

# **Tasman District Council**

# **Rivers**

# **Activity Management Plan**

**2012 - 2022**

**October 2011**

Quality Assurance Statement		
<b>Tasman District Council</b> 189 Queen Street Private Bag 4 Richmond 7050 Telephone: (03) 543 8400 Fax: (03) 543 9524	<b>Version:</b>	V2.1 October 2011
	<b>Status:</b>	Draft for Approval
	<b>Project Manager: Vivien Winch</b>	
	<b>Prepared by:</b>	
	<b>Asset Manager</b> .....	
		<b>AMP Author</b> .....
		<b>Approved for issue by:</b>
		<b>Engineering Manager</b> .....

For full Quality Assurance Statement, Refer Appendix Z

## **TABLE OF CONTENTS**

<b>1</b>	<b>KEY ISSUES FOR THE RIVERS ACTIVITY .....</b>	<b>1</b>
<b>2</b>	<b>ACTIVITY DESCRIPTION .....</b>	<b>1</b>
2.1	What We Do.....	1
2.2	Why We Do It.....	1
<b>3</b>	<b>COMMUNITY OUTCOMES AND OUR GOAL .....</b>	<b>2</b>
<b>4</b>	<b>OPERATIONS, MAINTENANCE AND RENEWALS STRATEGY .....</b>	<b>2</b>
4.1	Operations and Maintenance.....	2
4.2	Renewals .....	2
<b>5</b>	<b>EFFECTS OF GROWTH, DEMAND AND SUSTAINABILITY .....</b>	<b>3</b>
5.1	Population Growth .....	3
5.2	Sustainability.....	3
<b>6</b>	<b>LEVEL OF SERVICE AND PERFORMANCE MEASURES .....</b>	<b>4</b>
<b>7</b>	<b>CHANGES MADE TO ACTIVITY OR SERVICE .....</b>	<b>7</b>
<b>8</b>	<b>KEY PROJECTS .....</b>	<b>8</b>
<b>9</b>	<b>MANAGEMENT OF THE ACTIVITY .....</b>	<b>9</b>
9.1	Management .....	9
9.2	Significant Effects .....	10
9.3	Assumptions .....	11
9.4	Risk Management.....	12
9.5	Improvement Plan.....	13
<b>10</b>	<b>SUMMARY OF COST FOR ACTIVITY .....</b>	<b>14</b>

## **LIST OF TABLES**

Table 1-1: Key Issues for the Rivers Activity.....	1
Table 3-1: Community Outcomes.....	2
Table 3-2: Our Goal.....	2
Table 6-1: Levels of Service.....	4
Table 7-1: Key Changes.....	7
Table 8-1: Significant Projects.....	8
Table 9-1: Demand Management Strategies .....	9
Table 9-2: Significant Negative Effects .....	10
Table 9-3: Significant Positive Effects .....	10
Table 9-4: Major Assumptions.....	11
Table 9-5: Significant Risks and Control Measures .....	12

## **LIST OF FIGURES**

Figure 10-1: Total Expenditure (\$ million) .....	14
Figure 10-2: Total Income (\$ million) .....	14
Figure 10-3: Capital Expenditure (\$ million).....	15
Figure 10-4: Operating Expenditure (\$ million) .....	15
Figure 10-5: Debt (\$ million).....	16
Figure 10-6: Investment in Renewals (\$ million) .....	16

## 1 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	Council Approach
Providing and maintaining an adequate flood control system for Brooklyn, Motueka and Riwaka communities that is acceptable and affordable.	Council undertakes robust community consultation in order to set appropriate levels of service which is affordable to the affected communities.
The occurrence of major damaging flood events within and outside the classified river systems.	Council maintains a Classified Rivers Protection Fund to fund flood damage repairs. Council is a member of the Local Authority Protection Programme (LAPP) which provides insurance to Council via the disaster fund.
Council's ability to afford the reinstatement or new protection following major flood events.	Council consult with the affected parties and prioritise expenditure to make the best use of limited funds.
The asset inventory database is incomplete.	Council have scheduled work to be undertaken to improve the classified rivers database in Confirm. Council will develop a database for the Rivers Z assets.
Removal of crack willow.	Council manages the removal and replacement of crack willow under their maintenance regimes to ensure a sustainable river protection system.

