

Rivers

Activity Management Plan

2021-2051



Quality Assurance Statement

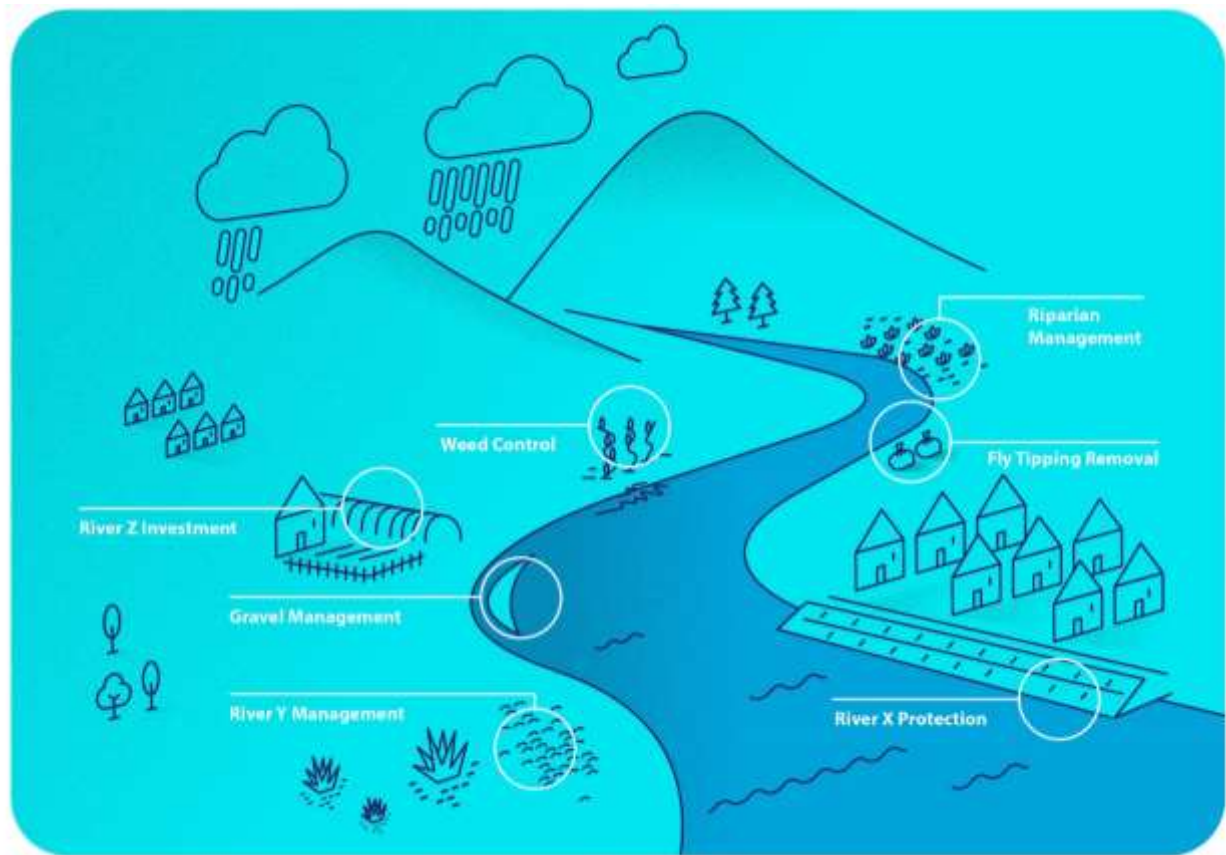
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1 Executive Summary

1.1 What We Do



The Tasman District Council maintains 285 kilometres of major rivers throughout the District in order to carry out its statutory roles to promote soil conservation and mitigate damage caused by floods and riverbank erosion. These rivers, known as classified rivers X and Y, are funded by a differential river rating system based on land value. Rivers that are covered under the rivers X and Y schemes include our major rivers like the Waimea, Motueka, Riuwaka, Moutere, Tākaka, Aorere rivers as well as several tributaries. The Council maintain and improve river assets in rivers X and Y, such as stopbanks and erosion protection.

There are many more rivers, streams and creeks that are on private, the Council, and Crown (Department of Conservation (DoC)), Land Information New Zealand) lands. These are collectively known as Rivers Z. River protection assets such as rock walls and groyne form part of the river system. These are typically owned and maintained by private property owners; we sometimes part fund them.

The approach to river 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 management of stormwater or coastal structures. These are covered as individual activities and have their own Activity Management Plan.

1.2 Why We Do It

Activity Goal
Our aim is to protect properties from river flooding by implementing and maintaining river control works and flood protection assets. The Council ensure that our river environments remain healthy and attractive ecosystems that can be enjoyed by our communities.

1.3 Levels of Service

The Council aims to provide the following levels of service for the Rivers activity.

Protection	Amenity
Our Structures are managed to reduce the impact of flooding now and in the future	Our river environments are healthy ecosystems that are attractive and enjoyed by our communities

1.4 Key Issues

1.4.1 Community resilience

Our rivers and streams pose varying degrees of flood risks to urban and rural communities. An expected increase in extreme weather due to climate change will increase flood risks in the future. Reducing flood risk across the District is very costly and generally considered unaffordable. Communities will need to expect certain exposure to flood risks which requires a level of awareness and resilience from our communities. The Council will take a risk based approach to prioritise its investment in flood protection and focus on the development of emergency action plans together with the community.

1.4.2 Pro-active river management

With an increase in flood events it is expected that the demand for repairs will increase. Reacting to land owner requests is often time consuming and it could mean that meeting our strategic objectives or certain other opportunities are overlooked. An integrated and pro-active approach to river management is required to demonstrate best value for money

1.4.3 Providing equity to rate payers

Most of the Council's expenditure is currently on rivers Y and Z which addresses primarily minor flood risks and protects private land from erosion with limited benefit to the wider community in terms of addressing larger flood risks. Revenue from river X is insufficient to upgrade flood protection schemes for communities such as Appleby, Motueka, Brooklyn and Riwaka. The Council aims to provide more equitable services based on risk prioritisation within the existing rating categories.

1.5 Responding to the Issues

The Council's planned responses to the key issues are:

- Increased focus on flood warning and emergency response procedures
- Increased investment in asset data and asset performance monitoring
- Investment in Motueka stopbanks to restore level of service
- Development of River Management Plans.

1.6 Operational Programme

The operational programme covers all day to day activities that are required to manage the stormwater activity. The Council has planned to spend approximately \$46 million (uninflated) over the next 30 years to operate and maintain river assets efficiently.

Our operational programme over the next ten years covers the following key aspects and annual expenditure:

- Class X Operations \$162,000
- Class Y Operations \$675,000 – \$725,000
- Rivers Z Subsidy \$400,000
- River Management Plans \$100,000

1.7 Capital Programme

The Council plans to invest approximately \$57 million (including inflation) over the next 30 years on capital improvements. Below is a list of the key projects and investments that are planned, all values include inflation.



1.8 Key Changes

Table 1 summarises the key changes for the Flood Protection and River Control Works activity since the Long Term Plan 2018 – 2028.

Table 1: Summary of key changes

Key change	Reason for change
Increased focus on flood warning and emergency response procedures	Flood risk reduction is generally considered unaffordable. Communities need to be aware of flood risks and how to respond in the case of flood events.
Increased investment in asset data and asset performance monitoring	This addresses the need to take a more affordable risk-based flood management approach in accordance with the Flood Protection Assets Performance Assessment Tool.
Investment in Motueka stopbanks to restore level of service	This addresses the high-risk sites in the Motueka stopbank scheme, as identified through the Motueka Flood Mitigation Study.
Development of River Management Plans	The development of river management plans will help us meet strategic long-term goals for multiple issues and values. It will take an integrated approach across the Council, with iwi, community and stakeholder involvement.

1.9 Key Risks and Assumptions

There has been a number of assumptions made in preparing the Activity Management Plan. The most significant assumption and uncertainty for flood protection and river control works is:

- Access to Rivers Z funding is largely by 50/50 share between private land owners and the Council. If there is a drop in demand from landowners needing assistance, or there is an unwillingness to pay, this fund may be underspent.
- No one can predict when and where large flood events will occur, or the damage that may be sustained during such a flood. During a large event, there is a risk that rock protection works can shift, new erosion can occur, or stopbanks could be damaged. Assumptions have been made that if this occurs, we will have enough funds available to undertake repairs whether it is through reprioritisation of maintenance activities or accessing emergency funding provisions.
- Extreme rainfall events and associated flood impacts can happen at any time. The occurrence of these events may differ from what we expect based on statistics. When large events happen more frequently, this may trigger higher expectations from our community to provide a higher level of service. Providing a higher level of service will come at a higher cost and require more funding than has been budgeted for.
- Like with large floods, we also cannot reliably predict when moderate floods will occur or their impact. The use of historic trends assisted to determine maintenance funding levels for the future and has assumed that these levels will be sufficient. If more floods occur than assumed, it is likely that we will be required to spend more than planned. If floods are less or more minor than assumed, it is likely that we will be required to spend less than planned.

2 Introduction

The purpose of this Activity Management Plan 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.

2.1 Rationale for Council Involvement

The Council has a legal obligation to meet the requirements of the Soil Conservation and Rivers Control Act 1941. The overriding purpose of the Soil Conservation and Rivers Control Act 1941 is to make provision for the conservation of soil resources, the prevention of damage by erosion and to make better provision for the protection of property from damage by floods. 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.

2.2 Description of Assets and Services

The District's rivers and associated drainage network that are maintained by the Council are classified as either Rivers X or Rivers Y. This classification is based on the relevant rating scheme and can be described as follows:

- Rivers X – the Council maintained rivers containing a level of flood protection such as stopbanks.
- Rivers Y – the Council maintained rivers containing river control works or erosion protection.

All other rivers, streams and creeks are unclassified rivers, also known as rivers Z. The Council may assist land owners with co-funding for erosion control on these rivers, subject to available subsidy.

The five main river catchments with X and Y maintained rivers are shown in Figure 1 and outlined in Table 2 below.

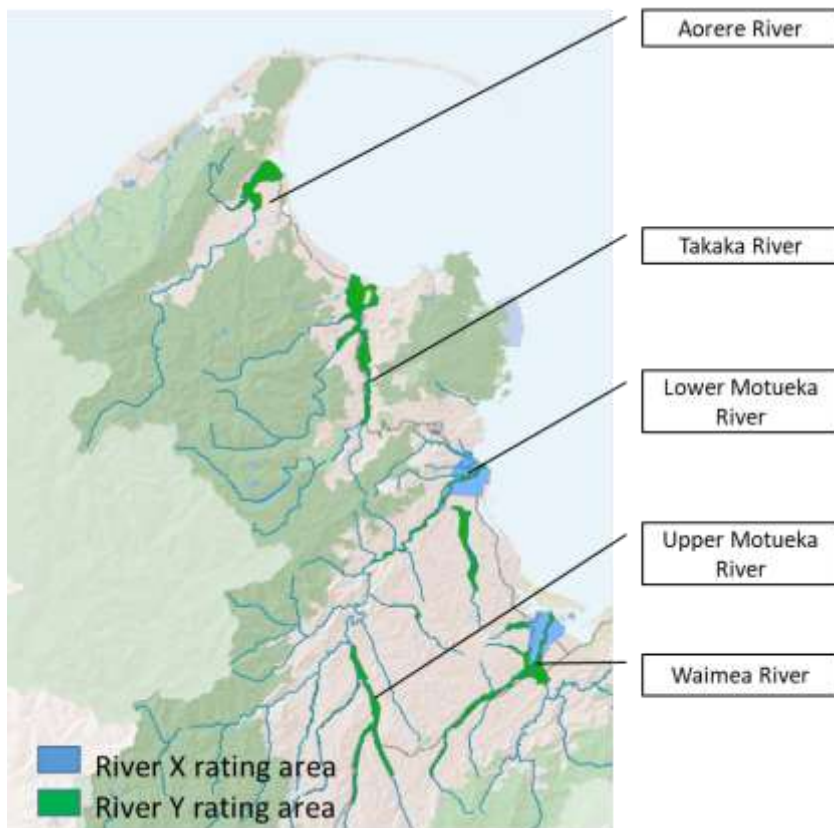


Figure 1: X and Y main river catchments

Table 2: River Network Overview

Waterway	Class	Maintained Length (km)	Total Stopbank Length- both sides of the river (km)
Waimea Catchment			
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
Upper Motueka Catchment			
Motupiko River	Y	14.50	-
Tadmor River	Y	33.00	-
Sherry River (including Wangapeka)	Y	14.50	-

Waterway	Class	Maintained Length (km)	Total Stopbank Length- both sides of the river (km)
Upper Motueka River	Y	20.00	-
Lower Motueka Catchment (incl. Riuwaka 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	-
Riuwaka River	X	5.00	8.25
Moutere River	Y	12.00	-
Moutere Creek Ditch	Y	7.00	-
Pawley Creek	Y	2.25	-
Aorere Catchment			
Kaituna River	Y	5.75	-
Aorere River	Y	12.00	-
Tākaka Catchment			
Waingarō River	Y	5.25	-
Anatoki River	Y	5.25	-
Tākaka River	Y	28.00	-



2.2.1 Stopbanks on private land



The flood protection schemes for the Motueka and Riuwaka rivers were completed around 1956, primarily to protect the Motueka and Riwaka townships, surrounding infrastructure and horticulture.



The underlying land is not publicly owned, as the former Nelson Catchment Board never took a separate title for the land. Large parts of the lower Motueka stopbanks are located on land that is owned by Wakatū or Ngāti Rārua Ātiawa Iwi Trust (NRAIT). The stopbank structures themselves are the Council-owned assets.

2.2.2 Catchment Overview

An overview of the main river catchments within the Tasman District is provided in Table 3.

River Catchment	Catchment description	
Waimea	<p>The Waimea Rivers is formed by its two main tributaries, the Wai-iti and Wairoa rivers, which join approximately 1km downstream of the Brightwater Bridge (SH6) to become the Waimea River. A river control scheme utilising stop banking 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. Stop banking was developed to a 50-year (2% Annual Exceedance Probability) standard, accommodating a freeboard of 0.6m.</p>	 <p>Waimea River with Appleby Highway bridge in background</p>
Upper Motueka	<p>The Motueka River catchment covers an area of 2170 km². The Upper Motueka drains from the mountainous Red Hills Ridge and Beebys Knob 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.</p> <p>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.</p>	 <p>Upper Motueka Looking Upstream to Tapawera</p>

River Catchment	Catchment description	
Lower Motueka	<p>The Lower Motueka River receives run-off from the catchments of the Stanley Brook, Dove River, Orinoco, Waiwhero and Brooklyn Streams.</p> <p>Stopbanks have been installed in the Lower Motueka River, primarily to protect the Motueka township and surrounding infrastructure.</p> <p>Widespread flooding used to occur frequently in the river plains of the Lower Motueka River. A river control scheme was completed in 1956 comprising stopbanks, channel improvements and bank protection designed to contain a Q50 flood in the Lower Motueka.</p>	 <p>Stopbank along lower Motueka upstream of Whakarewa Street</p>
Riuwaka	<p>A river control scheme was completed in 1956 comprising stopbanks, channel improvements and bank protection designed to contain a Q20 (5% Annual Exceedance Probability (AEP)) flood in the lower Riuwaka. A review of the stopbank carried out in 2005 concluded that present stopbanks on the Riuwaka River only provide a level of protection to Q10 (10% AEP), and in some places up to Q20 (5% AEP). Other streams that drain towards the Riuwaka estuary are the Little Sydney Drain, Scott's Drain and Hamilton Drain.</p>	 <p>Riuwaka looking upstream from SH60 Bridge</p>

River Catchment	Catchment description	
Moutere	<p>The Moutere River catchment (168 km²) drains moderate hill and flat valley country and joins the sea at the Moutere Stream Bridge on SH60 south of Motueka. The Moutere River was originally hand dug by settlers in the 1880's being about two meter wide and one meter deep. Today it is up to 30 m wide and up to 10 m deep. Sections of the river system are managed as a class Y river.</p>	 <p>Moutere river looking towards the Old House Road Bridge</p>
Aorere	<p>The Aorere River 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 km².</p> <p>The Aorere River is one of the largest rivers in the Tasman district with a Q₅₀ flow of 3180m³/s at Devil's Boots.</p>	 <p>Aorere river looking upstream above confluence with the Kaituna</p>



River Catchment	Catchment description	
Tākaka	<p>The Tākaka River catchment drains a mountainous region of around 855km² into the lower reaches of the Tākaka Valley. The main tributaries to the Tākaka River are the Cobb River (on which the Cobb Dam is located), the Waingaro and Anatoki.</p> <p>During the 1960's a scheme of river channel stabilisation (mainly rock protection) and channel widening was introduced over a 37 km length. These works controlled the rate of erosion of farm land and now form part of the Class Y classification scheme.</p>	 <p>Tākaka river, swimming hole</p>
Buller (not maintained)	<p>The Buller River drains from the Nelson Lakes through Murchison to the West Coast at Westport, 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.</p> <p>The Buller and its tributaries provide an important recreational function for white water sports.</p>	 <p>Buller River looking downstream toward Rait Road Bridge</p>

Table 3: Overview of catchments

2.2.3 Other assets, tide and Flap Gates

The Council maintains 30 flap gates 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. Pearl Creek in the Waimea, Little Sydney in Riwaka and Atua Stream on the way to Kaiteriteri.

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. This is working well at this stage with more sediment build-up on the side with the counterweight and some extension of the saltwater prism beyond the gates.



Figure 2: Atua Gates

3 Strategic Direction

Strategic direction provides overall guidance to the Council and involves specifying the organisation's objectives, developing policies and plans designed to achieve these objectives, and then allocating resources to implement the plans.

3.1 Our Goal

The Council aim to maintain river systems cost-effectively for protection and services for our community and individual landowners.

3.2 Contribution to Community Outcomes

The Council operates, maintains and improves flood protection and rivers control assets on behalf of Tasman residents and ratepayers to enhance community well-being, in particular to protect life, property and livelihoods. The flood protection and rivers control group of activities contributes to the Community Outcomes as detailed below.

