



Invercargill City Flood Alleviation Scheme

Infrastructural Asset Management Plan

Adopted by Council on 30 July 2021

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1.0 Executive Summary

This Infrastructural Asset Management Plan is one of a series being developed by the Southland Regional Council with regard to the defences against water beneficially owned and maintained by Environment Southland. Environment Southland is the brand name for the Southland Regional Council.

An Asset Management Plan is a statement of how an asset (or group of assets) is to be managed. It sets out the management policies and philosophies of the asset owner, the long-term programmes for maintenance and monitoring the performance of the assets and strategies for funding these requirements.

The overall objectives which this asset management plan sets out to achieve are:

- to ensure that the assets are managed in a consistent, efficient and sustainable manner;
- to ensure the long-term performance, and maintain the value, of the assets and the effective delivery of service to a standard and cost agreed with the community;
- to assist Environment Southland in meeting legislative long-term financial planning requirements.

The assets covered by the plans are identified defences against water consisting of:

- stopbanking;
- culvert and headwall structures;
- dams;

noting that not all plans will include all three.

The key elements of this plan consist of:

- an inventory of assets within the rating district covered by this plan;
- technical information relating to those assets and their service level;
- the physical and financial systems for the management of the assets;
- the democratic process for establishing service level.

There are five critical factors influencing the outcome of the development of this asset management plan.

1. Part 6 of the Local Government Amendment Act 2002 requires Environment Southland to develop long-term financial strategies and funding streams. This process is being undertaken concurrently with the development of this plan. The results of the process, with the proposed principles being promoted by Environment Southland, are shown within Appendix 9.1, financial forecasts;
2. customer focus and awareness of the need for participation and consultation with the beneficiaries must be maintained. The process of consultation and agreement with the community, with regard to this plan and the Local Government Act proposals will determine a satisfactory or otherwise conclusion to the processes;
3. the acceptance of the principle that the lifecycle of these assets is not finite. Maintenance and repairs will be undertaken as required to avoid decline in service potential (agreed level of service);
4. Asset Management Plans are living documents which commit both Environment Southland and the relevant rating district into the future. In the case of the ICC Rating District, there is no present indication by either party of a desire for a disposal or decommissioning of the assets.

The commitment to a formal monitoring process relating to level of service, design capacity etc is integral to the continuing benefits provided by the assets and the desire for such by the community;

5. the formation of an information system, full database and asset register is the key to effective management of infrastructural assets.

2.0 Introduction

2.1 *Background*

Purpose of the plan

The purpose of this plan is to document the management and maintenance requirements for the assets which Environment Southland manages within the ICC Rating District.

The plan also assists Environment Southland in its long-term financial planning as required by the Local Government Act 2002.

Relationship with other planning documents

- ***Long-term Plan (LTP)***

Environment Southland's LTP process will set the framework for the translation of long-term customer demands or expectations into the delivery of appropriate services, taking into account environmental, social and economic factors for a period of 10 years. From this process the necessary levels of service can be determined.

A key component of the Long-term Plan is the Infrastructure Strategy, which covers a 30-year period. Asset management plans are a key element feeding into this strategy, as they determine the costs involved in managing Environment Southland's substantial infrastructural assets.

- ***Annual Plan***

This document reflects priorities developed in the LTP process and delivers the defined levels of service by providing firm direction for a 12-month period and indicative direction for an additional two years. The Annual Plan contains appropriate, auditable performance measures in terms of quality, quantity, timeliness and cost against which service delivery can be measured.

- ***Regional Policy Statement and Regional Plans***

The Regional Policy Statement (RPS) provides for the integrated management of the natural and physical resources of the region and establishes the framework within which Environment Southland will operate. The RPS contains methods of implementation, including the preparation of regional plans to assist Environment Southland to carry out its functions. Methods of implementation of the RPS and regional plans include the provision of works and services and also rules which seek to minimise the adverse environmental effects of activities, including works and services.

- ***District Plans***

Prepared by territorial authorities, district plans also contain rules which seek to minimise the adverse environmental effects of activities, including works and services.

- **Funding Policy**

The Funding Policy represents decisions made on how revenue will be obtained for the management of the assets. It is important to know the amount, timing and type (capital, maintenance, renewal) of likely expenditure, as this influences the funding source.

- **Other Planning Documents**

There are a number of other planning documents, including management Plans and Strategies, prepared by Environment Southland and other agencies, which must be considered when works and services are being provided. These include Iwi Management Plans, strategies under the Biosecurity Act, Conservation Management Strategies and National Park Management Plans.

- **Assets covered**

The assets covered by this plan are defences against water and are assets beneficially owned by Environment Southland on behalf of the community consisting of:

- stopbanking (including culverts less than or equal to 1200 mm diameter);
- headwall structures and culverts greater than 1200 mm diameter
- detention dams

- **Key stakeholders engaged in the Plan**

- Occupants
- Ratepayers
- Tangata whenua – to cover cultural interests in the catchment and advise on Te Mana o Te Wai
- Sector representation
 - Federated Farmers
 - Fish and Game New Zealand, Southland Region
 - territorial authorities
- Utility providers
- Crown agencies

2.2 Goals and Objectives of Asset Ownership

Reasons and justification for asset ownership

For historical reasons associated with flood events in Southland, a network of assets has been established in consultation with the community affected by those flood events.

The assets are constructed on either private or public land with no title having been sought over the assets by either this Council and its predecessor or the landowner. Affected landowners and those receiving benefit accept that the assets are providing community as well as individual benefit. Rating districts provide representation for these landowners and maintenance programmes are agreed annually between Environment Southland and the rating district representatives.

The desire by the community to fund the maintenance of the assets through classified or differential rating systems has resulted in beneficial ownership of the assets by Environment Southland.

Environment Southland's consultative process to date indicates that there is a strong desire by the community for this activity to continue.