## 2 ACTIVITY DESCRIPTION

### 2.1 What We Do

Council constructs and maintains improvements on 285 kilometres of 'classified' rivers to promote soil conservation and mitigate damage caused by floods.

Similar improvements are from time to time carried out on the 'unclassified' rivers but once constructed the responsibility for the maintenance of them rest with the landowner(s) concerned.

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

### 2.2 Why We Do It

By implementing and maintaining quality river control and protection schemes, the Council improves protection to neighbouring communities and mitigates the damage caused during flood events.



### 3 COMMUNITY OUTCOMES AND OUR GOAL

The community outcomes that the rivers activity contributes to most are shown in Table 3-1.

**Table 3-1: Community Outcomes**

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

**Table 3-2: 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.

### 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 to ensure a true market value.

The rivers activity is currently maintained under Contract 840. This contract sets out the operations and maintenance conditions for X and Y rated areas over a five year period and 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.

Council's consultant undertakes an annual assessment of the classified rivers network (prior to the start of the financial year), providing a draft works programme to Council and affected parties for review. During the assessment a priority ranking of P1, P2 or P3 is given to each proposed work item. The draft programme also includes identification of gravel sites where extraction will facilitate river management.

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 AMP update (ie. three yearly), and every year the annual renewal programme is reviewed and planned with the input of the maintenance contractor and consultant via the Annual Operation and Maintenance Plan (AOMP) process.

Renewals are discussed in detail 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 to provide predictive information for population growth and business growth, and from that, information about dwelling and building development across the district and demand for infrastructure services. The GDSM underpins the Council's long term planning through the Activity Management Plans, Long Term Plans and supporting policies (eg. Development Contributions Policy).

The 2011 GDSM is a third generation growth model with previous versions being completed in 2005 and 2008.

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. 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).

### 5.2 Sustainability

The Local Government Act 2002 requires local authorities to take a sustainable development approach while conducting its business, taking into account the social, economic and cultural well-being of people and communities; the need to maintain and enhance the quality of the environment and the reasonably foreseeable needs of future generations.

Sustainable development is a fundamental philosophy that is embraced in Council's Vision, Mission and Objectives, and that shapes the community outcomes. The levels of service and the performance measures that flow from these inherently incorporate 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 20 year forecast in the Activity Management Plans to ensure the long term financial implications of decisions made now are considered.

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.

**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 2011)	Future Performance			Future Performance (targets) by Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
<b>Community Outcome: Our unique and special natural environment is bountiful, healthy, clean and protected.</b>							
1	<b>Our works are carried out so that the impacts on the natural river environments are minimised to a practical but sustainable level.</b>	<i>Resource consents are held and complied with for works undertaken by Council or its contractors in the rivers in the district. As measured by the number of abatement notices issued to Council's rivers activity.</i>	<b>Actual = Nil</b> <i>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 Consents. The contractor has not received any non-compliance with respect to the resource consents by Council's consultants nor the Environment and Planning department.</i>	<i>No abatement notices issued</i>	<i>No abatement notices issued</i>	<i>No abatement notices issued</i>	<i>No abatement notices issued</i>
2		Over time Council removes crack willow from banks and berm areas. As measured by kilometres of river bank cleared of crack willow per year.	<b>Actual = 2009/10 - 18.5 km Actual = 2010/11 - 14.9 km</b>	15km/yr	15km/yr	15km/yr	15km/yr
3	<b>We manage waste/rubbish in the river system.</b>	<i>Complaints about illegal rubbish dumping in the X and Y classified rivers and on adjacent beaches on public land are responded to within 10 days. As measured through Customer Service Requests in Council's databases.</i>	<b>Actual =</b> Not currently measured	90%	90%	90%	90%



ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if... )	Current Performance (to end June 2011)	Future Performance			Future Performance (targets) by Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
<b>Community Outcome: Our built urban and rural environments are functional, pleasant, safe and sustainably managed.</b>							
4	<b>We maintain Council's stopbank assets in River X classified areas to deliver flood protection to the level that the stopbanks were originally constructed.</b>	Our stopbanks are maintained to their original constructed standard. (Riwaka River = 1 in 10 yr flood return). (Lower Motueka River = 1 in 50 yr flood return). (Waimea River = 1 in 50 yr flood return). As measured by their performance in flood events and/or flood modelling where this has been undertaken.	<b>Actual</b> Riwaka River = 88% Motueka River = 100% Waimea River = 100%	95% 100% 100%	100% 100% 100%	100% 100% 100%	100% 100% 100%
5	<b>In River Y classified areas Council manages the river to minimise bank erosion up to an annual event</b>	Maintenance work in River Y classified areas is undertaken to rectify or minimise bank erosion as identified through annual river care group meetings and incorporated in the Annual Operating Maintenance Programme. As measured through completion of scheduled works detailed in the AOMP.	<b>Actual = 98%</b> of scheduled works The year saw some disruption to the annual works programme due the significant flood event that occurred in December 2010.	100%	100%	100%	100%
6	<b>In River Z rating areas we provide technical support and partial funding assistance when available to protect private property from river damage.</b>	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.	<b>Actual = 14 completed of 29 approved</b> 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

ID	Levels of Service (we provide)	Performance Measures (We will know we are meeting the level of service if... )	Current Performance (to end June 2011)	Future Performance			Future Performance (targets) by Year 10 2021/22
				Year 1	Year 2	Year 3	
				2012/13	2013/14	2014/15	
<b>Community Outcome: Our transport and essential services are sufficient, efficient and sustainably managed.</b>							
7	<b>River maintenance works are planned with community input and professionally implemented.</b>	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.	<b>Actual</b> = 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 2009 AMP.

**Table 7-1: Key Changes**

Key Change	Reason for Change
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 the flood. Therefore additional rock is a new asset and is therefore capital works.
The start of construction for the Lower Motueka Flood control project has been deferred from 2012/13 to 2019/20.	The scale and cost of the project required robust consultation with the community and has been delayed accordingly.
Increased funding allocation to Rivers Z works.	In order to provide additional funding for river works in River Z classified rivers, In 2011/12 Council decided, through the Annual Plan process, to transfer \$100,000 that would generally be paid into the Council's Classified Rivers Protection Fund (subject to the fund balance being above \$1 million as at June 2011) into the River Z works budget. Council also increased the river rate, by 18.64 percent to generate around an additional \$200,000 to go towards the River Z budget. These changes provided a total of around \$400,000 in the River Z budget, when added to the existing funding. The funding is being used for maintenance of River Z classified rivers and to assist landowners adjacent to River Z classified rivers with river projection works and assist with crack willow management.



## 8 KEY PROJECTS

Table 8-1 details the key capital and renewal work programmed for years 2012 to 2022.

**Table 8-1: Significant Projects**

Project Name	Description	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Years 4 to 10 (\$)	Project Driver <sup>1</sup>
Lower Motueka Flood Control Project	Consultation, Scoping, Consent Application and Hearing, Detailed Design and Construction Monitoring	395,000	1,660,000	130,000	520,000	LOS
Lower Motueka Flood Control Project	Construction	0	0	1,800,000	7,200,000	LOS
Brooklyn Stopbank Project	Consultation, Design and Monitoring	100,000	100,000	25,000	100,000	LOS
Brooklyn Stopbank Project	Construction	0	0	225,000	900,000	LOS
Takaka Stopbank Project	Consultation, Design and Monitoring	0	0	0	76,125	LOS
Takaka Stopbank Project	Construction	0	0	0	685,125	LOS
Borlase Catchment Project	Resource Consent and Detailed Design	109,000	32,500	32,500	0	LOS
Borlase Catchment Project	Land Acquisition	192,000	0	0	0	LOS
Borlase Catchment Project	Construction	0	465,000	465,000	0	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.

