

Infrastructure Strategy

Purpose

This strategy has been prepared for the management of flood defences and river and coastal erosion protection infrastructure as required under the Local Government Act 2002, section 101B 6(a)(iv). This includes, but is not limited to stopbanks, floodwalls, groynes, sacrificial bunds, drainage channels, seawalls and river training works and culverts.

While the Local Government Act requires that the Infrastructure Strategy must include assets for flood protection and control works, Council may at its discretion include other assets. For this 2024 – 2054 Infrastructure Strategy, Council has opted not to include other assets and instead focus solely on those that provide flood and erosion protection across the region. Assets providing flood and erosion protection have a value of \$188.5 million comprising the bulk of Council’s \$193.3 million assets, or 97.5% of total assets.

The purpose of the Infrastructure Strategy is to:

- Identify significant infrastructure issues over the period of this strategy.
- Identify the principal options for managing those issues, and the implications of those options.
- Outline how the Council intends to manage these infrastructure assets and what the most likely scenario is for the management of these assets.

Capital and operating spend to meet the levels of service, as agreed with the community, for flood risk management, erosion control and other protection is also included. Flood protection and erosion control faces significant issues over the next 30 years; including those effects from climate, change, natural hazards and affordability issues.

This Infrastructure Strategy is aligned and linked to other key Council documents and strategies including the Financial Strategy and Asset Management Plans. The Infrastructure Strategy is adopted as part of the Long-term Plan process.

West Coast flood and erosion protection

The West Coast Regional Council (the Council) manages and administers flood defences and river and coastal erosion protection structures on behalf of 23 rating districts across the region. While Council does not have a legal requirement to build and maintain flood and erosion schemes, it does so under the agreement and instruction of its beneficiaries; the rating districts. Council enables and assists these rating districts to build, manage and maintain their assets.

Working on behalf of the rating districts is a significant and integral part of the activity of Council. Rating district assets, in conjunction with an array of other activities, provide services to the region that are essential in managing risks associated with natural hazards, enabling economic productivity and providing for community wellbeing. Consequently, it is important that Council assists with the management of these assets in a way that ensures they are resilient to nature’s unpredictability, and that they can deliver on the levels of

Financial Strategy

The Infrastructure Strategy and Financial Strategy are inter-related. The benefit of services, affordability and equity of rates are critical for the long-term wellbeing of the community. The 30-year financial projects of the Infrastructure Strategy have been integrated into financial models which in turn generate the reserve, borrowing and rating requirements. The Revenue and Financing Policy describes the funding sources for flood and erosion mitigation. The schemes are funded through a combination of targeted and general rates.

service¹ agreed with the respective rating district in the most cost effective manner for current and future generations.

Council is required to plan and manage its infrastructure needs across a thirty-year time horizon. This includes the assets constructed and maintained on behalf of the rating districts. Recognising that flood and erosion type infrastructure can provide benefits across a much longer timeframe than this, Council is seeking to adopt an inter-generational approach, applying consideration of an 80-year timeframe, to the management of these assets while acknowledging that:

- The decisions made today affect future generations; and
- Greater uncertainty will be realised over longer timeframes.

Looking to the future

Over the next 30 years Council is seeking to work with communities across the West Coast to progressively reduce flood and erosion risk in a cost effective manner, integrating environmental, cultural and climate change considerations through supporting rating districts with physical structures, land use planning through regional and district planning instruments, and community awareness and preparedness as part of emergency management.

Doing nothing in managing and maintaining these assets assumes that existing levels of service would gradually reduce due to asset deterioration and projected climate change effects. Looking ahead, Council anticipates that supporting the rating districts with flood and erosion protection will continue to be a major activity of the organisation. Therefore, Council is seeking to work closely with Poutini Ngāi Tahu, stakeholders and communities to put in place strategies and structures that will endure well beyond the timeframes of this strategy.

Council’s Infrastructure assets

Council manages and administers 23 rating districts on behalf of the community. These provide protection against flooding, river and coastal erosion, as well as channel maintenance, land drainage and river mouth openings. Located throughout the region from Karamea in northern Buller to Neil’s Beach in South Westland, infrastructure assets provide considerable benefits to the communities they protect.