Table 4: Community Outcomes

Community outcomes	How our activity contributes to the community outcome
Our communities are healthy, safe, inclusive and resilient	Our flood protection works and river control structures protect several communities and rural areas from flooding. These are maintained safely and cost-effectively.
Our urban and rural environments are people-friendly, well planned, accessible and sustainably managed	The Council engage with our community in several River Care groups to ensure our community's feedback is considered river catchment management.
Our communities have access to a range of social, cultural, educational and recreational facilities and activities	The Council maintain our river environment to ensure a pleasant and appropriate places for recreational activities.
Our region is supported by an innovative and sustainable economy	Our flood protection scheme provides assurance that regular high rainfall events do not disrupt normal business activities.
Our infrastructure is efficient, resilient, cost effective and meets current and future needs	Our flood protection and mitigation structures are maintained cost-effectively to a level supported by our community.
Our unique natural environment is healthy, protected and sustainably managed	Rivers are important natural resources. Our flood protection and mitigation activities minimise the impacts on our natural river environments to a practical and sustainable level.
Our communities have opportunities to celebrate and explore their heritage, identity and creativity	Our rivers have important cultural values and many identify where they are from by their river.

Community outcomes	How our activity contributes to the community outcome
Our Council provides leadership and fosters partnerships including with iwi, fosters a regional perspective, and encourages community engagement	The Council provide expertise and guidance to our community, helping to find solutions along our river environment.

3.3 Infrastructure Strategy

The Council's Infrastructure Strategy covers the provision of the Council's water supply, stormwater, wastewater, rivers and flood control, and transportation services. The purpose of the Strategy is to identify the significant infrastructure issues for Tasman over the next 30 years, and to identify the principal options for managing those issues and the implications of those options.

The key infrastructure priorities included in the Strategy are:

- Providing infrastructure services that meet the needs of our changing population
- Planning, developing and maintaining resilient communities
- Providing safe and secure infrastructure and services
- Prudent management of our existing assets and environment.

The Council's Infrastructure Strategy and infrastructure activity management plans are directly linked. Information flows between the Strategy and the plans in both directions. The table below describes the structure of the Strategy and how it connects to the activity management plans.

Section	Section Overview	Connection to Activity Management Plan
Executive Summary	<ul style="list-style-type: none"> • A short consolidated summary of the current situation, investment priorities, key actions and total level of investment. 	This section is intended to provide an outline of the Strategy to the reader. It does not have a direct connection to individual activity management plans.
Strategic Direction	<ul style="list-style-type: none"> • Examines the context and issues surrounding the provision of infrastructure services. • Sets the direction for infrastructure management and investment priorities. • Sets out how the Council will: <ul style="list-style-type: none"> • respond to growth or decline in demand; ○ manage the renewal or replacement of existing assets over their lifetime; 	<p>This section provides direction to the Council staff who prepare activity management plans for the relevant infrastructure activities. Each activity management plan is expected to consider the key priorities and identify actions that are in alignment with those priorities.</p> <p>It also provides a consolidated summary of this information from within the activity management plans.</p>

Section	Section Overview	Connection to Activity Management Plan
	<ul style="list-style-type: none"> ○ Manage planned increases or decreases in levels of service will be allowed for, public health and environmental outcomes will be maintained or improved; and ● Natural hazard risks will be addressed in terms of infrastructure resilience and financial planning. 	
Activity Summaries	<p>For each activity:</p> <ul style="list-style-type: none"> ● Provides an overview of the assets and their condition and performance; ● Outlines the levels of service; ● Considers the options to address key issues/priorities and identifies the preferred option; ● Summarises investment in the activity for the next 10 and 30 years; ● Lists the key assumptions and uncertainties. 	This section provides a concise summary of the activity management plan for the topics listed in this table.

3.4 Financial Strategy

The Financial Strategy outlines the Council’s financial vision for the next 10 to 20 years and the impacts on rates, debt, levels of service and investments. It guides the Council’s future funding decisions and, along with the Infrastructure Strategy, informs the capital and operational spending for the Long Term Plan 2021-2031.

The Financial Strategy outlines the Council’s financial vision for the next 10 to 20 years and the impacts on rates, debt, levels of service and investments. It guides the Council’s future funding decisions and, along with the Infrastructure Strategy, informs the capital and operational spending for the Long Term Plan 2021-2031.

Infrastructure expenditure forms a large proportion of the Council’s spending being 38% of operational expenditure and 79% of capital expenditure over the next 10 years. Because of this, the Infrastructure Strategy and Financial Strategy are closely linked to ensure the right balance is struck between providing the agreed levels of service within the agreed financial limits.

Over the next 10 years, forecast rate income increases and debt levels are projected to be very near the Council’s limits. The Council has had to work hard to prioritise and plan a work programme which addresses the most pressing key issues while staying within these limits. This means there is very little scope to add further work to the programme within the next five years.

3.5 Tasman Climate Action Plan

In 2019, the Council adopted the 'Tasman Climate Action Plan' (Action Plan). The Action Plan is the Council's initial response to the urgent need to take action on climate change, to build climate resilience and reduce greenhouse gas emissions.

The Action Plan sets out goals, targets and actions relating to three key themes:

- Mitigation – how we can reduce greenhouse gas emissions from the Council's activities.
- Adaptation – ways we can respond to our changing environment, including positive opportunities.
- Leadership – how we can lead by example, advocate and encourage others to take action.

The following goals are the long-term aspirations of the Council. They represent the first step towards a cohesive package of activities that address climate change issues.

1. The Council contributes to New Zealand's efforts to reduce greenhouse gas emissions (including net carbon emissions).
2. Tasman District becomes more resilient to the impacts of climate change.
3. The Tasman Community is informed of climate change actions and options for response.
4. The Council shows clear leadership on climate change issues.

Goals will be measured against targets and achieved by implementing the actions set out in the Action Plan. Targets and actions of direct relevance to this activity are listed below. Several other actions are also relevant (e.g. those relating to information provision and leadership goals) - see the online version of the Action Plan for details: www.tasman.govt.nz/climate-change.

Table 5: Relevant targets and actions from the Tasman Climate Action Plan (2019)

Goal	Targets	Actions (short-term) 2019 - 2021	Actions (medium-term) 2021 - 2024	Actions (long-term) 2024+
The Council contributes to New Zealand's efforts to reduce greenhouse gas emissions (including net carbon emissions).	1(a) The Council's emissions* of methane reduce by 10% below 2017 levels by 2030 and 47% by 2050 or earlier. The Council's net emissions* of all other greenhouse gases reduce to zero by 2050. *from the Council's own activities. Targets are based on Zero Carbon Bill. If necessary, revise targets once enacted.	(vi) Continue to work with communities to plant trees (e.g. riparian margin restoration, habitat enhancement, land stability, planting in the Council parks and reserves and within some roading corridors, expand the Council nursery production), to sequester carbon.	Continue to work with communities to plant trees, to increase carbon sequestration.	Continue to work with communities to plant trees, to increase carbon sequestration.
Tasman District becomes more resilient to the impacts of climate change.	2(a) Progressively improve network infrastructure resilience to climate change risks across all the Council networks.	(ii) Review the Council's policy on emergency funds, to ensure it anticipates repair/replacement and relocation costs that factor in climate change risks ("build back better"). Investigate the potential funding requirements of implementing this policy.	The Long Term Plan 2021 - 2031 incorporates 'Emergency funds' that anticipate repair/replacement/relocation costs that factor in climate change risks ("build back better").	Funding maintained or increased as risks increase.

Goal	Targets	Actions (short-term) 2019 - 2021	Actions (medium-term) 2021 - 2024	Actions (long-term) 2024+
	2(c) Ecological adaptation to climate change is taken into account when making decisions.	(ii) Investigate options for how the Council can be more agile and responsive to increased biosecurity risks (including shipping biosecurity risks) and pest management requirements, in response to the rapidly changing climate.	Implement new options for biosecurity and pest management.	Implement new options for biosecurity and pest management.

3.6 Key Issues

3.6.1 Community resilience

Several major rivers (X, Y rated) and many small rivers and streams (Z- rated) pose varying degrees of flood risks to urban and rural communities. The expected increase in extreme weather events due to climate change, in combination with increasing land and property values on flood plains, will further increase flood risks in the future. Increases in extreme weather events lead to extra repair work and damage control with higher expectation from the community.

Significant investment in some of the Council's flood protection schemes is required to maintain current levels of service. The Council is currently investing in re-instating the agreed level of service for the stopbanks along the lower Motueka. A lot more work would be required to meet the same level of service for flood protection from the Brooklyn and Riuwaka rivers. Other than a minor privately maintained stopbank (McKenzie Bank) the Tākaka River does not have any maintained flood protection, however the river and catchments upstream do present a significant flood risks to Tākaka Township and surroundings. Many other rivers and streams also have the potential to cause severe damage to private property, roading assets and bridges as well as social disruption due to accessibility issues.

Increasing levels of service and reducing flood risks would require significant investments to make any appreciable difference to properties. Reducing flood risk across the District would be very costly and is generally considered unaffordable. Instead, the Council will work with individuals who are most affected to assist them in improving resilience to their properties. In general communities will need to expect certain exposure to flood risks which requires a level of awareness and resilience from our communities.

3.6.2 Pro-active river management

Tasman has experienced several major storms since 2010. The Council infrastructure and private property has suffered damage from the associated flooding, slips, erosion and debris flows. In response, the majority of the Council's 'Classified Rivers Protection Fund' is spend to repair damages from these flood events. In addition, the Council has historically funded up to 50% of the costs of works undertaken within 'River Z areas', with the landowner paying for the remaining 50%. Rainfall events over the last few years have tended to affect smaller catchments and waterways with short high intensity events becoming more prevalent.

Reactive maintenance is required to respond to flood damages as per the Council's obligations under the Soil Conservation and Rivers Control Act, however there is also a wider responsibility to manage multiple other issues. Reacting to land owner requests is often time consuming and it could mean that meeting our strategic objectives or certain other opportunities are overlooked. An integrated and evidence based approach is required to demonstrate best value for money while addressing multiple issues such as:

- Fragmented gravel management practices.
- Historically limited data collection and recording through asset management practices.
- The Council's wider responsibility to manage environmental effects and improve environmental outcomes.
- Limited community awareness and understanding of current and future flood risks.
- Limited staff resources mean that staff are often busy reacting to land owner requests.

3.6.3 Providing equity to rate payers

Flood risk is defined as the combination of likelihood of a flood event and the consequences of that flood event. Most of the Council's expenditure is currently on rivers Y and Z, which addresses primarily minor flood risks and protects private land from erosion with limited benefit to the wider community in terms of addressing larger flood risks. Individual landowners benefit significantly from works in Y or Z funded areas compared to the amount they pay in rates. Revenue from river X is insufficient to maintain or upgrade flood protection schemes to an appropriate risk level for communities like Appleby, Motueka, Brooklyn and Riwaka. The rating systems does not support a risk based prioritisation of available funds.

Residents within the same rating scheme do not always receive the same level of service for flood protection. Different levels of service for flood protection schemes within the same rating schemes is considered not equitable.

3.7 Prioritisation

The Council provides many services on behalf of Tasman's residents and there is often competing demands for the Council's investment across and within these services. The Council needs to decide how much, and when, to invest in these services in a way that maintains affordability for customers and ratepayers.

There are multiple factors that affect the priority of individual projects or work streams. These include:

- The need to protect public health and safety
- The need to conserve and enhance the natural environment
- Statutory compliance
- Meeting the needs of tomorrow's population
- Readiness to implement works
- Co-funding opportunities
- Creating functional and attractive public places
- Benefits and risks
- District distribution
- Strategic fit.

The Council has applied the following principles when developing its programme of works i:

- To continue to meet its fiscal prudence, sustainability and environmental sustainability obligations.
- To keep the medium to long term in focus i.e. rather than being overly diverted by the shorter term recovery from the Covid-19 pandemic.
- To understand the trade-off's or benefits across all of the well-being domains (social, environmental, economic and cultural).
- To capitalise on the economic environment (i.e. enhanced borrowing terms, and increased labour and skills availability).

- To make the most of the enhanced opportunities of Government funding, subsidies and other incentives to advance the community outcomes.
- To right size the Council staffing and operational expenditure.

The Council has taken all of the above into consideration in order to present a programme that is achievable and affordable. Generally, mandatory requirements such as statutory compliance take priority, and discretionary activities have been programmed second to this.

3.8 Te Mana o te Wai

Through the National Policy Statement for Freshwater Management 2020 (NPS-FM) the Government has issued local authorities with new direction on how to manage freshwater under the Resource Management Act 1991. Central to this new direction is the concept of Te Mana o te Wai.

Te Mana o te Wai is a concept and framework which is derived out of Te Ao Māori (the Māori world view that acknowledges the interconnectedness and interrelationship of all living and non-living things) and reflects the recognition of freshwater as a natural resource whose health is integral to the social, cultural, economic and environmental wellbeing of communities.

The framework of Te Mana o te Wai is rooted in the development of the National Policy Statement for Freshwater Management since 2014 by the Iwi Leaders Group and has been a key part of the current NPS-FM since 2014. It establishes a set of guiding principles and a hierarchy of obligations, and refers to the essential value of water, and the importance of sustaining the health and wellbeing of water before providing for human health needs, and then to other uses.

It expresses the special connection all New Zealanders have with freshwater. By protecting the health and well-being of our freshwater we protect the health and well-being of our people and environments.

There is a hierarchy of obligations in Te Mana o te Wai that prioritises (in order) the:

- Health and well-being of water bodies and freshwater ecosystems
- Health needs of people (such as drinking water); and
- Ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The six principles of Te Mana o te Wai in the NPS-FM 2020 inform its implementation, the principles include:

1. **Mana whakahaere:** the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater.
2. **Kaitiakitanga:** the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations.
3. **Manaakitanga:** the process by which tangata whenua show respect, generosity, and care for freshwater and for others.

4. **Governance:** the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future.
5. **Stewardship:** the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations.
6. **Care and respect:** the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

Te Mana o te Wai



Figure 3: Illustrates the interconnected principles of Te Mana o te Wai

Section 3.2(2) NPS-FM 2020 states every regional Council must give effect to Te Mana o te Wai. This will have implications on how the Water Supply Activity is managed and will likely impact water takes and discharges in the future. There is a lot of uncertainty around how and when Te Mana o te Wai will be implemented across New Zealand and the Council will work with the Government and our treaty partners to better understand and implement Te Mana o te Wai.

4 Key Linkages

There are multiple factors that influence how the Council manages this activity. They can be internal or external and include legislation, policies, regulations, strategies and standards. This section summarises these key linkages.

4.1 Overview

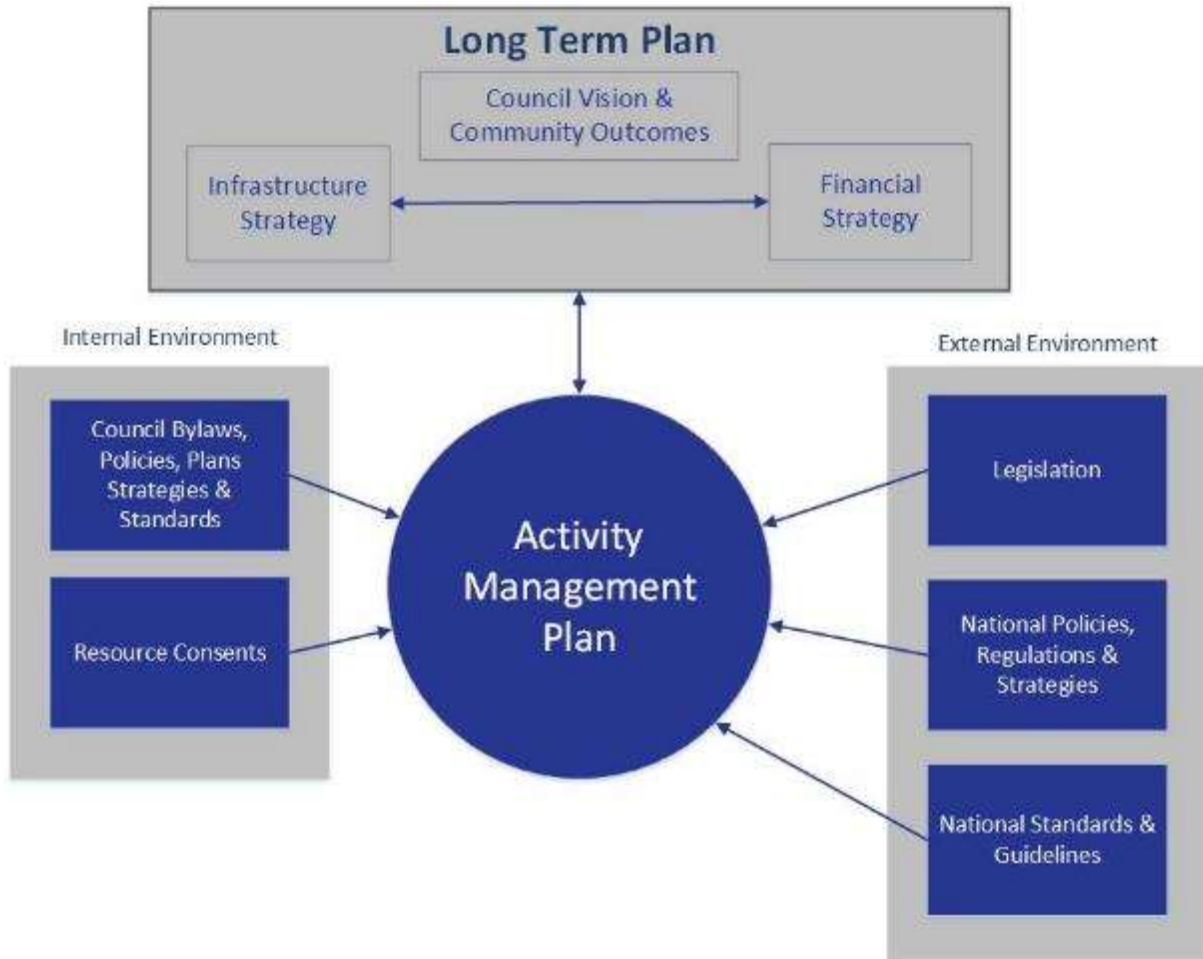


Figure 4: Rivers Relationship of other Documents

4.2 Key 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/>.

Table 6: Summary of Key Legislation that Relates to Rivers Activity

Legislation	Effect on the River Activity
The Local Government Act 2002	The Local Government Act requires local authorities to prepare a ten-year Long Term Plan and 30-year Infrastructure Strategy, which are to be reviewed every three years. The Act requires local authorities to be rigorous in their decision-making by identifying all practicable options and assessing those options by considering the benefits and costs in terms of the present and future well-being of the community. This activity management plan provides information to support the decisions considered in the Long Term Plan.
Te Tiriti o Waitangi – Treaty of Waitangi	The Treaty of Waitangi is an agreement between Māori and the Crown. Under Section 4 of the Local Government Act 2002 local authorities are required to ‘recognise and respect the Crown’s responsibility to take appropriate account of the principles of the Treaty of Waitangi and to maintain and improve opportunities for Māori to contribute to local government decision-making processes’. Further sections of the Act, particularly 77 and 81, detail the scale of requirement for local authorities to seek contributions and involvement from Māori in consultation and decision-making processes.
The Soil Conservation and Rivers Control Act 1941	This Act defines the catchment boards and their powers and responsibilities. The overriding purpose of the Soil Conservation and Rivers Control Act 1941 is to make provision for the conservation of soil resources, the prevention of damage by erosion and to make better provision for the protection of property from damage by floods.
The Biosecurity Act 1993	This Act defines, pest surveillance, prevention and management.
The Civil Defence Emergency Management Act 2002 (Lifelines)	This Act promotes the management of hazards. This includes mitigating flood risk which includes planning for emergencies, response and recovery from an event.
The Resource Management Act 1991	This Act sets out obligations to protect New Zealand’s natural resources such as land, air, water, plants, ecology, and stream health. Resource consents draw their legal authority from the Resource Management Act 1991.
The Land Drainage Act 1908	This Act details drainage of land and the responsibilities of each entity. This includes requirements and powers of the controlling authority.
The Building Act	This Act requires that buildings and site works are constructed to protect people and other property from the adverse effects of surface water. The Environment and Planning Department is responsible for the enforcement of the Building Code which is enabled through the Building Act.