<sup>1</sup> 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).

Council has considered the demand management issues listed in Table 9-1 during development of this AMP.

**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 Council's staff, with input from external agencies eg. 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 eg. Motueka Flood Control Project.
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	Construction of dams (specifically the Lee 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 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	Council's Mitigation Measure
Over extraction of gravel in some areas has been linked to the requirement for rock stabilisation of banks (a cost to the rivers programme) and changes in groundwater levels.	Gravel availability within the river berms is assessed on various factors, including the annual inspection process and 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 e.g. Wai-iti River.
Eradication of crack willow may have a major effect on the bank protection work if a suitable replacement cannot be found.	The Ministry of Agriculture and Forestry (MAF) requires no propagation of crack willow. Native species and bitter willow are used extensively and other species are being trialled as a replacement for crack willow.
Inappropriate use of river berms. A continuing issue along the river berm is dumping of refuse and car bodies.	Given the vast uncontrolled areas of river berm (predominantly privately owned), there is unfortunately plenty of opportunity for waste dumping activities to occur. 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.

**Table 9-3: Significant Positive Effects**

Effect	Description
Economic development	Provision and maintenance of flood control schemes allow for the development of land for horticultural purposes, therefore allowing economic growth and prosperity.
Safety and personal security	Provision and maintenance of flood control schemes improve protection of communities and the built environment.
Environmental sustainability	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.
Economic efficiency	Council's management of the rivers activity using best practice and competitive tendering aims to provide the economic efficiency (ie. best value for money) for the ratepayers.



### 9.3 Assumptions

Council has made a number of assumptions in preparing the AMP. These are discussed in detail in Appendix Q. Table 9-4 lists the most significant assumptions and briefly outlines the impact of the assumption.

**Table 9-4: Major Assumptions**

Assumption Type	Assumption	Discussion
Financial Assumptions	That all expenditure has been stated in 1 July 2011 dollar values and no allowance has been made for inflation.	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 Council is using the best information practically available from Business and Economic Research Limited (BERL).
Asset Data Knowledge	That Council has sufficient knowledge of the assets and their condition so that the planned renewal work will allow Council to meet its levels of service.	There are several areas where 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 a major flood event (generally greater than AEP 20% / five year return period) will not occur.	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. Council will need to prioritise expenditure. The risk of this occurring is high.
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. 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 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.
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 Council may not be able to afford the true cost of the projects. Council tries to reduce the risk by including a standard contingency based on the projects lifecycle.
Changes in Legislation and Policy	That there will be no major changes in legislation or policy.	The risk of major change is high due to the changing nature of the government and politics. If major changes occur it is likely to have an impact on the required expenditure. Council has not mitigated the effect of this.

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



## 9.4 Risk Management

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

This approach includes risk management at an organisational level (Level 1). The treatment measures and outcomes of the organisational level risk management are included within the LTP.

At an asset group level (Level 2), Council has identified 25 high risks and planned mitigations measures to reduce these risks to 14 high risks. Council has planned controls for the remaining 14 high risks but even with the controls, they remain high. Council has decided to accept these risks. These are listed in Table 9-5.