Flood defences and river erosion protection	Flood defences	Coastal erosion protection	River erosion protection	Coastal river mouth opening
Inchbonnie Kowhitirangi Red Jacks Creek Taramakau Waitangitoana Wanganui Karamea Hokitika/Kaniere*	Franz Josef/Lower Waiho Greymouth/Coal Creek** Nelson Creek	Okuru Punakaiki Hokitika Seawall*	Hokitika Southside Whataroa	Saltwater Creek / New River (Part of the Grey Floodwall rating district)**
Flood defences and sacrificial coastal bund	Land drainage scheme	Creek clearance, river erosion protection, flood defences	Channel maintenance and river erosion protection	No infrastructure
Mokihinui Neils Beach	Raft Creek Kongahu	Vine Creek	Matainui	Westport Rapahoe

¹ ‘Level of Service’ means the defined service quality for a particular activity (flood protection) against which service performance can be measured.

*Hokitika/Kaniere/Hokitika Seawall are all part of one rating district

**Greymouth/Coal Creek/Saltwater Creek/New River are all part of one rating district

Regional Infrastructure Challenges

Assets involved in flood and erosion protection are mostly considered perpetual in nature and are important to both the regional and national economy. The construction and maintenance costs of those assets are substantial and there is a need to ensure that any future expenditure is affordable. This will ensure the future performance of any scheme is preserved and flood and erosion protection will continue to be provided. This presents a financial challenge for the rating districts to ensure that the costs required to maintain their assets can continue to be met considering the significant issues that have been identified and outlined below.

Ensuring that the funding of asset-related costs matches the perpetual benefit derived from the assets will continue to be important in managing the affordability of these services. Hence Council's approach of management across an 80-year extended timeframe. Council recognises that some assets considered perpetual may be decommissioned depending on the changing risk profile of the hazard and the inability to continue to maintain the required level of service it is intended to provide. There is likely to be difficult decisions needing to be made by rating districts in the future.

Significant Infrastructure issues over the next 30 years

The following tables summarises the most significant strategic infrastructure issues facing the rating districts over the next 30 years, the potential consequences of these issues and the Council's proposed approach to managing these issues.

The significant infrastructure issues are as follows:

- Adapting to climate change impacts
- Ensuring yesterday's assets perform to today's reliability expectations
- Risk of natural hazards
- Economic conditions and affordability

Adapting to climate change impacts

Why is it an issue?

Climate change is likely to increase flood hazards and risks due to sea level rise, more frequent and severe storm events and place additional pressure on river systems caused by larger peaks in rainfall. New Zealand is moving into a "positive" Interdecadal Pacific Oscillation (IPO) cycle which has historically aligned with an increase to West Coast river levels as was experienced in the 1980's and 1990's. Retreat of the snowline and thawing of high alpine environs is exposing more mountain rock slopes. This may be causing an increase in the mobilisation of gravel into river systems leading to increased aggradation (Waiho and Wanganui).

All of these impacts will have implications for levels of service, scheme operations and maintenance activities, with some rating districts unable to afford the current levels of service and even be challenged to significantly reduce their level of service. Council may also be asked by the community to consider new flood or erosion strategies in response to the impacts of climate change.

Council's preferred approach to manage this issue

The preferred option is likely to be location and context specific. The various options, as identified below, may each be suitable for different areas. Consultation and planning through an adaptive pathways planning process will be required to assess optimal adaptation options.

Option

Implication

Protect	Depending on the context, this may be a preferable short- to medium-term approach. Costs will gradually increase over time, especially for coastal areas vulnerable to sea level rise and adjacent to aggrading river systems. Construction to take into account design standards (e.g., RCP6 for Westport flood protection)
Avoid	Increasingly restrict the redevelopment and development through land use planning tools in flood or erosion prone areas. This will require implementation through the Regional Policy Statement and Te Tai o Poutini Plan.
Retreat	There is increasing likelihood for managed or unmanaged retreat from at-risk areas due to increased risk and less funding available. The main implications are loss of land or development potential, and likely expectation for compensation. Land use planning through the Regional Policy Statement and Te Tai o Poutini Plan will form a key component of this management approach.
Accommodate	A strategy of less intervention means lower initial cost. Gradual adaptation over time through more resilient buildings and infrastructure. Requires acceptance of reducing levels of service over time.

