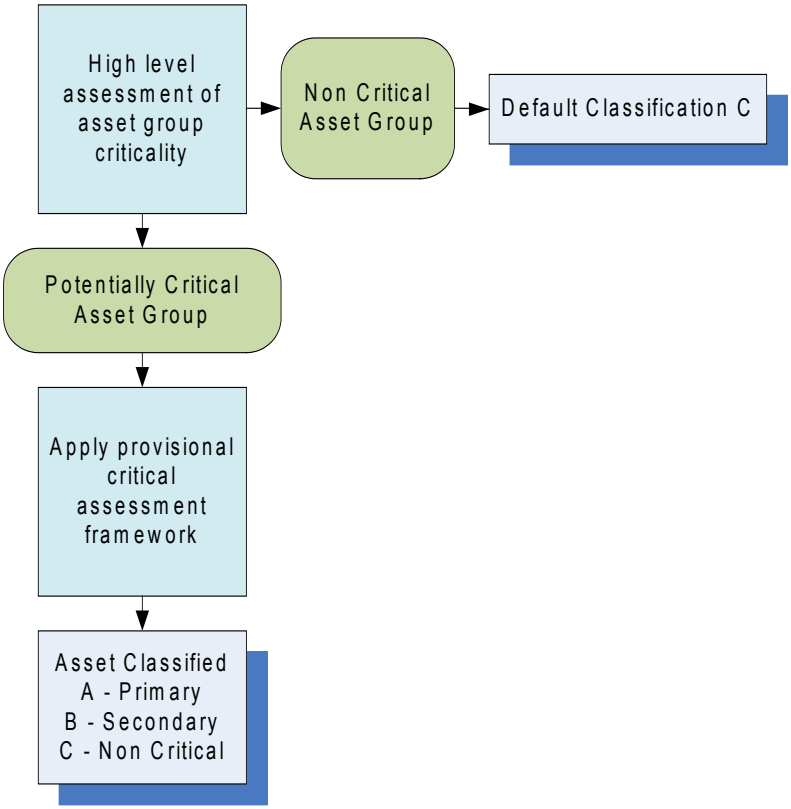


Figure Q-5: Critical Asset Assessment Process

A high level assessment was first undertaken to determine if some asset groups as a whole could be considered either critical or non-critical. This initial assessment determined that the Waimea, Riwaka and Motueka stopbank systems and floodgates are critical asset groups.

Weirs and rock walls are considered non-critical.

The key inputs into the framework and critical asset decision making process are:

- Nelson Tasman Engineering Lifelines report;
- transportation and utilities critical assets located within the floodplains;
- network and asset engineer's knowledge and experience.

Q.2.7.1 Critical Asset Assessment

All stopbanks and floodgates will be assessed for criticality. Criticality assessments will be completed using the framework set out in Table Q-8 below.

Table Q-7: Critical Asset Framework

ID	Criteria Category	Well-being	Severity Score	Score	Weighting	Point Score
1			Potential for severe impact on quality of life	5		50
	Quality (includes social impact and lifelines)	Social/Cultural	Potential for moderate impact on quality of life	3	10	30
			Minimal impact	1		10

ID	Criteria Category	Well-being	Severity Score	Score	Weighting	Point Score
2			Severe disruption to whole community	5		50
	Quantity (disruption to LOS including access and number of properties affected)	All	Moderate disruption- affects a neighbourhood	3	10	30
			Minimal disruption - affects a property	1		10
3			May take longer than a week to repair	5		50
	Time to Repair	All	May take up to a week to repair	3	10	30
			May be temporarily repaired within 48 hours	1		10
4			Costs greater than $50,000 to repair	5		100
	Cost of Repair	All	Costs between $10,000 and $50,000 to repair	3	20	60
			Costs less than $10,000 to repair	1		20
5	Environmental Impact	Environment	Failure of asset would have an environmental impact	5	5	25
			Failure of asset would not have an environmental impact	1		5
6	Cultural Impact	Social/Cultural	Failure of asset would have a cultural impact	5	5	25
			Failure of asset would not have a cultural impact	1		5
8			Asset supports/protects multiple other critical assets	5		125
	Supports other Critical Assets	All	Asset protects one critical asset	3	25	75
			Does not support a critical asset	1		25

Once the final score has been calculated the critical asset hierarchy can be determined as shown in Table Q-9. The critical asset hierarchy will be a key input that informs asset life-cycle decisions, especially when considering how much the Council should prolong the life of an asset.

Table Q-8: Critical Asset Hierarchy

Category	Description	Score
A	Primary	>250
B	Secondary	125-250
C	Non Critical	<125

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

R.1 Introduction

A key objective of this AMP is to match the level of service provided by the rivers activity 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 work programmes identified in the AMP.

The levels of service for rivers have been developed to contribute to the achievement of the 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.

R.2 How do our Rivers Activities Contribute to the 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 A-1 in Appendix A.

R.3 Level of Service

Levels of service are attributes that Tasman District Council expects of its assets to deliver the required services to stakeholders.

A key objective of this plan is to clarify and define the levels of service for the rivers assets, and then identify and cost future operations, maintenance, renewal and development works required of these assets to deliver that service level. This requires converting user's needs, expectations and preferences into measurable levels of service.

Levels of service can be strategic, tactical, operational or implementation and should reflect the current industry standards and be based on.

- ***Customer Research and Expectations:*** Information gained from stakeholders on expected types and quality of service provided.
- ***Statutory Requirements:*** Legislation, regulations, environmental standards and Council bylaws that impact on the way assets are managed eg. resource consents, building regulations, health and safety legislation. These requirements set the minimum level of service to be provided.
- ***Strategic and Corporate Goals:*** Provide guidelines for the scope of current and future services offered and manner of service delivery, and define specific levels of service, which the organisation wishes to achieve.
- ***Best Practices and Standards***: Specify the design and construction requirements to meet the levels of service and needs of stakeholders.

R.3.1. Industry Standards and Best Practice

The AMP acknowledges the Council's responsibility to act in accordance with the legislative requirements that impact on the Council's rivers activity. A variety of legislation affects the operation of these assets, as detailed in Appendix A.

R.3.2. Prioritisation Related to Available Resources

Rivers assets often have higher levels of maintenance and renewal requirements proposed (increased levels of service etc) than resources allow for. Tradeoffs then have to be made as to what impacts on the ability of an asset to provide a service against the 'nice to have' aspects.

R.4 What Level of Service Do We Seek to Achieve?

There are many factors that need to be considered when deciding what level of service the Council will aim to provide. These factors include:

- the Council must aim to understand and meet the needs and expectations of the community;
- the services must be operated within the Council's policy and objectives;
- the Council must meet its statutory obligations;
- the community must be able to fund the level of service provided.