4.3 Key Planning, Policies and Strategies

4.3.1 National Policies, Regulations and Strategies

Table 7: Summary of National Documents that Relates to Rivers Activity

Documentation	Effect on the River Activity
National Policy Statement – Freshwater Management 2020 (NPS-FM)	<p>The NPS-FM directs regional councils, in consultation with their communities, to set objectives for the state of fresh water bodies in their regions and to set limits on resource use to meet these objectives.</p> <p>Some of the key requirements of the NPS-FM are to:</p> <ul style="list-style-type: none"> • Manage freshwater in a way that gives effect to Te Mana o te Wai • Improve degraded water bodies, and maintain or improve all others using bottom lines defined in the Freshwater NPS. • Avoid any further loss or degradation of wetlands and streams, map existing wetlands and encourage their restoration. • Identify and work towards target outcomes for fish abundance, diversity and passage and address in-stream barriers to fish passage over time. • Set an aquatic life objective for fish and address in-stream barriers to fish passage over time. • Monitor and report annually on freshwater (including the data used); publish a synthesis report every five years containing a single ecosystem health score and respond to any deterioration.
The New Zealand Coastal Policy Statement 2010	The policy statement informs the Tasman Regional Management Plan and the Council must give consideration to the policy statement during consent consideration on anything around the coast.
Coastal Hazards and Climate Change (Guidance for Local Government)	This provides guidance for assessing, planning and managing increasing risks facing communities along the coast along with tools and techniques to determine how it will effect property.

4.3.2 New Zealand Standards

Table 8: Summary of Standards that Relates to Rivers Activity

Standard	Affect on the River Activity
AS/NZS 9401:2008 Managing Flood Risk – A Process Standard	This standard uses a risk based approach to manage flood risk. This is used to help inform decisions around flooding by analysing the risk.

4.3.3 Local Policies, Regulations, Standards and Strategies

Table 9: Summary of Local Documents that Relates to Rivers Activity

Documentation	Affect on the River Activity
Tasman District Council District Plan – Tasman Resource Management Plan	A combined regional and district plan with statements of issues, objectives, policies, methods and rules addressing the use of land, water, coastal marine area and discharges into the environment.
Tasman Regional Policy Statement	An overview of significant resource management issues with general policies and methods to address these. Part 8 River and Lake Resources outlines the control of river channels and management of floodplains to avoid or mitigate flooding of riparian lands.

5 Levels of Service

A key objective of this plan is to match the levels of service provided by the rivers activity with the agreed expectations of our customers and their willingness to pay for that level of service. These levels of service provide the basis for the life cycle management strategies and works programmes identified in this plan.

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 the Council bylaws that impact on the way assets are managed (i.e. 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.

5.1 Our Levels of Service

Table 10 summarises the levels of service and performance measures for this activity. The light blue shaded rows show those that are included in the Long Term Plan and reported in the Annual Plan. Unshaded white rows are technical measures that are only included in the activity management plan.

Table 10: Levels of Service

Levels of Service (we provide)	Performance Measure (we will know we are meeting the level of service if ...)	Current Performance 2019/2020	Future Performance Targets			
			Year 1	Year 2	Year 3	By Year 10
			2021/2022	2022/2023	2023/2024	2024 - 2031
Protection Our structures are managed to reduce the impact of flooding now and in the future	Increase our understanding of current and future flood risks from the Council maintained rivers. As measured through the Flood Protection Assets Performance Assessment Code of Practice developed by the River Managers Group.	New performance measure	Gather information through asset data and performance monitoring.	Gather information through asset data and performance monitoring	Gather information through asset data and performance monitoring	Review of flood risk assessments utilising newly recorded data.
	Emergency response procedures are up to date. As measured through the development and review of river specific Emergency Action Plans.	New Performance measure	Motueka and Riuwaka	Tākaka	Waimea	tbc
	The community is informed of potential flooding in accordance with the Council's flood warning manual.	New Performance measure	100%	100%	100%	100%
	The Council complete approved annual maintenance programmes. As measured through the Council's two monthly maintenance programmes.	New Performance measure	90%	90%	90%	90%

Levels of Service (we provide)	Performance Measure (we will know we are meeting the level of service if ...)	Current Performance 2019/2020	Future Performance Targets			
			Year 1	Year 2	Year 3	By Year 10
			2021/2022	2022/2023	2023/2024	2024 - 2031
	<p>The major flood protection and control works are maintained, repaired and renewed to the following standards:</p> <ul style="list-style-type: none"> • No failure of flood protection in the existing stopbank system maintained by the Council below the specified design levels : • Riuwaka River = approximately 145 m³/s @ Hickmotts flow gauge, (20 % Annual Exceedance Probability (AEP) to 10% AEP in 2020) for the area downstream of SH60 bridge • Lower Motueka River = 1,854 m³/s @ Woodstock flow gauge, (2% AEP in 2020) • Waimea River = 1,346 m³/s @ Irvine Bridge flow gauge, (2% AEP in 2020) • AEP* = Annual Exceedance Probability ○ (Mandatory Performance Level 1). 	Achieved 100%	100%	100%	100%	100%

Levels of Service (we provide)	Performance Measure (we will know we are meeting the level of service if ...)	Current Performance 2019/2020	Future Performance Targets			
			Year 1	Year 2	Year 3	By Year 10
			2021/2022	2022/2023	2023/2024	2024 - 2031
Amenity Our river environments are healthy ecosystems that are attractive and enjoyed by our communities	The Council develop new native riparian planting sites. Number of plants planted and measured through river maintenance contract claim payment records.	Achieved 13,881 plants	> 13,000	> 13,000	> 13,000	> 13,000
	Complaints about illegal dumping in the X and Y classified rivers and on adjacent beaches on public land are actioned within five working days. As measured through Customer Services Requests (CSR) in the Council's database. CSR's are responded to within five days.	Achieved 96% (of 15 dumpings over the year, 14 were picked up on time)	95%	95%	95%	95%

5.2 Level of Service Changes

The Council reviews its levels of service every three years, as part of the Long Term Plan development. Table 11 below summaries the key changes the Council has made during development of the Long Term Plan 2018/2028.

Table 11: Summary of areas where the Council have made changes to their levels of service

Performance Measure	Summary of change
Protection	Changed how we intent to use the Flood Protection Asset Performance Tool.
Our structures are managed to reduce the impact of flooding now and in the future	Added a new performance measure to have up to date emergency response plans.
	Added a new performance measure to inform communities of potential flooding in accordance with the Council's flood manual.
	Added a new performance measure to complete annual maintenance programme.

5.3 Levels of Service Analysis and Performance

5.3.1 Protection

5.3.1.1 Our structures are managed to reduce the impact of flooding now and in the future

The River Managers Group NZ have developed a Flood Protection Asset Performance Tool to provide a common method throughout New Zealand of measuring the performance of the river protection schemes. The methodology has been used in Tasman for both the Waimea and Motueka flood protection schemes resulting in an increased understanding of the level of protection provided by the stopbanks as well as the residual flood risk that remains. The methodology has identified gaps in the availability or accuracy of our asset data. The Council will invest in asset data collection in order to further improve asset management practices.

Through the Motueka flood mitigation study, the following levels of service have been identified.

Table 12: Levels of service for flood protection schemes.

River	Design Level of Service	Indicative current Level of Service (modelled)	Corresponding present day flow (m ³ /s)
Motueka River	2% Annual Exceedance Probability (AEP) + 600mm freeboard	2% AEP with 50 to 200mm freeboard	1860 m ³ /s (Woodstock gauge)
Motueka River		1% AEP with minimal freeboard (some minimal overtopping)	2060 m ³ /s (Woodstock)

River	Design Level of Service	Indicative current Level of Service (modelled)	Corresponding present day flow (m ³ /s)
Riuwaka	5% Annual Exceedance Probability (AEP), reduced to 10%	< 10% AEP	158 m ³ /s (Hickmott gauge)
Brooklyn	N/A	< 10% AEP	18 m ³ /s (upstream of banks)

The Council acknowledges that increasing levels of service for flood protection is unaffordable and that variable levels of flood risk will remain. The Council will focus on creating awareness of these flood risks amongst communities and assist them in being more resilient for when flooding occurs. New performance measures have been added for the development of river and community specific emergency action plans. There's also a new performance measure ensuring that communities are informed of when flooding is forecast, prior to the event occurring in accordance with the Council's Flood Manual.

A new performance measure has been added that commits the Council to the delivery of its annual maintenance programme. This ensures that assets are maintained to meet required standards and are able to provide the appropriate level of flood protection.

5.3.2 Amenity

5.3.2.1 Our river environments are healthy ecosystems that are attractive and enjoyed by our communities

The performance measure in response to illegal dumping of rubbish in the river system has been retained so that the Council continues to track the occurrence of illegal dumping and can consider further intervention measures if necessary. The same applies to the performance measure around the number of plants planted in the year. This is to ensure that continued improvement in the river ecology is being maintained.

6 Our Partners, Customers and Stakeholders

The Council engages and consults with iwi partners, customers, and stakeholders to gain an understanding of their needs, expectations and preferences. This enables the Council to provide outcomes that better meet the community's needs.

6.1 Iwi Partners

Māori are tangata whenua of Aotearoa / New Zealand. They have a long and rich association with Te Tau Ihu o te Waka-a-Māui (Te Tau Ihu) / the Top of the South Island. There are eight iwi that whakapapa and have Statutory Acknowledgements to places within Te Tau Ihu and Tasman District. They are represented by the following post settlement governance entities:

- Ngāti Apa ki te Rā Tō
- Ngāti Koata Trust
- Te Rūnanga o Ngāti Kua Trust
- Te Rūnanga a Rangitāne O Wairau
- Te Rūnanga o Ngāti Rāua
- Ngāti Tama ki te Waipounamu Trust
- Te Ātiawa o te Waka-a-Māui
- Te Rūnanga o Toa Rangatira

Tasman District also covers the northern-western part of the Ngāi Tahu takiwā (tribal area/territory). Murchison is within the Ngāi Tahu takiwā and Ngāti Waewae are the Papatipu Rūnanga on this northwestern side.

Each iwi has their own unique history and association with places across Tasman District. These areas are not easily defined and do not match or stay entirely within the boundaries of Tasman District. Māori have a close relationship with water in all its forms and consider it a taonga (treasure). The health and wellbeing of some iwi is closely related to the health of local water bodies, therefore any decision related to water will likely be of high interest to Māori.

The Council expect iwi / Māori to have a strong interest in the planning and delivery of the following projects:

- River management plans
- Emergency action plans
- Stopbank maintenance and upgrades
- River management practices and gravel extraction.

The Council staff aim to engage with iwi / Māori on matters that are of interest and importance to them. For the above projects, extra care will be taken to consider and apply the principles of the Tiriti o Waitangi / Treaty of Waitangi. The Council acknowledge that it is important to agree the appropriate level of engagement with iwi / Māori at the outset of a project. This may range from informing through to opportunities for co-governance.

More information about iwi of Te Tau Ihu can be found on the Council's website at <https://www.tasman.govt.nz/my-region/iwi/> and their own websites and social media channels.

6.2 Stakeholders

There are many individuals and organisations that have an interest in the management and / or operation of the Council's assets and services. The Council has a Significance and Engagement Policy which is designed to guide the expectations of 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; and
- 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; and
- 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:

- Landowners, including Wakatū and NRAIT
- Elected members (Community Board members)
- Regulatory (consent compliance, Public Health)
- Fisheries organisations
- Public Health Service (Nelson-Marlborough District Health Board)
- Heritage New Zealand
- Civil Contractors New Zealand (Nelson - Marlborough)
- Service providers / suppliers (Network Tasman, power companies)
- Affected or interested parties (when applying for resource consents)
- Neighbours.

6.3 Consultation

6.3.1 Purpose 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 residents surveys
- Other customer/user surveys, such as Yardstick visitor measures
- Levels of service consultation on specific issues
- Feedback from staff customer contact
- Ongoing staff liaison with community organisations, user groups and individuals
- 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 processes.

The Council commissions residents surveys on a regular basis to assess the levels of satisfaction with key services, including provision of community facilities, and the willingness across the community to pay to improve services. Other informal consultation is undertaken with community and stakeholder groups on an issue by issue basis, as required.

6.3.2 Consultation Outcomes

The annual Residents’ Survey does not specifically measure customer satisfaction of rivers and flood protection but the 2011, 2017 and 2020 surveys did ask about spend emphasis. From both surveys, rivers and flood protection was the activity that a large proportion of residents would like more spent and is shown in Table 13 below.

Table 13: Rivers and flood protection spend emphasis

	Spend More (%)	Spend about the Same (%)	Spend Less (%)	Don’t Know (%)
2020	40	44	3	6
2017	47	46	3	4
2011	45	47	2	6

Despite this response, residents provided few specifics as to what they wanted to see additional funds spent on rivers and flood protection. However, when the residents that want to spend more are broken into their wards there are some regional trends as seen below in Table 14.

Table 14: Breakdown of "Spend More" on rivers and flood protection into Wards

	Lakes-Murchison (%)	Golden Bay (%)	Motueka (%)	Moutere-Waimea (%)	Richmond (%)
2020	54	35	44	58	46
2017	67	52	53	39	43
2011	62	57	48	32	44

It can be seen that there is a high proportion of the residents want to spend more across all wards. While the percentage of people that want to spend more has dropped in Lakes-Murchison, Golden Bay and Motueka, it has gone up significantly in the Moutere – Waimea Ward. This may indicate that residents in the Moutere – Waimea ward have become less satisfied with how the rivers are managed in their ward.

7 Current and Future Demand

The ability to predict future demand for services enables the Council to plan ahead and identify the best way of meeting that demand. That may be through a combination of demand management and investing in improvements. This section provides an overview of key drivers of demand and what demand management measures the Council has planned to implement.

7.1 Demand Drivers

Key factors driving demand for river assets include:

- Community expectations
- Land development
- Climate change
- Population growth
- Extension of the classified rivers network
- Gravel extraction

7.2 Assessing Demand

7.2.1 Community Expectations

Community expectations can change and generally depend on how the community has coped during the most recent flood or the level of damage sustained. 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.

7.2.2 Land Development

Land and property values on the flood plains along rivers increase due to changing and intensified land uses. An example of this is the surge in development of hop gardens in the district. The alluvial soils and free draining gravels that are typical for flood plains are well suited for hop growing. Rivers and creeks are being constrained by river works to protect productive land resulting in increased demand for maintenance and rivers Z subsidised river controls.

7.2.3 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, available free board, stopbank maintenance and upgrades. Increases in the Council's maintenance budgets have been programmed to address future demand, including the effects of climate change. The extent of future demand due to climate change effects is uncertain due to the irregular nature of when and where climate change related events might occur. The Council will respond as required once trends in climate change related events become clearer.

7.2.4 Gravel extraction

Gravel extraction currently occurs through the following two processes:

1. Tasman District Council's global gravel extraction consent allows gravel extraction from the active river channel only.

2. Various private gravel extraction consent applications allow extraction mainly from gravel pits outside the active river channel.

The purpose of the Council's global gravel extraction consent is to manage the river with regards to maintaining flood protection (e.g. preventing aggradation - partly through the removed volume, but also through vegetation control that allows sediment to better move downstream in floods) and keeping the river in its course and not eroding banks.

The main driver for private applications is to make the gravel resource available to the local construction industry.

7.2.4.1 First Right of Refusal for Riverine Gravel Extraction

Māori interest have the "first right of refusal" for any riverine gravel extraction undertaken under the annual Operation and Maintenance programme for river works. This applies where the bed is owned by Māori interest and is confirmed in a letter from the Council to Wakatū and NRAIT (18 October 2013)

7.3 Demand Management

The Council is not planning to amend the Levels of Service for river management or extend our service provision. Neither is it anticipated that many new landowners will want to join the scheme.

8 Lifecycle Management

Lifecycle cost is the total cost to the Council of an asset throughout its life including, creation, operations and maintenance, renewal, and disposal. The Council aims to manage its assets in a way that optimises the balance of these costs. This section summarises how the Council plans to manage each part of the lifecycle for this activity.

8.1 Asset Condition and Performance

8.1.1 Waimea Catchment

The stop banks scheme is well designed and constructed and generally in good condition, however, the stop banks have steeper batters than other comparable stop bank schemes in New Zealand and the toe of the bank is close to the main river channel in at least one location. Like many of the stop bank schemes in the district, there is stock damage, trees growing in the banks, vehicle crossings and fences that can contribute to reducing the effectiveness of the banks. The Waimea River has had a historical build-up of gravel materials, in recent years, this build up has been reduced through controlled gravel extraction.

Waimea: In January 1986 a large flood of 1466m³/s (event with just less than 2% Annual Exceedance Probability (AEP)) 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 February 2016 of 1315m³/s (5% AEP). At the same time the Wai-iti experienced a flood event of 344m³/s (5 -10% AEP).

The Council undertook a validated hydraulic model analysis of the Waimea River from the confluence of Waimea and Wai-iti Rivers to Best Island. Results show that above Appleby Highway Bridge both the left and right stop banks are not predicted to be exceeded in the 1% or 0.5% AEP, although the maximum levels were within 200mm of the crest in some places. Results show that the stop bank is overtopped in a 1% AEP event on both the left and the right banks downstream of the Great Taste Trail Cycleway Bridge.