2.3 Plan Framework

Key elements of the plan

The key elements of this plan consist of:

- an inventory of assets within the rating district covered by this plan;
- technical information relating to those assets and their service level;
- the physical and financial systems for the management of the assets;
- the democratic process for establishing service level.

2.4 Basic and Advanced Asset Management

Outline basic to advanced approach

This first cycle of asset management plan preparation is formalising the management process presently in place for Council assets. All known information relating to the assets is being collated within the key elements as outlined in Section 2.3 above.

This process allows for the preparation of long-term financial forecasting (Appendix 9.1), the identification of the assets (asset register - location, standards, specification etc) and an ability for the community to work with Environment Southland in determining desired service levels.

Sophistication/limitations of this Infrastructure Asset Management Plan

The majority of Environment Southland's assets are of recent construction and, to date, there has been limited testing and/or monitoring of both recent and historic assets in terms of:

- flood events for which the assets were installed;
- physical changes relating to the river systems upon which the assets are installed e.g. bed aggradation and/or degradation affecting capacity;
- measurement other than visual, with regard to asset condition;
- historical expenditure requirements other than total system expenditure.

These limitations must be recognised when using this Plan.

In order to better define future service levels and funding requirements for those service levels, a significant commitment is required under Section 8.0, Plan Improvement Programme.

This commitment relates to the obtaining of information, both physical and financial, to allow for community decision making in terms of future service level. Section 8.0 timetables the actions required for confirmation or otherwise of the assumptions made in the preparation of this plan with regard to standards, capacity, level of service and funding requirements.

3.0 Levels of Service

3.1 Customer Research and Expectations

All assets covered by this plan have been established following consultation with the community which is receiving the level of service being provided.

On an annual basis, Environment Southland, as elected representatives of ratepayers, considers and approves works programme associated with the assets and their maintenance requirements.

3.2 Strategic and Corporate Goals

The Vision for Environment Southland is:

"A thriving Southland – te taurikura o Murihiku"

Our Mission:

Working with the community to enhance Southland's environment.

Our Outcomes:

The outcomes below are high level targets, strongly based in our organisational values, which rely on achieving a number of shifts and practices in the way we operate. Each of our programmes will demonstrate linkage to one or more outcomes.

By 2028:

- Managed access to quality natural resources;
- Diverse opportunities to make a living;
- Communities empowered and resilient;
- Communities expressing their diversity.

3.3 Legislative Requirements

There is no legislation prescribing any specific levels of service or standards for the assets which are covered by this management plan.

The Resource Management Act 1991 imposes responsibilities on Environment Southland to minimise effects of natural hazards.

The residual portions of the Soil Conservation and Rivers Control Act 1941 impose duties on Regional Councils to minimise and prevent damage from flooding and erosion. Regional councils are empowered to fund such works by rates, capital contributions or loans, principally under the Local Government (Rating) Act 2002.

Prudent financial planning under the Local Government Act 2002 requires the preparation of long-term plans for management of assets. Councils have been encouraged by the Office of the Auditor General to prepare asset management plans.

The Infrastructure Strategy, as required by Section 101B, Local Government Act 2002, will help Environment Southland and the community make informed decisions in the next 3-10 years, to position the region to deal with the major decisions and investments required for the following 10 to 30 years. Protecting our Communities, Infrastructure Strategy 2015-2045 (June 2015) outlines the key issues and options that Southland faces in the next 30 years.

3.4 *Current Levels of Service*

The assets were designed and constructed to a level of service agreed upon with the community (see Section 6.0).

The community will be consulted prior to the adoption of this asset management plan.

See Section 3.1 for a description of the process.

3.5 *Desired Levels of Service*

Environment Southland is not aware of any contrary view or desire for change to the current level of service being provided by the assets within this plan.

Climate variability and change has been identified and discussed in Environment Southland's LTP 2021-2031 and the 2021 Infrastructure Strategy, which set out guidelines for possible effects and identifies potential risks of potential events and considers how community adaption to climate change will be managed. Climate change advice for the Southland region has been produced in a 2018 report by NIWA¹.

Building Community Resilience (August 2016) a report prepared by NZ Society of Local Government Managers provides a framework to "enable people to survive, adapt and thrive in the face of shocks and chronic stresses" will support the community desires.

As noted in Section 3.4, the level of service was established through a consultative process and in Section 3.1 a formal process exists for continuing consultation relating to the level of service. The exceptions to this process are the Community Resilience Projects (section see 5.1.3) where separate public consultation process was conducted in November 2020.

3.6 *Gap Analysis*

As noted in Sections 3.4 and 3.5, Environment Southland is not aware of any desire for change to the current level of service, other than those noted. Consequently, no analysis relating to change of level of service has been carried out.

4.0 *Growth Forecasts*

As noted in Section 3.4, the current level of service is considered to be appropriate.

As there is no indication of any growth in demand, and the renewal accounting approach has been adopted, no capital expenditure is anticipated.

There are no foreseeable changes in technology which are considered likely to impact significantly on the way the work is undertaken.

¹ Southland climate changes impact assessment. NIWA, August 2018.

5.0 Asset Management Systems

5.1 Accounting Systems

5.1.1 Computer Systems

The accounting system used by Environment Southland is:

- Authority, which is a fully integrated system incorporating general ledger, job costing and fixed assets;
- TM1, which is a budget and reporting system (Fusion5).

The general ledger is structured to report each rating district separately. In many cases, this is also broken down further into different sections of the district.

5.1.2 Treatment of Expenditure

Renewal accounting has been adopted for Environment Southland's infrastructural assets. This means that the cost of maintaining the service potential of the assets is treated as an expense, and costs are only capitalised where the service potential of the asset is enhanced above design specifications. Depreciation is charged on large culverts and structures.

Council has completed construction of its major infrastructural asset schemes, and no further expenditure is expected in this area.