Two tiers of levels of service are outlined; strategic and operational.

The operational levels of service and performance measures used to ensure the service and facilities are able to achieve the strategic levels of service and the Council's objectives.

Level of services need to be reviewed and upgraded on a continuous basis in line with legislative and regulatory changes and feedback from customers, consultation, internal assessments, audits and strategic objectives.

The levels of service that the Council has adopted for this AMP have been developed from the levels of service prepared in the July 2012 AMP. They take in to account feedback from various parties, including Audit New Zealand, industry best practice and ease of measuring and reporting of performance measures.

The Council has decided to reduce the number of levels of service reported in the LTP, showing only those that are considered to be customer focused. The AMP extends the levels of service and performance measures to include the more technical measures associated with the management of the activity.

Table R-1 details the levels of service and associated performance measures for the rivers activity. Those shaded are the customer-focused measures which are included in the LTP. The table sets out the Council's current performance and the targets they aim to achieve within the next three years and by the end of the next 10 year period.

The levels of service and performance measures are consulted on and adopted as part of the LTP consultation process.

R.4 Plans Council Has Made to Meet the Levels of Service

In preparing the future financial forecasts, the Council has included specific initiatives to meet the current or intended future levels of service.

The Council is making a capital works investment of $33.4 million over the 30 year period to upgrade existing rivers assets and improve levels of service. This includes the following projects:

- Class X and Y asset creation (largely additional rock protection);
- Takaka River Flood Control project;
- Riwaka River Flood Control project.

In addition to the capital works, the Council has allocated a budget of $39.7 million over the 30 year period for the operation and maintenance of its current and future river assets. This allocation includes for professional services and for investigation work and studies such as resource consent procurement.

Table R-1: Assessment of Current Performance Against Levels of Service and Intended Future Performance

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if…)	Current Performance (to end June 2014)	Future Performance			Future Performance (targets) by Year 10 2024/25
				Year 1	Year 2	Year 3	
				2015/16	2016/17	2017/18	
Community Outcome: Our unique natural environment is healthy and protected.							
1	**River maintenance tasks are carried out in a safe, efficient and sustainable manner.**	*Council holds appropriate consents for the work it does.* *As measured by the number of notices issued to Council's flood protection and rivers control activity.*	**Actual = No notices issued** *Resource consents held are:* *Global* – for works in rivers and some gravel extraction; and vegetation spraying. Contracts include the conditions of the consents and performance measures include requirements to meet the Resource Consent conditions. The Council or its contractor have not received any non-compliance with respect to the resource consents.	*No notices issued*	*No notices issued*	*No notices issued*	*No notices issued*
2	**We manage waste/rubbish in the river system.**	*Complaints about illegal dumping in the X, Y and Z classified rivers and on adjacent beaches on public land are actioned within 5 days.* *As measured through Customer Service Requests in Council's database. CSR's are responded to within 5 days.*	**Actual =** Not currently measured	*100%*	*100%*	*100%*	*100%*
Community Outcome: Our urban and rural environments are pleasant, safe and sustainably managed.							
3	**We maintain Council's stopbank assets in River X classified areas to deliver flood protection to the level that the stopbanks were originally constructed.**	Our stopbanks are maintained to their original constructed standard. (Riwaka River = 1 in 10 yr flood return in 1950). (Lower Motueka River = 1 in 50 yr flood return in 1950). (Waimea River = 1 in 50 yr flood returnin 1950). No failure of flood protection in the existing stopbank system maintained by Council below the specified design levels	**Actual** Riwaka River = 88% Motueka River = 100% Waimea River = 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%
4	**In River Z rating areas we provide technical support and partial funding assistance when available to protect private property from river damage.**	Council funding for River Z related works is allocated on a first-in, first-served basis and the budget is fully spent/committed by year end. As measured through date of receipt of acceptable proposals for River Z works completed.	**Actual = 14 completed of 29 approved** Because of the significant flood event of 28 December 2010 and subsequent high number of River Z enquires some of the requests were not able to be responded to within 10 days.	100% completed	100% completed	100% completed	100% completed
Community Outcome: Our urban and rural environments are pleasant, safe and sustainably managed.							
3	**We maintain the Council's stopbank assets in River X classified areas to deliver flood protection to the level that the stopbanks were originally constructed.**	Our stopbanks are maintained to their original constructed standard. (Riwaka River = 1 in 10 yr flood return in 1950). (Lower Motueka River = 1 in 50 yr flood return in 1950). (Waimea River = 1 in 50 yr flood return in 1950). No failure of flood protection in the existing stopbank system maintained by the Council below the specified design levels.	**Actual** Riwaka River = 88% Motueka River = 100% Waimea River = 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%	88% 100% 100%
4	**In River Z rating areas we provide technical support and partial funding assistance when available to protect private property from river damage.**	The Council funding for River Z related works is allocated on a first-in, first-served basis and the budget is fully spent/committed by year end. As measured through date of receipt of acceptable proposals for River Z works completed.	**Actual = 14 completed of 29 approved** Because of the significant flood event of 28 December 2010 and subsequent high number of River Z enquiries some of the requests were not able to be responded to within 10 days.	100% completed	100% completed	100% completed	100% completed

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if…)	Current Performance (to end June 2014)		Future Performance	Future Performance (targets) by Year 10 2024/25	
Community Outcome: Our infrastructure is safe, efficient and sustainably managed.							
5	**River maintenance works are planned with community input and professionally implemented.**	An annual meeting is held with River Care Groups to provide input into the development of the Annual Operating Maintenance Programme. As recorded in minutes of the meeting.	**Actual =** Council consult with River Care groups, iwi, Fish and Game and DoC on its annual maintenance programmes.	Yes	Yes	Yes	Yes

Table R-1 summarises the levels of service and performance measures for the coastal structures activity. Shaded rows are the levels of service and performance measures to be included in the Long Term Plan. The current performance is based on the 2013/14 financial year.

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

S.1 Introduction

The Office of the Auditor General (OAG) has chosen to use the International Infrastructure Management Manual (IIMM) as the benchmark against which New Zealand councils measure their standards. The IIMM describes the Asset Management (AM) process as a step by step process applied to an activity or network level, to manage assets from planning to disposal or renewal. This process is shown in Figure S-1.

Each of these processes is summarised in this Appendix.