Alternative approaches considered and implications

Reliance on current design standard to accommodate long-term impacts of climate change

- Reduction in level of service over time.
- Significant cost when stopbanks have to be redesigned and constructed

Ensuring yesterday’s assets perform to today’s reliability expectations

Why is it an issue?

Reliability is a critical component of the effective function of the network, and for delivering on our community outcomes. However, this can be impacted by assets not being maintained. In addition, while Council regularly inspects and collects important data about the condition of rating district assets, which helps inform the various operations and maintenance programmes, some aspects of an asset’s reliability cannot be fully assessed through this process.

Council’s preferred approach to manage this issue

Council expects to continue to undertake maintenance, and additional capital works as approved, on behalf of the rating districts to ensure assets provide the level of service agreed. This may lead to increased financial requirements due to expected impacts of climate change, higher environmental performance requirements and regulatory compliance.

It is forecast that approximately \$70.7 million will be undertaken as the operational work maintenance work programme in the next 10 years and approximately \$228.4 million over the next 30 years (these figures include inflation).

Council’s approach is to maintain the current design standards while noting in some instances this will require increased costs if the same level of protection is to be provided. Should rating districts not wish to undertake this work, Council will need to renegotiate the level of service.

A key component to managing this risk is improving the collection and recording of asset condition information. New operational procedures and data management systems are being implemented to facilitate this.

Alternative approaches considered and implications

Do nothing – assets could be allowed to deteriorate

- Reduced levels of service
- Short term costs savings
- Increased risk of asset failure, with associated risk to communities
- Environmental benefits (return of land to natural state for example)

Continue as per current practice with no increase in funding for maintenance

- Adverse economic impacts
- Similar levels of expenditure
- Reducing levels of service over time

Risk of natural hazards

Why is it an issue?

The West Coast is prone to severe storms and seismic risk. Extreme events such as flooding, storm surge and earthquakes pose significant threat to infrastructural assets and the services they provide. Research indicates there is a 75% probability of an Alpine Fault earthquake occurring in the next 50 years, and there is a 4 out of 5 chance that it will be a magnitude 8+ event. Due to the nature of where they are located, a number of infrastructure assets will be on “liquefiable” soils making them prone to damage in a major earthquake. Such events will also increase aggradation throughout river catchments.

Council’s preferred approach to manage this issue

Accept the risk and repair if necessary. However, Council can also take the following measures to improve its responsiveness:

- Seek to reduce the damage potential of natural hazards on assets through additional design resilience for new and existing infrastructure
- Maintain procedures to enable a timely response before, during and following a natural hazard event
- Ensure funding policies are robust and appropriate.
- Maintain structural contingencies e.g., stockpiles of rock.

Council will maintain its Catastrophe fund to provide easily accessible funding in the event of a catastrophe. Earthquake standards will be considered in new asset builds. Community response plans will continue to be developed and implemented across the region through Council’s Emergency Management function.

Alternative approaches considered and implications

Upgrade earthquake protection on all assets - Upgrading all assets would be cost prohibitive

Economic conditions and affordability

Why is it an issue?

The region’s economic conditions have an impact on the ability of communities to pay for the services provided. There are increasing pressures on the current level of funding to deliver more. In the future, there may be less funding available to fund flood and erosion protection. The affordability of the levels of service may be impacted by changes to the levels of natural hazard risk (increased aggradation and river flows), increased input costs and changes to the cost of compliance. As such, there is a significant amount of land that has enjoyed protection in the past that may no longer receive the same standard of protection.

Trends such as an aging population, urban drift and social inequality all have an impact on the ability to fund infrastructure.

Council and rating districts may need to carefully review the level of service for the future for affordability purposes.

Council’s preferred approach to manage this issue

Council recognises the need to balance both the demand for current and additional services with the community’s ability to pay. Significant co-funding of capital expenditure for new projects (e.g. Franz Josef, Westport and Hokitika) and upgrades of existing projects (e.g. Mawhera) have been secured from central government. This has substantially reduced the impact on the ratepayers within the respective rating districts. This co-funding arrangement will be central to any further major capital expenditure projects. However, while

co-funding is advantageous to offset capital costs, at the completion of the work, the respective rating district will need to be able to fund the ongoing maintenance of the asset.