5.1.3 Community Resilience Projects (2020–2023)

In 2020, Council entered into co-funding agreements with the Government to upgrade various flood protection works around the Southland region in the aftermath of the COVID-19 pandemic response. The Government's intention through funding this series of projects was to seek some economic and employment revival for the region and the country.

The programme of works includes improvement of flood protection and stopbanks that provide flood and storm surge protection to parts of Invercargill City, including the airport and the Otatara community (population 2,500). The project has been developed in response to Ministry of Environment guidance on [Coastal hazards and climate change](#) and in line with findings of the [NIWA Southland climate change impact](#) assessment. There is a public benefit resulting from improving flood protection of Invercargill's public and private assets including the protection of Invercargill airport, a strategic asset and essential driver of economic activity and development in the region.

The existing flood protection assets are independently owned by Invercargill City Council and Environment Southland. The project is a combination of improvements to a number of these assets to meet current and forecast future protection requirements as a result of climate change, as outlined below.

Invercargill City Council assets

- **Stead Street stopbank** – to be raised by approximately 1.0 m by the construction of a sheetpile wall and associated resiliency improvements. Approximately 900 m long.
 - Includes improvement of shared used path on stopbank connecting Invercargill City Centre to the highly valued recreational spaces at

- Sandy Point/Oue, a cultural important location to mana whenua
- Includes creation of shared used path to Invercargill Airport
 - **Cobb Street stopbank** – to be raised by approximately 1.0 m by the addition of fill material. Approximately 2,000 m long.

Environment Southland assets

- **Stead Street pump station**
 - Replacement of existing drainage pump station built in 1950s. Complete structure needs upgrading.
- **Waihopai River stopbank**
 - Raise stopbank height to coincide with the Stead Street stopbank upgrade. Approximately 6,300 m long.
- **Otepuni Creek stopbank**
 - Raise stopbank height to coincide with the Stead Street stopbank upgrade. Approximately 850 m long.

Invercargill City Council and Environment Southland will establish a Southland Regional Flood Protection Steering Group operating under a Memorandum of Understanding to provide joint governance for the projects, oversee project delivery, and provide a central point of contact and accountability to the Crown.

The timing of the projects is staggered over a three-year period commencing in the 2020/21 financial year.

Co-funding arrangements

Name of Project	Funding Applied For	Central Government Funding	ES/ICC Required Funding
Otepuni Creek Stopbank Upgrade	\$500,000	\$375,000	\$125,000
Waihopai River Stopbank Upgrade	\$3,500,000	\$2,625,000	\$875,000
Stead Street Pump Station Upgrade	\$3,000,000	\$2,250,000	\$750,000
Stead Street Stopbank Upgrade	\$13,500,000	\$10,125,000	\$3,375,000
Cobb Street Stopbank Upgrade	\$1,100,000	\$825,000	\$275,000
Totals for Invercargill City Rating District	\$21,600,000	\$16,200,000	\$5,400,000

5.1.4 Standards and Guidelines

Environment Southland is required to comply with the following accounting standards/guidelines:

- standards of the Institute of Chartered Accountants of Australia and New Zealand, including NZ IAS16 (International Standards 16) Accounting for Property, Plant and Equipment.
- guidelines issued by the Office of the Auditor General.

5.2 Asset Management Systems

Asset management is primarily achieved through a programme of physical inspections of assets, with work being done in response to this on an “as required” basis.

Historical data is available on the construction specifications and is summarised in the detailed Infrastructural Asset Register.

5.3 *Information Flow Requirements and Processes*

Key information for asset management decisions is provided by a formal inspection process carried out by appropriately experienced Southland Regional Council staff or by contractors. The process is:

- rural assets inspected annually;
- urban assets inspected three monthly.

Inspection records are prepared, appropriately actioned and stored on relevant job files.

Action requirements identified by inspection records are prioritised and programmed by Catchment Management staff and implemented within annual works programmes.

The community can report directly to staff and elected representatives on concerns they have identified with the asset's integrity. Asset inspections result from these concerns and where necessary maintenance works are carried out. This enhances the formal process of inspection in allowing for issues arising between inspections to be actioned.

Improvement to the process is being implemented by:

- a more rigorous monitoring of action requirements determined from the inspection reports; and
- the cyclic assessment of the assets as identified by the asset management plan for reviewing physical and design standard compliance.

5.4 *Standards and Guidelines*

Physical attributes of the assets generally consist of the cross-sectional shape, height, vegetative cover and structural integrity.

These attributes are assessed visually during formal inspection for defects which are reported and actioned.

Construction standards in terms of the required attributes are identified within scheme plans and contract documents noted in the accompanying Asset Register for all assets where this data has been identified.

6.0 Lifecycle Management Plan

6.1 *Physical Parameters*

The Invercargill City Flood Protection Scheme was designed to protect the city against a January 1984 size flood event. Three detention dams and associated stopbanking form the basis of the flood protection which protects urban and commercial properties in the Invercargill city area.

The Waihopai Detention Dam has a storage volume of 2 million cubic metres with a spillway width of 200 metres. A triple celled reinforced concrete box culvert (two at 2 m x 2.5 m and one at 3 m x 3.5 m) controls the discharge through the dam with a maximum discharge of 150 cumecs when the pond water level reaches 10.2 metres above mean sea level. The dam is constructed as a compacted clay core with an earth spillway.

The earth spillway is situated on the right bank of the detention dam providing for protection of the dam when the storage exceeds the design capacity. Any flow over the spillway runs outside of the stopbanks down the right bank of the Waihopai River.

The maximum discharge through the dam culverts is designed to be contained within the stopbanks.

The details of the scheme stopbanks and dam design including location, design shape, height etc are recorded on Council plans as identified in the appended Asset Inventory.

Note that with regard to the Asset Inventory, culverts with a diameter less than or equal to 1200 mm are considered as an integral part of the stopbank. Culverts with a diameter greater than 1200 mm are listed as separate assets.

