Asset Management Plan
Stormwater

2021

GREAT LAKE TAUPŌ
Taupō District Council

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Stormwater Summary

Introduction

Taupō District Council manages Stormwater to reduce the likelihood of harm to people and the environment. This asset management plan enables Council to manage and demonstrate its stewardship of Stormwater assets on behalf of its communities in order to provide services cost-effectively, both now and into the future.

Stormwater infrastructure provision in the Taupo district is different to most Councils as the stormwater network predominantly only drains roads with private property required to dispose on site up to a 1/10-year event.

Strategy

Council's Stormwater strategy is to manage flows for public safety and for environmental protection. From a strategic perspective, there are two major issues for Council to consider:

1 Councils are under increasing pressure from Regional Councils to improve stormwater discharge quality so that Stormwater does not have adverse effects on the environments where it falls and flows (especially outfalls to waterways). Stormwater is discharged – in some cases untreated - into our lakes, rivers and streams so the goal is to provide treatment where needed. Council commits

resources each year to improving water quality to Lake Taupō and river environs, and we have sampling schedules and standards to test Stormwater for pollution from sewerage, heavy metals and other contaminants. In future, disposing of Stormwater directly to waterways without first improving its quality will be the exception rather than the norm.

2 Climate change is predicted to increase the severity of severe weather events including storms, so there will be more intense flows, more often. This increases risks to people, to communities and to the environment. Council's Stormwater Strategy (2009) took account of climate change impacts and addresses flooding, degradation of overland flow paths, degradation of Lake Taupō and aquatic environments, and public health and safety. For example, new property developments are now required to have increased Stormwater capacity to ensure that additions to the system have sufficient capacity for increased flows.

3 The provision of accurate data on the condition of the underground pipe network is crucial to enable council to set the appropriate funding levels to maintain the current service levels.

Overarching Issues for stormwater

Stormwater discharge quality Improvement

Public safety /Over land flow paths

Changes to legislation

Comprehensive consent renewal

Three waters reform

Stormwater discharge quality Improvement

The avoidance of degradation of Lake Taupō and aquatic environments requires Council to make sure that Stormwater quality does not affect receiving environments. This is underpinned by conditions set in Councils comprehensive stormwater consent. (Section 30 Quality Improvement Program)
Stormwater quality will drive a large portion of Councils capital expenditure on Stormwater quality improvement devices, such as Enviropods and CDS units (Hynds Down Stream Defenders) and the use of best practise.

The long-term goal is to provide Stormwater quality improvement to all direct Lake and River discharges, and this will be achieved over time starting with the larger diameter outlets and working progressively through the network.

The current plan is to identify and treat Stormwater from pipe outlets 750 diameter and above as these outlets are discharging the largest containment load to receiving environments. Over time, this improvement program will focus on the smaller discharge points.
Stormwater quality from new developments is dealt with as part of the consent conditions by WRC, with developers now required to use a scoring matrix to make sure that there is enough improvement capability before Council receives the assets.

A large portion of the new development around the Taupo township with discharge road water only into a gully where ponds are used for detention and soakage, and large flows are able to slow bleed into the main gully. WRC are now also treatment at the road with the use of swales and rain gardens, it is yet to be proven if this approach with succeed in councils pumice soils.

Public Safety

The safety of the public has also set some design criteria around open stormwater systems for Council and developers in the future and has identified specific network reticulation issues such as inlets and outlets and their requirement for them to be safe.

Council will continue to monitor the reticulated network to identify manhole lids that are popping and look to either bolt them down or provide a grate on the top to allow flow to flow over land. This is to reduce the risk of people falling down the manhole after high rainfall events.

Councils comprehensive discharge consent also sets conditions that impact on how Stormwater services are delivered in the future, such as the requirement for Catchment Management Plans for green fields' developments as well as the ongoing monitoring program for stormwater quality.

Analysing the impacts of over land flow paths and providing possible solutions is also a key issue to ensure public safety. There are a number of projects listed in the AMP that identify where properties are impacted and where additional analysis is required to determine possible solutions.
Funding for completing the overland flow path modelling is included in this Amp and will include modelling parts of the network that have an impact on overland flow paths.
Councils ongoing CCTV program enables real time updating of asset information with condition ratings determining future renewal and maintenance programs, as well as identifying any health and safety needs.

Changes to Legislation
The policy around Healthy Rivers, is still being developed, so this has not yet resulted in changes to maintenance, renewal or capital spend to date. But it is envisaged that rules around discharge quality could possibly change. Council, under the comprehensive discharge consent, undertake regular testing of discharge quality, and the breath of this testing may need to be increased to better support funding requirements in the future.
Also new contaminant discharge levels may require council to alter the current improvement program.

At this time, it is too early to determine what implications there will be from any legislation changes regarding discharge quality, so councils short to medium term planning will continue with the current quality improvement program.

Comprehensive Consent Renewal
Councils current consent expires in 2027 and it is currently unknown as to what additional conditions may be applied through any new consent, or how difficult it might be to obtain a new consent. Our rivers and lakes need to be swimmable and this will no doubt bring requirements regarding discharge quality.
Without knowing what these conditions might be it is difficult to determine a different capital program than that which has been put forward for quality improvement in the short to medium term.
There are a number of other councils set to have to renew their consents before Taupo, so council will have some good indicators as to what a renew might look like.

Three Waters Reform
With Stormwater being included in the reform discussions, it is likely in the future that Council may not be responsible for the asset outputs or funding requirements of the asset.
The current stormwater AMP ignores any reform discussions and is based on current objectives and funding requirements.

Council manages physical Stormwater assets with a replacement value of $85 million (June 2017). Our physical Stormwater assets are listed below:

Asset function	Asset Type	Quantity now
Reticulation	Pipes	215 km
	Catchpits / Cesspits	799
	Standard Manholes	3853
	Catchpit manholes	14
	Lamphole	9
	Inlets	44
	Raised Manhole - Pond Inlet with debris screen	13
Stormwater quality improvements	Attenuation / detention ponds	38
	CDS Units	7
	Enviropods	220
Disposal	Unknown Outlet type	369
	Pond outlet with debris screen	46
	Pond outlet with wingwall & debris screen	11
	Lake Outlet	74
	River Outlet	62
	Gully Outlet	225

Asset data is continually being updated as developers divest new assets from developments as well as council receives data from contractors as they undertake maintenance. Data is also obtained from surveys such as CCTV programs.

Levels of Service

Council is responsible for Stormwater flows from public land, and Stormwater flooding on crown land, where private property is the responsibility of the owners. Council owns and operates its Stormwater assets so that it can manage Stormwater flows for public safety and for environmental protection. It provides a level of service that meets all of these measures:

- the Stormwater scheme minimises flooding
- Stormwater schemes minimise erosion from the Stormwater network
- Stormwater discharges are of sufficient quality when they enter receiving environments
- Stormwater services do not cause health and safety problems
- Stormwater services minimise risk of health problems
- The Stormwater network is operated within its consent requirements

Consents

Council's Stormwater consents are of primary importance: without discharge consents, the physical assets are of limited value. Council's Comprehensive Stormwater Discharge Consents from Waikato Regional Council (WRC) require Council to focus on:

- Stormwater quality
- ongoing monitoring
- providing appropriate infrastructure

Physical assets

The main Stormwater management issues relate to

- the need to increase our quality improvement mechanisms
- the need to identify overland flow paths
- maintenance of outfalls especially into Lake Taupō when lake levels are high
- a change in practice from underground reticulated systems to above ground open systems, which are easier to maintain but have higher maintenance costs.
- Maintenance of the underground network to maintain performance
- Maintenance of ephemeral gullies and areas of possible erosion

Demand forecast

The growth model projects growth in new properties, with the majority in and around the Taupō Township.

Developers are responsible for providing Stormwater in new sub-divisions, so residential growth in the District would only have a major impact on demand for Council's Stormwater services if Council funding policy changed.

Developers must also provide for capacity of the downstream network when increasing the flow into the network.

New developments are encouraged to provide above ground solutions to Stormwater quality and velocity.

Lifecycle management tactics

New works

New works are planned to provide increased network capacity (overland and reticulated) and to improve the quality of Stormwater discharges to the Lake and rivers in the district.

Renewal

Council replaces assets when performance is unacceptable, based on criteria of: age, condition, service breaks, complaint volumes and criticality. Due to the age of the network and from observations through the CCTV program the network is in fairly good shape with only minor renewal works needed.

Operations and maintenance

The operational services team has a preventive maintenance programme to optimise the life of assets and reduce renewal costs. Maintenance services, including above and below ground assets, are provided by contract (currently Downers).

Council will continue to undertake condition and performance assessments of the underground and above ground network, which includes pipe cleaning, and the removal of sediment as well as inlet and outlet maintenance.

Disposal

Disposal of assets is not expected to be required over the next ten years.

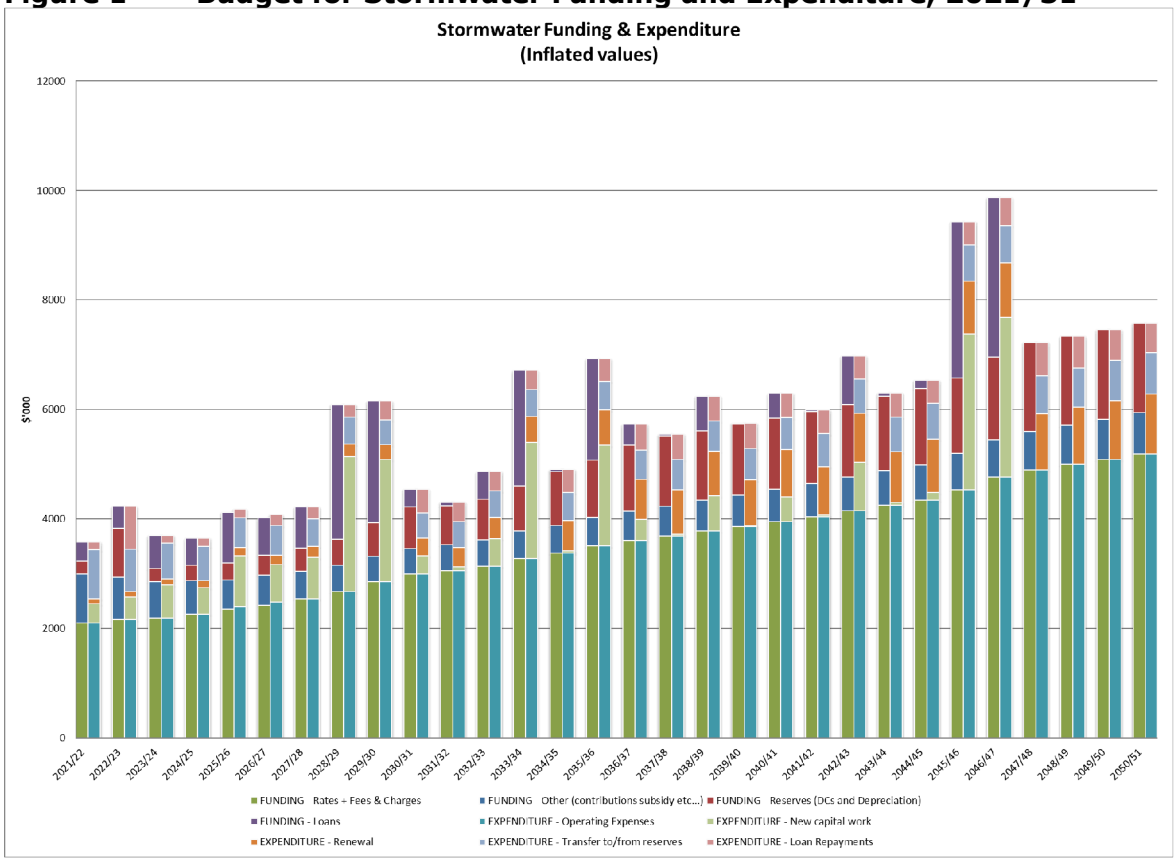
Changes Post consultation

No changes have been made to the Stormwater AMP following the public consultation process and subsequent Council deliberations.