8.1.2 Upper Motueka Catchment

The Upper Motueka is a dynamic river serving one of the largest catchments in the District. River assets in this catchment are erosion protection only. The river is semi braded and one of the weediest in the District with a significant proportion of the Rivers Y maintenance budget being spent on this catchment. In recent years, the Council have concentrated on these weeds and have made significant reductions to the historic broom coverage.

- The Tadmor experienced a 5% AEP flood event in July 2012 (105m³/s).
- The Motupiko experienced a 15% AEP flood event in October 2013 (65m³/s).

8.1.3 Lower Motueka Catchment

The Lower Motueka River is the largest flood protection scheme and the river has some of the largest flows and also includes the Brooklyn stream. A technical investigations and risk analysis was undertaken for the lower Motueka, Brooklyn and Riuwaka rivers in 2019/20 in three parts:

1. Condition and structural integrity assessment, focused on using geotechnical information from previous work and a walkover assessment to identify those areas most vulnerable to failure through seepage, piping, defects or similar. To systematise the approach, the assessment tool developed as part of the Flood Protection Assets Performance Assessment Code of Practice, published by the River Managers Forum (March 2015), was customised, and used.
2. Hydraulic modelling to understand the river capacity, overtopping likelihood, stopbank levels of services, and baseline and stopbank breach flood extents. In support of the technical investigations, the Council also commissioned updated crest level survey (ground-based, high accuracy survey that was not affected by vegetation). This was used in the flood model and to inform estimates of freeboard.
3. The final component involved bringing the likelihood and consequence information generated in the first two components together into a risk analysis. It resulted in a register of identified flood risks and a prioritised works programme.

8.1.3.1 Condition and structural integrity assessment

This component of the technical investigations comprised systematic recording of the current physical condition of the stopbanks, and assessment of stopbank vulnerability to seepage, slope instability, and overtopping scour hazards (i.e. structural integrity). The assessment used the Assessment Tool developed as part of the Flood Protection Assets. Performance Assessment Code of Practice, published by the River Managers Forum (March 2015). A 1 – 5 rating system is used for each assessment criteria within the tool. The main findings of the condition and structural integrity assessment are summarised as follows:

1. In general, the Motueka River stopbanks themselves were observed to be in good condition, with little or no obvious signs of slope instability, severe erosion/surface damage, foundation softening, or berm erosion.
2. The Brooklyn Stream and Riuwaka River stopbanks were generally in poorer condition compared to Motueka. Heavy vegetation, stock damage, and uneven crests and side slopes are common across these networks. Above Brooklyn Township and above the Riuwaka highway bridge, stopbanks were generally not able to be identified and are unlikely to reliably contribute to flood control.
3. The Hurley, Kiwifruit, and Peach Island stopbanks were generally in better condition than the Brooklyn and Riuwaka stopbanks, however, severe stock damage resulting in lowering of the crest has occurred in several locations around the Peach Island stopbank.
4. The condition of the stopbank surface was generally in good condition with even grass cover. There were sections of the Peach Island stopbank and Riuwaka stopbank that are in poor condition with no grass cover, erosion along the crest and severe stock damage. Additionally, localised areas along the stopbank have been lowered to provide crossings.
5. Slope instability was not observed in the field and is generally not considered to be a significant issue for any of the stopbank networks assessed. Slope instability may occur as a result of a large earthquake (which may allow for repair prior to a flood) or due to erosion of the riverbank in cases where no berm exists.
6. No definitive observations of seepage were made in the field as the assessment was undertaken during non-flood conditions, however, higher seepage hazard was identified at a number of locations. These locations are generally consistent with those where seepage has been reported during past flood events, with some additional locations identified.

8.1.3.2 Hydraulic modelling

The modelling found that the 48-hour rainfall event was the critical storm duration for the Motueka River, while the 6-hour event was critical for the Riuwaka River and Brooklyn Stream. The assessment found that the Motueka River stopbanks are expected to overtop in the Peach Island area in the present day 2% and 1% Annual Exceedance Probability (AEP) events. The Council advise that the Motueka stopbanks were originally designed to accommodate a flow of 2,830 m³/s (flow location unknown – at the time considered a 2% AEP flow event), with 600 mm freeboard to the stopbank crest.

The assessment also identified much lower levels of service for the Riuwaka and Brooklyn Streams. The capacity of both watercourses was assessed as being lower than the 10% AEP flow, with overtopping likely at various points along each watercourse in the modelled 10% AEP event.

8.1.3.3 Risk assessment

The flood modelling results were used to assess the consequence of failure based on the following criteria:

- Safety
- Loss of service
- Environmental damage
- Residential property and infrastructure damages
- Non-residential property damages, including business disruption costs
- Organisational reputation.

Consequence ratings are combined with performance ratings to derive overall risk scores for each inspection point. Four sections along the Motueka Stopbank scheme have been identified as presenting a “very high risk” in the event of failure.

The risk assessment has resulted in the development of a prioritised programme of works aimed at reducing the risk and restoring the design level of service to 2% AEP with 600mm freeboard.

8.1.4 Riuwaka Delta Catchment

Riuwaka flood control is generally in poor condition. The stop banks are very low and whilst it was designed for 5% AEP flood events, lower areas downgrade the facilities to a 10% AEP flood event. Horticulture is very close to the stop banks, and the stop banks themselves are close to the river channel, which makes access for maintenance like mowing difficult. Landowners grazing the banks are an ongoing issue.

In June 2013, the Riuwaka River experienced a 6% AEP flood event (156m³/s) followed by a 8% AEP flood event in October 2013 and a 11% AEP 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 near Cook’s Corner and further along the road towards 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.

8.1.5 Moutere Catchment

The catchment essentially consists of a manmade drain rather than a natural waterway. The steep sides make the waterway prone to erosion and the narrow width make blockage from weeds a real risk. Ownership of land around the waterway are right up to the sides and are often fenced. This makes reducing the slope to prevent erosion difficult and this is evident in the upper part, which has suffered severe erosion due to alignment. Rip rap has been added in multiple locations to mitigate this.

The river has experienced a flood event of 150m³/sec during the time that a recorder and gauging reach existed. This gauge site has been decommissioned. The Upper Moutere area has not experienced significant flood events since 2011.

8.1.6 Aorere Catchment

The Aorere River has the largest flows in the District. The Ferntown Delta is low-lying land, prone to flooding. It has the Districts largest rock structures due to flood events in 2010 in conjunction with intensification of the land use in the catchment. The catchment is predominately-native bush, eliminating a seed source for weeds. The Council does not monitor the gravel levels in the river, but it is generally regarded as being fine.

In December 2010 the highest ever flow was recorded of 3561m³/s (0.5% Annual Exceedance Probability (AEP) flood). This resulted in extensive damage to private property from 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 3067m³/s was recorded and October 1996 when around 2400m³/s was recorded. Both these floods caused significant damage in the lower catchment to existing river works and unprotected riverbanks.

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

8.1.7 Tākaka Catchment

The Tākaka River has no stop banks other than the unofficial McKenzie bank. This is not maintained by the Council. The river frequently floods with large inflows from the two major tributaries, Anatoki and Waingaro Rivers. The rivers have steep sides and high erosive forces. The lower reaches around the town have been rock protected to avoid erosion. Historical rock protection has been undergoing maintenance to return the armouring to the original levels of protection. Weeds are not a major issue for this catchment, although there are ongoing weed control works.

Prior to the 1960s, severe flooding of the lower floodplain areas was frequent and there was extensive bank erosion along the Tākaka, Waingaro and Anatoki because of the highly erosive nature of the alluvial soils. In July 1983 a flood of over 2,000m³/s was recorded past Tākaka village (varying between 3 and 2% AEP across the catchment) which caused extensive damage to surrounding land and property. Following this flood, a new channel was cut below the Waitapu Bridge to re-align mouth in a direct line with the bridge.

The most recent large event was a 6% Annual Exceedance Probability (AEP) flood in the Waingaro (780m³/s) in April 2014. The Tākaka River (further downstream) only measured a 14% AEP flood event.

8.2 Operations and Maintenance

8.2.1 Key Maintenance and Operational Themes

8.2.1.1 Unintentional Damage

Landowners undertake activities that unintentionally threatens the integrity of the stopbanks. These activities include but are not limited to:

- Stock grazing
- Tree planting
- Installation of fences
- Driveways
- Gateways
- Construction of buildings
- Obstructions to maintenance.

8.2.1.2 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.

8.2.1.3 River and Drainage Channels

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

8.2.1.4 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 e.g., Swamp Road, Riwaka, timber structural walls have been used because of the restriction between road edge and the creek bank.

8.2.1.5 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.

8.2.1.6 Stopbanks

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

8.2.1.7 Flow Control and Miscellaneous Structures

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

8.2.2 Maintenance Contract

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

The rivers activity is currently maintained under Contract 1064. This contract sets out the operations and maintenance requirements for X and Y rated areas over a seven year period and which must also be operated in accordance with the Global Riverworks Consent. Taylors Contracting Co Ltd was awarded Contract 1064 in 2016; this contract is a three year; plus two years; plus two years format. The current contract will expire in 2022.

The maintenance contract includes.

- The maintenance and renewal of existing protection works and the construction of new works as necessary to maintain the specified sections of rivers.
- 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 riverbanks and channels.

The key aspects of the rivers contract are.

- Maintain the river system to a consistent standard in accordance with this Activity Management Plan.
- Construct new assets that will form part of the protection system for the rivers network.
- Develop and maintain working relationships with adjacent and affected landowners, which foster a partnership with the Council.
- Be respectful of the landowners, their property, stock and pastures where access is required to complete the contract works.

The rivers engineers and contractors aim to follow the maintenance programme listed below.

- Some maintenance items are undertaken on a regular or seasonal basis, for example:
- Stopbank mowing
- flap gate inspections
- Native planting, site preparation
- Willow layering
- Fairway spraying.

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.

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

- Major in-stream works such as gravel extraction or re-location
- Non-critical work such as weed control outside the fairway
- Improvement of access for river maintenance and/or recreational purposes
- Discouragement of fly tipping / vehicle access restrictions
- 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 15. 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 15: Operations and Maintenance Activities

Work Type	Maintenance Activities	Maintenance Objectives
Stopbank Maintenance (Class X only)	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • rectify the decline in standard of stopbanks from stock use by ensuring large stock are excluded. 	<ul style="list-style-type: none"> • to ensure that stopbanks meet their design capacity.
Floodgates and Culverts	<ul style="list-style-type: none"> • ongoing cleaning, repair, replacement. 	<ul style="list-style-type: none"> • To ensure fully functional during exceptional events e.g. closed; • at replacement stage floodgates need to provide for fish passage.
Rock / Gabion	<ul style="list-style-type: none"> • renew, restacking and replenishment. 	<ul style="list-style-type: none"> • to prevent lateral erosion and breakout of rivers.

Work Type	Maintenance Activities	Maintenance Objectives
Willow Planting/ Layering	<ul style="list-style-type: none"> • willow trimming; • willow release cutting, spraying or swabbing; • partial severance to encourage new growth along felled trunks (layering). 	<ul style="list-style-type: none"> • to prevent significant obstruction in the main channel; • to maintain willows in good health; • to protect willows against weeds such as old man's beard.
Flood Damage Repair	<ul style="list-style-type: none"> • replacement/replenishment of part of all of the flood protection assets. 	<ul style="list-style-type: none"> • to maintain the asset and remedy damage after flood events.
Channel Maintenance	<ul style="list-style-type: none"> • removal of trees and other obstructions and growth from the river or stream bed/fairway; • berm and bank vegetation clearance and reduction; 	<ul style="list-style-type: none"> • to prevent significant obstruction to flow along the main channel; • to increase the capacity of the channel.
Drain Cleaning	<ul style="list-style-type: none"> • cleaning via machine excavation, spraying or by hand. 	<ul style="list-style-type: none"> • to maintain hydraulic efficiency of drains.
Channel Realignment	<ul style="list-style-type: none"> • channel alignment after erosion of a section of bank or secondary channel forming after flood. 	<ul style="list-style-type: none"> • to provide a stable channel; • to reduce/eliminate back channels created by flood overflow.
Native Riparian Revegetation	<ul style="list-style-type: none"> • responsible land management to exclude weeds that can spread to private land; • restore wildlife and biodiversity values; • enhance amenity of conspicuous areas. 	<ul style="list-style-type: none"> • site preparation: fencing, slashing, spraying; • new planting; • maintenance of existing plantings.
Fencing, Gates, Access Tracks	<ul style="list-style-type: none"> • stopbank and berm control measures. 	<ul style="list-style-type: none"> • to provide the Council access to carry out its work; • to control public recreational use; • to provide control of animal grazing.

8.2.3 Maintenance Strategies

8.2.3.1 Rivers Z General Works

In addition to the operations and maintenance works carried out under Contract 1064, the Council annually allocates funds for Z rated areas. The majority of works in these areas are carried out on a part funding basis (i.e. a combination of land user and rivers account funding). Some of the River Z rates collected are spent in the River Z classified area with the majority of the funding being proportioned to the X 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 a desirable outcome, will it work and is it cost effective?
- Is the 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?

8.2.3.2 Effect of Gravel Extraction on Operation and Maintenance

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 head ward erosion that could threaten upstream bank protection and structures such as bridges. Flood conveyance in the stop banked scheme areas will also provide an upper limit that will trigger extraction. A sediment transport analysis has been carried out in order to provide independent information on the typical quantity that can be extracted.

8.2.3.3 Riparian Management

The 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 and weed control and other protection or preparation works as appropriate.

8.2.4 Forecast Operations and Maintenance Expenditure

Figure 5 details the project operations and maintenance expenditure for the next 10 years.

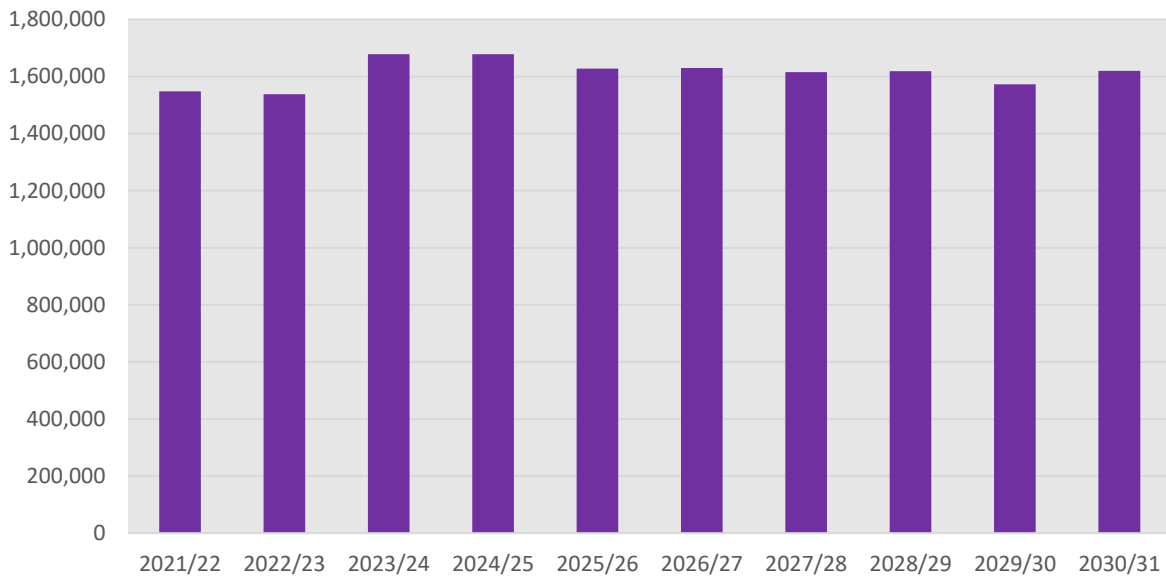


Figure 5: Direct Rivers 10 Year Operating and Maintenance Expenditure Excluding Inflation

8.3 Asset Renewal/Replacement

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.

8.3.1 Key Renewal Themes

The Rivers Activity has very little in renewals as the stop banks and erosion control tend to have unlimited life if maintenance is undertaken appropriately. The only rivers assets that are renewed are flood and tidal gates, walls and gabion baskets.

8.3.2 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.

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 6 compares the cumulative investment in renewals and cumulative depreciation.

Most of the Council’s rivers and flood control assets are not depreciated. The Council only depreciates tide gates/outfalls, gabion baskets and railway iron structures. The expected useful life of these assets ranges from 30 to 60 years. The Council has not planned to undertake renewal of any of these assets within the next 30 years. This is the cause of the divergence between renewal investment and 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.

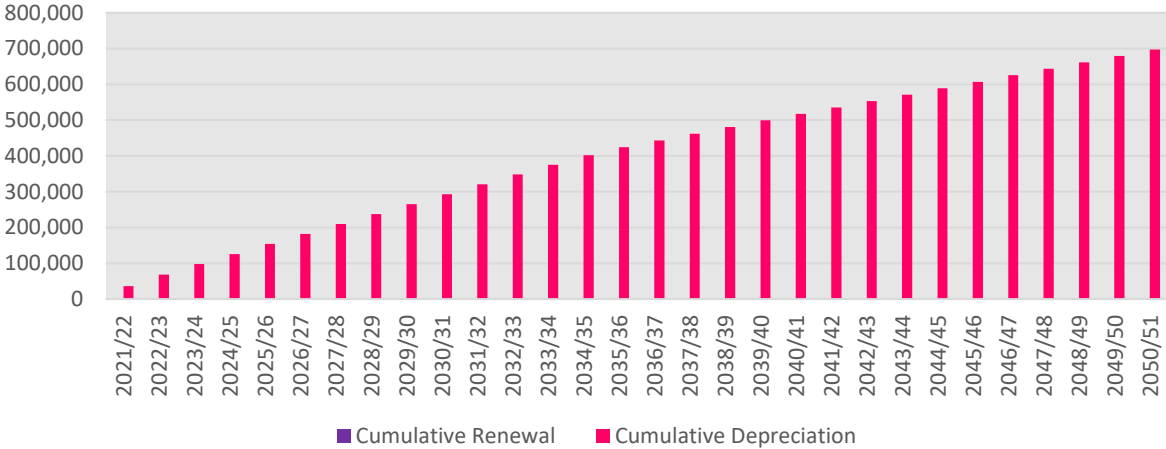


Figure 6: Cumulative Capital Expenditure and Depreciation Comparison Including Inflation

8.4 Asset Development

New capital expenditure is used to create new assets, expand or upgrade existing assets, or increase the capacity of existing assets beyond their original design capacity or service potential. This section summarises future new capital work requirements for this activity.