**Table 9-5: Significant Risks and Control Measures**

Risk Description	Current Control	Proposed Control	Target Risk Level
<b>Communications:</b> Failure of operational communications (contractors.)	Cellphone. Radio Telephone. Call care system.	Manual response during emergencies.	HIGH
<b>Communications:</b> Failure of operational communications (affected parties).	Internet website. Staged communication system. Call care system.	Manual response during emergencies. Public training (Rivercare).	HIGH
<b>Resources:</b> Insufficient or inappropriately trained resources to respond to emergency (contractor, council, consultant).	Contract training agreement.	Regular training and auditing compliance.	HIGH
<b>Internal (Engineering):</b> Ineffective planning of maintenance and renewal works.	Annual Planning. Informal meetings.		HIGH
<b>Emergency Services:</b> Ineffective communication and planning of maintenance and renewal works (Rural Fire Service, DoC (Motueka, Golden Bay)).	Regular exercises with Civil Defence.	Review communications plan.	HIGH
<b>Earthquake (1:400):</b> Major damage to infrastructure (eg. stop banks).	None	None	HIGH
<b>River Floods (1:400):</b> Impacts infrastructure.	None	None	HIGH
<b>Catastrophic Failure:</b> Catastrophic failure of stop banks.	Stopbank maintenance	Stopbank maintenance	HIGH
<b>Extreme Weather (Rain):</b> Increased volumes overload infrastructure (increased debris).	AOMP. Regular maintenance.	Undertake as required.	VERY HIGH
<b>Storm and Tidal Surge:</b> Damage to infrastructure.		Determine jurisdiction.	HIGH
<b>Information Technology:</b> Failure of control systems (Hydrology).	See emergencies (reduce).		HIGH
<b>Telemetry:</b> Failure of telemetry.	See emergencies.	Manual response during emergencies.	HIGH
<b>Power:</b> Failure of power.	See emergencies.	Manual response during emergencies.	HIGH
<b>Telecommunications:</b> Failure of telecommunications.	See emergencies.	Manual response during emergencies.	HIGH

---

Council has also identified and assessed critical assets (Level 3), the physical risks to these assets and the measures in place to address the risks to the asset. This has led to a list of projects to mitigate the risks to acceptable levels. This includes:

- ongoing rock protection of banks
- Motueka Flood Control
- Borlase Flood Control
- Takaka Flood Control.

### **9.5 Improvement Plan**

Development of the improvement plan is discussed in Appendix V. It includes a table of planned improvements that are still to be implemented and information on how they have been budgeted. It is a snapshot of the improvement plan at September 2011. It is intended that the improvement plan is continually updated and monitored as a live document.

Appendix V also includes a summary of the key improvements that have been achieved since the preparation of the 2009 AMP.



## 10 SUMMARY OF COST FOR ACTIVITY

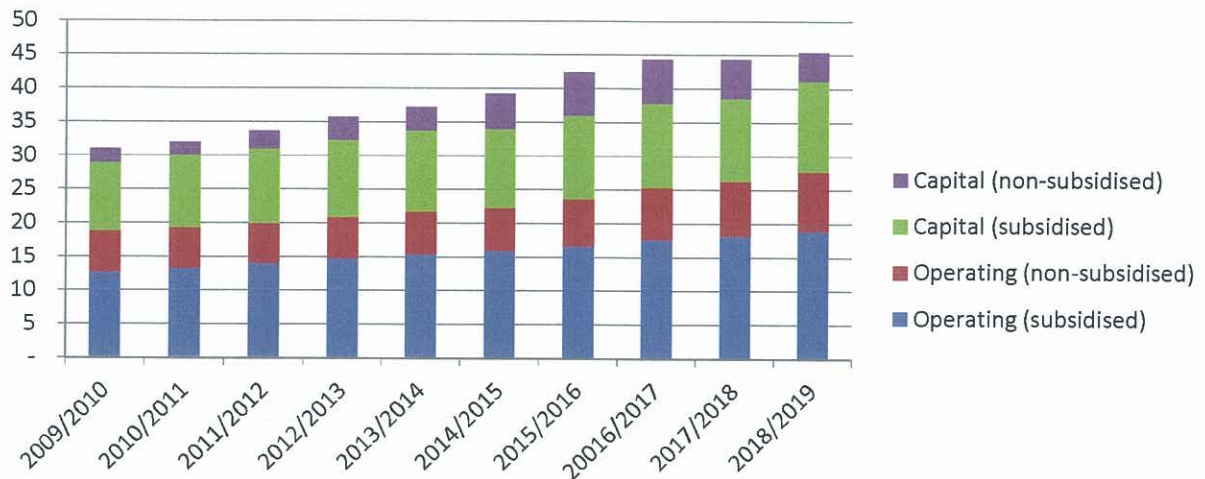


Figure 10-1: Total Expenditure (\$ million)

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Refer to Appendix E, Appendix F and Appendix I for detailed operating and maintenance, new capital, and renewal projects respectively.

