



Karamea Rating District 2021-2024 Asset Management Plan



West Coast Regional Council

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1.0 Purpose of this Document

The purpose of this document is to summarise the management philosophy that is applied to the Karamea Rating District including the infrastructure assets and services. This approach ensures that acceptable levels of service are provided in the most cost-effective manner and contribute to the achievement of the community outcomes identified in the West Coast Regional Council's Long-Term-Plan (LTP).

This AMP defines the objectives and performance standards of the Karamea Rating District for which the West Coast Regional Council bears the maintenance responsibility, including providing a basis upon which the effectiveness can be measured. The key purposes of this AMP are to:

- Provide a history of the Karamea protection scheme.
- Convey the long-term strategy for the management of the Karamea Rating District.
- Provide a tool to assist with management assets in a cost effective and sustainable manner.
- Manage the environmental, service delivery and financial risks of asset failure.
- Demonstrate that the service potential of the rivers and drainage assets is being maintained.

2.0 Asset Management Objectives

West Coast Regional Council recognises that the Karamea Asset Management Plan is the fundamental driver of flood protection for the scheme. This AMP has been developed in accordance with the Local Government Act 2002, with the first AMP completed in 2003 with three yearly updates or earlier where information indicates a significant change from what is stated in the current AMP.

In order to fulfil the outcomes, vision, goals and objectives of these assets, the West Coast Regional Council have adopted a systematic approach to the long-term management of its assets and services on the Karamea Rating District by preparing this AMP.

West Coast Regional Council is committed to best appropriate practice asset management in order to achieve the following key objectives:

- Meet the service expectations of the Karamea community.
- Ensure maintenance activities achieve efficient results with optimal benefits.
- Demonstrate Council's approach to managing risk and meeting growth requirements towards a sustainable future.
- Comply with all statutory requirements.

3.0 Karamea Rating District Background

As a result of the 1929 Murchison earthquake, slips dammed the Karamea and Little Wanganui Rivers. The collapse of these dams caused serious damage to property and heavy loss of stock. To rehabilitate the area after the earthquake the Government financed the Karamea Flood Protection Scheme.

The Scheme included the construction of stopbanks and rock protection on the Karamea, Oparara and Little Wanganui Rivers. The work was completed about 1937, but no arrangements were made for ongoing maintenance of the scheme.

After a meeting between the Karamea Federated Farmers and the Westland Catchment Board in September 1967, a questionnaire was sent to ratepayers in the Karamea District to gauge interest for a rating district to finance capital and maintenance work on the three rivers in the area. Due to the lack of interest the proposal was abandoned.

In November 1973 the Karamea River overtopped the stopbanks and caused severe flooding in the area.

At the request of the Karamea Federated Farmers a further meeting was held in May 1981 which authorised the Westland Catchment board to establish a rating district based on capital value to maintain existing protection works in the Karamea District.

The Karamea area classification to maintain the existing protection works on the Little Wanganui River, Granite Creek, Karamea River and Oparara River was adopted by the Westland Catchment Board on the 28 June 1982.

The Scheme works are located within or alongside the:

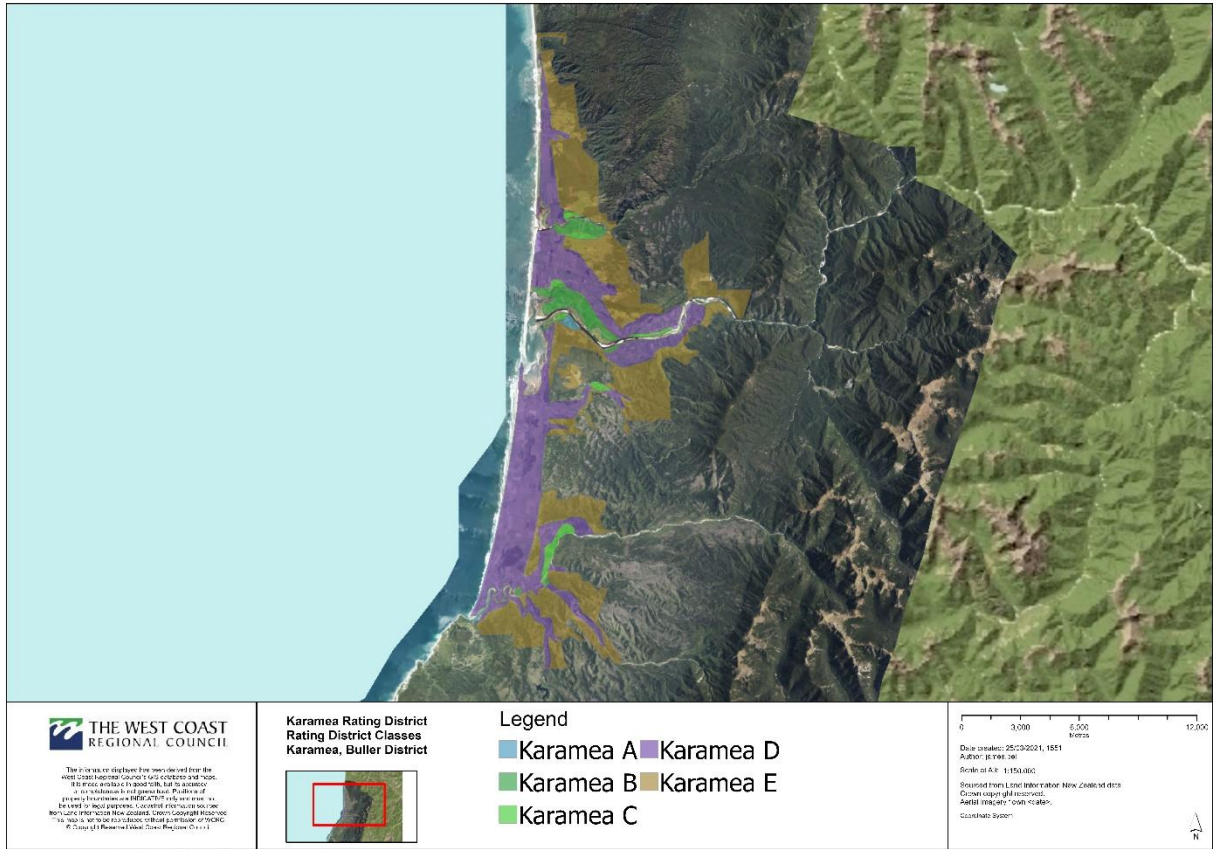
- Oparara River from the Gorge downstream to North Beach road;
- Karamea River from Arapito road to the mouth;
- Granite Creek from the main highway upstream for a distance of 5 kilometres; and
- Little Wanganui River from O'Connor Creek below the main highway then upstream for a distance of 7 kilometres.

The area protected is predominantly dairy farming with some horticulture and dry stock farming. Community infrastructure such as roads, power and telephone lines all derive benefit from the scheme area.

In 2012 the Last Resort Stopbank was constructed. The stopbank was realigned to protect a vulnerable section of bank behind the Last Resort. The stopbank behind the Domain was then upgraded in 2017. Rootballs from the previously felled large trees on the bank were removed, and the bank reconstructed with compacted gravels.

In early 2020 the narrow and slumped section of stopbank between the Last Resort Bank up to the Karamea River Bridge, a length of 1280 metres, was upgraded to raise it to the same grade as the downstream banks.

4.0 Karamea Rating District



5.0 Description of Assets

Karamea River			
Asset	Quantity	Unit	Rate
Rock	57,768	Tonne	\$49.75
Stockpiled rock	500	Tonne	\$49.50
Fill	92,282	m ³	\$25.98
Ancillary assets	8870.95	\$	\$1.05
Asset Value			\$5,305,508.86

Oparara River			
Asset	Quantity	Unit	Rate
Rock	7,562	Tonne	\$49.75
Fill	12,200	m ³	\$25.98
Asset Value			\$693,165.50

Granite Creek			
Asset	Quantity	Unit	Rate
Rock	3,580	Tonne	\$49.75
Asset Value			\$178,105