Financials

The thirty-year financial forecast for Stormwater services was determined by evaluating current maintenance and renewal plans for each set of components (pipes, outlets, ponds etc) and identification of new works. The ten-year projections are summarised in Figure 1 below.

Figure 1 Budget for Stormwater Funding and Expenditure, 2021/31



New works

Capital expenditure averages $933,000 per year over the ten-year period, for improvements to network capacity and discharge quality.

Renewal

Renewal costs vary according to the age and performance of the plant and network. Council has undertaken a comprehensive condition assessment program for the outlying districts and the pipe network while showing its age is in a generally good condition. Cleaning and pipe condition assessment are programmed to continue. Expenditure averages $151,000 per annum over the ten-year period.

Operations and maintenance

Operation and maintenance costs are projected to have an average cost $453,000 per year for the next 10 years.

Technical notes

Risk management

Risk management is fundamental to management of Council assets so that essential services such as stormwater service provision can be provided consistently. Council imposes high health and safety standards for its plant and network, especially where the Stormwater network is built on low-lying land near lakeshores or riverbeds, or volcanic and/or seismically unstable areas. Using a likelihood and consequence matrix to assess risks, the following high risks have been identified:

- Fire, causing electrical or structural damage to the system, including the reticulation network
- Volcanic eruption, with the pipe and overland flow path networks blocking
- Earthquake, damaging the reticulation network and reducing the capacity of the network
- Tomos, causing breaks in the reticulation system, or diverting overland flow paths
- External contractor failure, leading to failures in the network, service failures, or other consent condition failures
- Illegal disposal of contaminants into system, by firms or individuals
- Excessive costs to maintain, renew or create assets - Failure to comply with resource consents -
- Public safety matters such as open manholes or non-grilled inlets and outlets

All of these risks have potentially serious consequences for people in the District and for the District's economic wellbeing because they jeopardise the District's reputation and therefore, the visitor industry.

Council has undertaken a criticality assessment to enable Council to identify the most critical Stormwater assets, which enables council to focus on where the Stormwater network will require additional maintenance and renewal expenditure.

Asset management practices

Council uses a range of decision-making tools to establish its maintenance, renewal and new works expenditure, including process, analysis and evaluation techniques for life cycle asset management; information systems to store and manipulate data; and data and information from a number of sources (technical, financial, customer service, asset database).

Councils new 'Three Waters' asset management system, Asset-Finda can incorporate asset condition, assessments, criticality, age as well as past maintenance history to help determine future maintenance and renewal funding.

Asset-Finda is also you used to log system faults and determine monthly contract payments

Plan improvement programme

Councils are required to have plan improvement programmes to improve their asset management planning, and we will continue to implement our improvement plan.

International infrastructure management

The plan is an intermediate plan based on the requirements of the International Infrastructure Management Manual.

1.0 INTRODUCTION

1.1 Background

1.1.1 PURPOSE OF THE PLAN

Taupō District Council is responsible for managing a range of community owned assets such as the Stormwater network. To ensure these assets are managed in an efficient and affordable way asset management plans are required.

The size of the Stormwater investment and importance of stormwater services to the community demands excellence in the management of these assets. The stormwater service delivery is a core service and the community expects the Stormwater network to be managed in such a way that costs are minimised while providing the levels of service the community desires.

The overall purpose of asset management (AM) planning is:

"To meet a required level of service in the most cost-effective way through the creation, operation, maintenance, renewal and disposal of assets to provide for existing and future customers".

This asset management plan (AMP) is the tool for combining management, financial, engineering and technical practices to ensure that the level of service required by customers is provided at the lowest long-term cost to the community. The plan is intended to demonstrate that Council is managing the assets responsibly and that customers will be regularly consulted over the price/quality trade-offs resulting from alternative levels of service.

AMP's are therefore concerned with outlining optimal life cycle management strategies and providing details of the associated costs. This identification of future needs, management options and cash flows provide the ability to even out peak funding demands and account for asset depreciation loss of service potential.

The main benefits derived from AM planning are:

- Improved understanding of service level options and standards.
- Minimum lifecycle (long term) costs are identified for an agreed level of service.
- Better understanding and forecasting of asset related management options and costs.
- Managed risk of asset failure.
- Improved decision making based on costs and benefits of alternatives.
- Clear justification of forward works programs and funding requirements.
- Improved accountability over the use of public resources.
- Improved customer satisfaction and organisational image.
- Improved understanding of the funding requirements based on a programed condition assessment program
- Understanding of asset criticality and associated maintenance and renewal expenditure

A fundamental objective throughout the preparation (and future review) of this plan will be to identify potential opportunities for reductions in asset lifecycle costs.

This Asset Management Plan has been updated internally by the Stormwater & Solid Waste Asset Manger building on the existing 2018 AMP document. Data has been collated and updated by Councils contract engineers using the Asset Data system (Asset Finda) and recent asset valuation data as well as condition assessment data that has been obtained by undertaking a CCTV condition assessment program of portions of the network. Contributions for this plan have also been made from relevant asset managers/engineering officers within Infrastructure Services and financial updates via the Management Accountants.

1.1.2 LEGISLATIVE REQUIREMENTS FOR ASSET MANAGEMENT PLANNING

The recent focus on AM planning, results from the Local Government Amendment Act 2014. This Act places an emphasis on strategic financial planning and requires local authorities to:

- Prepare and adopt a Long-Term Plan (LTP) with a 10-year planning horizon, every three years, considering asset creation, realisation, and loss of asset service potential.
- In determining their long-term financial strategy, consider all relevant information and assess the cost/benefit of options.
- Manage assets prudently, in the interests of the district and its inhabitants and ratepayers.
- Clearly identify significant forecasting assumptions and risks underlying financial estimates.
- Identify any significant negative effects that any activity within the group of activities may have on the social, economic, environmental, or cultural well being of the local community.

The preparation and implementation of an AMP from which long-term financial strategies will be developed, is a means of TDC complying with these requirements.

1.1.3 LEGISLATIVE DOCUMENTS

The key legislative documents relating to the management of the Stormwater service assets are listed in the following table.

Local Government Act 2014 and Amendments	The LGA empowers local authorities to carry out various Stormwater works but does not require them to do so. The Act requires public consultation. Section 10 Purpose of local Government (1) The purpose of local is- a) To enable democratic local decision making and action by, and on behalf of, communities; and b) To meet the current and future needs of communities for good quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost effective for households and businesses. (2) In this act, good quality, in relation to local infrastructure, local public services and performance of regulatory functions means infrastructure, services, and performance that are a) Efficient; and b) Effective; and c) Appropriate to present and anticipated future circumstances. Section 17A(1) A local authority must review the cost effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions. Under Section 17A(4) you must consider as minimum.

	-Method of delivery: • In house • Council CCO • Multi party CCO • Another local authority • Another person or agency -Method of governance and funding • Council • Joint committee or shared service
Resource Management Act 1991	Requires Councils to: ▪ sustain the potential of natural and physical resources to meet the reasonable foreseeable needs of future generation ▪ comply with District and Regional Plans ▪ avoid, remedy or mitigate any adverse effect on the environment ▪ take into account the principles of the Treaty of Waitangi in exercising functions and powers under the Act relating to the use, development, and protection of natural and physical resources ▪ Comply with resource consents issued by the Waikato Regional Council for disposal of Stormwater.
Waikato Regional Plan	All activities associated with the Stormwater assets will require compliance with the Waikato regional plan i.e. new diversion and discharge activities, structures and earthworks.
Building Act 2005	The building act controls the construction of buildings on private property. Its relationship to the stormwater asset is limited however greater use of onsite disposal of stormwater for buildings, in particular industrial sites may assit with stormwater quality and quantity management. The building act is relevant for the construction of new stormwater treatment systems, particularly dam structures and stormwater detention systems.
Land Drainage Act 1908	The Land Drainage Act 1908 says that Council may construct and maintain drains in the district; however, it may also be liable for consequential damages arising from a lack of maintenance (neglect) of drains under its management causing flooding of private property. Therefore to avoid potential liability claims it would be prudent for Council to adequately maintain the existing drainage systems. Any works, or even upgraded existing construction, will require resource consent in accordance with the Resource Management Act.
Comprehensive Discharge Consents	I July 2007, TDC was granted comprehensive consents for the Taupō, Turangi and Waikato river urban stormwater discharges.
Local Govt Act Infrastructure Strategy	Requires Local Authorities to provide an infrastructure Strategy that outlines the key infrastructure issues and possible solutions over a thirty-year planning horizon.
Water Services Bill	Will look to reform three waters management in the short to medium term
Other Acts and Regulations	Public Works Act 1981 Health & Safety in Employment Act 1999 Civil Defence Emergency Act 2002

1.1.3.1 Water and Sanitary Assessment

A Three Waters and Sanitary Assessment has been undertaken in April 2017.

The sanitary assessment determined the ability of the stormwater network to provide a sanitary environment for the community. It was found that the Stormwater network was sufficient, and this was reinforced by the very small number of flooding incidences reported.

The new growth model numbers still reflect very minimal growth in the district and during the intervening period no houses have experienced flooding, so it is considered that Council still provides a stormwater service that meets Health Act requirements.

The comprehensive monitoring program also identifies that apart from isolated incidences stormwater discharges are with the required parameters.