8.4.1 Key Asset Development Themes

A number of locations in the District have a lower tolerance for risk following high rainfall events. The risk assessment study for the lower Motueka flood protection schemes has identified sections of stopbank that require upgrading to improve bank stability as well as raising crest levels in order to meet freeboard requirements. Improvement works have started and will be finalised in 2021/2022.

8.4.2 Forecast New Capital Expenditure

The capital programme that has been forecast for this activity and is shown in Figure 7, where the primary driver is classed as new works (i.e. growth or levels of service). The expenditure is 100% driven by an increase in the level of service; there is no growth included within the 30-year forecast.

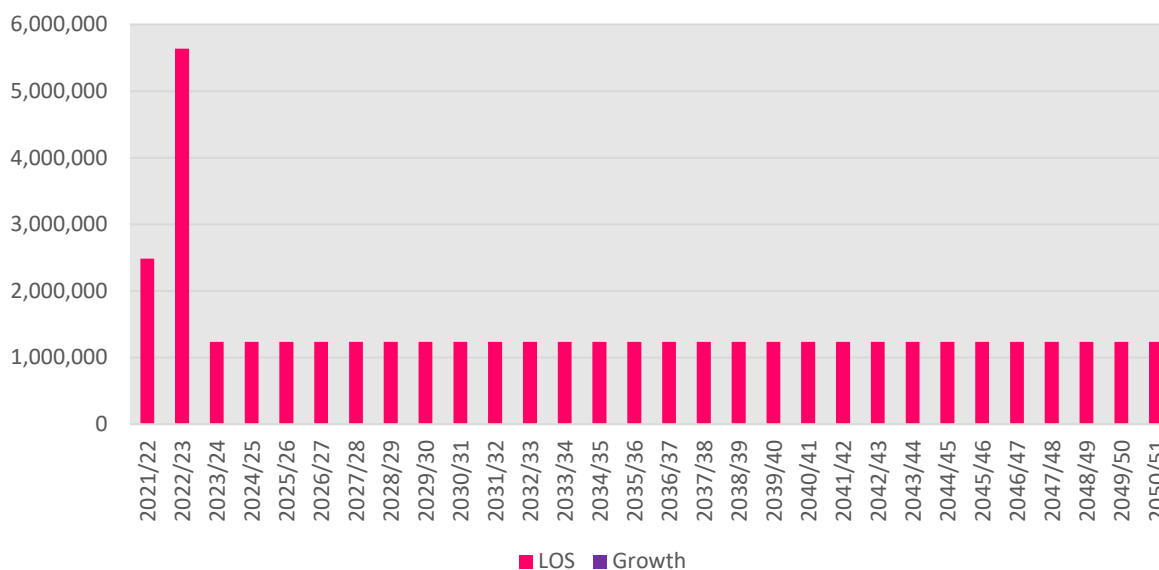


Figure 7: Rivers 30 year New Capital Expenditure Excluding Inflation

8.5 Asset Disposal

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:

- Underutilisation
- 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 flood protection works e.g., 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 Local Government Act 2002, 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 30 years.

9 Financials

Prudent fiscal management of the Rivers activity requires wise investment in areas that ensure sustainability whilst providing services that matter to the community.

9.1 Funding Sources

This activity is funded through a mixtures of sources as shown in Figure 8. Rivers expenditure is predominately funded by targeted rates with the second largest funding source being the 'Other' category made up of the following sources:

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

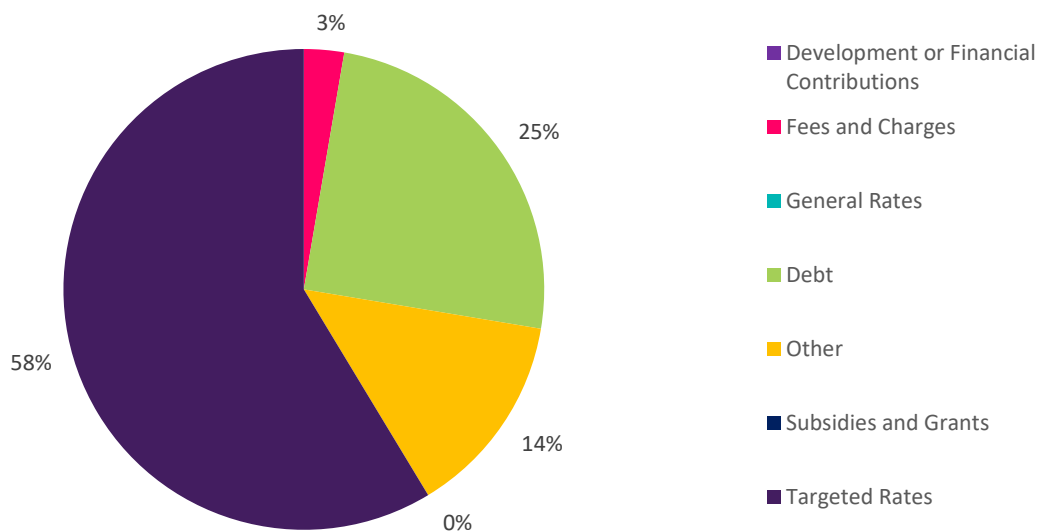


Figure 8: Sources of Rivers Funding

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

9.2 Asset Valuation and Depreciation

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

The Council requires its infrastructure asset register and valuation to be updated in accordance with Financial Reporting Standards and the Activity Management Plan 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 2020.

- 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).

9.2.1 Latest Asset Valuation

The river assets were last re-valued in April 2017 and are reported under separate cover. Assets are valued every three years. Key assumptions in assessing the asset valuations are described in detail in the valuation report. Historic asset valuations reports are held with the Council.

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 16 below.

Table 16: Data Confidence

Asset Description	Confidence	Comments
Rivers	B - Good	The Council operates an operations and maintenance contract for the management of the river assets. Rates for rock protection were obtained from this contract. The unit used for rock protection in the contract is tonnes, whereas the asset data is in m ³ . The conversion rate of 2.1 from the 2015 valuation is used to convert from tonnes to m ³ , i.e. if 2.1 tonnes of rock is 23 required for every cubic metre of rock protection. Other unit rates were indexed from the 2015 valuation

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 17 below.

Table 17: Asset Lives

Feature Type	Useful Life (years)	Minimum Remaining Useful Life (years)
Drainage/Tidal Outfall	60	5
Gabion Baskets	30	5
Native plantings (no.)	No Depreciation	
Railway Irons	50	5
Rock Protection	No Depreciation	
Stopbank Q20	No Depreciation	
Stopbank Q50	No Depreciation	
Weighted Felled Trees	No Depreciation	

Feature Type	Useful Life (years)	Minimum Remaining Useful Life (years)
Willow plantings M OLD	No Depreciation	
Willow plantings NEW (no.)	No Depreciation	

9.2.2 Depreciation

Depreciation of assets must be charged over their useful life. The Council calculates depreciation on a straight line basis on most 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 optimised replacement value, optimised depreciated replacement value, total depreciation to date, and the annual depreciation of the waste management and minimisation assets are summarised in Table 18 below. However, the following river assets are not depreciated:

- Stopbanks
- Willow planting / layering
- Wand / poles / posts
- Weighted felled trees
- Rock protection

Table 18: River Protection Asset Valuation Summary

	Optimised Replacement Value (\$)	Optimised Depreciated Replacement Value (\$)	Total Depreciation to Date (\$)
Rivers 2015	62,997,033	61,964,936	37,082
Rivers 2017	73,198,526	72,089,533	37,795
% Increase	16.19%	16.34%	1.92%

Overall the river protection assets have increased in Optimised Replacement Value by 16.19% since the 2015 valuations. The increase in the replacement values is due to the following reasons:

- The cost of rock has increased by approximately 20%.
- Additional willow have been planted in the last few years.

9.3 Financial Summary

9.3.1 Funding Impact Statement

The Council's Funding Impact Statement for this activity is included in Table 16 below. It summarises in one place how this activity will be funded and how those funds will be applied over the next 10 years.

Table 19: Funding Impact Statement

	2021/22 BUDGET \$000	2022/23 BUDGET \$000	2023/24 BUDGET \$000	2024/25 BUDGET \$000	2025/26 BUDGET \$000	2026/27 BUDGET \$000	2027/28 BUDGET \$000	2028/29 BUDGET \$000	2029/30 BUDGET \$000	2030/31 BUDGET \$000
SOURCES OF OPERATING FUNDING										
General rates, uniform annual general charges, rates penalties	0	0	0	0	0	0	0	0	0	0
Targeted rates	2,185	2,362	2,697	2,899	3,121	3,275	3,440	3,658	3,849	4,161
Subsidies and grants for operating purposes	0	0	0	0	0	0	0	0	0	0
Fees and charges	128	132	135	139	142	147	151	156	161	166
Internal charges and overheads recovered	0	0	0	0	0	0	0	0	0	0
Local authorities fuel tax, fines, infringement fees, and other receipts	647	674	697	712	729	748	767	788	810	833
Total operating funding	2,960	3,168	3,529	3,750	3,992	4,170	4,358	4,602	4,820	5,160
APPLICATIONS OF OPERATING FUNDING										
Payments to staff and suppliers	1,900	1,945	2,146	2,201	2,199	2,260	2,303	2,371	2,383	2,509
Finance costs	67	99	132	170	196	207	217	230	256	271
Internal charges and overheads applied	840	909	954	1,022	1,078	1,168	1,235	1,329	1,438	1,550
Other operating funding applications	0	0	0	0	0	0	0	0	0	0
Total applications of operating funding	2,807	2,953	3,232	3,393	3,473	3,635	3,755	3,930	4,077	4,330
Surplus/(deficit) of operating funding	153	215	297	357	519	535	603	672	743	830
SOURCES OF CAPITAL FUNDING										
Subsidies and grants for capital expenditure	1,125	3,375	0	0	0	0	0	0	0	0
Development and financial contributions	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in debt	1,028	1,565	958	929	900	869	840	810	781	748
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0
Lump sum contributions	0	0	0	0	0	0	0	0	0	0

	2021/22 BUDGET \$000	2022/23 BUDGET \$000	2023/24 BUDGET \$000	2024/25 BUDGET \$000	2025/26 BUDGET \$000	2026/27 BUDGET \$000	2027/28 BUDGET \$000	2028/29 BUDGET \$000	2029/30 BUDGET \$000	2030/31 BUDGET \$000
Other dedicated capital funding	0	0	0	0	0	0	0	0	0	0
Total sources of capital funding	2,153	4,940	958	929	900	869	840	810	781	748
APPLICATIONS OF CAPITAL FUNDING										
Capital expenditure										
- to meet additional demand	0	0	0	0	0	0	0	0	0	0
- to improve the level of service	2,255	5,104	1,204	1,235	1,268	1,301	1,338	1,375	1,415	1,453
- to replace existing assets	0	0	0	0	0	0	0	0	0	0
Increase (decrease) in reserves	51	51	51	51	151	103	105	107	109	125
Increase (decrease) in investments	0	0	0	0	0	0	0	0	0	0
Total applications of capital funding	2,306	5,155	1,255	1,286	1,419	1,404	1,443	1,482	1,524	1,578
Surplus/(deficit) of capital funding	(153)	(215)	(297)	(357)	(519)	(535)	(603)	(672)	(743)	(830)
Funding balance	0	0	0	0	0	0	0	0	0	0

9.3.2 Project Drivers

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

- Operation and Maintenance: operational activities that do not involve the renewal or upgrade of assets, or work that is necessary in order to provide on-going services at the agreed levels.
- Renewals: significant work that restores or replaces an existing asset towards its original size, condition or capacity.
- Increase Level of Service: works to create a new asset, or to upgrade or improve an existing asset, beyond its original capacity or performance.
- Growth: works to create a new asset, or 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 as follows.

- Schedule 13(1) (a) and section 106 of the Local Government Act require the Council to identify the total costs it expects to have to meet relating to increased demand resulting from growth when intending to introduce a Development Contributions Policy.
- Schedule 10(2)(1)(d)(i)-(iv) of the Local Government Act requires the Council 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.

9.3.3 Scope Risk and Funded Capital Programme

When developing this work programme, the Council needs to estimate how much to budget for each project. Often, the Council cannot be certain what the actual costs or scope of the project will be because the design is yet to be completed. Typically, the Council has more confidence in the cost and scope of projects that are planned within the first three years. After this, estimates are usually based on simple concept designs.

To address this uncertainty, the Council has incorporated funding of scope risk into capital project budgets. The amount of scope risk included varies from 10% to 40% of the project estimate, depending on the expected complexity of the individual project. Based on history, it is unlikely that all individual projects will need the full amount of allocated scope risk funding, in reality there will be some under and over spending.

It is also unrealistic to assume that we will deliver all of our projects on time. There are often delays associated with land access and consenting and other unforeseen issues that prevent us achieving on time delivery for some projects.

For the water, wastewater, stormwater, and rivers activities, we have made an overall downward adjustment to the total capital programme of 10% per year. This adjustment accounts for uncertainties in scope risk and programme delivery. By including this adjustment, we avoid over-funding the activities. Where we have applied the 10% adjustment, we refer to this adjusted budget as the total funded capital programme.

9.3.4 Total Expenditure

The estimated expenditure needs for the rivers activity have been prepared for the next 30 years. Figure 9 and Figure 10 show the total expenditure for the rivers activity for the first 10 and 30 years respectively.

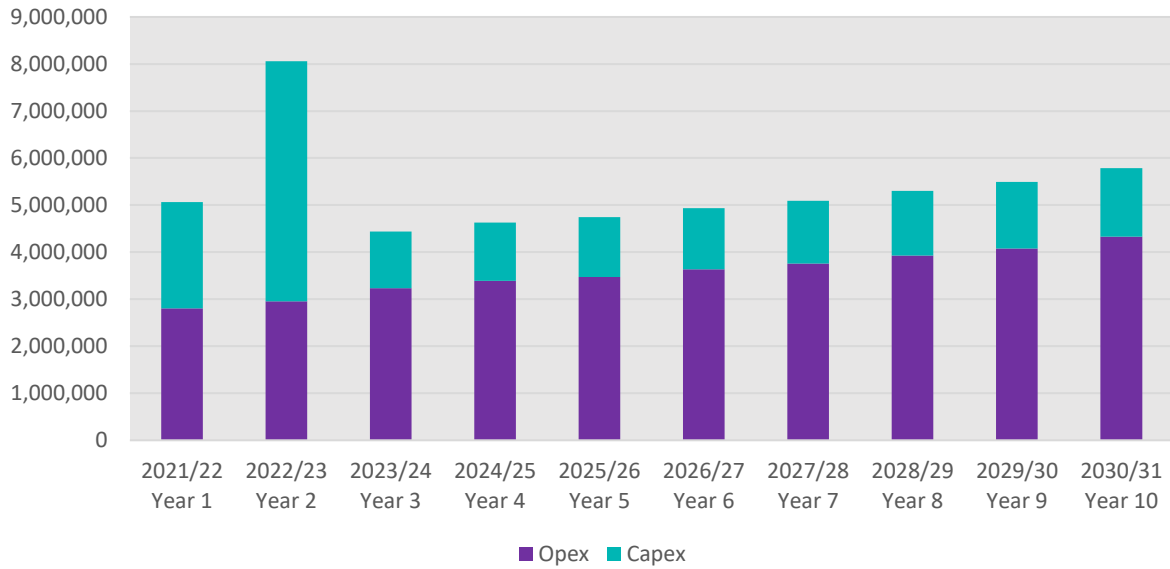


Figure 9: Total Annual Expenditure Years 1 to 10 Including Inflation

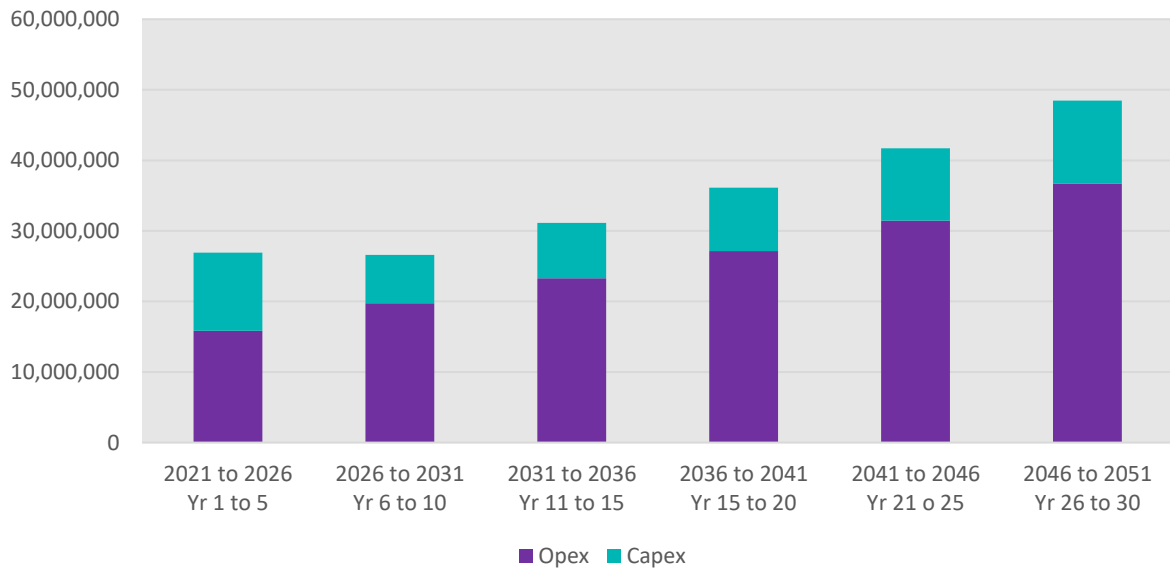


Figure 10: Five Yearly Total Expenditure Years 1 to 30 Including Inflation

9.3.5 Total Income

Figure 11 and Figure 12 show the total income for the rivers activity for the first 10 and 30 years respectively.