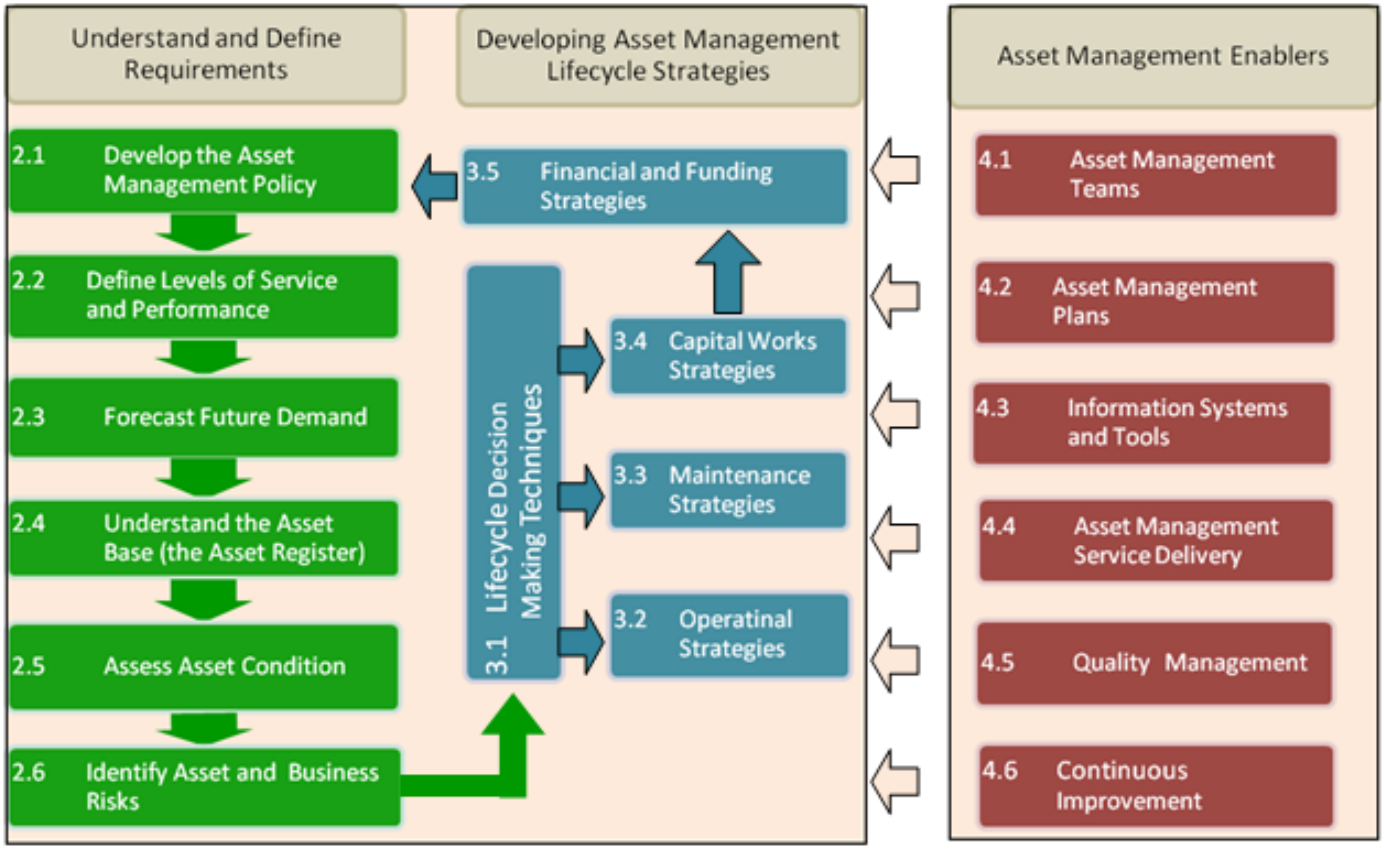


Figure S-1: The Asset Management Process (taken from IIMM 2011)

S2 Understand and Define Requirements

This phase determines what service levels are required and how future demand might change over time, as well as the current assets' capability to deliver on those requirements.

S2.1 Develop the Asset Management Policy

The Asset Management policy framework guides the organisation in terms of priorities and strategies, and sets out specific responsibilities, objectives, targets and plans. The Council has approached this by determining the desired and actual levels of asset management practice, and identifying the gaps between them for future improvement.

S2.1.1 Determine the Appropriate (Desired) Level of Asset Management Practice

The level of Asset Management expected can differ between activities. The IIMM defines the standards of the Activity Management Plans (AMPs) on a scale as follows:

- Minimum — Starting point
- Core — Basic
- Intermediate (core plus) — Transition between Core and Advanced
- Advanced — Most thorough

In 2010, Waugh Infrastructure Management Ltd undertook a review these levels and advised on target levels. A range of parameters (including populations, issues affecting the district, costs and benefits to the community, legislative requirements, size, condition and complexity of assets, risk associated with failure, skills and resources available, and customer expectation) was assessed to determine the most suitable level of asset management.

The results showed that Tasman District Council should be managing its assets at the following levels:

- Transportation — Intermediate with demand management and resource availability drivers
- Stormwater, Water, Wastewater — Intermediate with demand and risk management drivers
- Solid Waste — Core with risk management drivers
- Rivers — Core
- Coastal Structures — Core (future reassessment may be required)

S2.1.2 Determine the Actual Level of Asset Management Practice and Identify Gaps

The Council underwent a process at the end of the 2009 AMP to undertake a high level review of the AMPs and associated activity management processes against good practice asset management as described in the IIMM and in accordance with the Office of Auditor General. During this process, the AMP and associated practices were scored to give a snapshot of the current status and then set targets as to where the Council wished to head. The 2009 AMP Improvement Plan was assessed on its effectiveness to close the gap between actual and target compliance levels and new items added to the Improvement Plan where gaps were identified.

This work is now somewhat dated as the AMPs have changed substantially since 2009. This area will be renewed following development of the LTP.

Table S-1 below shows analysis undertaken to link the two reviews to identify the compliance gaps and actions that should be undertaken to address them.

Table S-1: Analysis of Asset Management Reviews

	CORE	Compliance Status	Compliance Gaps to Address to Meet CORE
Description of Assets	Advanced (minus the systematic monitoring of performance)	Substantially Compliant	**Action:** River ratings to be reassessed.
Levels of Service	Core	Compliant	
Managing Growth	Core	Compliant	**Action:** There is a desire to aim for higher level than Core - Identify potential impacts from all demand factors, not just population.
Risk Management	Core (plus demonstration of IRM)	Partially Compliant	Compliance will improve with implementation of IRM.
Lifecycle Decision Making	Core (plus identification of options for asset maintenance)	Substantially Compliant	**Action:** Consider and document links with other activities (e.g. Stormwater).
Financial Forecasts	Advanced (with the exception of sensitivity testing of forecasts)	Compliant	No plans to undertake sensitivity testing of forecasts.
Planning Assumptions and Confidence Levels	Core (plus assumptions listed)	Substantially Compliant	**Action:** River ratings to be reassessed. **Action:** Flood risk curves to be prepared.
Outline Improvement Programmes	Advanced	Partially Compliant	**Action:** Identify timeframes, priorities and resources for Improvement Plan actions.
Planning by Qualified Persons	Core	Compliant	Intending to achieve Advanced by undertaking Peer Review.
Commitment	Advanced	Substantially Compliant	**Action:** More emphasis and commitment needed to Improvement Plan.