1.1.3.2 Code of Practice for the Development of Land

A revised code was adopted by Council in September 2009 and is intended to provide a guide to subdivision and developments within the Taupō District. It sets out a set of procedures and minimal technical standards for development against which all proposals submitted can be measured to assess their suitability for construction. It sets out what the Taupō District Council needs from developers so that the requirements of the Resource Management Act and the Taupō District Plan are met.

This document sets standards for design including capacities for stormwater assets that will become assets within this document.
The code of practice also considers climate change and effects on the district. The code provisions require that the a 1:10 year event is soaked to ground for private property(pumice soils allow this) and Councils Stormwater network that predominantly services the roading network is now required to cater for a 1:10 year event and over land flow paths are designed up to a 1:100 year event. The Turangi township is an exception to this rule, due to the high-water table where a majority of the town discharges to the kerb.

The older infrastructure installed before the allowance for climate change is sized to cater for 1:2 – 1:5-year events. Council has district specific climate change rainfall data included into the code.

The Waikato Regional Council is updating their Stormwater guidelines and this document will be incorporated into Taupo's code once they have it finalised. There may be some district specific changes needed to reflect the Taupo district pumice soils.

The guidelines now provide a scoring matrix to enable stormwater quality improvement prior to discharge to the receiving environment.

1.1.4 RELATIONSHIP WITH PLANNING AND STRATEGIC DOCUMENTS

The way in which AM planning links the Strategic planning process with operations and annual plans is illustrated below.

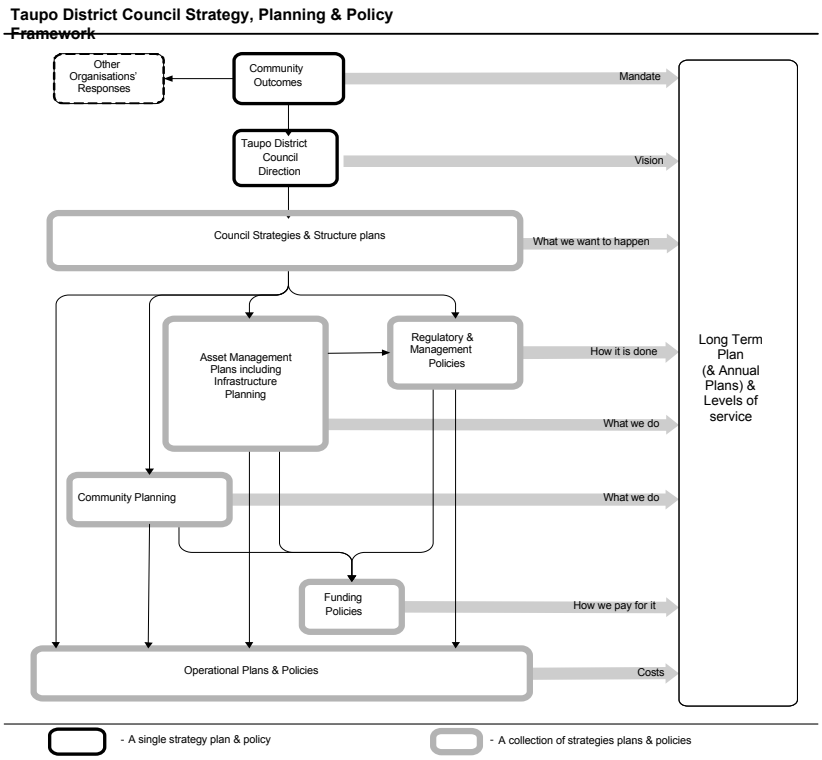


Figure 1: Council Planning

AMP's are tactical plans for achieving strategies resulting from the strategic planning process. AMP's are a key component of the council planning process linking with the following documents.

LTP: The Long-Term Plan sets the strategic direction for the Council and is the overarching planning tool which describes the activities the Council will undertake to deliver. It identifies the outcomes the community would like to achieve. It also contains the financial forecast for the next 10 years. This financial forecast is drawn from the AMP.

Annual Plan: This sets out how Council will undertake its strategic goals and details the specific activities, functions for the first three years of the LTP. The works identified in the AMP should automatically become the basis on which future LTP's and annual plans are prepared.

District Plan: The District plan is an implementation tool used to protect values and outcomes important to the community. The stormwater network is essential in the transportation of stormwater and the avoidance of flooding in the District and provides for the economic and physical wellbeing of the community.

Business cases: The service levels policies, processes and budgets defined in AMPs are incorporated into business plans as activity budgets, management strategies and performance measures.

Legislation: The AMP must comply with all relevant legislation and provide the means of meeting legislative requirements.

Bylaws: standards and policies: These tools for asset creation and subsequent management are needed to support AM tactics. (It is considered that there is currently no need for a Stormwater Bylaw).

Waikato Regional Council Policy Statement (Stormwater): These references give the policy framework and give effect to the preferred strategic direction and a vision of what kind of stormwater systems the region wants, a set of desired outcomes the region wants to achieve and a specific direction to focus the region's efforts in meeting these objectives.

Proposed Healthy Rivers Plan Change
The regional council is looking to enforce the requirements of healthy rivers, by measuring and assessing impacts to rivers and their tributaries. This may have an impact of storm water disposal quality.

Infrastructure Strategy: As required by the amendment to the local government Act, the Infrastructure strategy provides a thirty-year overarching strategy for the provision of infrastructure within the district.

Taupō Tree and Vegetation Strategy:
This document gives some direction as to planting on reserves and in stormwater gullies and overland flow paths.

Stormwater Strategy:
The stormwater Strategy coordinates stormwater management through a variety of management plans and codes of practice. Its purpose is to help Council meet its long-term plan objectives of protecting and enhancing the environment and improving living environments in the urban areas of the Taupō District.

Stormwater Management Plan:
This plan is a management (required as a condition of the Comprehensive discharge consent) document which will record the way in which the existing municipal system is operated. It will seek to detail and guide the operation and ongoing performance of the municipal stormwater system to continually improve stormwater management and avoid, remedy and or mitigate adverse water quality and quantity effects in the receiving environment. This plan covers the exiting municipal system and outlines the procedures by which the new stormwater assets and discharges/diversions are incorporated into this plan. This document exists in parallel with the Stormwater Asset management Plan.

Comprehensive Discharge Consents:
Discharge consents are granted under the Resource Management Act 1991 based on the provisions detailed in the relevant Waikato Regional plans. They assess the discharge of contaminants into or onto land or water, and the discharge of water into water. In June 2007 Environment Waikato granted Council three Comprehensive Discharge Consents to divert and discharge urban area stormwater runoff and associated contaminants into receiving environments;

- Resource Consent 105048: for Taupō urban areas (Resource Consent schedule B), including Taupō, Eastern Bays, Waitahanui, Acacia Bay and Kinloch.
- Resource Consent 105049: for Turangi urban areas (Resource Consent schedule C) including Turangi, Tokaanu, Motuoapa, Omori, Kuratau, Whareroa, Tauranga Taupō and Hatepe.

- Resource Consent 105050: for Waikato River urban areas (Resource Consent schedule D), including Wairakei, River Road, Atiamuri, Whakamaru and Mangakino.

These consents impose legally binding conditions for stormwater management in the district, which include the provision of Catchment Management plans for Green Field developments and a stormwater management plan prepared by Council. The conditions also require a stormwater quality improvement program, so existing infrastructure will be upgraded in response to compliance issues and priorities identified through Councils Stormwater monitoring program. It is Councils aim to achieve 100% compliance with the conditions of the Comprehensive Discharge Consents. The current expires in 2025 and funds have been placed in the LTP to support the consent renewal.
Councils improvement program to date has included an Enviropod program and Downstream defender program, with these programs focused on the existing built infrastructure where the pipes discharge directly to the receiving environment.

Stormwater Monitoring Program:
Is a requirement of Councils Comprehensive Discharge Consent. Existing infrastructure will be upgraded in response to compliance issues and priorities identified through Councils Stormwater monitoring program. It is Councils aim to achieve 100% compliance with the conditions of the Comprehensive Discharge Consents.

Transportation Asset Management Plan:
The Transportation assets are closely interwoven with stormwater assets. The boundary between these asset types are clearly defined within the stormwater asset management plans. Road catch pits and leads are considered to be roading assets. All costs associated with those catch-pits and leads, e.g. operational costs of cleaning sediment from roading catch pits are reported in the Transportation AMP. Catch-pits and leads in other than public roads, e.g. car parks and industrial sites and service stations are included within the Stormwater AMP.

Stormwater Quality Improvement Program
The comprehensive Stormwater consent requires Council to have a quality improvement program designed to improve the quality of municipal Stormwater discharges.

Growth Management Strategy 2050:
At the core of Taupō District 2050 are 12 Strategic directions. These provide the framework of interrelated policies that guide decision making and growth-related issues. Strategic direction 8 and 9 relate to Transportation AMP (refer page 7 of GMS).

Structure Plans:
Adopted and proposed structure plans outline how growth is to be managed within areas - Taupō Urban Structure Plan (TUSP), Taupō Town Centre Structure Plan (TTCSP), Kinloch Community Structure Plan (KCSP), Turangi and Southern lakeshore Settlements Structure Plan and the (CISP) Commercial and Industrial structure plan.

Contracts:
The service levels, strategies and information requirements contained in AMPs are translated into contract specifications and reporting requirements. Contract number TDC/1516/155, which expires in 2022 but has two 2 year extension options for Three Waters Maintenance includes all the operations necessary to maintain, repair, monitor record and report the operation and conditions of the stormwater systems in the Taupō District. This contract incorporates management and maintenance of Wastewater, Stormwater and Water assets.

This contract aims to satisfy the conditions of the Comprehensive Discharge Consents and the objectives of the Stormwater Management Plan.

1.2 Key Stakeholders

Key stakeholders are those who have significant and/or specific involvement with the assets and/or the service facilitated by the assets and describes their main interests.

This AMP recognises the following as key stakeholders:

Stakeholders - External & National stakeholders	Stakeholders main interest	Engagement Methods/Touch points
NZ Govt	Three waters reform	Surveys / funding
Audit New Zealand	Legislative responsibilities as defined in Legislation.	As per audit processes.
Local Government New Zealand/Central Government	To ensure Local Government Act is complied with (via Auditor-General). Enhance value of decision-making process. Three Waters performance survey	Occasional correspondence Through annual survey
Ministry for the Environment	New Policy	Very occasional correspondence
Ministry of Health	New policy	Occasional correspondence Submissions if required
Water NZ	Undertake national performance measurement	Through annual survey

Stakeholders – External and Regional	Stakeholders main interest	Engagement Methods
Bay of Plenty District Health Board (includes Lake District Board area)	Sanitary assessments	Survey of service provision
Neighbouring Councils – South Waikato, Rotorua, Hawke's Bay, Otorohanga	Information sharing and best practise	Ongoing contact with three waters staff looking at best practise
Waikato Regional Council	Stormwater consenting and monitoring, spill response	Ongoing contact with relevant staff. Regular contact

Stakeholders – External and Local	Stakeholders main interest	Engagement Methods
Taupo District Council ratepayers, residents, customers and visitors	Recognised as large & significant stakeholders. Reliable Stormwater network services at an affordable cost that have minimal environmental effects on receiving environment.	Broad methods such as phone, service requests, general correspondence, email, meetings, face book, social media, face to face, meetings (informal) service requests.