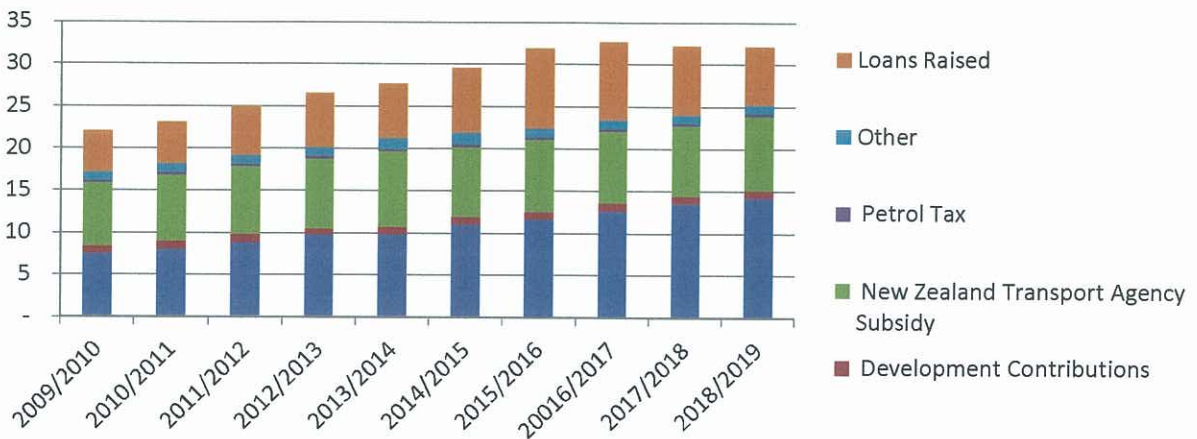
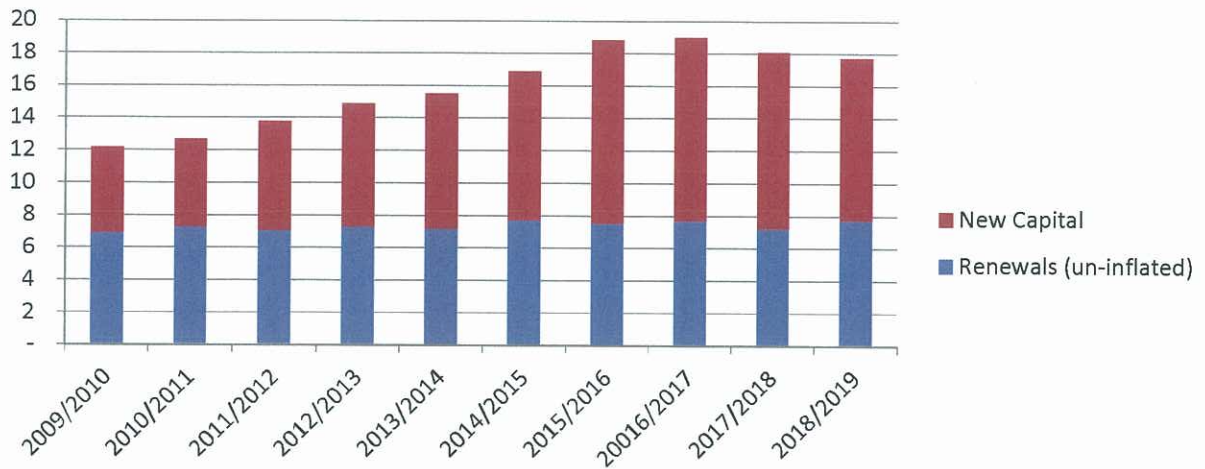


Figure 10-2: Total Income (\$ million)

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Refer to Appendix L for full income details.