The Otepuni Detention Dam has a storage volume of 975,000 cubic metres with a spillway width of 240 metres. A single reinforced concrete box culvert (1.2 m x 2.4 m) provides a maximum discharge from the dam of 20 cumecs when the pond water level reaches the spillway level of 12.0 metres above mean sea level. The dam is constructed as a compacted clay core with an earth spillway.

The earth spillway is situated on the left bank of the detention dam providing for protection of the dam when the storage exceeds the design capacity. Any flows over the spillway run back into the Otepuni Stream inside the stopbanks.

The maximum discharge through the dam culvert is designed to be contained within the stopbanks.

The details of the scheme stopbanks and dam design including location, design shape, height etc. are recorded on Council plans as identified in the appended Asset Inventory.

Stopbanking at Rockdale Road/Otepuni Avenue, Invercargill City is not continuous. Discharge from the dam in excess of 20 cumecs (11.50 m Otepuni Dam gauge board) will require Otepuni Avenue to be sandbagged to fill the gap.

The responsibility of sandbagging Otepuni Avenue is with the local authority (Invercargill City Council).

A pedestrian cycleway has been installed from Inglewood Road to Rockdale Road on the right bank of the Otepuni Stream on top of the stopbank. The new surface is two coat chip seal or 30 mm asphalt. Maintenance of the pedestrian cycleway, signs, lighting and barriers is the responsibility of the Invercargill City Council roading (File 502/03/03 - 19 August 2004).

The Kingswell Detention Dam has a storage volume of 500,000 cubic metres with a spillway width of 14.5 metres. A reinforced concrete culvert (900 mm diameter) provides a maximum discharge from the dam of 2 cumecs when the pond water level reaches the spillway level of 13.6 metres above mean sea level. The dam is constructed as a compacted clay core with a concrete flip bucket spillway.

The concrete flip bucket spillway is situated on the left bank of the detention dam providing for protection of the dam when the storage exceeds the design capacity. Any flows over the spillway run back into the Kingswell Stream inside the stopbanks.

The maximum discharge through the dam culvert is designed to be contained within the stopbanks.

The details of the scheme stopbanks and dam design including location, design shape, height etc. are recorded on Council plans as identified in the appended Asset Inventory.

Design data is shown on Table 1.

Table 1

Name of Dam	Storage Capacity (m ³)	Spillway Level (above mean sea level)	Culvert Discharge (m ³ /s)
Waihopai	2,000,000	10.2 m	150
Otepuni	975,000	12.0 m	20
Kingswell	500,000	13.6 m	2

A twin circular reinforced concrete culvert was placed under the railway yards on the Otepuni Stream to supplement the existing box culvert. The 2 x 2100 mm diameter culverts are 156 metres in length and are designed to carry the full design flow (20 cumecs) in conjunction with the existing culvert.

Stopbanks at Kennington provide for flood protection above State Highway No 1 for the Niagara Sawmill. This defence against water is in the form of a 65 metre long timber wall and earth stopbanks.

Construction work on the flood alleviation schemes spanned a five-year period from 1989 to 1994.

The details of the scheme stopbanks including location, design shape, height etc are recorded on Council plans as identified in the appended Asset Inventory.

6.2 Asset Capacity/Performance

No performance checks have been made since the construction of the detention dams, associated stopbanks and culverts.

6.3 Asset Condition

Based upon:

- the formal inspection programme in place for the assets;
- the policy of undertaking maintenance and repairs as required to avoid decline in service potential;
- the identification of any decline in service potential in any given year is addressed in that year;

this plan assumes that the assets are in a condition to provide the service potential for which they were designed.

The Council has no information to indicate otherwise.

As a part of asset management improvement, the level of service shall be monitored in terms of design capacity through the formalised process identified within Section 8, Plan Improvement Programme.

6.4 Asset Valuation

The ICC flood alleviation scheme has been valued on the basis of Financial Reporting Standard Number 3.

6.5 *Historical Data*

Since the completion of the stopbank protection and detention dam installations in 1994, the flood protection scheme has performed without any problems and only minor edge protection damage was recorded.

6.6 *Routine Maintenance Plan*

Routine maintenance is the regular ongoing, day-to-day work necessary to keep assets operating.

As noted in Sections 6.3 and 6.7, maintenance and repairs are undertaken as required to avoid decline in service potential. The identification of decline in service potential in any given year is addressed in that year.

All maintenance and repairs allow for the standards and specifications as identified within scheme plans and contract documents noted in the accompanying Asset Register to be met.

Based on the knowledge available to the Council at this time, forecast maintenance needs are seen as reasonably constant over time (see Section 7.4 and Appendix 9.1). Requirements arising from major damage events will be covered by insurance, rating district funds (reserves, credit balances) and/or if necessary borrowing, either internal or external. The Council's local share of co-funded partnership projects with the Government will be funded via rates, levied on the basis of targeted rate areas, from reserves, and/or from associated borrowing.

The adoption of renewal accounting for asset management, where service potential decline in any one year is addressed in that year, means that there is no provision for deferred maintenance.

The funding strategy for maintenance is based on historical trends with expected revenues and expenses set out in Appendix 9.1.

6.7 *Renewal/Replacement Plan*

The asset management plans of the Council are based on renewal accounting because:

- an asset management plan is designed to enable the asset service potential to be maintained to agreed levels;
- based on the best information available all assets are having the desired service potential maintained;
- over the next 20-year period, based on the information available, no major works are planned and expenditure levels are forecast to remain relatively constant;
- major expenditure resulting from damage events will be addressed by reserves and insurances.

For the first asset management plan cycle;

- the lifecycle of Council assets is not finite;
- maintenance and repairs will be undertaken as required to avoid decline in service potential;
- any identified decline in service potential in any given year is addressed in that year.

6.8 *Creation/Acquisition/Augmentation Plan*

Over the next 20 years, based on the information available to the Council, no capital works are planned.