Tuwharetoa Maori Trust Board	Impact of Stormwater on lake and river quality Maintenance of Council assets on the bed of Lake Taupo	Regular discussions. Applications to undertake maintenance. Updates on Stormwater quality improvement provision
Lakes and waterways	Recognised as a significant stakeholder. Interested in lake and river water quality	They hold quarterly meetings; Council provide environmental monitoring data when requested
Bike Taupo	Recognised as a significant advocacy group. Advocate for safer cycle network on and off road. (stormwater gullies) Walking and cycling strategy (cycling component) Cycle trail development.	Occasional correspondence - phone, informal meetings, email updates, Bike Taupo newsletters, website.
Consultants and Contractors	Commercial opportunities Project development Maintenance contracts Project designs	Formal and informal meetings Occasional correspondence Short term agreements Offer of service.
Emergency services	Identification of at-risk property during flooding events Over land flow paths	Contact with civil defence
Local contractors	Service provision	Day to day contact
Greening Taupo/ Kids Greening Taupo Predator free Taupo	Planting of native species fauna to protect and enhance ephemeral gully systems as well as trapping of pests	Regular formal and informal discussions

Stakeholders – Internal	Stakeholders main interest	Engagement Methods
Asset Managers	Implementation of infrastructure and service management activities (e.g. operations, demand management, maintenance, construction). Effective decision making, finance, communications, IT etc	Continual discussion via informal meetings, face to face, regular asset manager meetings.
Infrastructure Asset Management	Operation of Asset Data function for Three Waters	Day to day collaboration

Chief Executive	Compliance with regulations, service reliability, quality and economy	Updates when required
Communication team	Project updates, event updates	Councillor weekly update, communication plans, emails, phone, meetings etc
Community engagement team	Accessible transport network Neighbourhood events Accessible audits	Informal meetings, phone, email
Contract Managers	Responsible for implementation of infrastructure and service management activities	Continual discussion via informal meetings, face to face
Council committees	As per delegated authority	Regular meetings

Stakeholders – Internal continued.	Stakeholders main interest	Engagement Methods
Customer services	Customer service request systems which minimise and resolve complaints/enquiries relating to the activity.	Broad methods such as phone, service requests, general correspondence, email, meetings, Facebook, social media, face to face, meetings (informal).
Elected members	Owner of assets, responsible for sustaining service levels under the LGA 2000.	Councillor weekly updates, regular meetings, email, occasional correspondence.
Financial team	Budget requirements (income and expenditure) including forecasting, annual plan, Long term planning	Spreadsheets updated regularly, phone, email, meetings.
Infrastructure team and manager	Input into the AMP/Activity plan, AMP policy development and Infrastructure 30-year policy	Regular meetings, open plan office discussions
Parks & Reserves team	Walkways/Access/Footpath links	Asset Manager meetings
Planners & Policy team	AMP support for Long term plans, infrastructure support for current/future district activities	Regular meetings

1.2.1 LARGE OR SIGNIFICANT USERS

As the Taupo district has pumice soils the majority of district discharges up to 1:10 year event to ground. Council's main service provision is the draining of the roading network and the provision of overland flow paths after the Stormwater network has reached its capacity.
The large and significant users of the system are the community within the urban catchments within the district. There are other significant interested parties that need to be considered as they represent a statutory or regulatory position, or in the interests of a portion of the community. As a large number of stormwater outlets discharge into lake Taupo the Tuwharetoa Trust boards involvement with stormwater asset and quality of discharges is likely to increase.
These are noted in the table above.

1.3 Purpose of Ownership

Uncontrolled stormwater has the potential to cause significant damage to property and the environment, as well as threaten the safety of sections of the community at risk. The safe control and discharge of clean stormwater is a core council service, and TDC has historically developed and taken ownership of stormwater assets to help meet the economic, safety and environmental outcomes desired by the community.

The stormwater assets are owned by the community they serve. The Local Government Act 2014 (LGA) has clearly signaled that stormwater services are a core service provision for Councils.

Stormwater asset ownership and responsibility matrix	Legal Issues	AM plans & budgeting	Data Collection & Maintenance	Maintenance	Level of Service	Inplement new works	Opex - Overheads	Opex - Rates	Opex – Interest	Opex - Insurance	Opex - Cleaning	Renewal	Technical advice/input	Valuation
Stormwater piped Network														
Ephemeral Gullies														
Storm water to bottom of catch pits & leads														
Urban street cleaning														
Culvert maintenance rural / urban														
Enviropod Maintenance														
CDS Maintenance														
Street cleaning - rural sweeping														
Gully mowing														
Monitoring and Testing														

Stormwater asset responsibility
Parks & Reserves responsibility
Infrastructure Asset data Team
Transportation responsibility

Figure 2: Ownership and Responsibility Matrix

1.3.1 LINKS OR ORGANISATIONS VISION, MISSION, OBJECTIVES, GOALS

The 2012 LTP process has now identified Community Outcomes which Council has adopted, these being.

- **Economy** – our communities prosper in a thriving local economy with a diverse range of rewarding employment opportunities
- **Environment** – A shared responsibility for places we are proud of.
- **Engagement** – Council is connected with its communities, advocating for their social and cultural well being.

Section 17A review

Council has undertaken a review of the "Three Waters" service delivery provided by Council and has determined that the preferred service delivery option is the enhanced status quo with a contract of 5+2+2 duration incorporating network and electrical maintenance of the three waters.

Community Outcomes are taken into account when determining life cycle strategies, levels of service, etc.

Council's response to the Community Outcomes acknowledged that managing growth is one of the biggest issues for TDC over the next 10 years, and in June 2006 published TD2050. TD2050 provides a policy framework to guide where and how future growth should occur and identifies a series of actions to achieve this desired pattern of urban growth. At the core of TD2050 are the 12 Strategic Directions. These provide the framework of interrelated policies that guide decision making on growth related issues. Over time they will be achieved by putting into effect identified policies and undertaking the specific actions identified in TD2050.

The Strategic Directions, policies and actions out of TD2050 that are specifically relevant to the Stormwater activity are:

Strong Communities - Strategic Direction 5:

- Identify and plan for social and community infrastructure needs in advance of development (Policy 5.2).

Sustainable Economy – Strategic Direction 7:

- Ensure that economic activities reflect the need to preserve the natural environment that sustains the district's economy (Policy 7.1).

Integrating Land Use, Infrastructure & Funding – Strategic Direction 8:

- Manage the sequence of development in growth areas so that services are available from inception of new or expanding communities (Policy 8.1).

Leadership, Partnership and Collaboration – Strategic Direction 12

- Develop collaborative working relationships with other key stakeholders to achieve effective implementation (Policy 12.1)

Action – A 8.2
Include agreed growth assumptions in all Asset Management Plans.

Action – A 8.3
Ensure Asset Management Plans support the patterns of development defined by TD2050 are aligned with the LTCCP, proposed District Plan and funding policies.

1.3.2 ASSET MANAGEMENT'S CONTRIBUTION TO CORPORATE OBJECTIVES

Council's goal, as set out in the LTP relating to the Stormwater network:

The stormwater activity of Council has adopted the following aims to support Council's commitments:

> *"to provide a stormwater system that:*
> *Services the whole community,*
> *Is affordable and managed at lowest possible cost,*
> *Reduces the incidence of flooding impacts on people and property,*
> *Is managed in an environmentally sustainable manner"*

1.4 Assumptions

1.4.1 FINANCIAL

The following financial assumptions have been made. Further information can be found in the TYP document.

Assumption	Potential risk	Mitigation measure
1. Asset Revaluations completed June 2020 have been used as the basis for asset values.	Time between AMP completion and last revaluation	Council undertakes an annual price variance assumption report
2. Investment Returns eventuate as predicted.	Not the required funds to undertake capital works	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
3. Interest Rate on borrowings remains as predicted within the financial model.	Not the required funds to undertake capital works	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
4. Expenditure of capital projects occur and estimated debt levels are as predicted	Potential under performance in capital spend reflected in Council revenue	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
5. No allowance has been made for inflation adjustment within this AMP. The source of funds for the future replacement of significant assets is stated in the revenue and Financing Policy.	Under funding of cost centre	Finance team make allowances for GST in funding plan and policy
6. The useful lives of significant assets are as per the accounting policies documented in the TYP. Depreciation is charged at 50% for	Asset lives have been incorrectly calculated meaning a funding shortfall	Council has asset depreciation checked externally. Asset lives are compared to the latest asset information nationally

Assumption	Potential risk	Mitigation measure
the first year and 100% in subsequent years.		
7. Levels of service and funding has been based on historic data	The community desires change to level of service which are not reflected in this document.	Council undertakes three yearly satisfaction surveys. Council undertakes pre LTP consolation to gauge the community for different service level needs. Council undertakes consolation with the community as part of the development of this LTP document
8. Allowance has been made for vested assets	The level of allowance for vested assets is incorrect.	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
9. Assume that the revenue received from Rates is as per expected.	A shortfall in rates funding	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
10. Assume no costs associated with structures on the lake bed	An increase in unbudgeted operational cost	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy.
11. Development Contributions will continue not to be collected.	Unplanned works will be needed to be funded through rates as opposed to developer funded	Stormwater network provision is provided by developers apart from quality improvement device's which are a benefit to the whole community.
12. Possible three waters amalgamation has not impacted budgeting	Changes to funding requirements	LTP or annual plans will be adjusted accordingly to any changes in who provides services

1.4.2 NON FINANCIAL

Assumption	Potential risk	Mitigation measure
1. Assume that growth is going to occur as per the Growth Model predictions.	Changes in growth will impact capital and operational spending	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
2. The Stormwater discharge quality requirements will remain constant within the framework of the comprehensive discharge consent conditions.	Changes to discharge quality through the resource consent will require an increase in operational and capital expenditure	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy

Assumption	Potential risk	Mitigation measure
3. Contractors will be available for development and construction of projects.	A shortage on contractors for project completion will mean an increase in project cost	Council can extend tender periods to enable contractors more time to schedule in works.
4. There will be continued growth in public participation in the democratic process and Council will need to respond to this growth.	Increased growth in participation could result in changes in levels of service delivery.	Councils LTP and annual plan spend can be adjusted annually to meet Councils revenue and finance policy
5. There will be no unforeseen legislative changes or central government policy changes that will affect this asset.	Changes in legislation could impact on the funding levels	Changes in legislation have an implementation period to enable Councils to plan
6. Economic and labour market constraints may have a direct effect on recruitment.	If Council is unable to recruit to the required level to complete the works program for the year this could have impact on Councils credibility	Council may have to hire consultants to provide support; this could increase the cost of service delivery which will need to be funded through the annual plan process.
7. That Councils resource consents for its activities will be renewed as required.	The renewal of resource consents will depend on Councils prior performance in meeting the conditions of the existing consent and any changes in legislation	Council works closely with the Regional council to achieve consent compliance. Compliance is also a staff performance criterion, so Council is focused on consent compliance and it is considered that any consent related issues can be resolved.