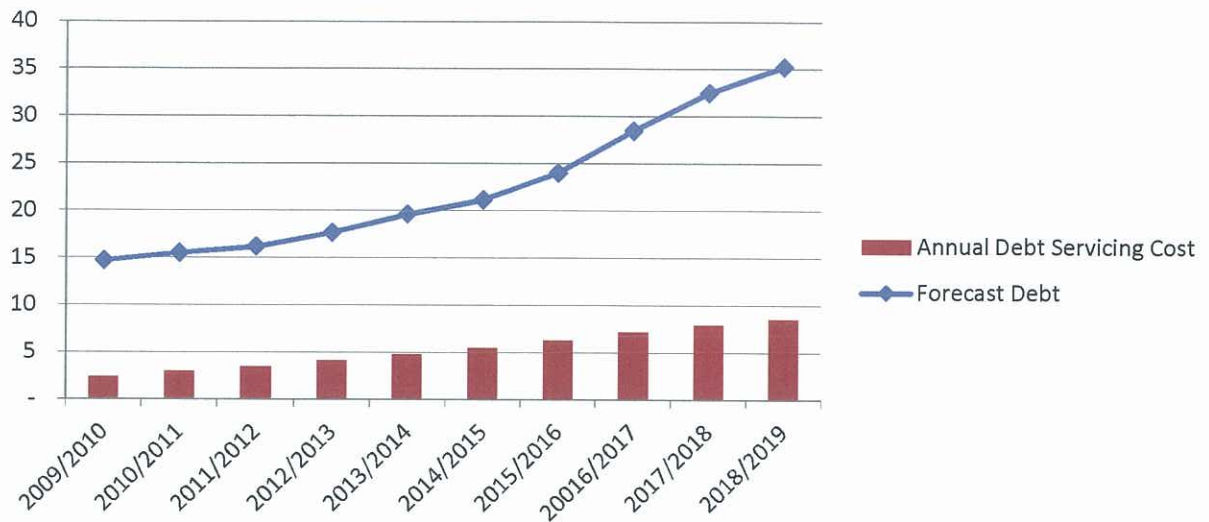
**Figure 10-3: Capital Expenditure (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Refer to Appendix F and Appendix I for a full list of new capital and renewal projects respectively.



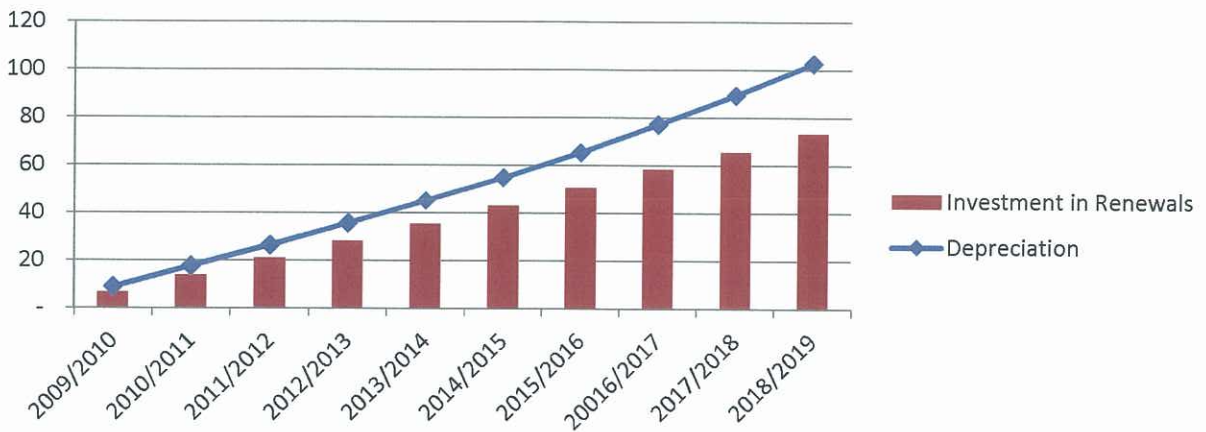
**Figure 10-4: Operating Expenditure (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Appendix L for the full cost of service statement.



**Figure 10-5: Debt (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Appendix L for the full cost of service statement.



**Figure 10-6: Investment in Renewals (\$ million)**

- **Place holder** – Discuss key features of what the data is showing and update with 2011 rivers data.
- Appendix L for the full cost of service statement.