S2.2 Define Levels of Service and Performance

The Level of Service and Performance Management frameworks will ensure that agreed stakeholder requirements are met. Levels of Service, Performance measures, and Relationship to Community Outcomes are detailed in Appendix R.

S2.3 Forecast Future Demand

Understanding how future demand for service will change enables the Council to plan ahead to meet that demand. Demand and future new capital requirements are dealt with in Appendix F.

S2.4 Understand the Asset Base (the Asset Register)

A robust asset register is a core requirement for asset management.

Data on the Council assets is collected via as-built plans (supplied through capital works and subdivision), maintenance contract work and field studies. Two enterprise asset systems are used to record core data:

- RAMM – Transportation excluding Streetlights;
- Confirm – Stormwater, Water, Wastewater, Solid Waste, Rivers, Coastal Structures, Streetlights.

Most data sets are viewable on the corporate GIS browser, Explore Tasman. Reporting systems summarise data for management and performance reporting, and for providing links between AM systems and GIS / financial systems. Several other standalone applications exist for specific purposes.

The Asset Register and other Information Systems are described more comprehensively in section S4.3 Information Systems and Tools.

S2.5 Assess Asset Condition

The Council needs to understand the current condition of its assets. Monitoring programmes should be tailored to consider how critical the asset is, how quickly it is likely to deteriorate, and the cost of data collection.

No condition rating has been carried out on Rivers assets; they are managed by maintaining when an issue is reported.

Where condition rating is done, a 1-5 scale is used, as per the NZQQA Infrastructure Asset Grading Guidelines, as shown in Table S-2.

Table S-2: Asset Condition Rating Table

Condition Grade and Meaning	General Meaning	
1 **Very Good**	Life:	10+ years.
	Physical:	Fit for purpose. Robust and modern design.
	Access:	Easy; easy lift manhole lids, clear access roads.
	Security:	Sound structure with modern locks.
	Exposure:	Fully protected from elements or providing full protection.
2 **Good**	Life:	Review in 5 – 10 years.
	Physical:	Fit for purpose. Early signs of corrosion/wear. Robust, but not latest design.
	Access:	Awkward; heavy/corroded lids, overgrown with vegetation.
	Security:	Sound structure with locks.
	Exposure:	Adequate protection from elements or providing adequate protection.

Condition Grade and Meaning	General Meaning	
3 **Moderate**	Life: Physical: Access: Secure: Exposure:	Review in 5 years. Potentially impaired by corrosion/wear, old design or poor implementation. Difficult: requires special tools or more than one person. Locked but structure not secure, or secure structure with no locks. Showing signs of wear that could lead to exposure.
4 **Poor**	Life: Physical: Access: Secure: Exposure:	Almost at failure, needs immediate expert review. Heavy corrosion impairing use. Obvious signs of potential failure. Restricted, potentially dangerous. Locks and/or structure easily breeched. Exposure to elements evident e.g. leaks, over heating.
5 **Very Poor**	Life: Physical: Access: Security: Exposure:	0 years – broken. Obvious impairments to use. Heavy wear/corrosion. Outdated/flawed design/build. Severely limited or dangerous. No locks or easily breeched. Exposed to elements when not specifically designed to be.

S2.6 Identify Asset and Business Risks

A key process is assessing critical assets and risks. This feeds into all lifecycle decision making processes.

S2.6.1 Asset Risks - Critical Assets

All assets except transportation ones are now being graded for criticality as shown in Table S-5. This process is expected to be complete by early 2015.

Table S-3: Asset Criticality Rating Table

Condition Grade	Meaning	Significance for Future Maintenance
A	Critical	Advanced condition assessment and preventative maintenance
B	Normal	Standard condition assessment and maintenance
C	Non-critical	Reduced maintenance acceptable

Asset criticality is partially captured in Confirm.

Assets are created with a default value of C. An assessment is then performed to rate criticality. This is currently in progress.

2.6.2 Business Risks

The Council has adopted an Integrated Risk Management framework to manage risks, both at corporate and activity level. This is detailed in Appendix Q, Significant Assumptions, Uncertainties and Risk Management.

S3 Developing Asset Management Lifecycle Strategies

S3.1 Lifecycle Decision-Making Techniques

The lifecycle decision phase looks at how best to deliver on the requirements by applying various decision-making techniques, strategies and plans. These are discussed in separate appendices as listed below.

S3.2 Operational Strategies and Plans

Demand management strategies (reducing overall demand and / or reducing peak demands) are covered in Appendix N, Demand management.

Emergency management processes are covered in Appendix Q, Significant Assumptions, Uncertainties and Risk Management.

S3.3 Maintenance Strategies and Plans

Optimised maintenance programmes are dealt with in Appendix E, Operations and maintenance.

S3.4 Capital Works Strategies

Forecast growth and demand and new asset investment programming are detailed in Appendix F, Demand and Future New Capital Requirements.

Optimised renewal programmes and Asset investment programmes are covered in Appendix I, Capital Requirements for Future Renewals.

S3.5 Financial and Funding Strategies

A robust, long-term financial forecast is developed as the culmination of this phase, which identifies strategies to fund these programmes. This section covers how the resource demand of AM can be identified, disclosed and funded.

The following appendices hold this information:

- Appendix D: Asset Valuations;
- Appendix G: Development Contributions / Financial Contributions;
- Appendix K: Public Debt and Annual Loan Servicing Costs;
- Appendix L: Summary of Future Overall Financial Requirements;
- Appendix M: Funding Policy, Fees and Charges.

S4 Asset Management Enablers

Underpinning Asset Management decision-making at each stage are the following:

S4.1 Asset Management Teams

The Council has an organisational structure and capability that supports the AM planning process. Responsibility for asset planning across the lifecycle is delivered by teams within the Council as shown by Figure S-3 below.

Corporate and Strategic Planning is performed by the Strategic Policy team in the Community Development Department.

The Asset Management function is managed by Engineering's Activity Planning team. Operations are the responsibility of the Utilities and Transportation teams, while Projects and Contracts are managed by the Programme Delivery team.

Operations and maintenance and Contracts are externally tendered. Professional services are supplied by MWH New Zealand Ltd and other consultants. Details are discussed in Section S.4.4.