1.5 Significant Negative Effects to Providing the Stormwater Service

In general, providing Stormwater services to the community has public health and environmental benefits.

There is however negative effects in providing this service.

- The cost of providing the service on rate payers, especially smaller communities.
- The cost of keeping up with ever increasing environmental standards requiring significant capital investment.
- Long term renewal cost of aging infrastructure

Mitigating Measures

The cost of providing new stormwater infrastructure is overall funded by new developers, the maintenance requirements is funded by general rates thus the cost is spread across the community.

Capital works are funded by loan to make sure that the cost spread is intergenerational.

Increases in Stormwater quality benefit the whole community.

1.6 Asset Management Plan Complexity

1.6.1 OUTLINE OF APPROACH

Senior Leadership Group Managers have identified the need for robust asset management planning. They have identified the level of Asset Management planning by asset type either as core or advanced. The Stormwater AMP has been identified as Intermediate.

Core asset management plans are those which produce an AMP based on providing current levels of service and meet minimum legislative requirements by supporting a long term (10 year plus) cash flow forecast and accounting for changes in the service potential of assets. Core AMPs define existing levels of service and identify costs based on renewal accounting principles.

Advanced AMP's identify processes to optimize lifecycle AM strategies and provide a greater degree of confidence in the resulting cash flow predictions. Advanced AM functions include predictive modelling, risk management, optimized renewal decision making (ORDM) and service level reviews.

The Stormwater Asset Management Plan 2021 follows the IIMM framework and it has been developed and collated internally by the Stormwater Asset Manager.

The difference between core and advanced is that at an advanced level:

- Future demand is predicted
- High knowledge of asset owned including condition assessment and performance
- Knowledge of current utilisation and ultimate capacity
- Ability to predict failure modes
- Ability to analyse alternative options
- Ability to optimise maintenance and operational activities.

The complexity of this iteration of the Stormwater Asset Management Plan sits in between Core and Advanced as council through its CCTV condition assessment of assets and criticality assessment can now determine accurate renewal profiles for the network. The overland flow path model while not a network model does enable council to identify where there are capacity issues within the network. Thus, Council is able to understand the current utilization, condition and capacity of the total Stormwater network. This data is then compiled within the three waters asset data system where condition, age, historical maintenance and criticality, are analyzed and renewal funding profiles determined.

1.6.1 .1 AMP REVIEW BY COUNCIL

The involvement by councillors, including the reviewing and approving of the AMPs is briefly outlined below:

Workshops are held with the council for group of activities including AMPs which gives them following information

- What we do

- Key issues
- The service(s) we provide
- Levels of service, performance measures and targets
- Key projects over the next three years
- Who pays?
- Fees and charges
- Financials
- Capital expenditure (including renewals)
- Operating expenditure
- Draft AMPs are provided to councillors to view
- Council finally adopts the AMP
- Program performance measures

1.6.2 Limitations of this AMP

• Levels of Service require detailed consultation to make these more current.
• Asset condition and performance assessment need to be verified through ongoing investigations and the asset data system needs to be finalised so that accurate records of the full asset are available.
• Further network modelling needs to be undertaken to identify ultimate capacity.

Asset Management Policy

PURPOSE

The Asset Management Policy supports Council's long-term strategic goals found in the 2021 LTP of:

- Ensure that the Taupo District remains a great place to live
- Promote economic development
- Protect our water resources and use them wisely
- Maintain the quality infrastructure that we have
- Keep rates and debt affordable

OBJECTIVE

The objective of Council's Asset Management Policy is to:

- ensure service delivery is optimized to deliver agreed community outcomes and levels of service for both residents, visitors and the environment
- optimize expenditure over the life cycle of the assets
- risks are managed appropriately
- provide a service delivery that is sustainable

PRINCIPLES

The following principles will be used by Council to guide asset management planning and decision making:

- effective consultation to determine appropriate levels of service
- Integration of asset management within Council's strategic, tactical and operational planning frameworks including corporate, financial, and business planning
- Informed decision making using a lifecycle and risk management and inter-generational approach
- Transparent and accountable asset management decision making
- Sustainable management of assets for present and future needs

CORPORATE FRAMEWORK

This Asset Management Policy links to Council's LTP, Infrastructure and Financial Strategy and Asset Management Plans. It builds on Council's strategic goals by promoting an integrated approach to the management of service delivery and across all asset classes.

STRUCTURED ASSESSMENT of ASSET MANAGEMENT PRACTICE

Council has undertaken a structured assessment of the appropriate level of asset management practice for each of the asset classes. This structured assessment follows the guidelines provided in Section 2.1.3 of the International Infrastructure Manual (IIMM 2011v4).

IMPLEMENTATION and REVIEW of POLICY
This Asset Management Policy has been implemented in 2021. The next full review of this Asset Management Policy shall be completed in June 2022 prior to completing asset management plan updates to support the 2023 LTP.
MATURITY ASSESSMENT
In the first quarter of 2021 the maturity level of each of the Asset Management Plans has been assessed through an external review process to determine the actual level of maturity. This review will form the basis for the further refinement of each of the AMP's Improvement plans.

1.7 Organisational Structure

Taupō District Council has a flat organisational structure and is structured in order to deliver the key strategic directions of the Long-Term Plan.

Stormwater service provision is provided by the Infrastructure Services Group.

Asset Management Planning is undertaken by the Asset Manager Storm Water / Solid Waste, who is also responsible for updating the Stormwater Management Plan and Resource Consent requirements this position reports to the Infrastructure Manager.

Asset management plans are developed with weekly meetings of the relevant asset managers to make sure that improvements identified through the "Waugh report" are included and that the documents follow a similar format.

Day to day Maintenance is undertaken by the Network Engineer who is responsible for the administration of the Stormwater maintenance Contract and reports to the Asset Manager Stormwater / Solid Waste.

Capital works identified in the AMP are undertaken by the Asset manager or Network Engineer or passed on to the Special Projects team in cooperation with the Asset manager depending on project timelines and project complexity.

Sampling and monitoring is undertaken under the maintenance contract and the samples are analysed by an independent Lab. Recommendations around monitoring compliance is undertaken by Councils in house environmental scientist.

All staff members, apart from Lab staff are located on the same floor of the Council office building and work closely together to make sure that there is a coordinated approach to the provision of stormwater service throughout the district.

Consultants are employed to assist by providing professional services as necessary.
The organisational structure and the Infrastructure Group structure are illustrated in the following figures.

In addition, the Stormwater service activity can draw on the following in-house resources from the Finance, Regulatory & Infrastructure Group:

The Manager Asset Information is responsible for the development of the Asset Management System.

Asset management plan financial data is developed by the Assets Manager Solid Waste Stormwater in conjunction with the finance team.