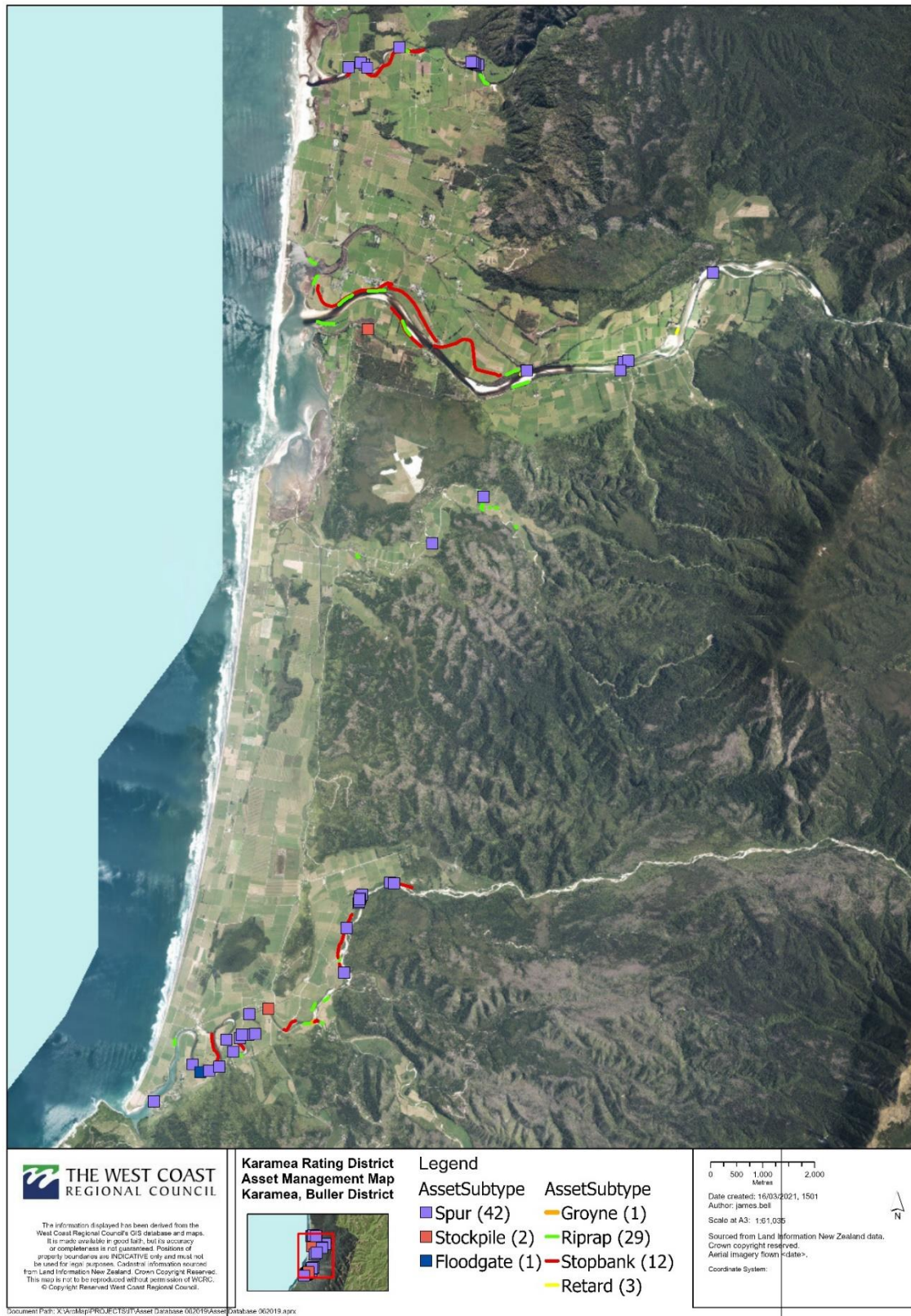
Little Wanganui River			
Asset	Quantity	Unit	Rate
Rock	22,729	Tonne	\$49.75
Stockpiled rock	500	Tonne	\$49.50
Fill	24020	m ³	\$25.98
Ancillary assets	20330	\$	\$1.05
Asset Value			\$1,800,903.85

Total Asset Value	\$7,977,683.21
Contingences	\$797,768.32
Resource Consents	\$175,509.32
Emergency Work Conditions	\$797,768.32
Total Asset Value	\$9,748,728.88