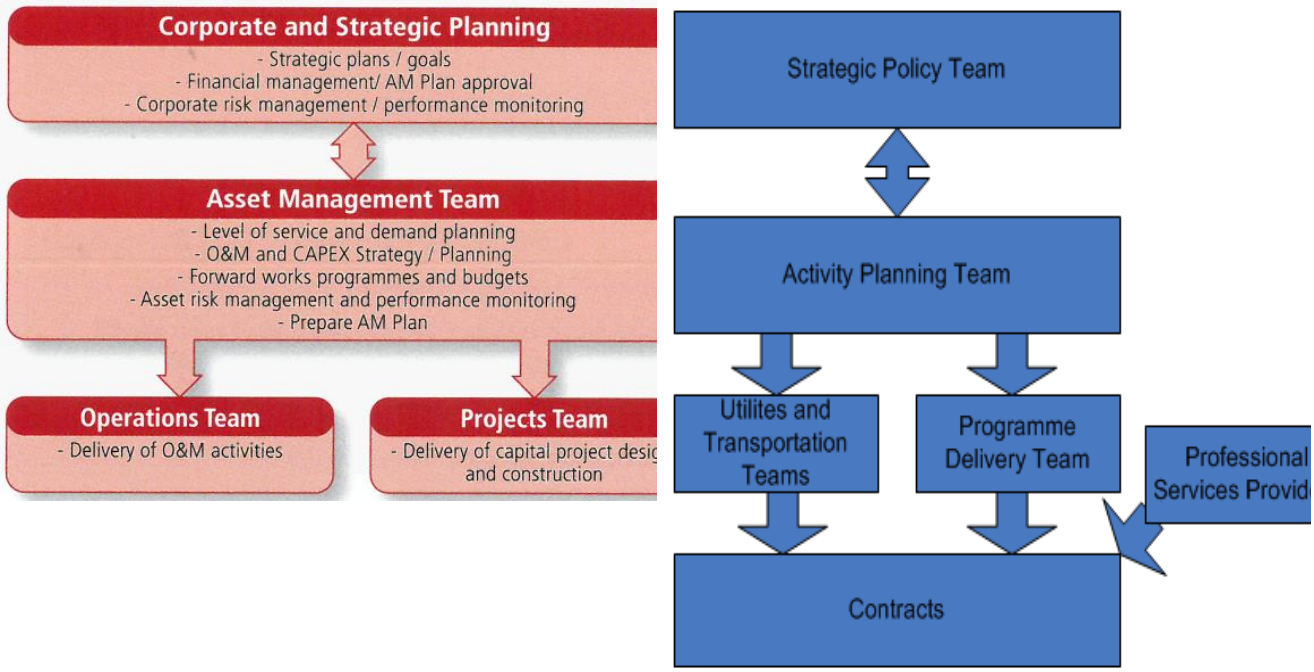


Figure S-3: Asset Management Team Roles (taken from IIMM 2011) and Asset Management Teams at Tasman District Council

S4.2 Asset Management Plans

Asset Management plans need to be robust and set out clear future strategies and programmes. This document is a key part of the Asset Management process and will be updated on a regular basis in between AMP planning cycles.

S4.3 Information Systems and Tools

The Council has a variety of systems and tools that support effective operation and maintenance, record asset data, and enable that data to be analysed to support optimal asset programmes. These are detailed below in Tables S-2 and S-3. There is a continual push to incorporate all asset data into the core AM systems where possible; where not possible, attempts are made to integrate or link systems so that they can be easily accessed.

Figure S-2 shows how the various systems used in Council inter-relate.

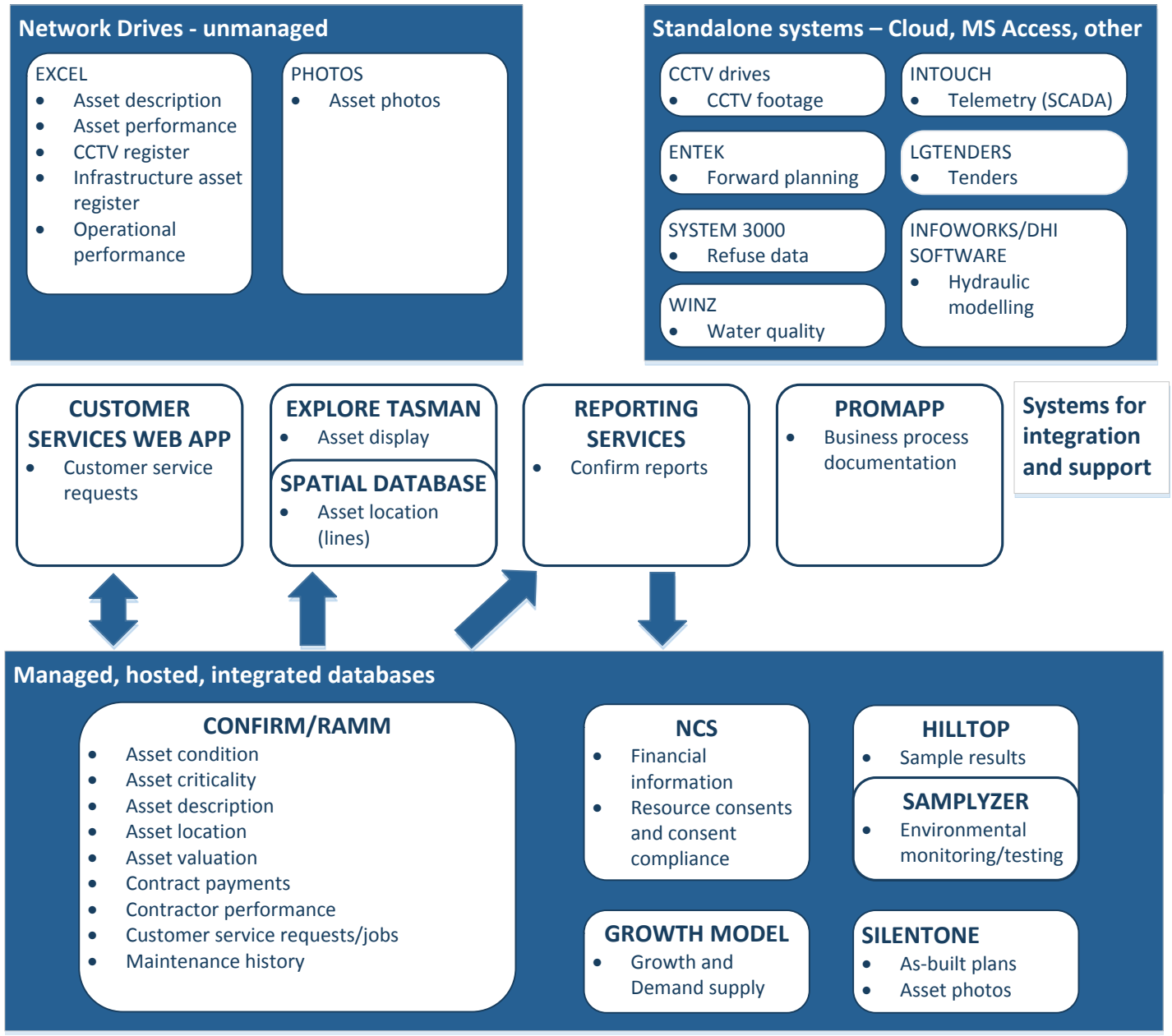


Figure S-2: Systems used for Asset Management at Tasman District Council

Table S-2 lists the various data types and systems they are held in, with a summary of how they are managed.