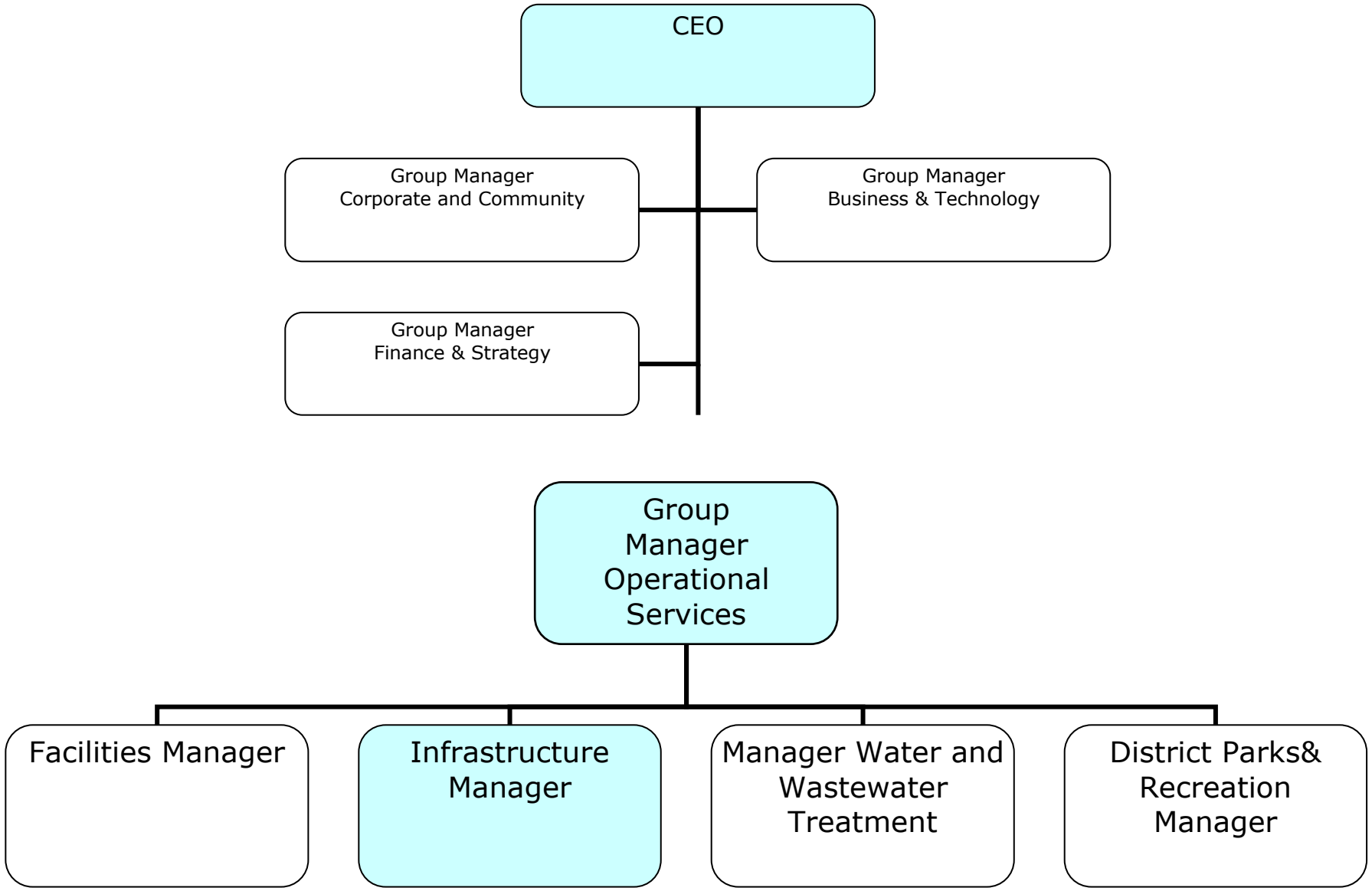
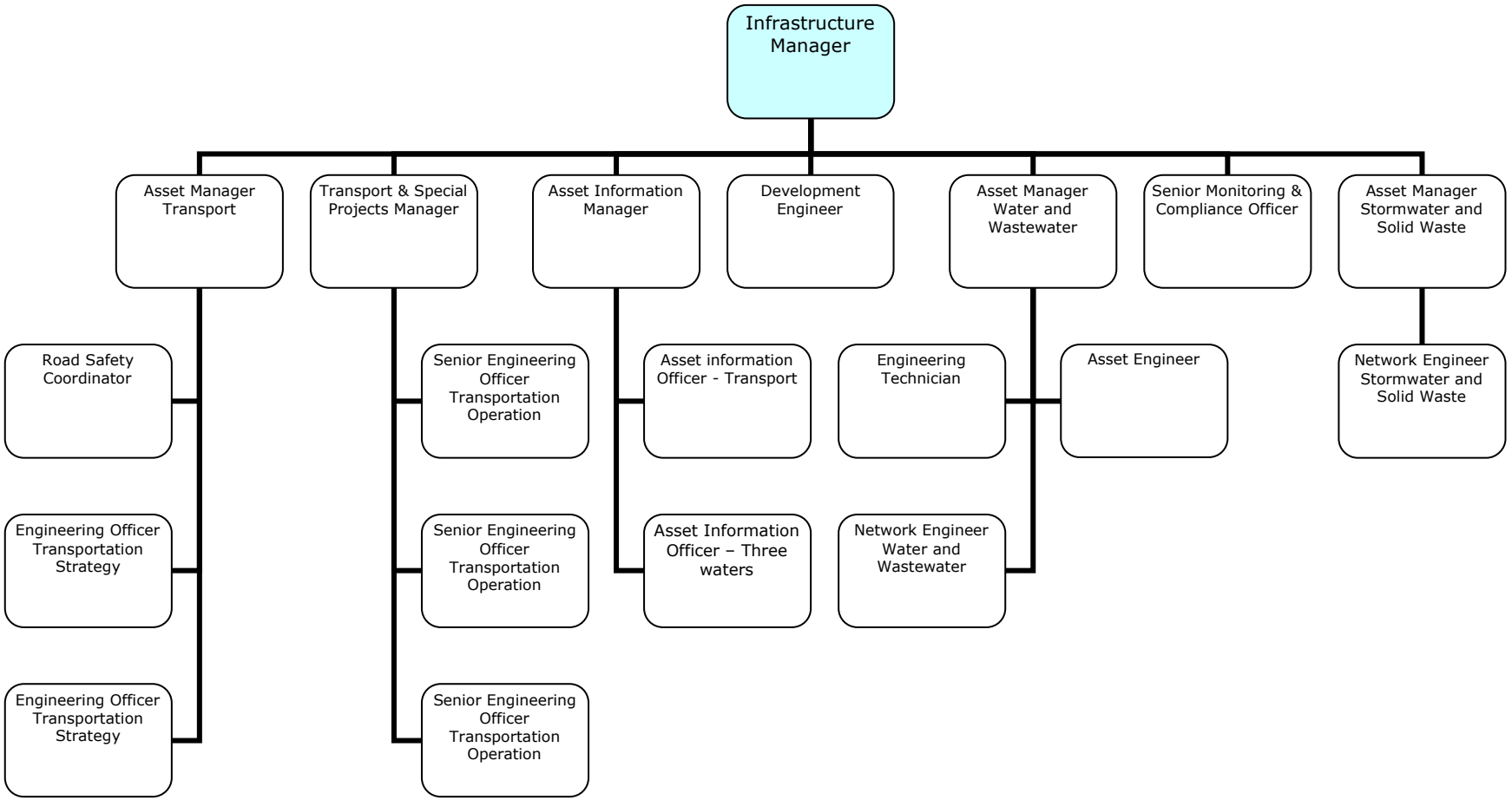


Figure 1.3: TDC Organisational Structure

Figure 1.4: Figure 5: Infrastructure team Organisational Structure as at June 2017 (i.e. who does the work and how its managed



2.0 DEFINITIONS

As-built	Refers to a survey or drawing of the actual assets that have been constructed, recognising that they can sometimes vary from what was planned before work started on site. As-built drawings are needed to ensure that asset information systems contain data on the asset as it has been constructed, not how it was planned in theory.
Community Outcomes	Under section 5 of the Local Government Act 2002, community outcomes "mean the outcomes for that district or region that are identified as priorities for the time being". Community outcomes are what New Zealanders want for their local community, now and in the future. Assets have a role in supporting the achievement of those aims.
Catchment	The area contributing flow to a drainage system
Code of Practice	Code of practice for the development of land
Critical Assets	Those assets with a high consequence of failure. They are often found as part of a network, in which, for example, their failure would compromise the performance of the entire network.
Detention pond	An area designed to hold stormwater until the effects of percolation, evaporation and or controlled release return the area to its normal dry state
Development Contributions	Funds paid, typically by developers, to local authorities to help with the cost of growth. These contributions are authorised by Part 8 of the Local Government Act 2002.
Ephemeral flow path or watercourse	A watercourse where overland flow occurs intermittently but whose bed is likely to be dry at other times
Greenfield site	Land on which no urban development has previously taken place.
Industry Best Practice	The most effective techniques available to the Stormwater management industry which minimises stormwater runoff, reduce stormwater velocities and peak flows and improve stormwater quality as close to source as possible. Taking account of local conditions, the techniques attempt to minimise the adverse effects of stormwater on the receiving environments within the constraints of social, cultural and financial expediency, which may include low impact urban design.
Overland flow path	The route taken by the surface flow of stormwater.
Stormwater	Stormwater is defined as rainwater that flows either into surface or subsurface watercourses or is channelled into pipes, channels or constructed infiltration facilities which constitute stormwater systems to be discharged into receiving environments

Vested Assets Assets that are transferred to a public entity at nominal or zero cost. Typically, this might result from a situation where a developer has installed assets as part of developing a site and passes them to a public entity to manage, maintain, and deliver services through. The fair value of these assets has to be determined as they are integrated into the organisation's asset information system so that they can be appropriately managed.

3.0 ACRONYMS / ABBREVIATIONS

AEP	Annual Exceedence Probability
AM	Asset Manager
AMP	Asset Management Plan
AMS	Asset Management System
Audit	Audit New Zealand
CAPEX	Capital Expenditure
CCTV	Closed circuit television – common method of inspecting pipes
CDC	Comprehensive Discharge Consent
CMP	Catchment Management Plan
CEO	Chief Executive Officer
Council	Taupō District Council
CSA	Control Self Assessment (Risk Management)
DC	Development Contribution
ES	Environmental Services Group at Taupo District Council
GIS	Geographical Information System
GMS	Growth Management Strategy
IPG	Infrastructure and Parks Group at Taupo District Council
LDS	Land Disposal Site
LGA	Local Government Act
LoS	Level of Service
NZTA	New Zealand Transport Agency
OPEX	Operational Expenditure
PRAMP	Property Asset Management Plan
RMA	Resource Management Act
RPS	Environment Waikato Regional Policy Statement
SAMP	Solid Waste Asset Management Plan

SLG	Senior Leadership Group (CEO, 2nd Tier Managers and selected 3rd Tier Managers)
SMP	Stormwater Management Plan
SWAMP	Stormwater Asset Management Plan
T24	Track 24
TYP	Ten Year Plan (Council's ten year planning document formerly the Long Term Plan – LTP)
TRAMP	Transportation Asset Management Plan
WAMP	Water Asset Management Plan
WRC	Waikato Regional Council
WW	Wastewater
WWAMP	Wastewater Asset Management Plan
WWTP	Wastewater Treatment Plant

4.0 ASSET DATA

4.1 Asset Summary and Valuation

Taupō District Council (TDC) is responsible for the management of Stormwater assets with a replacement value (excluding land value) of approximately $85 million (June 2017).

The SWAMP encompasses TDC's stormwater assets, which transport stormwater from developed urban catchment areas as well as from undeveloped rural areas.

Stormwater summary of assets The following table provides a summary of Stormwater assets at the current point in time (30th October 2020) from Assetfinda.

Asset function	Asset Type	Quantity now
Reticulation	Pipes	215 km
	Catchpits / Cesspits	799
	Standard Manholes	3853
	Catchpit manholes	14
	Lamphole	9
	Inlets	44
	Raised Manhole - Pond Inlet with debris screen	13
Stormwater quality improvements	Attenuation / detention ponds	38
	CDS Units	7
	Enviropods	220
Disposal	Unknown Outlet type	369
	Pond outlet with debris screen	46
	Pond outlet with wingwall & debris screen	11
	Lake Outlet	74
	River Outlet	62
	Gully Outlet	225

Figure 2.3 shows the approximate extent and location of the infrastructure listed in Table 4.1.

Figure 4.1.2 – Location of TDC Reticulated Stormwater Systems

4.2 Physical parameters

Figure 4.2.1 shows a draft hierarchy of assets.