Council is increasing its advocacy into central government to secure additional funding to support rating district activities.

Given increasing pressures upon affordability, it is appropriate to keep under review the full range of scheme beneficiaries to assess if current funding policies continue to be appropriate.

Opportunities will be identified for cost efficiencies in the way work delivery programmes are procured. This includes a review of the quantum of rating districts and the way these are managed.

Alternative approaches considered and implications

Maintain current levels of service

- Reduction in cost increases – targeted to maintenance only

No upgrades undertaken or new infrastructure constructed

- Increased risk to property and people over time
- Escalation of costs beyond ratepayers' ability or willingness to pay leads to lower levels of service or abandonment of schemes.

Council's approach to infrastructure management

The West Coast Regional Council manages and administers flood and erosion protection assets on behalf of its rating districts across the West Coast region. Management of these assets is crucial to support the region as these assets serve to:

- Protect the economic productivity of the region
- Reduce risks to communities from natural hazards events
- Contribute to the safety and wellbeing of the community.

Collecting and maintaining best possible data and information

Robust decisions are dependent upon the ongoing collection and management of appropriate information. Council will be undertaking the collection of data from regular river surveys, condition assessments and structural inspections. This data, and how it is managed and analysed, is critical to inform work programmes and associated activities. This also enables Council to identify and ensure appropriate management of the region's most critical assets.

Improving the quality and accuracy of data that supports informed decisions is an ongoing activity that Council is committed to, as well as systems and processes for the management of these assets.

This information will inform rating districts as to whether levels of service are being achieved, and if not, what action the rating district will fund to reach the agreed level of service.

Identifying opportunities for cost efficiencies

The construction and ongoing maintenance of flood and erosion schemes can be significant in cost. Council intends to continue to identify efficiencies in the way it undertakes procurement, access to materials and other costs that make up these projects to reduce the burden on ratepayers where possible.

Rating district review

Council currently administers and support 23 rating districts across the region. The way in which the rating districts have been established, and decisions made at the time, have resulted in a range of different rating scenarios. The quantum of rating districts and the various characteristics of each creates a level of complexity and inefficiency for their ongoing management. A review of the rating districts is planned for year 2 of this Long-term Plan to identify opportunities for future efficiencies.

Responding to demands for new capital works

Council will consult with communities in relation to requests for any new capital work initiatives. Funding will be agreed based on Council's Revenue and Financing policy – a requirement of the Local Government Act. In general terms, this means that costs will be met by those that benefit or contribute to the need for the capital work.

Renewal or replacement of existing assets

Provided assets are properly maintained, the majority of current assets will not depreciate unless compromised by an unmanageable event. The type of assets that will require a programme of replacement or renewal includes culverts, pipes and other structures that have a finite lifespan. Council undertakes an annual maintenance programme to ensure the integrity and longevity of these assets.

Council is proposing to implement a new maintenance fee for the Westport Flood Protection Project. This will commence in year 2 of this Long-term Plan at 1% of the capital cost of the asset at the time.

Scaling up of capacity to deliver Westport flood protection

The construction of the Westport flood protection will be one of the largest flood protection projects undertaken for many decades. Council has been scaling up resource inhouse to deliver this project on behalf of the Westport community. The bulk of construction of the Westport flood protection is anticipated to occur in years 2 and 3 of this Long-term Plan, and be completed in year 4.

Transfer of Strategic Assets

Grey Floodwall

To date, the Grey Floodwall structure has been a strategic asset which has been owned by Grey District Council but managed by the West Coast Regional Council. Currently all costs associated with the flood protection components of the floodwall are paid by the West Coast Regional Council, including insurance, maintenance and renewal costs. The Regional Council also rates for the floodwall and makes all operational decisions with regards to it. The Councils have reached agreement to transfer the ownership of the flood protection assets of the floodwall to the West Coast Regional Council. The proposal to formalise the ownership of the asset is being consulted on by the West Coast Regional Council in this Long-term Plan.

A Joint Floodwall Committee has been established to help manage the asset, with both Councils having representation on this committee. The asset transfer will not change this arrangement, although it will be timely to review the terms of reference of the Joint Committee to ensure they are up to date.