5.1 Physical Assets

Asset Type	# of Assets	Asset Components	Quantity	Rate	Value	Total Value
Spur	48	Rock	19047T	\$49.75	\$947,588.25	\$950,705.85
		Fill	120m ³	\$25.98	\$3,117.60	
Stockpile	2	Rock	1000T	\$49.50	\$49,500.00	\$49,500.00
Floodgate	1	Ancillary	\$3,210.00	\$1.05	\$3,370.50	3370.5
Groyne	1	Rock	200T	\$49.75	\$12,437.50	\$12,437.50
Riprap	32	Rock	64790T	\$49.75	\$3,387,427.75	\$3,387,739.51
		Fill	12m ³	\$25.98	\$311.76	
Stopbank	12	Fill	128370m ³	\$25.98	\$3,335,052.60	\$3,443,435.14
		Rock	1630T	\$49.75	\$81,092.50	
		Ancillary	\$25,990.51	\$1.05	\$27,290.04	
Retard	3	Rock	2622T	\$49.75	\$130,444.50	\$130,444.50
Total						\$7,977,683.21

5.2 Asset Map



Note: Not all assets have been added to the asset map due to having no spatial data to represent them.

6.0 Existing Standard

A flood on 21st November 1973, which overtopped the Karamea stopbank, was recorded at 3884m³/sec at the Arapito gauging station on the Karamea River.

Riverbed cross section surveys were carried out in 2006 and flood modelling based on this information was undertaken in August 2006. The analysis assessed a 50 year return period flood as 3,680 cumecs and the modelling of this flow determined that the existing right bank stopbank has a capacity less than the 50 year event. NIWA have since done more detailed modelling and a report was produced in 2012.

No flow data is available on the Oparara River, Granite Creek or Little Wanganui River to quantify any return flood event. However most of the works on these rivers are for erosion control only, not flood protection.

6.1 Service Level

The Levels of Service represented in this AMP are described and aligned with community values including affordability, quality, safety, community engagement, reliability and sustainability.

Councils in New Zealand will generally adopt one of three methods for determining the level of service provided by a scheme:

- Agreeing on a scope of physical works with the community without reference to a target capacity or return period (low risk schemes)
- Providing physical works with a level of performance provided in terms of a target capacity (medium risk schemes)
- Providing physical works with a level of performance in terms of a target return period (high risk schemes)

Each of the three methods for determining the level of service may be suitable for a given scheme, provided that communities understand event likelihood, scheme and property vulnerability, potential consequences, and residual risk.

Where council staff have recommended physical works or analysis that did not proceed due to community resistance to cost, then councils are only able to track their service delivery through measures around maintenance works programmes or a general description of channel condition.

The sections of the stopbank built for the original Karamea protection scheme following the 1929 earthquake were built to an unknown design standard. Generally though the historic "Existing Standard" has been 900mm above the highest known flood, however, the Karamea floodbank's current service level appears to be less than a 1 in 50 year return period flood, according to survey work completed to date. Council recommends a 1 in 50 year flood (2% annual exceedance probability) protection as a minimum.

Erosion control works do not have service levels but will be maintained to the dimensions they were initially constructed to.

The objectives of the Karamea Area Rating District are:

1. Oparara River

To maintain existing protection works with the aim to reduce bank erosion and flooding.

2. Karamea River
To maintain existing protection works with the aim to reduce bank erosion and flooding.
3. Granite Creek
To maintain existing protection works with the aim to reduce bank erosion.
4. Little Wanganui
To maintain existing protection works with the aim to reduce bank erosion and flooding.

The maintenance of the Karamea Scheme protection works can be broken into two zones. Stopbanking and Erosion Control Works.

6.2 Maintenance Programme

An annual maintenance report is prepared each year in consultation with the Karamea Rating District for adoption by the Council for inclusion in its annual budgets.

In preparing the annual maintenance report the following will be considered:

- An inspection to identify works requiring immediate repair.
- Works anticipated as being required given a 'normal' season.
- Flexibility to meet unbudgeted damages.

6.3 Damage and Risk Exposure

Erosion works are constructed in a very high energy environment with the purpose of resisting and absorbing some of that energy. It is considered that no matter what the standard of maintenance carried out, it is likely that damage will occur from time to time.