Table S-3 defines the Accuracy and Completeness grades applied to asset data in Table S-2

Table S-3: Data Types and Information Systems Used

Data type	Information System	Management Strategy	Data Accuracy	Data Completeness
As-built plans	SilentOne	As-built plans are uploaded to SilentOne, allowing digital retrieval. Each plan is audited on receipt to ensure a consistent standard and quality.	2	2
Asset condition	Confirm	See discussion in section S2.3.	N/A	N/A
Asset criticality	Confirm	See section S3.2 Asset Risks - Critical assets.	4	4
Asset description	Confirm	All assets are captured in Confirm's Site and Asset modules, from as-built plans and maintenance notes. Hierarchy is defined by Site and three levels of Asset ID (whole site, whole asset or asset). Assets are not broken down to component level except where required for valuation purposes. It is also possible to set up asset connectivity but this hasn't been prioritised for the future yet.	3	3
Asset location	Confirm (point data) / GIS (line data)	Co-ordinates for point data completely (NZTM) describe spatial location. Line data links to GIS layers that describe the shape.	4	3
Asset valuation	Confirm	Valuation of assets done based on data in Confirm and valuation figures stored in Confirm.	3	3
Contract payments	Confirm	All maintenance and capital works contract payments are done through Confirm. Data on expenditure is extracted and uploaded to NCS.	N/A	N/A
Contractor performance	Confirm	Time to complete jobs is measured against contract KPIs through Confirm's Maintenance Management module.	N/A	N/A
Corporate GIS browser	Explore Tasman	Selected datasets are made available to all Council staff through this internal GIS browser via individual layers and associated reports.	N/A	N/A

Data type	Information System	Management Strategy	Data Accuracy	Data Completeness
Customer service requests	Customer Services Application / Confirm	Customer calls relating to asset maintenance are captured in the custom-made Customer Services Application and passed to Confirm's Enquiry module or as a RAMM Contractor Dispatch.	N/A	N/A
Financial information	NCS	The Council's corporate financial system is NCS, a specialist supplier of integrated financial, regulatory and administration systems for Local Government. Contract payment summaries are reported from Confirm and imported into NCS for financial tracking of budgets.	N/A	N/A
Infrastructure Asset Register	Spreadsheet	High level financial tracking spreadsheet for monitoring asset addition, disposals and depreciation. High level data is checked against detail data in the AM system and reconciled when a valuation is performed.	2	2
Forward planning	Entek TPM (Time and space Project Management)	Forward programmes for the Council activities, and reseal / footpath renewal programmes, are uploaded to TPM in order to identify clashes and opportunities. The strength of this module relied on buy in from Utilities Companies and Local Contractors (neither of which occurred).	N/A	N/A
Growth and Demand Supply	Growth Model	A series of linked processes that underpin the Council's long term planning, by predicting expected development areas, revenues and costs, and estimating income for the long term.	2	2
Maintenance history	Confirm	Contractor work is issued via Confirm's Maintenance Management module. History of maintenance is stored against river sites.	3	3
Photos	Network drives / SilentOne	Electronic photos of assets are mainly stored on the Council's network drives. Coastal Structures and Streetlight photos have been uploaded to SilentOne and linked to the assets displayed via Explore Tasman.	N/A	N/A
Processes and documentation	Promapp	Promapp is process management software that provides a central online repository where the Council's process diagrams and documentation is stored. It was implemented in 2014 and there is a phased uptake by business units.	2	5

Data type	Information System	Management Strategy	Data Accuracy	Data Completeness
Resource consents and consent compliance	NCS	Detail on Resource Consents and their compliance of conditions (e.g. sample testing) are recorded in the NCS Resource Consents module.	2	2
Reports	Confirm Reports	Many SQL based reports from Confirm and a few from RAMM are delivered through Confirm Reports. Explore Tasman also links to this reported information to show asset information and links (to data in SilentOne and NCS)	N/A	N/A
Tenders	LGTenders	Almost all New Zealand councils use this system to advertise their tenders and to conduct the complete tendering process electronically.	N/A	N/A

Table S-4: Asset Data Accuracy and Completeness Grades

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

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	0 – 20

S4.4 Asset Management Service Delivery

The Council has opted to tender capital works and operations and maintenance externally to obtain more cost-effective service delivery.

The Council has adopted effective procurement strategies, such that AM activities are being delivered in the most cost-effective way (value for money rather than lowest cost).

S4.4.1 Procurement Strategy

Tasman District Council has a formal Procurement Strategy for its Engineering Services. This Strategy has been prepared to meet New Zealand Transport Agency's (NZTA) requirements for expenditure from the National Land Transport Fund, and it describes the procurement environment that exists within the Tasman District. It has been developed following a three-year review of the Strategy and approved in November 2013. It principally focuses on Engineering Services activities but is framed in the NZTA procurement plan format, which is consistent with whole of government procurement initiatives.

The Council's objectives are to:

- implement policies and financial management strategies that advance the Tasman District;

- ensure sustainable management of natural and physical resources, and security of environmental standards;
- sustainably manage infrastructure assets relating to Tasman District;
- enhance community development and the social, natural, cultural and recreational assets relating to Tasman district;
- promote sustainable economic development in the Tasman District.

The Council has recently implemented a procurement and tender award governance gateway process. This is shown in Figure S-3 below.