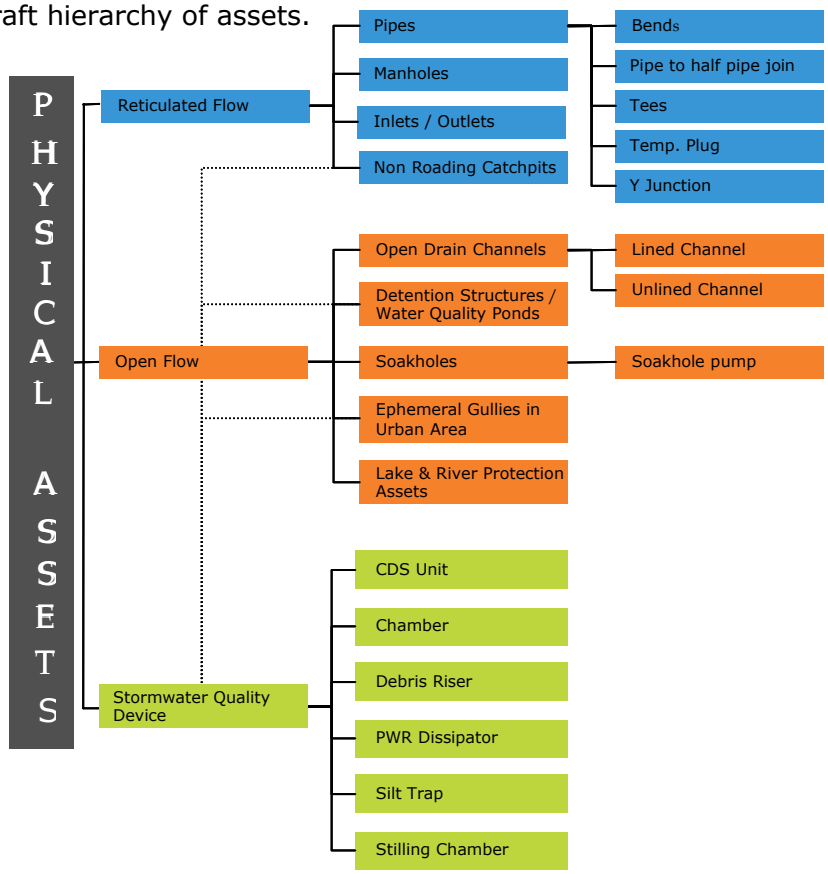


Figure 4.2.1 – Hierarchy of Stormwater Assets

The asset categories depicted in Figure 6.1 are further described in Table 6.1

Asset Type	Component	Description
Open Flow	Open Drains/ Channels	The purpose of open drains is to accept discharge from outlets, confine water flows within its banks, and convey the flows to receiving water bodies. In this asset management plan, open drains refer to lined channels, unlined channels and natural watercourses through which stormwater flows, whether continuously or intermittently
	Flow Paths / Flow Routes	Generally there are two paths available to flood waters; a primary path and a secondary path. ▪ The primary path is usually a piped system, but may be an open channel, or drainage gully. ▪ The secondary path is the route taken by floodwaters when the primary system is unable to cope, either because of blockage or because the hydraulic capacity of the primary path is exceeded.

Asset Type	Component	Description
	Attenuation or Soak hole areas	These will reduce peak flows and/or dispose of stormwater through soakage. They provide water quality improvement through silt depositions soakage.
Reticulated Flow	Pipelines	The purpose of the pipes is to convey the flow received from the catchpits directly to the receiving environment, generally water bodies or land.
Stormwater Quality Devices	Continuous Deflection Separator (CDS)	Based on a simple combination of non-blocking screens and flow management, CDS is a gravity driven, low maintenance device to prevent gross pollutants, such as street litter, vegetation and coarser sediments from entering the receiving environment

Table 4.2.2 – Description of Asset Categories

Councils AMS holds all Stormwater asset data and is used as the primary source for asset management planning.
Council has undertaken condition assessments on the inlets and outlet structures as well as the manholes within the network. CCTV condition assessment of the piped network is also being undertaken with at least 10% of the network being done annually.

The relative proportion (by value) of pipes, catchpits, manholes, inlets and outlets is generally the same for each of the wards in the District, and is illustrated in Figure 4.3.3 Clearly pipes make up the majority of the value of stormwater assets.

The three waters asset data base can be manipulated to identify assets that are of greatest value. The value of assets is also considered as part of the maintenance and renewal strategy. When undertaking the condition assessment of the piped network, Council has identified the network that has a renewal requirement of ten years and less, then has put together a program where a range of pipe capacities and locations can be assessed. Council has also considered issues such as trees placed over pipes and the criticality of the asset.

The Stormwater renewal program is based on a mix of age, condition assessment information from CCTV and criticality of asset, which is mainly a reflection of size of the asset in most cases.

The renewal and maintenance requirements are also overlaid by service request information to determine future work priorities. These priorities can be broken to down to component level such as outlet, pipe, inlet as well as asset values to enable future funding priorities

Works orders and service requests are analysed to determine if maintenance issues are determining the need for future renewal or capex expenditure, contract reports provide details of works as well as preventative maintenance such as outlet unblocking. Expenditure is then compared with renewal and condition assessments which then form planned expenditure and projects.

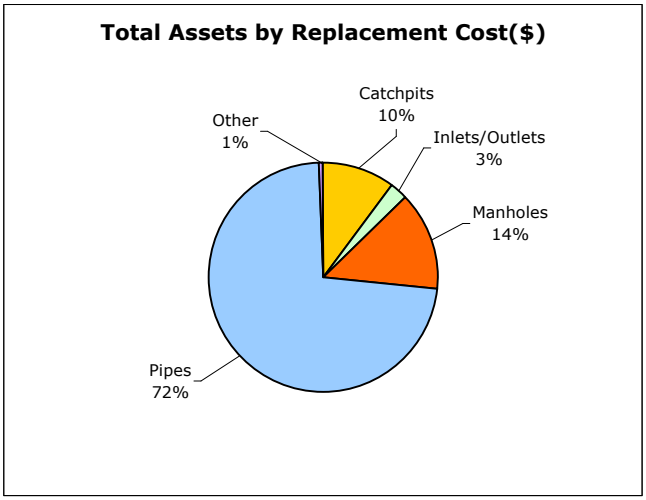


Figure 4.2.3 - Stormwater Components Shown by Percentage of Total Replacement Cost

All recorded components have been valued in terms of their replacement and depreciated replacement value. The valuation process has been performed in accordance with generally accepting accounting standards (NZ IAS16 Property, Plant and Equipment) and with NZ local authority asset valuation practices (NZ Infrastructure Valuation and Depreciation Guidelines).

The basic approach has involved:

a) Preparation of the valuation databases from the various sources of information supplied by TDC.
b) Adjustment of asset quantities, materials and techniques to reflect an optimum (least cost) modern equivalent replacement that offers the same level of service as that currently provided.
c) Calculation of optimum replacement cost (ORC) by multiplying asset quantities by appropriate unit construction cost rates and including an allowance for other costs (site establishment, professional fees and financial charges).
d) Prediction and assignment of economic and remaining lives.
e) Calculation of Optimised Depreciated Replacement Costs (ODRC) by deducting an allowance for depreciation, taking into account age, remaining life and residual value.

4.3 Open flow network

4.3.1 Description

Drainage gullies in urban areas are the responsibility of TDC and are Local Purpose Reserves. TDC's Tree and Vegetation Policy, code of practice and stormwater strategy identifies the importance of these areas for drainage conveyance and natural disposal and Council has also identified that drainage gullies in the district form an integral part of the stormwater network.

Council's comprehensive stormwater consent promotes the integration of the natural environment with the treatment and disposal of stormwater in the district. Council has promoted this concept through the code of Practice to enable gully systems to be incorporated into the design for stormwater in future developments

Gullies in the Taupō Region can serve several purposes depending on their level of development. Gullies may be undeveloped or developed. If undeveloped, they will continue to serve their natural overland flow purpose. If developed, they may currently be used for reserves purposes and/or stormwater purposes.

Private property owners do have a requirement to keep overland flow paths clear and mown regularly to avoid erosion and sediment loss.

Council will continue to work with community groups such as Bike Taupō to enable enhancement and recreational opportunities to be maximised where appropriate. Council will try where possible to maximise the dual usage potential of overland flow paths for passive transport usage i.e. walking and cycling to enable "off road" linkages throughout the urban area.

The drainage gullies are not included on the asset register at present. However there is maintenance expenditure involved in weed control to allow effective stormwater flow and ensure the geographical features are preserved. The planting of gullies and ongoing maintenance of the planting is a requirement of the comprehensive stormwater consents. Also gullies are also used to provide treatment in the form of detention ponds, which need to be maintained over time to remove contaminants.

4.3.1.2 Capacity / Performance

Recent new developments in the district that have been providing gully disposal for stormwater have provided capacity information that shows that they are able to provide for the requirements of Councils code of practice.

Existing gully capacity has been identified by way of Lidar survey that can identify overland flow paths up to a 1 /100 year event.

Where gully systems are on private land, Council will look to work with property owners to make sure that obstructions to flow paths are removed. Council has a policy requirement that gully systems are owned by council, so developer must provide these to council as LP reserves. Council require that developers have a planting program which incorporates a plant maintenance program of five years.

The overall capacity and performance of the gully networks in the district are in the process of being analysed and this information will be placed into the asset data system.

4.3.1.3 Condition

The condition of the district gully systems will require ongoing assessment, with inspections undertaken in areas where overland flow velocities have scoured or damaged the flow paths. Remedial works are then undertaken under the maintenance contract.

As Taupō's Pumice soils are particularly prone to erosion from high velocity water movement, Council has a planned gully planting program that targets those gullies that have high stormwater velocity, and this planting program not only strengthens the gully walls but also places small planting barriers in the flow paths to slow water down to enable containments and sediment to drop out as well as to avoid erosion.

4.3.1.4 Age

To date no specific age assessment has been undertaken in the gully networks apart from the knowledge built up from the existing planting programs and any developments that have been placed into Councils ownership.

4.3.1.5 Overland Flow Paths / Network Capacity

Council has undertaken Lidar modeling to determine stormwater flows in a 1/100 storm event. It is Council's intention to place this information onto property files in the future. The work to date does not incorporate the piped network, so the data on effects of flooding on private property still needs to be improved before being released to the public. A project has been placed in to the LTP for funding over the first two years to complete this study.

Council needs to undertake network modeling to fully understand the effects from overland flow paths, and also to allow Council to have an up to date model of the network to be able to understand the implications of increased development upstream. Currently no network model of the stormwater system exists, so areas where overland flow is shown to directly affect property would be modelled to firstly provide validation to the Lidar data as well as to provide data for solution identification.

4.4 OUTLETS & RETICULATION

4.4.1 STORMWATER

Description
Stormwater discharges from the stormwater system into Lake Taupō, gullies, streams and channels, and the Waikato River. The number of outlets discharging into each is given in Table 4.4

Township	Number of Outlet Systems				
	Land/Gulley	Lake	Stream/ Channel	River	Total
Taupō	73	49	0	20	141
Acacia Bay	4	8	0	0	12
Kinloch	31	9	8	0	48
Tokaanu	0	0	0	9	9
Waitahanui	0	3	0	3	6
Motuoapa	5	5	0	0	10
Tauranga-Taupō	0	3	0	0	3
5 Mile Bay	1	6	0	0	7
Mangakino	8	0	0	4	12
Turangi	3	0	15	9	27
Pukawa	3	0	5	0	8
Atiamuri	1	0	0	1	2
Acacia Heights	5	0	0	0	5
Hatepe	2	1	0	0	3
Wairakei	2	0	1	0	3
Kuratau	2	5	0	0	7
River Road	1	0	0	2	3
Whakamaru	1	0	0	0	1
Omori	0	2	2	0	4
Whareroa	0	1	0	0	1
TOTALS	105	92	31	48	312

Table 4.4 – Summary of Stormwater Outlet Assets

4.4.1.2 Capacity / performance

The capacity and performance of Stormwater outlets has been graded (see 4.3.1.2) this grading is ongoing as the network has 92 outlets that feed straight into Lake Taupō. These lake outlets have been affected with high lake levels as a large majority are situated in the foreshore.