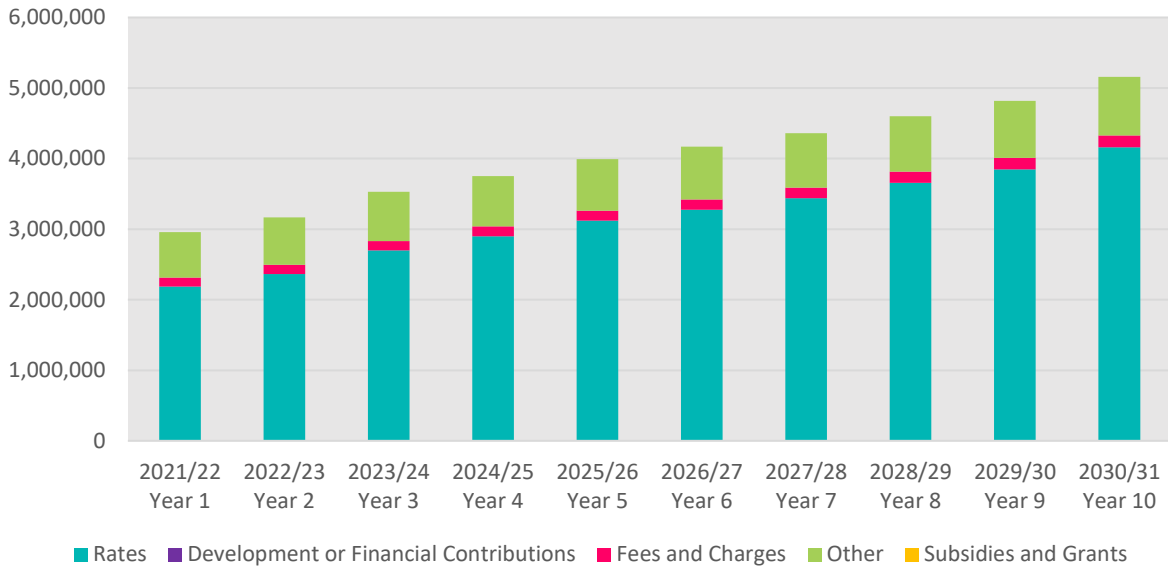


Figure 11: Total Annual Income Years 1 to 10

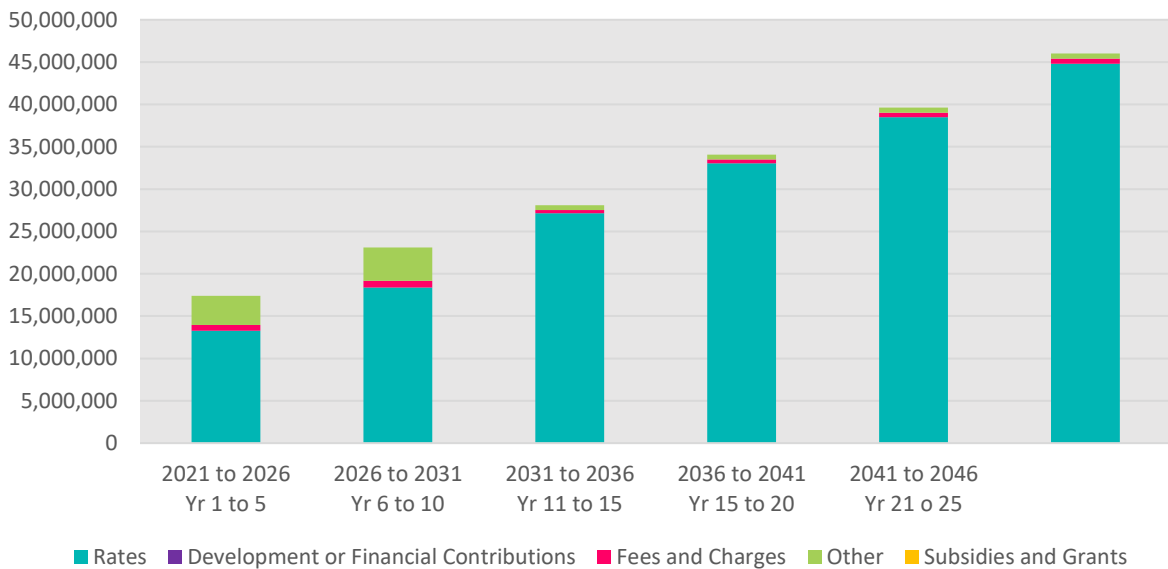


Figure 12: Five Yearly Total Income Years 1 to 30

9.3.6 Operational Costs

Figure 13 and Figure 14 show the total operating expenditure for the rivers activity for the first 10 and 30 years respectively.

Operational costs for the rivers and flood control activity are forecast to increase by around 5.4% per year for the first 10 years, and 5.9% per year over 30 years. Within the next 10 years, direct operating expenditure increases by an average of 3% per year. The biggest increase occurs in Year 3, which is caused by the increase in River Z budgets.

Indirect expenditure increases by an average of 8% per year. This is largely driven by increases in loan interest costs associated with the capital programme for this activity. Both direct and indirect costs increase due to inflation across the 30 years.

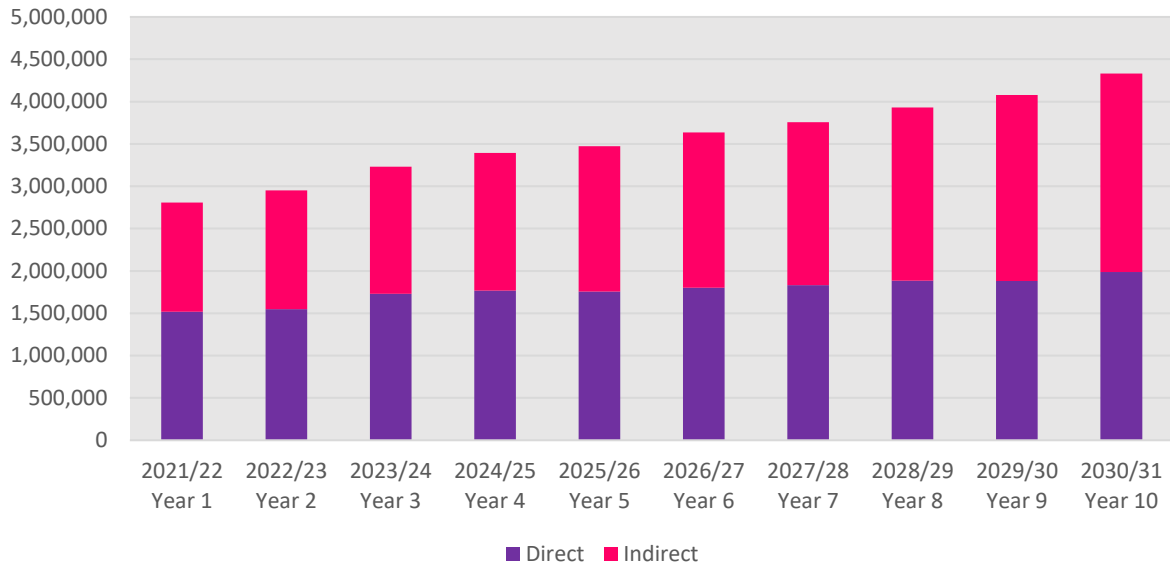


Figure 13: Annual Operating Costs Years 1 to 10 Including Inflation



Figure 14: Five Yearly Operating Costs Years 1 to 30 Including Inflation

9.3.7 Capital Expenditure

Figure 15 and Figure 16 show the total capital expenditure for the rivers activity for the first 10 and 30 years respectively.

The Council has planned to spend around \$18 million on capital improvements over the next 10 years, and around \$57 million over the next 30 years. Of this, 100% is attributable to level of service improvements. The capital programme is static for the 30 years, only increasing due to inflation, with the exception of year one. In year one, we plan to complete the upgrade of the Motueka River stopbanks.

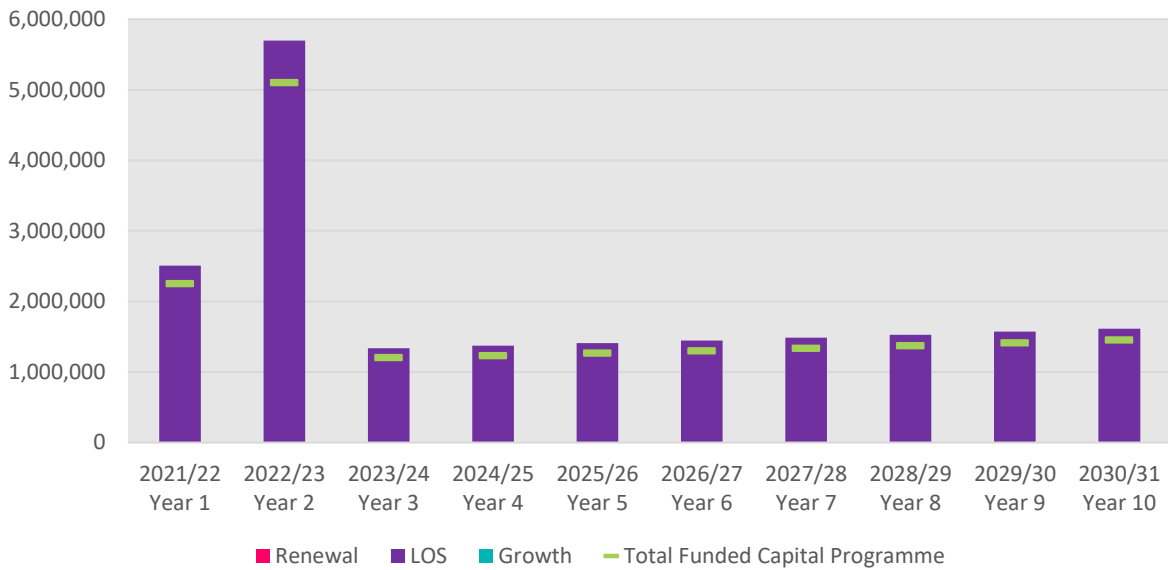


Figure 15: Annual Capital Expenditure Years 1 to 10 Including Inflation

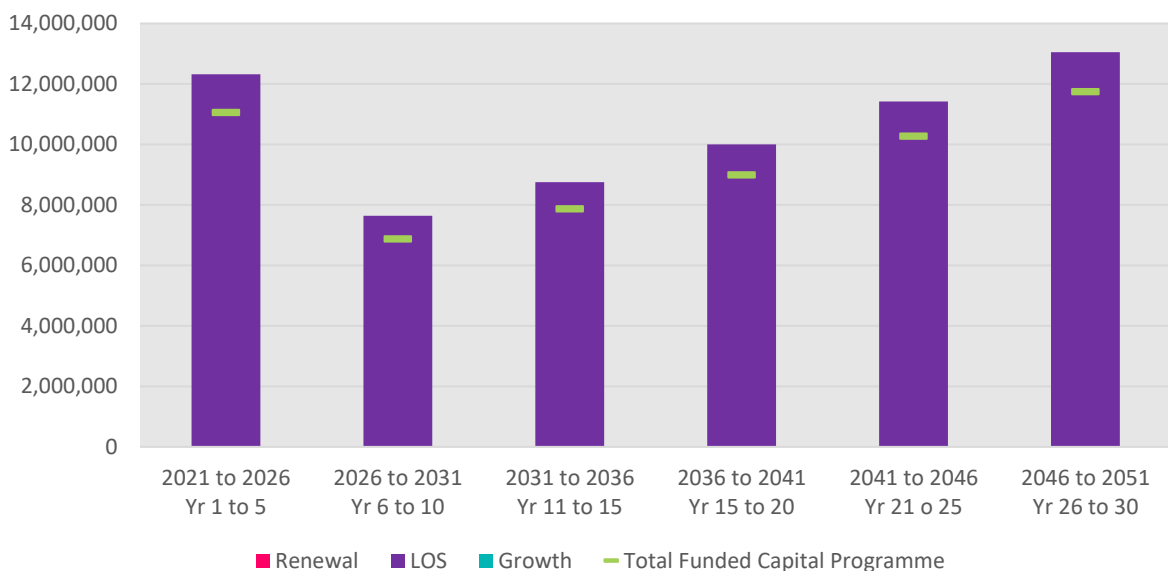


Figure 16: Five Yearly Capital Expenditure Years 1 to 30 Including Inflation

10 Sustainability

Sustainability means that we effectively balance the needs of present and future communities. From an asset management perspective, sustainability is critical, as many assets have a long lifespan and must be 'future-proofed'. The Council has a responsibility to manage this activity in a way that supports the environmental, social, cultural and economic well-being of current and future generations. This section focuses on social, cultural and environmental 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.

The Council measure sustainability against the triple bottom line framework that aims to create a balance between the three dimensions of performance, often referred to as people, planet and profit (3P's).

People – The effects of the activity on the social and cultural wellbeing of our community
The Council is guided by the Community Outcomes to assist in determining how our decisions affect the social wellbeing of our community. The Council undertake the activity to meet the level of service that is required to enhance community well-being by reducing the risk of flooding as well as integrating community values such as accessibility, amenity and biodiversity. The Council engage with mana whenua iwi and other community groups with regards to enhancing our natural waterways and provide educational programmes.

Planet – The effects of the activity on the environment
Our receiving environments are affected by river discharges from our rural and urban areas. Forestry and changes in land use have led to increased runoff that contribute to flooding. Water courses are not static and are constantly moving and changing. The temptation is to constrain the river to provide security to land owners. Wherever possible, the Council will use natural processes and bank stabilisation techniques to mitigate the effects of high flow periods rather than constrain the flow. The Council encourage community involvement in riparian planting to improve the waterway environment and control pest species.

Profit – The financial and overall long-term economic viability of the activity
The Council operates, maintains and improves the rivers infrastructure assets on behalf of its ratepayers. The Council uses its Financial Strategy to guide the development of an affordable work programme. The Council's finances are managed within the set debt limits and rates income rises to ensure economic viability for current and future generations.

10.1 Potential Negative Effects

Potential significant effects and the mitigation measures are listed below in Table 20.

Table 20: 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 (NNo10109). The lowering of groundwater levels has been mitigated using weir structures e.g. 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 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.
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.

10.2 Potential Positive Effects

Potential positive effects are listed below in Table 21.

Table 21: 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 – Tasman Resource Management Plan (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.

10.3 Resource Management

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 TRMP.

10.3.1 Resource Consents

The most relevant resource consents for rivers activities are listed in Table 22 below. There are many other consents permitting a variety of activity as well as short term consents required from time to time.

Table 22: Resource Consents relating to the Rivers Activity

Location	Consent No.	Consent Type	Expiry Date
District Wide	RM100851- RM100857	River Maintenance Works	2041
District Wide	RM100851	Works in the Water	2036
District Wide	RM140869	Discharge – river spraying (aerial)	2030

Location	Consent No.	Consent Type	Expiry Date
District Wide	RM140870	Discharge – river spraying (ground based)	2030
District wide	RM153069 RM153071 RM153072	Land Use – River protection and maintenance (Gravel extraction portion)	2041

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 22 eliminate the need to apply for separate consents at each work site.

10.3.2 Resource Consent Reporting and Monitoring

The Council aims to achieve compliance with all consents and/or operating conditions. A consent database (Bravegen) is maintained to allow for the accurate programming of all actions required by the consents, including renewal prior to consent expiry. The database is actively updated to ensure all consent conditions are complied with and that all relevant report requirements are adhered to.

10.3.3 Water Conservation Orders

10.3.3.1 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.

10.3.3.2 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.

11 Risk Management and Assumptions

This Activity Management Plan 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.

11.1 Our Approach to Risk Management

A risk is any event that has the potential to impact on the achievement of the Council’s objectives. The potential impact of a risk is measured by a combination of the likelihood of the risk occurring, and the magnitude of its consequences on objectives if it does. The Council has adopted both a [Risk Management Policy](#) that aligns with the Australian/New Zealand Standard AS/NZ ISO 31000:2009, and a [Risk Management Framework](#) which provides guidance and tools to apply to ensure a consistent approach to analysing and managing risks across the organisation. All risks described and managed in this Activity Management Plan comply with the principles and requirements of the policy and framework.

11.2 Activity Risks and Mitigation

11.2.1 Rivers Risks

The key risks relevant to the rivers activity are summarised in Table 23.

Table 23: Key Risks

Risk Event	Mitigation Measures
<p>Access to stopbanks and rivers through private property</p>	<p>Current</p> <ul style="list-style-type: none"> • Stakeholder management • Works entry agreements • Use of the Council’s property team to undertake land purchase negotiations. • Soil Conservation and Rivers Control Act • Public Works Act.
<p>Ineffective stakeholder engagement e.g. iwi, Historic Places Trust, community groups</p>	<p>Current</p> <ul style="list-style-type: none"> • Annual river care meetings are held in each catchment with stakeholders. • The Council holds regular iwi meetings. • The Council’s GIS software includes layers identifying cultural heritage sites and precincts. The 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.

Risk Event	Mitigation Measures
Failure to adequately prepare infrastructure for climate change and resulting in unacceptable flood hazard	<p>Current</p> <ul style="list-style-type: none"> • Inspections and maintenance/repairs following extreme weather events. • Risk Assessments in accordance with Flood Protection Asset Performance Code of Practice. • Development of the Council's 'holistic' River Managements Plans. • Development of Emergency Response Plans.
Customer perception of the Council not doing enough to protect private property and public assets	<p>Current</p> <ul style="list-style-type: none"> • Regular contact with communities. • Management of resource consents and Customer Service Requests.

11.2.2 Emergency Response Plans

Whilst many communities have some form of protection from river floods, the protection works do not cater for all flood events and there is always a risk of overtopping or a stop bank breaching. Flood events in Edgecumbe, in the Bay of Plenty in April 2017, shows that despite flood protection works, the town was flooded through a breach of the stop bank and destroyed 15 homes and badly damaged 250 others. Civil Defence gave the order to evacuate the town 20 minutes before that floodwall failed. A subsequent review identified that the evacuation plans were inadequate.

In Tasman, the Council has Motueka and Tākaka that are exposed to a significant risk in the event of a stop bank failure or overtopping. The Council is preparing Emergency Response Plans to ensure that in case of a flood event the Council's response is planned and actions are taken accordingly.

11.2.3 Natural Hazards and Resilience

The size and diverse nature of the Tasman landscape makes the region susceptible to a wide range of natural hazards. Tasman lies within a seismically active zone, has five major river catchments and a large coastal environment. As a result, Tasman residents have experienced the damaging effects of landslides, flooding and coastal inundation.

Some hazards have a slower onset period, for example sea level rise associated with the effects of climate change, and other hazards such as earthquakes can have little to no warning. Regardless of these timeframes, the Council needs to plan for these hazards and determine whether adaption, mitigation, or retreat is appropriate.

The Council's Infrastructure Strategy provides details of the relevant natural hazards in context to the Council infrastructure and outlines how we intend to manage risk and improve resilience. In addition to this, the Regional Civil Defence Emergency Management Group Plan provides a risk profile that outlines and ranks these natural (and other) hazards. The risk assessment determines the likelihood and consequence of the hazard occurring ranges between low to very high likelihood and insignificant to catastrophic consequences. For example on the extreme end of the scale, an Alpine Fault earthquake is considered possible and would result in catastrophic consequences for both people and infrastructure.