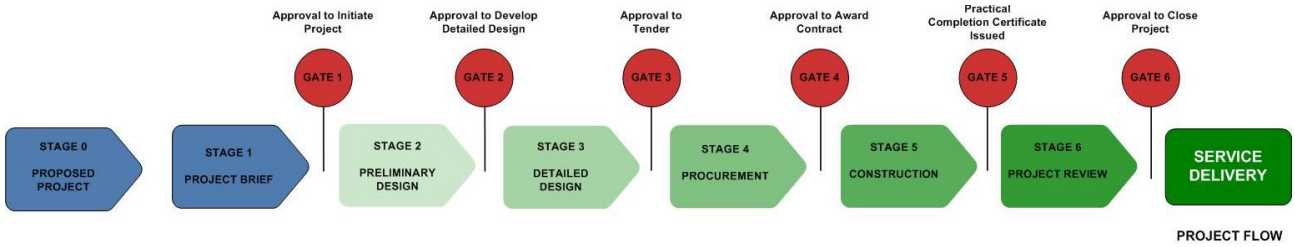


Figure S-3: Gateway Process Used by Programme Delivery Team

At the Approval to Tender gate (Gate 3), the Tender Evaluation Team:

1 Carefully reviews the specifications, drawings, detailed design.

2 Reviews estimate against allocated budget and checks availability of funds.

3 Assesses/ reviews project-specific risks and critical success factors.

4 Selects the evaluation method (supplier panel or direct to market; Price/Quality, Lowest Price Conforming, Weighted Attributes, Target Price, Brooks Law, etc) – check best suited to project's scope and risk levels.

5 Checks peer review of design.

6 Checks status of required consents and land issues.

7 Reviews Price/ Non-Price weightings, risk review and quality premium they are prepared to pay.

8 Reviews attributes (including pass/ fail and/ or weightings) and targeted questions in RFT to check for relevance to project-specific success factors and differentiators.

9 Reviews the response period (relative to RFT requirements) to ensure there is sufficient time for quality responses.

At the Approval to Award gate (Gate 4), the Programme Delivery Manager:

10 Reviews the tender process to check relevance/ effectiveness.

11 Reviews the recommendation.

12 Checks if Tender Panel approval is required.

13 Awards the contract.

S4.4.2 Professional Services Contract

The Engineering Services Department has a need to access a broad range of professional service capabilities to undertake investigation, design and procurement management in support of its significant transport, utilities, coastal management, flood protection and solid waste capital works programme. There is also a need to access specialist skills for design, planning and policy to support the in-house management of the Council's networks, operations and maintenance.

To achieve this the Council went to the open market in late 2013 for a primary professional services provider as a single preferred consultant to undertake a minimum of 60% in value of the Council's infrastructure professional services programmes. The contract was awarded to MWH New Zealand Ltd following a six month tender selection process and commenced on 1 July 2014 with an initial three year term and two three-year extensions to be awarded at the Council's sole discretion.

S4.5 Quality Management

Table S-6 outlines quality management approaches that support the Council's Asset Management processes and systems.

Table S-5: Quality Management Approach

Approach	Description
Process documentation	This is being phased in across the Council with the implementation of Promapp. Over time business units are capturing organisational knowledge in an area accessible to all staff, to ensure business continuity and consistency. Detailed documentation, forms and templates can be linked to each activity in a process. Processes are shown in flowchart or swim lane format, and can be shared with external parties.
Quality Management systems	Tasman District Council does not have a formal Quality Management system across the Council; quality is ensured by audits and checks that are managed in individual teams. Quality checks are done at many stages throughout the Asset Management process.
Planning	The planning process is formalised across Council, with internal reviews and the Council approval stages. Following completion of the AMPs, a peer review is done. From that a comprehensive Improvement Plan is drawn up. Actions are discussed at regular meetings and progress noted. These will be incorporated into the following round of AMPs.
Programme Delivery	This strictly follows a gateway system with inbuilt checks and balances at every stage. Projects can't proceed until all criteria of a certain stage have been completely met and formally signed off.
Subdivision works	Subdivision sites are audited for accuracy of data against the plans submitted. CCTV is performed on all subdivision Stormwater and Wastewater assets at completion of works and again before the assets are vested in the Council, so that defects can be repaired.
Asset creation	As-built plans are reviewed on receipt for completeness and adherence to the Engineering Standards and Policies. If anomalies are discovered during data entry, these are investigated and corrected. As-built information and accompanying documentation is required to accompany maintenance contract claims.
Asset data integrity	Monthly reports are run to ensure data accuracy and completeness. Stormwater, Water, Wastewater, Coastal Structures, Solid Waste and Streetlight assets are shown on the corporate GIS browser, Explore Tasman, and viewers are encouraged to report anomalies to the Activity Planning Data Management team.
Asset performance	Audits of reticulation flows are done regularly to ensure that system performance is optimal.
Operations	Audits of a percentage of contract maintenance works are done every month to ensure that performance standards are maintained. Failure to comply with standards is linked to financial penalties for the contractor.
Levels of	Key Performance Indicators are reported regularly in Engineering Services council

Service	meetings and then again annually and audited by the Office of the Auditor General.
Customer Service Requests (CSRs)	Asset based CSRs (in Confirm and RAMM) are checked monthly for outstanding items via a customised report that is e-mailed to action officers. Non-asset based CSRs (in NCS) are checked for compliance weekly at Senior Management Teams, via a dashboard reporting system.
Reports to Council	All reports that are presented to the Council are reviewed and edited by the Executive Assistant prior to approval by the Engineering Manager and the Senior Management Team.

S4.6 Continuous Improvement

Processes are in place to monitor the adequacy, suitability and effectiveness of all Asset Management planning activities to drive a continuous cycle of review, corrective action and improvement. These are covered by Appendix V - Improvement Programme.

APPENDIX T BYLAWS

The following bylaws have been adopted by Council:

- Consolidated Bylaws 2013– Introduction
- Control of Liquor in Public Places 2012
- Dog Control Bylaw 2014
- Freedom Camping Bylaw 2011
- Freedom Camping (Motueka Beach Reserve) Bylaw 2013
- Navigation Safety Bylaw 2014
- Speed Limits Bylaw 2013
- Stock Control and Droving Bylaw 2005
- Wastewater Bylaw 2015
- Trading in Public Places Bylaw 2010
- Traffic Control Bylaw 2013
- Water Supply Bylaw 2009

In accordance with the Local Government Act 2002, these bylaws will be reviewed no later than 10 years after they was last reviewed.

None of the above bylaws have direct relevance to this activity.

APPENDIX U STAKEHOLDERS AND CONSULTATION

U.1 Stakeholders

There are many individuals and organisations that have an interest in the management and / or operation of Council's assets. Council has a Stakeholder and Engagement Policy which is designed to guide the expectations with the relationship between the Council and the Tasman community. The Council has made a promise to seek out opportunities to ensure the communities and people it represents and provides services to have the opportunity to:

- be fully informed;
- provide reasonable time for those participating to come to a view;
- listen to what they have to say with an open mind;
- acknowledge what we have been told;
- inform contributors how their input influenced the decision the Council made or is contemplating.