6.9 Disposal Plan

Over the next 20 years, based on the information available to the Council, no disposal or decommissioning of assets is planned.

7.0 Financial Summary

7.1 Financial Forecasts

Appendix 9.1 sets out the expected revenues and expenses for the next 30 years. *Note: No capital expenditure (other than the Community Resilience Projects) is expected nor included in the financial table. The information is based on historical trends.*

The capital works undertaken through the Government co-funded partnership Community Resilience Projects do include some capital works, but these are accounted for separately as they are on a short-term contract arrangement between the Council and the Government.

7.2 Funding Strategy

The expenditure is expected to be funded as per the spreadsheet in Appendix 9.1.

7.3 Valuation Forecasts

Asset values are not expected to change significantly in the foreseeable future, as Council intends to maintain the assets under a renewal accounting regime. No deferred maintenance or capital expenditure is expected.

7.4 Key Assumptions

The following key assumptions have been made in the preparation of the financial forecasts:

- Nil inflation rate, but will be adjusted with the LTP confirmation;
- interest on Rating District funds is at 4.5% and will apply from the 2015/16 year, but will be adjusted with the LTP confirmation;
- level of work required is reasonably constant over time;
- any major damage events will be covered by insurance and rating district funds;
- costs are based on the 2015/16 budget, and are funded in accordance with the funding policy;
- policy adopted of increasing and/or maintaining individual rating district's reserves and working capital balances is determined by Council Policy A3.

8.0 Plan Improvement Programme

8.1 Performance Measures

- Consult with ratepayers and/or their elected representatives on levels of service required/requested.

8.2 Improvement Programme

Infrastructural asset maintenance has to date been based on repair of notified damage to assets and annual physical inspections by Council staff. There is no reason to believe that assets are not maintained in original condition. However, a review of present service levels is required to allow communities to assess their adequacy and, if changes are to be made, to understand the physical and financial commitment involved.

As significant resources are required to complete reviews, prioritisation of effort is necessary. The prioritisation proposed is based on a risk assessment of discrete portions of the assets. While the asset management plans were prepared on a catchment basis the discrete portions were analysed because of the varying types of risk contained in each catchment.

The first of these reviews have been completed in July 2001 and no adjustments are required to the improvement programme.

8.3 Monitoring and Review Procedures

- Need updated technical data.
- New survey sections, hydrology data, longitudinal sections of stopbank.
- Updated photographic information.
- Review level of service ratepayers etc all benefits.
- Review level of financial commitment.

9.0 Appendices

9.1 Invercargill City - Financial Forecasts

9.2 Inventory of Assets

9.3 Non-Southland Regional Council Defences against Water

9.4 Map of ICC Rating District

9.5 Reserves and Insurances Policy

Appendix 9.1 – Invercargill City - Financial Forecasts**Financial Forecasts of Annual Operating and Capital Expenditure 2021-2051**

ICC Rating District	Year 1 2021/2022	Year 2 2022/2023	Year 3 2023/2024	Year 4 2024/2025	Year 5 2025/2026	Year 6 2026/2027	Year 7 2027/2028	Year 8 2028/2029	Year 9 2029/2030	Year 10 2030/2031	Years 11-15 2031/2036	Years 16-20 2036/2041	Years 21-25 2041/2046	Years 26-30 2046/2051
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Funding Sources														
Separate Rates	503	518	533	546	560	573	586	600	613	625	3,357	3,780	4,256	4,792
Interest on Rating District Funds	4	4	4	4	4	4	4	4	4	4	20	20	20	20
General Funds	166	172	179	185	191	196	202	208	214	219	1,176	1,325	1,491	1,679
Capital Grants - Shovel Ready	6,491	0	0	0	0	0	0	0	0	0	0	0	0	0
	7,165	694	715	735	755	773	793	812	831	848	4,554	5,125	5,767	6,491
Operating and Capital Expenditure														
Personnel and Direct Costs	339	187	194	199	205	210	215	221	226	231	1,221	1,342	1,474	1,620
Cost of Works	311	320	329	339	348	357	366	375	384	392	2,106	2,371	2,669	3,005
Transfer to Reserves	41	42	44	45	46	48	49	50	52	53	284	319	360	405
Depreciation	21	21	21	21	21	21	21	21	21	21	105	105	105	105
Overheads	119	123	128	131	135	138	142	145	149	152	816	918	1,034	1,164
Capital Expenditure	6,333	0	0	0	0	0	0	0	0	0	0	0	0	0
	7,165	694	715	735	755	773	793	812	831	848	4,531	5,055	5,642	6,299

Notes

1. Costs included here are the costs of the River Management function relating to this rating district. They include the costs of managing the scheme. Only a portion of River Management costs (estimated at 15% of the River Management function) directly relate to maintenance of the flood protection assets (stopbanks etc). The rest is for costs associated with the scheme such as channel maintenance. Costs of the land drainage function are not included, nor are the costs of gravel monitoring.

2. Years 11-30 have had inflation applied by individual years, with the figures shown being the sum of the 5 year group.

Assumptions

Inflation rates are as per the 20 year average of Sept 2020 BERL "Planning and regulation" and "Water and environmental" (Table 4.15) adjustment percentages as applied in the Long-term Plan apart from Personnel and Direct costs which apply the BERL "All salary and wage rates-local government sector" adjustor (Table 7.8).

Interest on Rating District funds is at 1% and will apply from the 2021/2022 year.

Level of work required is reasonably constant over time.

Any major damage events will be covered by insurance and rating district funds.

Costs are based on the 2021/2022 budget, and are funded in accordance with the Revenue and Financing Policy.

Policy adopted of increasing and/or maintaining individual rating district's reserves and working capital balances determined by Council's "Reserves Expenditure Policy".