The Council needs to ensure it has robust planning in place and provides infrastructure that is resilient. The Council is taking a long term strategic approach by undertaking risk, resilience and recovery planning to provide better information on infrastructure resilience requirements. The Council will also continue to focus on planning and managing its critical assets and lifelines networks to ensure that the appropriate level of effort is being made to better manage, maintain and renew them.

As well as ensuring its assets are resilient, the Council has a range of financial provisions to assist with response to and recovery from major damaging events. These include:

- Annual emergency funding
- An established Emergency Fund that the Council aims to maintain to a value of \$12.8 million
- Ability to reprioritise the Council's capital programme
- Insurance cover of 40% of the costs of a catastrophic disaster event, up to \$125m
- Central Government support of up to 60% through the Local Authority Protection Programme
- Waka Kotahi - NZ Transport Agency subsidy of at least 51% for subsidies transportation asset reinstatement.

11.3 Assumptions and Uncertainties

Table 24 documents the uncertainties and assumptions that the Council consider could have a significant effect on the financial forecasts, and discusses the potential risks that this creates.

Table 24: Generic Assumptions and Uncertainties

Type	Uncertainties	Assumption	Discussion
Financial	Unless stated it can be unclear whether financial figures include inflation or not, as well as whether GST has been included or not.	That all expenditure has been stated in 1 July 2020 dollar values and no allowance has been made for inflation and all financial projections exclude GST unless specifically stated.	The Long Term Plan will incorporate inflation factors. This could have a significant impact on the affordability of each activity if inflation is higher than allowed for. The Council is using the best information practically available from Business and Economic Research Limited to reduce this risk.
Asset Data Knowledge	The Council has inspection and data collection regimes in place for assets. These regimes do not allow for entire network coverage at all times. The Council's aim is to strike the right balance between adequate knowledge and what is practical.	That the Council has adequate knowledge of the assets and their condition so that planned renewal works will allow the Council to meet the 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.

Type	Uncertainties	Assumption	Discussion
Growth Forecasts	<p>Growth forecasts are inherently uncertain and involve many assumptions. The Council commissioned population projections for the Long Term Plan 2021-2031 as the basis for its growth planning. However, growth will vary depending on actual birth and death rates, as well as net migration.</p>	<p>That the district will grow or decline as forecast in the Council's Growth Model.</p> <p>The overall population of Tasman is expected to increase by 7,700 residents between 2021 and 2031, to reach 64,300. The District will experience ongoing population growth over the next 30 years but the rate of growth will slow over time.</p> <p>Based on these assumptions, the Council is planning a further 4,300 dwellings and 160 new commercial or industrial buildings will be required by 2031.</p>	<p>Growth forecasts are used to determine infrastructure capacity and when that capacity will be required. If actual growth varies significantly from what was projected, it could have a moderate impact on the Council's plans. If growth is higher than forecast, additional infrastructure may be required quicker than anticipated. If growth is lower, the Council may be able to defer the delivery of new or additional infrastructure.</p>
Project Timing	<p>Multiple factors affect the actual timing of projects e.g.:</p> <ul style="list-style-type: none"> ● Consents ● Access to and acquisition of land ● Population growth ● Timing of private developments ● Funding and partnership opportunities. 	<p>That projects will be undertaken when planned.</p>	<p>The risk of the timing of projects changing is high due to factors like resource consents, third party funding, and land acquisition and access. The Council tries to mitigate these issues by undertaking the investigation, consultation and design phases sufficiently in advance of when construction is planned. If delays occur, it could have an impact on the levels of service and the Council's financing arrangements.</p>

Type	Uncertainties	Assumption	Discussion
Project Funding	The Council cannot be certain that it will receive the full amount of anticipated subsidy or contribution. It depends on the funder's decision making criteria and their own ability to raise funds.	That projects will receive subsidy or third party contributions at the anticipated levels.	The risk of not securing funding varies and depends on the third party involved. If the anticipated funding is not received it is likely that the project will be deferred which may impact levels of service.
Accuracy of Cost Estimates	Project scope is often uncertain until investigation and design work has been completed, even then the scope can change due to unforeseen circumstances. Even if the scope has certainty there can be changes in the actual cost of work due to market competition or resource availability.	That project cost estimates are sufficiently accurate enough to determine the required funding level.	The risk of large underestimation is low; however, the importance is moderate as the Council may not be able to afford the true cost of the project. The Council tries to reduce this risk by undertaking reviews of all estimates and including an allowance for scope risk based on the complexity of the project.
Land Access and Acquisition	Land access and acquisition is inherently uncertain. Until negotiations commence, it is difficult to predict how an owner will respond to the request for access or transfer.	That the Council will be able to secure land and/or access to enable completion of projects.	The risk of delays to projects or changes in scope is high due to the possibility of delays in obtaining access. Where possible, the Council undertakes land negotiations well in advance of construction to minimise delays and scope change. If delays do occur, they may affect the level of service that the Council provides.

Type	Uncertainties	Assumption	Discussion
Legislation Changes	Often Central Government changes legislation to respond to emerging national issues and opportunities. It is difficult to predict what changes there will be to legislation and their implications for the Council.	The Council assumes that it will be affected by changes to Government legislation. However, as the nature of these changes is not known no financial provision has been made for them except where noted elsewhere in the Long Term Plan 2021-2031 forecasting assumptions.	The risk of major changes that impact the Council is moderate. If major changes occur, it is likely to have an impact on the required expenditure. The Council has not planned expenditure to specifically mitigate this risk. It may be necessary for the Council to reprioritise planned work to respond to future legislation.
Emergency Reserves	It is impossible to accurately predict when and where a natural hazard event will occur. Using historic trends to predict the future provides an indication but is not comprehensive. The effects of climate change are likely to include more frequent emergency events.	That the level of funding reserves combined with insurance cover and access to borrowing capacity will be adequate to cover reinstatement 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.
Network Capacity	The Council uses a combination of as built data, network modelling and performance information to assess network capacity. The accuracy of the capacity assessment is based on the accuracy of asset and performance data.	That the Council's knowledge of network capacity is sufficient enough to accurately programme works.	If the network capacity is higher than assumed, the Council may be able to defer works. The risk of this occurring is low, however it should have a positive impact on the community because the level of service can be provided for longer before requiring additional capital expenditure. If the network capacity is lower than assumed, the Council may be required to advance capital works projects to provide the additional capacity sooner than anticipated. The risk of this occurring is low, however it could have a significant impact on expenditure.

Type	Uncertainties	Assumption	Discussion
Climate change	<p>Continued greenhouse gas emissions will cause further warming and changes in all parts of the climate system. The level of continued emissions of greenhouse gases and the effectiveness of worldwide efforts to reduce them are not known. The full extent of the impacts of climate change and the timing of these impacts are uncertain.</p>	<p>The Council uses the latest climate predictions that have been prepared by NIWA for the Tasman District.</p> <p>The Council assumes that it is not possible to reduce the mid-century warming, due to the amount of carbon dioxide already accumulated in the atmosphere – i.e. that the projections for mid-century are already 'locked in'.</p> <p>As a consequence of climate change, natural disasters will occur with increasing frequency and intensity. The weather-related and wildfire events the District has experienced in recent years are consistent with predictions of climate change impacts. For low lying coastal land there will be increasing inundation and erosion from sea level rise and storm surge. Adaptation can help reduce our vulnerability and increase our resilience to natural hazards.</p>	<p>It is likely that risk of low lying land being inundated from the sea, and damage to the Council property and infrastructure from severe weather events, will increase.</p> <p>The Council will need to monitor the level of sea level rise and other impacts of climate change over time and review its budgets, programme or work and levels of service accordingly.</p> <p>The Council will continue to take actions to mitigate its own greenhouse gas emissions, to work with the community on responses to climate change and show leadership on climate change issues.</p>

Type	Uncertainties	Assumption	Discussion
		<p>It has been assumed that sea levels will continue to rise and are likely to rise at an accelerated rate over time. Our plans assume a sea level rise (SLR) of up to 0.3m by 2045, 0.9m by 2090 and 1.9m to 2150 (metres above 1986-2005 baseline), in line with the Ministry for the Environment's Coastal Hazards and Climate Change Guidance (2017). For coastal subdivisions, greenfield developments and major new infrastructure, we are planning for 1.9m SLR by 2150. All sea-level rise assumptions are based on the RCP8.5H+ scenario set out in the Ministry for the Environment guidance (2017).</p>	

Table 25: Rivers Specific Assumptions and Uncertainties

Type of Uncertainty	Description
Natural Hazard Events	Natural hazard events are increasing around the region. This means that the occurrence of flood events are increasing and the magnitude of the events are also increasing. This Activity Management Plan assumes this trend continues. If the number of large events significantly increases or there is a catastrophic event, funds will not be available to reinstate the assets to a similar condition.
Legislative Changes	The flood in Edgecumbe in April 2017 was followed by an independent review of the scheme which was released in October 2017. The review does not make any recommendations to change legislation and the Council have assumed that there will be no change in legislation.
Flood Subsidy Removal	The Council have assumed that the 60% subsidy from central government to assist in remediating damages from significant flood events will remain for the next three years.

12 Asset Management Processes and Practices

Good quality data and asset management processes are the heart of effective planning. This section outlines our approach to asset management, our processes, and provides an overview of our data management systems and strategies that underpins the rivers activity.

12.1 Appropriate Practice Levels

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 activity management practices. There are five maturity levels in the IIMM; Aware, Basic, Core, Intermediate and Advanced. The IIMM sets out what the requirements are for each level against each area of the activity management system.

In 2020, the Council reviewed its Activity Management Policy and adopted an updated version. The Policy sets out the Council's activity management objectives and appropriate levels of practice. For the Rivers activity, the Council has determined that the appropriate level of practice is core with intermediate practice identified for asset management policy and asset register data.

12.2 Service Delivery Reviews

12.2.1 Activity and Asset Management Teams

The Council has an organisational structure and capability that supports effective asset management planning. Multiple teams across the Council are responsible for the different aspects of activity and asset management. The focus of the teams ranges from a strategic focus at the Long Term Plan/Infrastructure Strategy level, which involves a cross-Council team, through to detail/operational focus at the Operational team level.

Within the Engineering Services department, the asset management planning function is managed by the Activity Planning team. Operations are the responsibility of the Utilities and Transportation teams, while Projects and Contracts are managed by the Programme Delivery team.

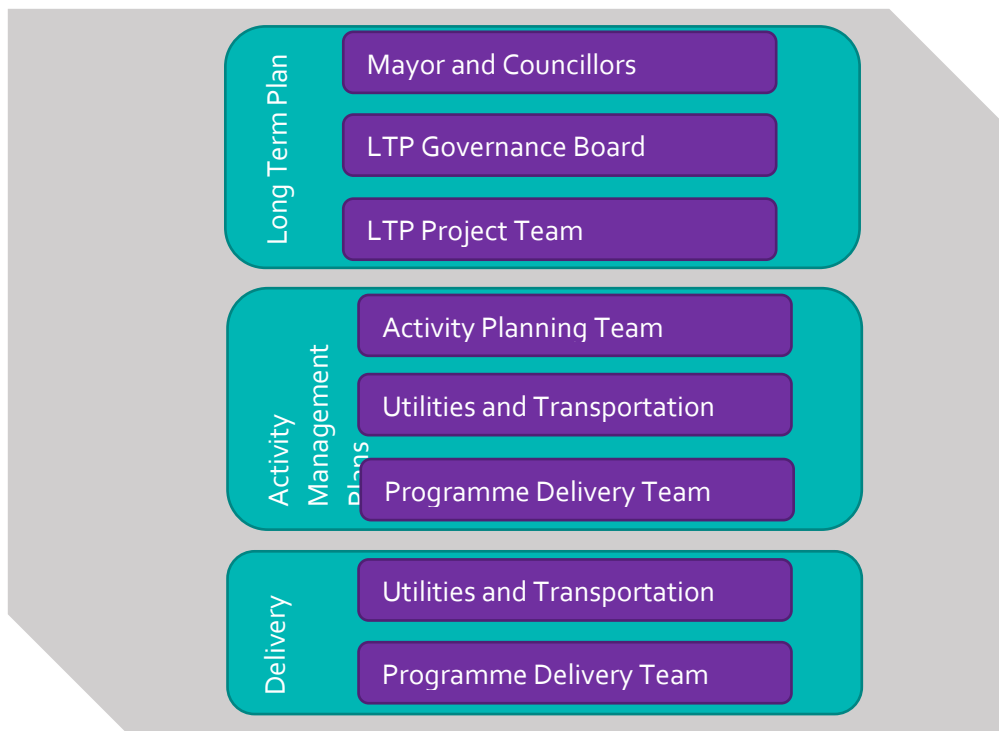


Figure 17: Teams Involved in Activity and Asset Management

The Activity Planning Team is responsible for the update of the Activity Management Plans every three years, as well as implementation of the improvement plan. Each plan is assigned to the respective Activity Planning Advisor who is responsible for updating it. The Activity Planning Advisor works in with the activity's Asset Engineer to ensure that the current and future operating and maintenance aspects of the activities are adequately incorporated into the document. All activity management plans are reviewed by the Activity Planning Programme Leader who holds a National Diploma in Infrastructure Asset Management. The quality assurance process for the Engineering Services activity management plans is provided below.

- Preparation Activity Planning Advisor
- Check Utilities or Transportation Manager, and relevant Asset Engineer
- Review Activity Planning Programme Leader
- Approve Engineering Services Manager
- Adopt Full Council

12.2.2 Staff Training

The Council maintains an annual budget for staff training that is managed by the Engineering Services Manager for the Engineering Services department. This budget allows for continued development of staff to ensure that best practice is maintained and that the Council retains the skills needed to make improvements in asset management practices. This includes on-going technical and professional training as well as specific asset management training.

12.2.3 Professional Support

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, as well as support with activity management practice. 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 Stantec New Zealand Ltd, beginning on 1 July 2014 with an initial three-year term and two three-year extensions to be awarded at the Council's sole discretion. In 2020, the second of these discretionary three-year extensions was granted, with the proportion of the Council's professional services programmes reduced to 50%. In addition to this, a secondary professional service panel was also appointed through an open market tender process for a period of three years, to provide professional services that will not be supplied by Stantec.

12.2.4 Procurement Strategy

The Council has a formal Procurement Strategy that it follows in order to engage contractors and consultants to assist the Engineering Services department. This strategy has been prepared to meet Waka Kotahi's requirements for expenditure from the National Land Transport Fund, and it describes the procurement environment that exists within the Tasman District. It was developed following a three-year review of the strategy and was approved in November 2013. It principally focuses on Engineering Services activities but is framed in the Waka Kotahi's procurement plan format, which is consistent with whole-of-government procurement initiatives. A review of the strategy was commenced in 2017/2018.

12.2.5 Service Delivery Reviews

In 2014, Section 17A was inserted into the Local Government Act which requires the Council to review the cost effectiveness of its current arrangements for providing local infrastructure, services, and regulatory functions at regular intervals. Reviews must be undertaken when service levels are significantly changed, before current contracts expire, and in any case not more than six years after the last review. In addition to the regular reviews, the Act requires the Council to complete an initial review of all functions by August 2017.

The table below summarises the reviews that have been completed to date and when the next review is required for this activity.

Table 26: Summary of Reviews

Scope of Review	Summary of Review	Review Date	Next Review
River maintenance works	An initial review found that the greatest opportunities for cost-savings in the current process come from sending the contract out for tender whereby the market can compete to deliver the best price for providing the service. Staff recommended that a full s.17A review not be undertaken for the delivery of rivers works.	April 2016	2022

In addition to the Section 17A reviews, the Engineering Services department reviewed its current capability and capacity against the requirements of the future programmes of work set out in its activity management plans. To enhance the department’s ability to deliver the capital works programme the following actions have been taken:

- Undertaken a detailed review of the capital programme for the next five years to better understand project complexities and delivery requirements.
- Implemented Planview a new project management system to track and report project delivery progress.
- Increased the number of Project Managers from four to 5.5 full time equivalent staff resources.
- Introduced enhanced performance requirements for our lead technical consultant for delivery of technical advice and engineering design.
- Tendered for a new supporting professional services paned with enhanced performance requirements.

12.3 Asset Management Systems and Data

12.3.1 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 optimised life-cycle management. These are detailed below in Figure 18. There is a continual push to incorporate all asset data into the core asset management systems where possible; where not possible, attempts are made to integrate or link systems so that they can be easily accessed.

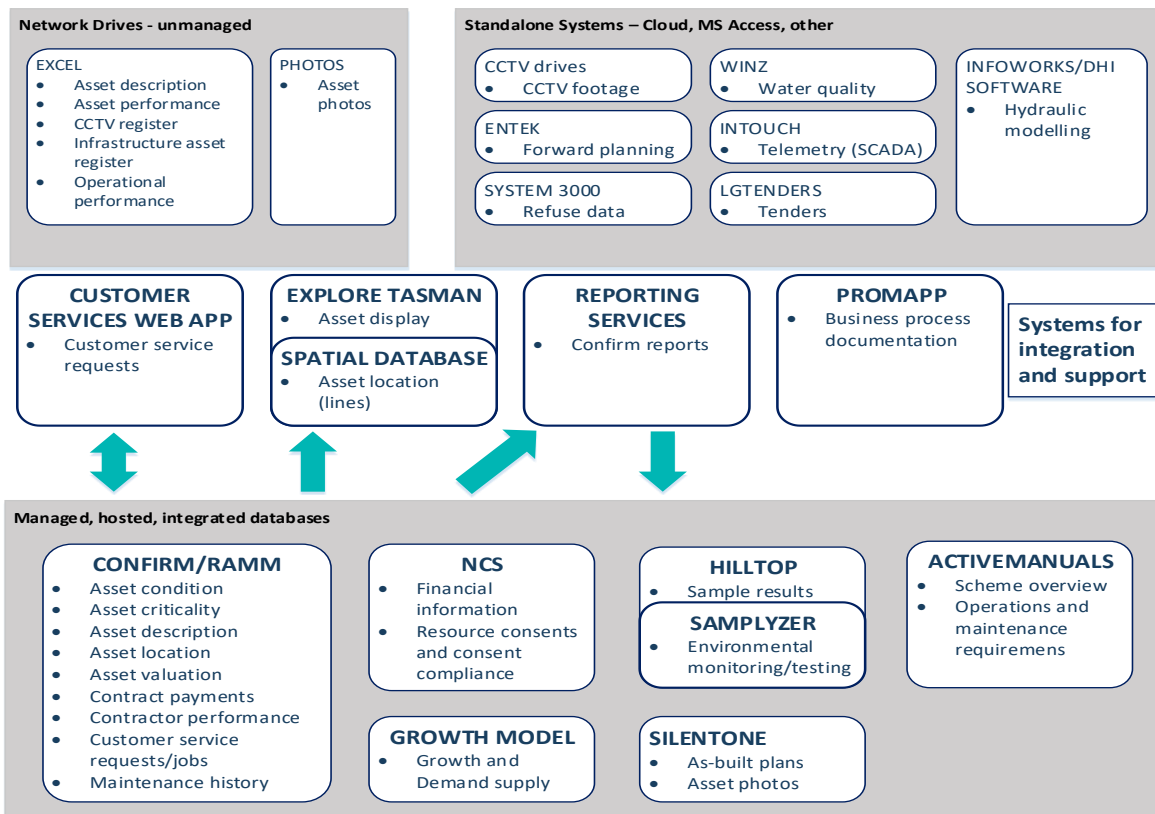


Figure 18: Systems Used for Asset Management

12.3.2 Asset Data

Table 27 summarises the various data types, data source and how they are managed within the Council. It also provides a grading on data accuracy and completeness where appropriate.