An assessment of maximum damage potential was estimated as below:

Event size (AEP)	Value	Damage ratio	Damage exposure	Prudent Reserve	Prudent reserve contribution
10%	\$9,748,729	2%	\$194,975	\$194,975	100%
5%	\$9,748,729	4%	\$389,949	\$272,964	70%
2%	\$9,748,729	8%	\$779,898	\$389,949	50%

It has been deemed, within reason, that all Rating Districts have a prudent reserve target balance that contributes to at least 100% of the damage exposure for a 10% AEP event, 70% for a 5% AEP event and 50% for a 2% AEP event. These percentages define what is an appropriate and acceptable level of risk for Council and the community.

6.4 Prudent Reserve

Why do we need a prudent reserve?

- Minimise the financial impact of unplanned works, such as those caused by weather events
- Ensure the rating district is able to contribute funding that is sustainable and affordable
- Ensure Council's debt level is managed, and that borrowing is still available when required
- Ensure the debt levels of the rating district do not exceed the ability to fund the repayments

This target balance for the 'prudent reserve' for this rating district is \$150,000 as agreed by council. This prudent reserve is immediately available. It is likely the current reserve will only cover a portion of the actual cost of the potential damage that could occur.

If an event were to occur and the prudent reserve does not cover the full repair and rebuild cost of the assets, it is understood by the community that the remaining costs will be paid by loan or the rating district accounts will be in overdraft. In the instance of extreme weather events, NEMA funding and the Councils private insurance will be accessed for cost recovery if the criteria are met. The West Coast Regional Council's insurance policy has a \$400,000 excess. 40% of eligible rebuild costs will be met by this policy.

Below are the key criteria that needs to be met to access the NEMA funding, which can cover up to 60% of eligible rebuild costs

The provisions for government financial support to local authorities apply whether or not a state of emergency is, or has been, in force

Government assistance will not normally be available for assets which receive a subsidy from any other source, unless:

- *the local authority has adequately protected itself through asset and risk management including mitigation, where appropriate, and the proper maintenance of infrastructure assets, or*
- *the local authority has made sound financial provisions (such as the provision of reserve funds, effective insurance or participation in a mutual assistance scheme with other local authorities) to a level sufficient to ensure that the local authority could reasonably be expected to meet its obligation to provide for its own recovery*

Threshold

Threshold for reimbursement; As with other response claims, Government policy is to reimburse 60 percent of the combined eligible costs (response and essential infrastructure costs), above the following thresholds:

- *0.0075 percent of the net capital value of the city council, district council or unitary authority involved*
- *0.002 percent of the net capital value of unitary authorities where the assets in question are of a type that ordinarily are managed by regional councils, or*
- *0.002 percent of net capital value in the case of regional councils*

7.0 Funding

7.1 Maintenance

Maintenance is funded by targeted rates, the level of rating being determined each year in the Annual Plan process. This involves:

- a) Preparation of an annual works programme and corresponding budget.
- b) Adoption of the annual works programme and budget.
- c) Discussion of the works report and budget with the ratepayers.

- d) Adoption of final budget in the Council's Annual Plan.

The aim of maintenance is to ensure the infrastructure assets are kept at a standard where they can always perform to their service level. Where rock is required to be placed on an existing infrastructure under direct attack from the river, the protection required to maintain the existing infrastructure at its same service potential would be charged to the scheme maintenance account.

Capital works are generally defined as works which increase the service level of the scheme. Such work would include increasing the design standard or the area covered by a scheme and works to increase security or performance of an erosion control system or structure over and above that identified in the asset plan.

7.2 Damage Repairs

Routine damage repairs are funded by a combination of:

- a) Carrying out work as scheduled in annual works programme.
- b) Reprioritising works identified in the annual works programme.
- c) Use of financial reserves.

Major damage repairs would be funded by loans raised by the Council and repaid by targeted rating over a number of years.

7.3 Financial Reserves

Financial reserves are held within the rating district account to provide the following:

- a) Meet the costs of unscheduled works.
- b) Enable an immediate response to flood damage repairs.
- c) Prevent major fluctuation in rating levels annually.

The levels of financial reserves held in the rating account are determined by the estimated damage exposure and the likely need for un-programmed works.