Appendix 9.2 - Inventory of Assets**Stopbanks**

Name of Facility	Section	Distance	Bank	Plan No	Completed	Monitoring
ICC Urban Waihopai	Beatrice St to Dee St	1250 m	Left	Ms 158/01/03	1991	3 monthly
ICC Urban Waihopai	Borstal Br to Beatrice St	914 m	Left	Ms 158/01/02	1991	3 monthly
ICC Urban Waihopai	Niagara Sawmill at Kennington	1726 m	Both	Ms 158/13/1-6 Ms 158/13/10	1989	3 monthly
ICC Urban Waihopai	North Rd to Queens Drive	1358 m	Left	Ms 158/05/01	1991	3 monthly
ICC Urban Waihopai	North Rd to Queens Drive	1282 m	Right	Ms 158/06/01	1991	3 monthly
ICC Urban Waihopai	Queens Drive to Racecourse Rd	1600 m	Right	Ms 158/08/01-02	1991	3 monthly
ICC Urban Waihopai	Queens Drive to Racecourse Rd	1623 m	Left	Ms 158/07/01	1991	3 monthly
ICC Urban Waihopai	Racecourse Rd to Dam	1273 m	Left	Ms 158/11/04	1991	3 monthly
ICC Urban Waihopai	Racecourse Rd to Dam	1273 m	Right	Ms 158/11/04	1991	3 monthly
ICC Urban Waihopai	Rail Bridge to North Rd	433 m	Right	Ms 158/15/09	1991	3 monthly
ICC Urban Waihopai	Rail Bridge to North Rd	312 m	Left	Ms 158/15/15	1991	3 monthly
ICC Urban Waihopai	Stead St to Borstal Br	1408 m	Left	Ms 158/01/01	1991	3 monthly
ICC Urban Waihopai	Stead St to Victoria Ave	1500 m	Right	Ms 158/02/01	1991	3 monthly
ICC Urban Waihopai	Victoria Ave to 2400	2400 m	Right	Ms 158/04/01	1991	3 monthly
ICC Urban Waihopai	Victoria Ave 2400- 3200	800 m	Right	Ms 158/04/02	1991	3 monthly
ICC Urban Kingswell	Bluff Rd - McMillan St	3015 m	Left	Ms 161/2	February 1987	3 monthly
ICC Urban Kingswell	Bluff Rd - McMillan St	2703 m	Right	Ms 161/3	February 1987	3 monthly
ICC Urban Otepuni	Lindisfarne St - Rockdale Road	1797 m	Both	Ms 162/06/01	June 1990	3 monthly
ICC Urban Otepuni	Elles-Lindisfarne St	1135 m	Right	Ms 162/05/02	June 1990	3 monthly
ICC Urban Otepuni	Elles-Lindisfarne St	927 m	Left	Ms 162/05/01	June 1990	3 monthly
ICC Urban Otepuni	Ness-Elles Rd	290 m	Both	Ms 162/04/08	May 1989	3 monthly
ICC Urban Otepuni	Conon-Ythan-Ness St	1145 m	Both	Ms 162/04/07	May 1989	3 monthly
ICC Urban Otepuni	Clyde-Nith-Conon St	1166 m	Both	Ms 162/04/06	May 1989	3 monthly

Stopbanks

Name of Facility	Section	Distance	Bank	Plan No	Completed	Monitoring
ICC Urban Otepuni	Liddell St – Clyde Street	130 m	Both	Ms 162/03/02	May 1989	3 monthly
ICC Urban Otepuni	Railway – Liddell Street	25 m	Both	Ms 161/02/01	May 1989	3 monthly
Clifton Drainage	Clifton	4200 m	Right	Ms 25/1	1970	3 monthly

Dams

Name of Dam	Rating Dist	Map Ref	Job No	Plan No	Resource file No	Location	Construction Date	Contractors	Designer	Construction Type	Max height	Volume retained	Crest length	Monitoring	Maintenance	Historic Total cost
Kingswell Dam	City - Kingswell	E47:564085	J 157/1	Ms 161/44-50	A552	Kingswell Stream	1988	G E Horrell & Sons	Duffill Watts & King	Earth	5.5m	500,000	300m	See below #	As and when required	\$388,000
Otepuni Dam	City - Otepuni	E46:562119	J 137/1	Ms 162/7/6	A572 & A57	Otepuni Stream	1994	G E Horrell & Sons Ltd	Duffill Watts & King	Earth	2.5m	975,000	400m	See below #	As and when required	\$1,358,380
Waihopai Dam	City - Waihopai	E46:555152	J 39/2	Ms 158/11/1-9	A569	Waihopai River	1990	Harliwich Holdings Ltd	Duffill Watts & King	Earth	5.5m	2,900,000	1273m	See below #	As and when required	\$2,721,321

(#) - 3 monthly visual inspections

- Annual inspection and report by Registered Engineer

Culvert

Name	Rating Dist	Map Ref	Job No	Plan No	Location	Contractors	Designer	Type of construction	Monitoring	Maintenance	Date of construction	Historic Total cost
ICC Railway Culvert	City - Otepuni	E46:517114	J 137/1	Ms 162/02/1-6	Otepuni Stream	Works Civil Construction	Southland Regional Council	2x2100 dia concrete pipes 156.5m length	Visual annual	As and when required	1990	\$938,000
ICC Auburn Road Culvert	City- Waihopai		J 39/2	Ms 158/10/	Waihopai River		Southland Regional Council	2x1600 dia concrete pipes with flapgates	Visual annual	As and when required	1990	\$31,000

Appendix 9.3 – Non-Southland Regional Council Defences against Water

Appendix 9.3 lists the defences against water that the Council is aware of within the catchment but **are not maintained by the Council**.

These defences against water may have been funded and constructed by the Council, or its predecessor the Southland Catchment Board, Government departments or private landowners. The Council has not assumed beneficial ownership of these defences against water and has not included them in its asset register because they are not included in Council's rating district maintenance programme and have not been classified for rating purposes as providing community benefit.

Whereas every attempt has been made to identify defences against water for inclusion within this Appendix 9.3, the list cannot be guaranteed as to completeness.