No conflicts of interest regarding the transfer have been identified. A condition assessment will be undertaken on the flood protection components of the asset prior to the transfer taking place. Financial implications relate to maintenance and operational budgets, which are not included in the Long-Term Plan financial forecast or targeted rates. If Council does take over the flood protection assets there is likely to be some increased costs relating to the depreciation and maintenance of some of these.

Havill Wall (Franz Josef)

The Havill Wall was built in 2017 by Westland District Council to provide protection to the oxidation ponds and wider community following a flood event in 2016. Multiple other flood protection structures on the Waiho River are managed by the Regional Council as part of the Franz Josef Rating District, and management of such assets is part of the core business of the Council. The proposal to transfer ownership of the asset to the Regional Council is therefore a logical one with it to become a wider part of flood protection for the community.

A Joint Committee has been established to help manage the assets of the Rating District, with both Councils having representation. While community membership on the Committee is being revised this is not anticipated to impact the transfer of the asset.

No conflicts of interest regarding the proposed transfer have been identified. Transfer of the asset will only take place provided a robust condition assessment of the asset has been undertaken to ensure that it is of level consistent with other Regional Council managed flood and erosion protection assets. This process ensures that upon transfer, the asset will be to the intended service level and of a condition

consistent with its required design. Financial implications relate to the ongoing insurance and maintenance costs of the asset.

Rating District Funding

The majority of projects are funded through their respective rating district. Capital works are typically funded through government grants, any reserve the respective rating district holds, via an external loan or combination thereof. Loans are repaid from a targeted rate on that rating district.

Annual operating costs and maintenance are confirmed with each rating district at an annual meeting and undertaken following confirmation.

Funding of Council engineers, additional staff support and administrative costs are funded in a 70:30 split between the rating districts and the General Rate, reflecting Council's user pays approach as well as the wider community benefit these services deliver.

The Infrastructure Strategy and Financial Forecasts assume no catastrophic floods or other natural disasters will occur. However, based on history, and the prediction of more frequent and more severe weather events occurring, the likelihood of some flood and coastal inundation and erosion events during the 30-year period of this Strategy is increasing. There is no accurate means to forecast when or where these events will occur.

Repairs to assets from extreme weather events can be funded through reserves, or a loan if required. In addition to this, Council holds insurance to cover rating districts by providing the 40% local share which then allows access to the 60% share in funding provided by the National Emergency Management Agency (NEMA) depending on the scale of event and its impact.

The excess on a claim under Council's insurance policy is 40% of \$1,000,000 for a flood event and 40% of \$500,000 for any other event.

Infrastructure expenditure assumptions

The construction of new assets, or work to increase the rating district's level of service (e.g. raising the height or length of a stopbank) is regarded as capital expenditure, All costs related to repairs or maintenance is funded by the rating district.

The Infrastructure Strategy investment programme is based on the following assumptions:

- There is no deferred maintenance during the 30-year period.
- There are no new schemes identified for constructed other than what has been noted in this strategy.
- Expenditure figures are based on maintaining the current levels of service.
- For the Infrastructure Resilience Project capital works, and Westport, a 1% allowance based on capital expenditure is to commence in year 1 for maintenance purposes.
- Responding to major natural hazard events is assumed to be funded through insurance, the Catastrophe Fund and reimbursements from National Emergency Management Agency.
- Inflation adjustments have been made using BERL inflation indices.

While Council has modelled flood and inundation risk for many of the rating districts, and gained an understanding of the risk profile, a degree of uncertainty remains. Floodplains and river channels are

dynamic, and it is not possible for modelling to be undertaken for all potential storm profiles and flood scenarios, including the potential for structure failure of flood protection assets and long-term accretion of floodplains. Projects of climate change effects continue to be refined over time. The timing of replacement or upgrading of assets will reflect these outcomes.

Total expenditure

Council expects to spend \$50.3 million on new or replacement infrastructure for flood and erosion protection between 2024 and 2054 (30 years). Over the same period, \$228.4 million is expected to be spent on non-capital related costs including ongoing maintenance, insurance, engineering expertise, modelling and loan repayments across the rating districts.