7.4 Depreciation

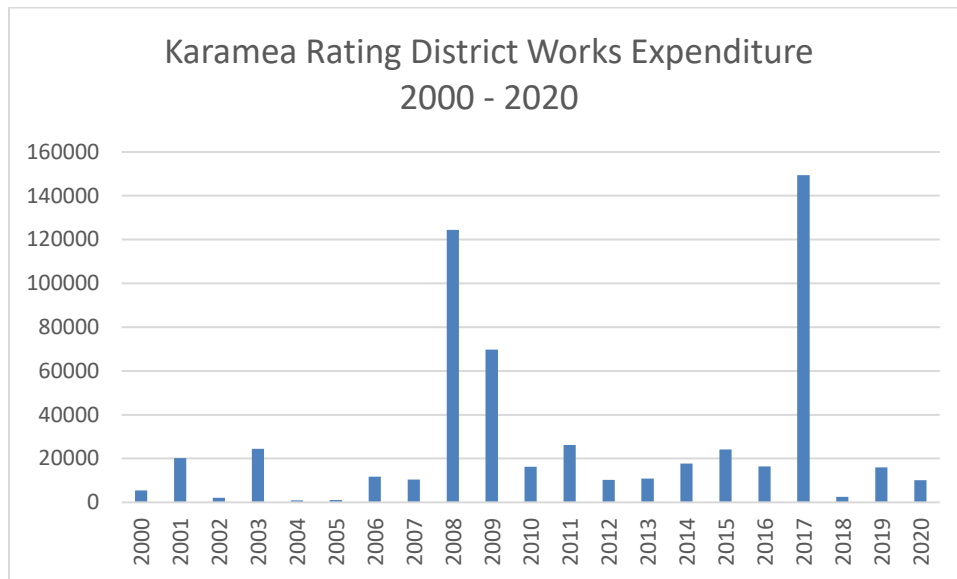
River control schemes are designed to be maintained in perpetuity by constantly repairing and replacing component parts which are damaged by floods or by the constant wear and tear encountered in a river environment.

The performance measure is that the infrastructure assets are maintained to meet their service levels at all times.

As there is a constant cycle of replacement of elements of the infrastructure as necessary, depreciation of the value of the assets is not appropriate and funding of depreciation is not necessary. This approach is consistent with the NZ Infrastructure Asset Valuation and Depreciation Guidelines, Section 5.4.4.

7.5 Works Expenditure

This chart reflects the construction costs of infrastructure assets on the Karamea Rating District. This chart **does not** reflect the total annual expense incurred by the Karamea Rating District. Please refer to the annual works and financial report for the total expenses.



Expenditure 2000- 2020

Total expenditure	\$570,227
Average expenditure	\$27,153
Total asset value	\$9,748,728

8.0 Performance Measures

The following procedures may be adopted to ensure the adequacy of maintenance.

Period	Procedure	Performance Measure
Annually	Produce annual works report for the rating district assets to include type of work to be undertaken, quantities, location and costs.	No reports of stopbanks or erosion protection works requiring repairs without an agreed programme of remedial work in progress. Asset maintenance is current as per level of service.
	Organise contracts for agreed scheme work, oversee contract completion and report to Council.	
	Report on works undertaken during the previous financial period to the rating district ratepayers and Council.	
Triennially	Re-measure cross section river profiles to determine whether the riverbed is stable, or aggrading, and to identify management issues or options.	Report to Council and ratepayers on revaluation of assets and the Plan review.
	Revaluation of the asset schedule to include any additional rock placed on stopbanks and bank protection works over the three year period.	
	Review this Asset Management Plan	
10-yearly	Flood modelling will be undertaken to identify a range of level of services.	Report to council and ratepayers.

8.1 AMP Review and Monitoring

This plan is a living document, which is relevant and integral to daily activity. To ensure the plan remains useful and relevant the following on-going process of AMP monitoring and review activity will be undertaken:

- Formal adoption of the AMP by the West Coast Regional Council.
- Review and formally adopt Levels of Service to comply with the Rating District committee
- Revise this AMP three yearly prior to Long Term Plan (LTP) to incorporate and document changes to works programmes and outcome of service level reviews.
- Quality assurance audits of asset management information to ensure the integrity and cost effectiveness of data collected.
- Peer review and external audits will be undertaken to assess the effectiveness with which this plan meets corporate objectives. Periodic internal audits will be undertaken to assess the adequacy of asset management processes, systems and data and external audits will be undertaken to measure asset management and performance against 'best practice'.