The only defences against water intended to be covered by the Council's asset management plans are those listed in Appendix 9.2, Inventory of Assets.

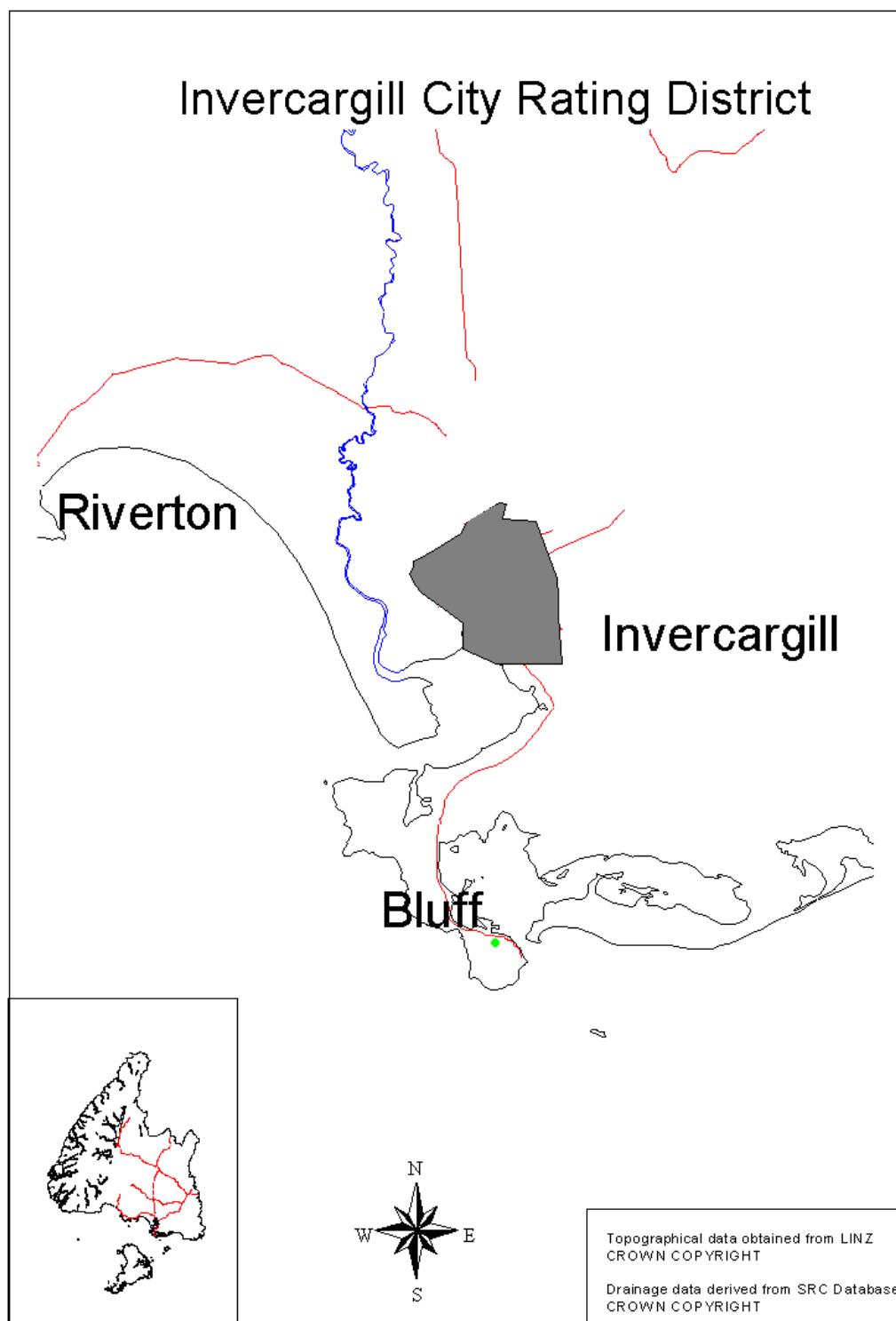
River/Stream	Description	Start about Map Reference	End about Map Reference
Waihopai River	Non continuous spoil banks upstream Niagara Sawmill	E46:602146 Niagara Sawmill	F46:810280 Downs Road culvert
Duck Creek	Non continuous spoil banks upstream of SH 1	E47:550058 SH 1	E47: various Within confines of Clearwater, Pascoe and Rimu Roads
New River Estuary*	All defences against water around New River Estuary. All sea walls	E46: and E47: New River Estuary	E46: and E47: New River Estuary
Otepuni Stream **	Box culvert under the railways yard	E46:518114 Inlet of culvert	E46:517114 Outlet of culvert
Otepuni Stream **	Railway Bridge	E46:538114 Main south line bridge upstream of Ellis Road	
Waihopai River **	Railway Bridge	E46:516140 Wairio Branch Line	
Otepuni Stream ***	Non continuous stopbanking, sandbagging required at the corner of Rockdale Road and Otepuni Avenue	E46:569121 Otepuni Avenue	

* ICC has been advised that these assets are not part of this Asset Management Plan

** KiwiRail has been advised that these assets are not part of this Asset Management Plan

*** See Section 6.1.

Appendix 9.4 - Map of ICC Rating District



Appendix 9.5 - Reserves and Insurance Policy

3.0 Reserves Expenditure Policy

3.1 ***Policy for Repairs to Flood Protection Infrastructure from Damage caused by Floods and other Natural Disasters*** *(adopted by Council June 2005)*

"Council will continue the commitment to the long-term risk management regime that requires annual works programmes for the separate rating districts aimed at maintaining all assets at their desired service level standard, as set out in the respective asset management plans, and to provide sources of funds for works that make good against loss and/or damage to those assets.