Table 27: Data Types and Information Systems

Data Type	Information System	Management strategy	Data Accuracy	Data Completeness
As-built plans	DORIS (The Council's Digital Office and Record Information System)	As-built plans are uploaded to DORIS, allowing digital retrieval. Each plan is audited on receipt to ensure a consistent standard and quality.	2	2
Asset condition	Confirm	Assets are inspected by a consultant or staff and the inspection information is entered directly into Confirm using the Connect mobile application.	N/A	N/A
Asset criticality	Confirm	When a new asset is created, the activity planner and engineer will make an assessment on criticality. Criticality of asset can be modified by authorized users should circumstances change.	N/A	N/A

Data Type	Information System	Management strategy	Data Accuracy	Data Completeness
Asset description	Confirm / spreadsheets	<p>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.</p> <p>Detail on some datasets held in spreadsheets relating to Utilities Maintenance Contract 1065; work is in progress to transfer this detail to Confirm as resourcing allows.</p>	2	2
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.	2	2
Asset valuation	Confirm	Valuation of assets done based on data in Confirm and valuation figures stored in Confirm.	2	2
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 Confirms Maintenance Management module.	N/A	N/A
Corporate GIS browser	Explore Tasman	Selected datasets are made available to all the 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
Environmental monitoring / testing	Hilltop / spreadsheet	Laboratory test results performed on monitoring and testing samples (from treatment plants and RRCs) are logged direct into Hilltop via an electronic upload from the laboratories. Due to historical difficulties in working with Hilltop data, it is duplicated in spreadsheets.	2	2
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. NCS also holds Water billing information, while asset details and spatial component are recorded in Confirm and cross-referenced.	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	Spreadsheets, GIS Mapping	Forward programmes for the Council's activities are compiled in excel, These are loaded onto GIS based maps for information and in order to identify clashes and opportunities.	N/A	N/A

Data Type	Information System	Management strategy	Data Accuracy	Data Completeness
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
Hydraulic modelling	Infoworks / DHI Software	Models have been developed for a number of schemes and catchments. Copies of the models are held on the Council's network drives.	2	4
Maintenance history	Confirm	Contractor work is issued via Confirms Maintenance Management module. History of maintenance is stored against individual assets. Prior to 2007 it was logged at a scheme level.	2	2
Photos	Network drives / DORIS (Digital Office and Record Information System)	Electronic photos of assets are mainly stored on the Council's network drives.	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
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

Data Type	Information System	Management strategy	Data Accuracy	Data Completeness
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 DORIS and NCS).	N/A	N/A
Tenders	GETS (NZ Government Electronic Tendering Service)	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 28: Data Accuracy and Completeness Grades

Grade	Description	% Accurate
1	Accurate	100
2	Minor Inaccuracies	+/- 5
3	50 % Estimated	+/- 20
4	Significant Data Estimated	+/- 30
5	All Data Estimated	+/- 40

Grade	Description	% Complete
1	Complete	100
2	Minor Gaps	90 – 99
3	Major Gaps	60 – 90
4	Significant Gaps	20 – 60
5	Limited Data Available	0 – 20

12.4 Critical Assets

Knowing what’s most important is fundamental to managing risk well. By knowing this, the Council can invest where it is needed most, and it can tailor this investment at the right level. This will avoid over investing in assets that have little consequence of failure, and will ensure assets that have a high consequence of failure are well managed and maintained. For infrastructure, this is knowing Tasman’s critical assets and lifelines. These typically include:

- Arterial road links including bridges
- Water and wastewater treatment plants
- Trunk mains
- Main pump stations
- Key water reservoirs
- Stopbanks
- Detention dams

During 2016, the Council in partnership with Nelson City Council, the Regional Civil Defence Emergency Management Group and other utility providers, prepared the Nelson Tasman Lifelines Report. This report summarises all lifelines within Nelson and Tasman. Within the report there was a number of actions identified to improve the Region’s infrastructure resilience.

The Council also recently developed an asset criticality assessment framework for water supply, waste water and stormwater. The framework is defined by:

- A ‘Criticality Score’ from one (very low criticality asset) to five (very high criticality asset)
- A set of ‘Criteria’ against which each asset will be assessed and assigned a Criticality Score (see one above)
- A set of straightforward, logical rules, measures and proxies under each criteria that can be assessed for each asset and enable a criticality Score to be assigned in a spatial (i.e. GIS) context.

For each asset, the criticality has been assessed against the following five criteria:

1. Number of people that would be effected if the asset failed.
2. Asset failure would prevent/impair use of a critical facility.
3. Ease of access/complexity of repair.
4. Asset failure has potential for environmental/health/cultural impacts.
5. Asset failure has potential to initiate cascading failures and/or asset has interdependencies with other assets.

Based on the above, asset criticality has been assessed for all assets across the district and mapped spatially in a GIS viewer. The vulnerability of critical assets to natural hazards has been identified through the overlay of natural hazards information such as coastal inundation and sea level rise, stormwater and river flooding, fault lines, tsunami risk and liquefiable soils.

The asset criticality framework will help to ensure that the appropriate level of effort is being made to manage, maintain and renew them, and will extend to ensuring that the Council has adequate asset data to enable robust decisions to be made regarding the management of those assets.

12.5 Quality Management

The Council has not implemented a formal Quality Management system across the organisation. Quality is ensured by audits, checks and reviews that are managed on a case by case basis. Table 29 outlines the quality management approaches that support the Council’s asset management processes and systems.

Table 29: Quality Management Approaches

Activity	Description
Process documentation	The Council uses Promapp software to document and store process descriptions. Over time, staff are capturing organisational knowledge in an area accessible to all, 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.
Planning	The Long Term Plan (LTP) and associated planning process are formalised across the Council. There is a LTP project team, LTP governance team, and Activity Management Plan (AMP) project team that undertakes internal reviews prior to the Council approval stages. Following completion of the AMPs, a peer review is done, and the outcomes used to update the AMP improvement plans.
Programme Delivery	This strictly follows a gateway system with inbuilt checks and balances at every stage. Projects cannot 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. If defects are found, the Council requires that they are repaired before it will accept the assets.

Activity	Description
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.
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 often linked to financial penalties for the contractor.
Levels of Service	Key performance indicators are reported annually via the Council's Annual Report. This is audited by the Office of the Auditor General.
Reports to the Council	All reports that are presented to the Council by staff are reviewed and approved by the Senior Management Team prior to release.

13 Improvement Planning

The activity management plans have been developed as a tool to help the Council manage their assets, deliver on the agreed levels of service and identify the expenditure and funding requirements of the activity. Continuous improvements are necessary to ensure the Council continues to achieve the appropriate level of activity management practice along with delivering services in the most sustainable way while meeting the community’s needs.

Establishment of a robust, continuous improvement process ensures that the Council is making the most effective use of resources to achieve an appropriate level of asset management practice.

13.1 Assessment of our Activity Management Practices

In 2018 the Council undertook an asset management maturity assessment for the River Management activity. Targets were developed in consultation with Waugh Infrastructure Management Ltd. Council has repeated this maturity assessment in 2021 in order to measure progress. The maturity levels were based on the IIMM descriptions to maturity.

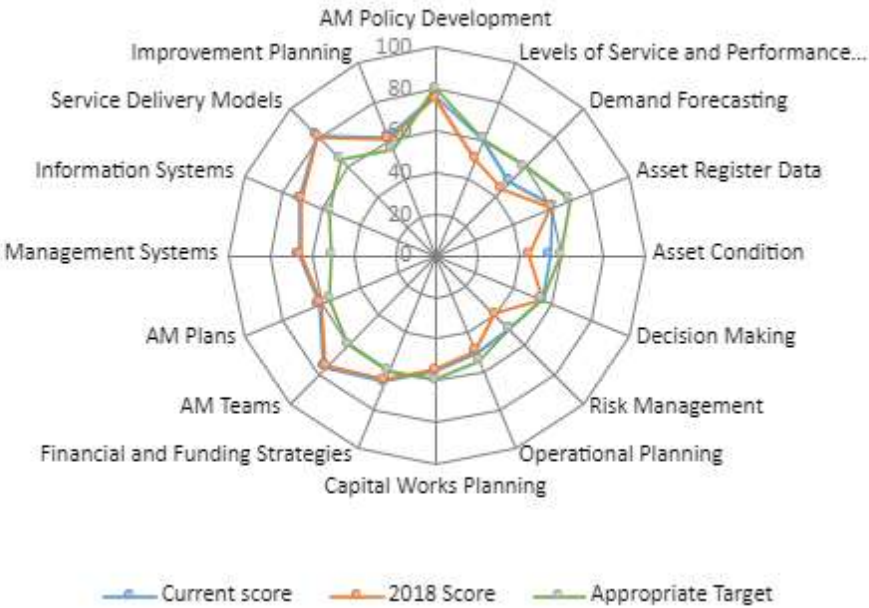


Figure 19: Rivers Assets Maturity Levels

Figure 19 shows that overall the Council’s current practice is near appropriate targets or in some cases exceeding targets. Where negative gaps exist, the actions required to close these gaps have been included in the Improvement Plan.

13.2 Peer Reviews

13.2.1 Waugh Infrastructure Management 2018 Review

In early 2018, the Council engaged Waugh Infrastructure Management Ltd to undertake a peer review on the consultation version of the 2018 activity management plan. The overall findings of the Peer Review were that the Council's Activity Management Plans (AMP) were well developed to support the Council's Long Term Plan. The Council staff reviewed and prioritised the feedback received in the peer review report and incorporated improvements in the AMP where possible. Other improvements have been ranked and included in the Improvement Plan.

13.2.2 Utility NZ review 2021

Council engaged Utility NZ to review the 2021 consultation versions of the Three Waters and Transportation AMPs. Even though the Rivers AMP was not reviewed specifically by Utility NZ, the following four recommendations from the review are considered relevant to the River Management Activity as well:

1. **Purpose and value:** Clearly define the organisational benefits that an AMP creates and monitor the asset management improvement plan against these benefits.
2. **AMP structure that enables good planning:** Clearly define the AMPs purpose and audience, then structure it accordingly.
3. **Prioritise the planning process towards risk mitigation:** Focus asset management improvements on the areas of greatest risk to levels of service and costs. The AMPs are light on what the demand for services is and linkages to renewals and maintenance intervention strategies.
4. **Activity risks and mitigation:** Use risk management as a tool to reduce organisational impact.

Council intends to implement the recommendations into its asset planning processes and its 2024 AMPs.

13.2.3 Other Feedback

Tonkin & Taylor Ltd (T&T) were engaged in 2019 to undertake a number of technical reviews of the Motueka and Riwaka flood protection schemes, including hydraulic modelling, risk and performance assessments. The work programme also included a review of asset management practices which resulted in a set of actions to improve Council's asset management systems and practices to help achieve best value for money in delivering the agreed levels of service, and reducing the risk of flooding to property.

13.3 Improvement Plan

Establishment of a robust, continuous improvement process ensures that the Council is making the most effective use of resources to achieve the appropriate level of asset management practice. The continuous improvement process includes:

- Identification of improvements
- Prioritisation of improvements
- Establishment of an improvement programme
- Delivery of improvements

- On-going review and monitoring of the programme.

All improvements identified are included in a single improvement programme encompassing all Engineering Services activities and is managed by the Activity Planning Programme Leader. In this way opportunities to identify and deliver cross-activity or generic improvements can be managed more efficiently, and overall delivery of the improvement programme can be monitored easily.

13.3.1 Summary of Recent Improvements

Based on the peer review by Waugh Infrastructure Management Ltd and internal evaluations and reviews, the Council has made improvements to its activity management plan and specific asset management processes. The key improvements and areas of strengths of the current activity management plan include our asset descriptions, Levels of Service, financial forecasting and the Council's Infrastructure Strategy.

Some of the Council's key achievements in the asset management processes over the previous three years include:

- New levels of service to define the activities that are undertaken
- Identification of key issues and responses to address these issues
- Well-defined 10-year plan including individual cost centres, highlighting the operational, renewal and capital costs.

13.3.2 Summary of Planned Improvements

A list of the current Rivers activity specific improvement items is given in Table 30.

Table 30: Rivers Specific Improvement Items

Improvement Item	Further Information	Priority	Status	% Complete	Expected Completion Date	Cost/Resource Type	Comments
Motueka Emergency Response Plan: create a response plan to heavy rainfall events	Undertake the creation of an Emergency response plan for Motueka/Riwaka to detail the responses by the Council to elevated water levels in Motueka and Riwaka Rivers.	High	In Progress	75	December 2021	Staff time and consultants	Work underway, part of the Motueka Riwaka Flood Mitigation Project. Tonkin & Taylor engaged to assist. Draft handed over to Giles for completion.
Tākaka Flood Response Plan: create a response plan to heavy rainfall events	Undertake the creation of a flood response plan for Tākaka to detail the responses by the Council to elevated water levels in Tākaka, Anatoki and Waikoropupu Rivers.	High	Not started		December 2022	Staff time	

Improvement Item	Further Information	Priority	Status	% Complete	Expected Completion Date	Cost/Resource Type	Comments
Rating System Review: Review the current rivers rating strategy to address the inconsistencies between the River X, Y and Z rating levels and re-assess the rating areas.	While Corporate has put this review on hold as they consider the current rating policy accurate, the Transportation team consider this improvement a priority as the anomalies in the system are open to be challenged.	Low	Deferred		June 2023	Staff time and budgets	
Asset Management System Development: Continue to develop the Council's asset management system and integration with related systems	Ensure unofficial and unmaintained stop banks are in GIS systems and can be viewed on the Council's ET2.	Low	In Progress	50	June 2022	Staff time and budgets	Considered as part of Asset Management Practices review - part of Motueka Riuwaka Flood Mitigation Project.

Improvement Item	Further Information	Priority	Status	% Complete	Expected Completion Date	Cost/Resource Type	Comments
Improve understanding of shared maintenance responsibility	Work with landowners to make land use changes that will lead to improvements to the stopbank networks.	High	In Progress	50	December 2021	Staff Time	Considered as part of Asset Management Practices review - part of Motueka Riuwaka Flood Mitigation Project.
River Management Plans	Integrated river management plans.	High	Not started	0	Ongoing	Staff time and budgets	
Measure carbon emissions	In accordance with Tasman Climate Action Plan.	Medium	Not started	0	Ongoing	Staff time and budgets	

A list of general across activity improvement items is given in Table 31.

Table 31: General Activity Management Improvement Items

Improvement Item	Further Information	Priority	Status	Expected Completion Date	Team Responsible	Cost / Resource Type
Create Critical Asset Framework	Describe in Activity Management Plan how it is used to prioritise asset information and condition assessments, adjust economic lives (renewal profiles) prioritise renewals and expenditure, operation and maintenance.	High	In Progress	June 2020	Activity Planning	Staff Time
Consider how levels of service options are presented to the community	Consider how to better engage the community in agreeing appropriate levels of service through specific work streams (e.g. Risk, Resilience, Recovery Planning).	Medium	Not started	June 2021	Activity Planning	Staff Time

Appendix A: Detailed Operating Budgets

ID	Name	Description	Total Budget	Financial Year Budget (\$)											Total Budget	
			2021-51	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031-41	2041-51	
32001	Activity Management Plan	Update of activity management plan	150,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	50,000	50,000	
32003	Professional Services	Professional fees for expert advice i.e. geomorphology, ecology, modelling etc.	615,000	41,000	21,000	13,500	13,500	13,500	41,000	21,000	23,500	13,500	23,500	225,000	165,000	
32004	Rivers Asset Insurance		833,011	64,003	68,483	73,277	78,406	78,406	78,406	78,406	78,406	78,406	78,406	78,406	0	
32005	Rivers General Z	All operational costs with class Z rivers	14,800,000	400,000	400,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	5,000,000	5,000,000	
32006	Class Y Operations	Operational costs for class Y rivers	21,650,000	675,000	675,000	725,000	725,000	725,000	725,000	725,000	725,000	725,000	725,000	7,250,000	7,250,000	
32007	RIVER BERM RATES		134,289	13,429	13,429	13,429	13,429	13,429	13,429	13,429	13,429	13,429	13,429	0	0	
32010	River Management Plans	Operational plans for rivers X&Y setting out a maintenance strategy and prioritised work programme	1,125,000	100,000	100,000	100,000	100,000	100,000	25,000	25,000	25,000	25,000	25,000	250,000	250,000	
32011	Class X Operations	Operational costs for class X rivers	4,860,000	162,000	162,000	162,000	162,000	162,000	162,000	162,000	162,000	162,000	162,000	1,620,000	1,620,000	
32012	Asset data collection and monitoring	Asset data collection to inform River Management Plans	2,310,000	87,500	93,500	86,000	81,000	30,000	80,000	86,000	86,000	51,000	87,500	774,500	767,000	

Appendix B: Detailed Capital Budgets

ID	Name	Description	Project Driver %			Total Budget	Financial Year Budget (\$)										Total Budget		
			Growth	InclOS	Renewals		2021-51	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031-41	2041-51
36001	Class Y Capital Works	Capital works on class Y rivers	0	100	0	32,650,000	850,000	1,000,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	1,100,000	11,000,000	11,000,000
36002	Flood mitigation works Motueka	Motueka Stopbank upgrade	0	100	0	6,000,000	1,500,000	4,500,000	0	0	0	0	0	0	0	0	0	0	0
36006	Class X Capital Works	Capital works on class X rivers	0	100	0	4,110,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	137,000	1,370,000	1,370,000