Engagement or consultation:

- is about providing more than information or meeting a legal requirement;
- aids decision-making;
- is about reaching a common understanding of issues;
- is about the quality of contact not the amount;
- is an opportunity for a fully informed community to contribute to decision-making.

The key stakeholders the Council consults with about the Rivers activity are:

- elected members (Councillors and Community Board members);
- Iwi/Maori (Tiakina te Taiao and Manawhenua ki Mohua, iwi monitors);
- Regulatory (Consent compliance);
- fisheries organisations;
- Fish and Game;
- River Care Groups;
- Heritage New Zealand;
- service providers / suppliers (Network Tasman, power companies);
- Civil Contractors New Zealand (Nelson-Marlborough);
- affected or interested parties (when applying for resource consents);
- neighbours.

U.2 Consultation

U.2.1. Purpose of consultation and types of consultation

The Council consults with the public to gain an understanding of customer expectations and preferences. This enables the Council to provide a level of service that better meets the community's needs.

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;
- consultation via the Annual Plan and Long Term Plan (LTP) process.

The Council commission's customer surveys on a regular basis (since 2008) from the National Research Bureau Ltd. These Communitrak™ surveys assess the levels of satisfaction with key services, and the willingness across the community to pay to improve services.

From time to time the Council undertakes focused surveys to get information on specific subjects or projects.

U.2.2 Consultation Outcomes

The most recent NRB Communitrak™ survey was undertaken in May 2014. There were no questions relating to the Rivers activity in the 2014 survey.

U.3 River Care Groups

River Care groups have been formed in the following catchments;

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

The Golden Bay groups were facilitated by the Nelson Catchment Board (NCB) and have been established since the late 1980s. The remaining groups have been established from the early 1990s.

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. 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.

During meetings, 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 IMPROVEMENT PLAN

To be provided in final document.

APPENDIX W ASSET DISPOSALS

W.1 Asset Disposal Strategy

The Council does not have a formal strategy on asset disposals. It will treat each asset individually on a case-by-case basis when the asset reaches a state that disposal needs to be considered.

Asset disposal is generally a by-product of renewal or upgrade decisions that involve the replacement of assets.

Assets may become redundant for any of the following reasons:

- under utilisation;
- obsolescence;
- provision of the asset exceeds the required level;
- uneconomic to upgrade or operate;
- policy change;
- the service is provided by other means (e.g. private sector involvement); and
- potential risk of ownership (financial, legal, social, vandalism).

Depending on the nature, location, condition and value of an asset it is either:

- made safe and left in place;
- removed or disposed of;
- removed and sold;
- ownership is transferred to other stakeholders by agreement.

In most situations, assets are replaced at the end of their useful life and are generally in poor physical condition. In some situations an asset may require removal or replacement prior to the end of its useful life. In this circumstance, the Council may hold the asset in stock for reuse elsewhere. If this is not appropriate, the asset could be sold off, transferred or disposed of.

When asset sales take place, the Council aims to obtain the best available return from the sale and any net income will be credited to that activity. The Council follows practices that comply with the relevant legislative requirements for local government when selling of assets

Disposal of river assets is not a common occurrence. Probably the most significant item which may be considered for disposal is river protection works eg, stopbanks. The 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 and the Resource Management Act 1991. In short, the legal advice obtained stated the following.

- Under the financial management provisions of the LGA it is open to the 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 Soil Conservation and Rivers Control Act 1941.
- Statutory provisions relating to the discontinuance of other activities include elaborate procedural requirements, and sometimes provisions as to future liability. There is 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 the Council takes all reasonable steps to advise them of the consequences, then the 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 20 years.

APPENDIX X GLOSSARY OF ASSET MANAGEMENT TERMS

Acronyms and Abbreviations

AMP	Activity Management Plan
LGA	Local Government Act
LTP	Long Term Plan
TRMP	Tasman Regional Management Plan

Term	Description
Activity	An activity is the work undertaken on an asset or group of assets to achieve a desired outcome.
Activity Management Plan (AMP)	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 LTP, 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 modelling, 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).
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 Strategy	A strategy for asset management covering, the development and implementation of plans and programmes for asset creation, operation, maintenance, renewal, disposal and performance monitoring to ensure that the desired levels of service and other operational objectives are achieved at optimum cost.

Term	Description
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.

Term	Description
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 (eg. 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 database.
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 (LoS)	The defined service quality for a particular activity (ie. water) or service area (ie. 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. • The cycle of activities that an asset (or facility) goes through while it retains an identity as a particular asset ie. from planning and design to decommissioning or disposal. • The period of time between a selected date and the last year over which the criteria (eg. 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 Plan (LTP)	The Long Term Plan 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 LTP is a key output required of Local Authorities under the Local Government Act 2002. The LTP replaces the Long Term Council Community Plan (LTCCP).
Maintenance Plan	Collated information, policies and procedures for the optimum maintenance of an asset, or group of assets.

Term	Description
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 three categories. • Periodic – necessary to ensure the reliability or sustain the design life of an asset. • Predictive – condition monitoring activities used to predict failure. • Preventive – maintenance that can be initiated without routine or continuous checking (eg. 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.

Term	Description
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 (eg. replacement of light bulbs, cleaning of drains, repairing leaks) 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, ie. replacement value for determining maintenance levels or market value for life cycle costing.

APPENDIX Y BOUNDARIES AND FACILITIES

The maintained rivers are highlighted on the following map.

Catchment boundaries and facilities managed under the rivers activity are detailed further in Appendix B and are shown in more detail in Appendix 5 of Contract 840 – Rivers Maintenance.

tasman district council	**APPENDIX Y**	**TASMAN DISTRICT MAINTAINED RIVERS**

APPENDIX Z AMP STATUS AND DEVELOPMENT PROCESS – RIVERS

Z.1 Quality Assurance

Quality Assurance Statement		
Tasman District Council 189 Queen Street Private Bag 4 Richmond 7050 Telephone: (03) 543 8400 Fax: (03) 543 9524	**Version:**	Draft – January 2015
	Status:	Draft
	Project Manager:	Dwayne Fletcher
	Prepared by: **AMP Author**	Sarah Downs
	Approved for issue by: **Engineering Manager**	Peter Thomson

Z.2 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	Council 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 the internet.
4	AMP Text Accuracy and Currency	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.

	Issues and Requirements	Description
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 the financial model, the implications of the decisions must be reflected in the financial information and other relevant places in the AMP – eg. Levels of service and performance measures, improvement plans etc.
11	Improvement Plan Adequate	Improvements identified, costed, planned and financially provided for in financial forecasts.