To achieve this:

3.1.1 Council adopts a risk management strategy of:

- obtaining/maintaining commercial insurance cover for dams, structures and culverts at the level of cover specified through Council's Asset Register;
- obtaining/maintaining insurance cover for separate rating district flood protection scheme stopbanks at the level of cover specified through Council's Asset Register, with the insurable replacement value updated annually by the Consumer Price Index;
- establishing, increasing and/or maintaining separate rating district disaster reserve balances and separate rating district working capital balances totaling \$5M;
- upon establishing that balance, reviewing the need to build these reserves to a balance of \$10.45M;

3.1.2 Council retains the Regional Disaster Damage Reserve and the policies relating to its purpose and use;

3.1.3 until the relevant reserve has reached the required levels, each rating district will contribute on an annual basis to their Separate Rating District Disaster Reserve, a sum equal to the commercial insurance premium for stopbanks that applied in the 2004/05 financial year (inflation-proofed through the Consumers Price Index), less that district's share of the LAPP premium implemented 2005/06, along with any additional sum identified in their annual budget from time to time (note that separate rating district reserves are for disasters within that catchment, but in widespread flood events there is provision for loans to be made from one catchment's funds to another);

3.1.4 existing Separate Rating District Disaster Reserve funds are amalgamated in investment funds held with investment managers. Any expenditure from individual rating district funds will be funded from realisation of the investment funds. Any agreed expenditure in excess of individual rating district funds will also be funded from investments but represented by an internal loan asset;

3.1.5 each separate rating district will continue to accumulate annual surpluses within their district's balances, being working capital;

3.1.6 the separate rating district disaster reserves and working capital balances will attract interest on balances on an annual basis;

- 3.1.7 deductibles resulting from a claim on commercial insurance for dams, structures and culverts and/or stopbanks, will be allocated to those catchment rating districts making the claims on a pro-rata claim amount basis;
 - 3.1.8 district working capital reserves will be used as first call, up to 75% of the balance available, for the cost of uninsured asset repairs before a claim on that district's balance of the Separate Rating District Disaster Reserve will be eligible. District working capital will be 100% expended before that district can "borrow" from other district's balance within the Separate Rating District Disaster Reserve;
 - 3.1.9 river event repair must be equal to at least 75% of the district's annual separate rate to qualify for a claim on that district's portion of the Separate Rating District Disaster Reserve to be considered by Council;
 - 3.1.10 river event repair requirements in excess of that district's share of the reserve balance are eligible for application to Council for access to the balance of the Separate Rating District Disaster Reserves;
- 3.1.11 in any one event, applications to Council will include:
- identification of the qualifying event or disaster and the agreed costs and level of funding involved;
 - detail of the standard of repair – to pre-disaster condition and/or relocation and/or betterment;
 - discussion of the community vs individual benefits and consequently any cost share arrangement between the ratepayer/landowner, catchment ratepayer and general ratepayer (*Note: It would be unrealistic for claimants to demand or expect general fund input to repairs when those repairs are being funded through drawdown of reserves. Under the Council's funding policy, the Separate Rating District Disaster Reserve is built with a 30% general fund contribution*);
 - the priority of works;
 - the ability of ratepayers to pay to restore reserve balances;
 - proposals for the method of replenishment of funds used including timeframes and funding methods;
 - recognition that interest on the Separate Rating District Disaster Reserves drawn in excess of the separate rating district's balance will be charged at the same rate as interest is credited to the reserve;

- 3.1.12 the priority for works resulting from river events will be in the order of community benefit works before individual benefit works."

3.2 *Policy in respect of the Regional Disaster Damage Reserve* *(adopted by Council December 1995)*

"The Reserve may be available for funding recovery from regional disasters:

- where a regional or local civil defence emergency is declared, or
- which are:
 - sudden and catastrophic;
 - beyond the scope of normal response processes;
 - beyond usual human experience;
 - the cause of excessive damage;
 - the cause of widespread social upheaval.

Possible regional disaster damage could ensue from:

- river events
- climate change and climatic events
- Civil Defence emergency situations of flood, earthquake or land movement
- Tsunami
- oil spills
- coastal environmental events
- ecological events
- Animal Health events, e.g. foot and mouth, Bovine Tb
- social and economic events
- chemical or technological disasters.

3.2.1 Each year at the time the general rate is set the Council will consider the level of allocation from rates to the Regional Disaster Damage Reserve.

3.2.2 Except in emergencies this reserve is to be drawn upon only after specific Council approval following the consideration of a detailed report.

3.2.3 The following principles will be applied when considering the use of the reserve:

- (a) the Regional Disaster Damage Reserve will be used as a fund of last resort;
- (b) the reserve will be used for repair or replacement after damage to Southland Regional Council assets or assets for which the Council agrees it has a financial responsibility;
- (c) where event repairs qualify for a claim on a district disaster reserve, the claim on that reserve will be matched on a dollar for dollar basis by the Regional Disaster Damage Reserve;
- (d) any events excluded by the criteria can be included on a case by case basis by the Council at the particular time.

3.2.4 General criteria to be considered for possible use of funds from the Regional Disaster Damage Reserve will include whether:

- (a) the Council has a statutory responsibility to assist;
- (b) the request comes from individuals, a community or the region;
- (c) there is existing insurance coverage;
- (d) the policies in 3.1 should be addressed prior to this section;
- (e) Government funds are able to be accessed;
- (f) other funding sources are more appropriate and available;
- (g) immediate/emergency action is warranted;
- (h) payment should be in the form of grants, subsidies or loans;
- (i) any agreement should be sought to protect Council's interests;
- (j) other claims are pending or potential.

3.2.5 Funding criteria to be considered for possible use of funds from the Regional Disaster Damage Reserve will include:

- (a) reference to financial policies on investment levels when considering how funds should be distributed and restored;
- (b) detailed provision for restoration of investment funds, should this be required;
- (c) reference to whether services are reduced to cut costs on specific and/or general rates are increased, to offset reduced investment returns as a consequence of a draw on the reserve.