Infrastructure activity	Capital expenditure	Operational expenditure
Flood and coastal erosion protection	\$50.3M	\$228.4M

Capital expenditure

Council’s forecast capital programme will continue to see significant expenditure in years 1 to 3 of this LTP. The primary driver of this expenditure is the Westport Flood Protection project which is anticipated to be completed in 2027.

Funding for additional capital works have been sought as part of the co-investment and flood resilience proposal in Te Uru Kahika’s *Before the Deluge*. This proposal identified additional funding required for Hokitika and Franz Josef to complement the Climate Resilience projects, as well the Wanganui River protection. However, given that the final funding decision for co-investment was yet to be made prior to the change in government in October 2023, these projects and their expenditure have not been included in this Infrastructure Strategy.

Projected capital expenditure

Project	Debt/Rates	Grant funding	Total Estimated Cost
Westport Flood Protection Project	\$8.37M	\$15.6M	\$23.97M

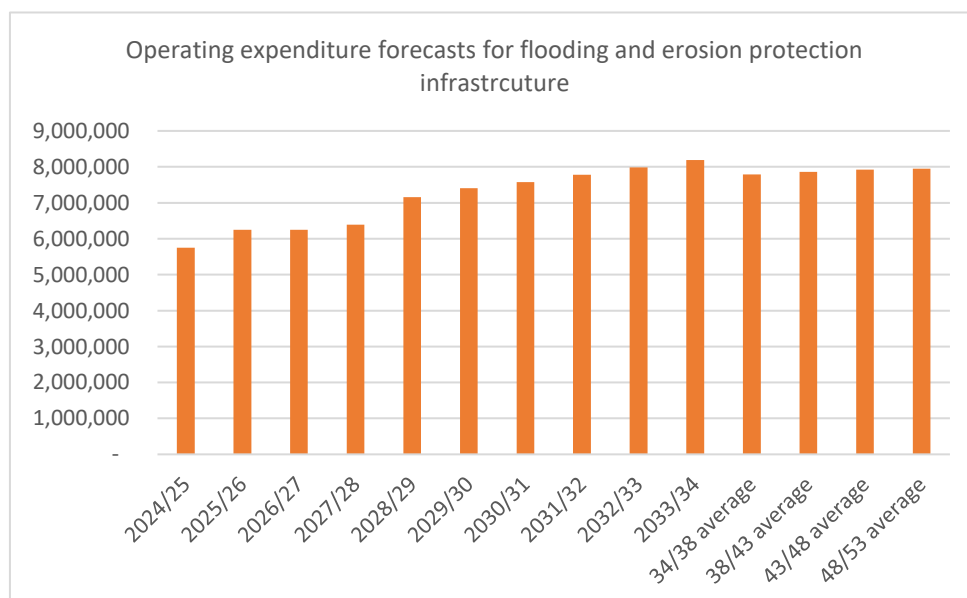
Operational expenditure

Council spends only enough in maintenance to maintain the current levels of service on the assets it manages. All major new asset local share is debt funded for intergenerational equity reasons, and this is only likely where co-investment through grant funding from central government is available.

The right balance between routine planned and reactive maintenance is required so that assets are managed optimally in terms of functionality and cost. This balance is derived through the Asset Management Plans to maintain levels of service for the respective rating district and the Annual General Meetings of the rating districts. A work programme is confirmed at the meeting to detail the work that is to be undertaken over the coming year.

Asset Management Plans for each of the rating districts are available on the Council’s website www.wcrc.govt.nz

Council plans to invest resources over the short-term for the provision of better data collection and usage of the information to ascertain what the long-term infrastructure requirements and levels of service are over the next



30 years. This will lead to more informed decision-making for the rating districts and Council.

Council employed engineers will continue to support the rating districts across the region particularly in the areas of ongoing maintenance, asset management and inspections. Independent project managers, consenting specialists, design and modelling consultants have been used successfully across a range of projects in the past. Council intends to continue this approach to enable the rating districts with flood and erosion protection.

Updating expenditure forecasts

It is expected that with each review of Asset Management Plans, Long-term Plan and the Infrastructure Strategy, the cost estimates will be updated, particularly in the early years of the respective project. This will enable the forecasts to be updated to reflect more detailed design and understanding of costs associated with those projects progressing in the early years.