Council is currently carrying out an outlet survey to determine their condition, which will then support the maintenance and renewal program. Outlets located on the Taupo lakebed, are located on Tuwharetoa Trust Board land and are coming under increased scrutiny as is discharge quality.

The location of the outlets in the foreshore means that at times of high Lake Level and high winds, outlets can be covered over and blocked by sand.

Council's maintenance contractors are required to inspect these structures prior to high rainfall events to avoid the potential for flooding.

Outlets located on the foreshore may in the future need to be either extended into the lake or moved back away from any chance of blocking. These outlets are also in some places being undermined as wave action and high lake levels remove structures supporting material. Allowance in the renewal budget has been made to enable the ongoing renewal of outlet structures affected by lake conditions.

Capacity of outlets in general is considered satisfactory, with most of the infrastructure designed to provide for at least a 5-year return period rain event.

The performance of the Stormwater infrastructure is generally assessed via resource consent compliance. An Annual Report is prepared for EW on the whole of the network detailing its performance against specific conditions as listed in the Consent. All of the annual reports provided under the comprehensive consent have been given full compliance from EW.

Extending of Stormwater Outlets further into the Lake could become problematic as Iwi ownership of the Lakebed means that further intrusion may trigger the need for charging and applications for extension will require extensive consultation and may in the end be unsuccessful.

There are number of large outlets that discharge directly from the urban environment to the Lake and rivers which carry significant containments in the first flush which at times exceed the parameters identified in Councils monitoring program. A number of these outlets have been selected to have quality improvement devices upstream.
Recent inspections of beach areas after rainfall events that have been proceeded by periods of no rainfall has shown that the beach areas around these outlets have a considerable build-up of floatable contaminants, mainly plastics that end up washed up on the beach leading to contamination of the area and eyesore for our Tourist community.
Discharges at locations that have a Downstream defender placed above the outlet have shown dramatic increase in quality.

4.4.1.3 Condition

The condition of the network outlets has greatly improved due to regular inspection and maintenance performed under the maintenance contract.
Condition rating information has been compiled and is being added to the Asset data system.

Council has implemented an annual CCTV program to assess the condition of stormwater assets. This condition assessment is compared with age of the assets and any maintenance records to determine the remaining life.

4.4.1.4 Age

Figure 4.5 shows the age of the Stormwater pipe network in the district, with majority of the networking, including outlets falling 36 to 50-year range.

The Stormwater reticulation is shown as only halfway through its useful life with Stormwater pipes having an expected life of some 80-100 years. This has been reflected in the renewals program for Stormwater.

To date Council has not had an extensive renewal program as the age of the assets does not at this time warrant the expenditure.

The condition assessment program has identified a number of assets that have had faults and or have shown ware. The criticality program has been included in determining the short term 10-year renewal program.

Pipes that have been found to be poor with a high criticality are programed into the first three years of this program with poor quality pipes with lower criticality pushed further out. Some smoothing of the expenditure has been undertaken to remove yearly spikes.

The CCTV program will continue to assess at least 10% of the network going forward and faults will be prioritised as they are identified. Council will not rely on the age only to determine renewal spend as the information gathered through the CCTV program will overlay the age data to provide accurate condition assessment to enable Council to refine the renewal expenditure going forward.

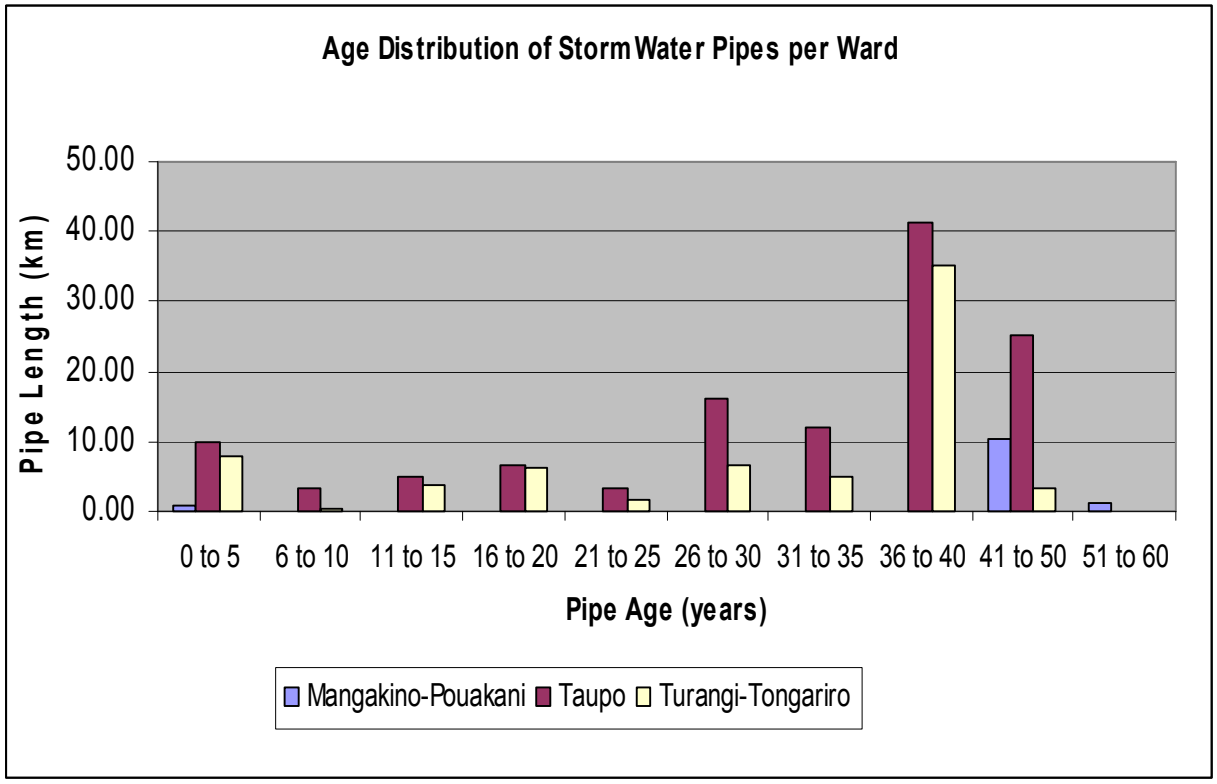


Figure 4.5 - Age of Stormwater Pipes

4.4.1.5 Description (RETICULATION)

Figure 4.5 shows that most of the stormwater pipe assets are constructed using reinforced concrete rubber ring jointed pipes.

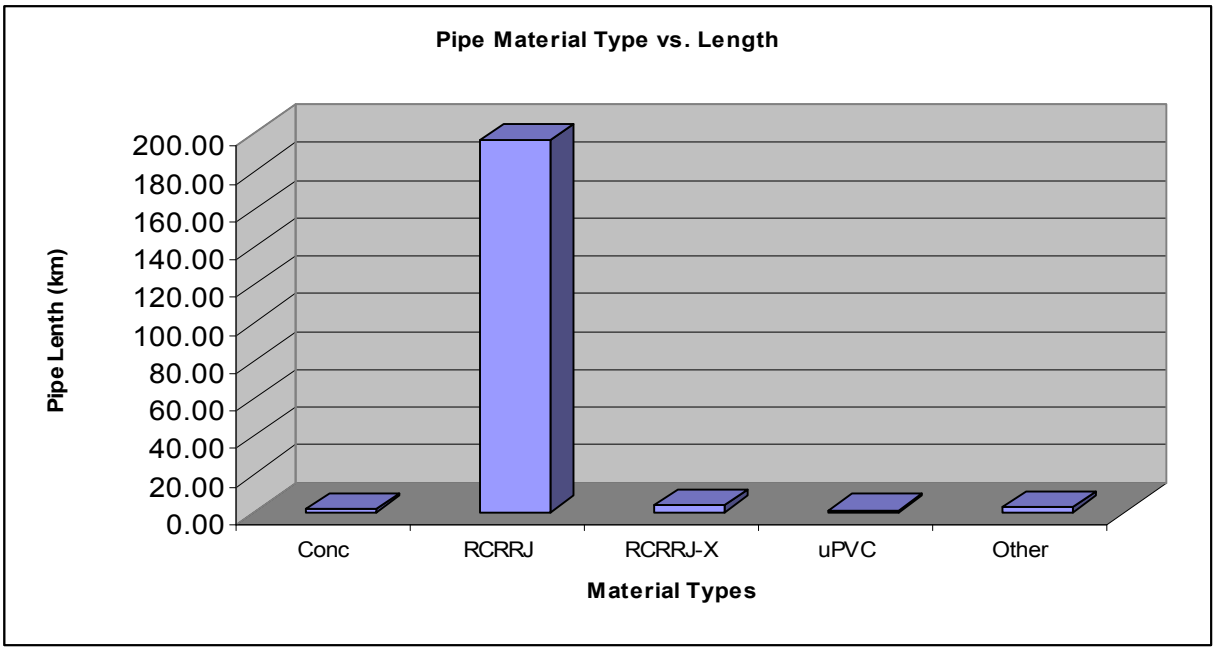


Figure 4.6 Pipe materials

4.4.1.6 Asset Capacity / Performance

Performance is regarded as "the capability of the asset to meet defined service criteria". A subjective desktop assessment of current stormwater asset performance was carried out in 2007, with some modelling work also undertaken and the result is shown in Table 4.7.

Rank	Description of Performance
1	**Very good**
2	**Good**
3	**Moderate**
4	**Poor**
5	**Very poor**

Table 4.7 - Performance Grading System

Stormwater Asset Type	Performance Grade assigned to each Township																			
	ACACIA BAY	ACACIA HEIGHTS DRIVE	5 MILE BAY	KINLOCH	RIVER ROAD	TAUPO	WAIRAKEI	WAITAHANUI	HATEPE	KURATAU	MOTUOAPA	OMORI	PUKAWA	TAURANGA-TAUPO	TOKANNU	TURANGI	WHAREROA	ATIAMURI	MANGAKINO	WHAKAMARU
Zone assigned by TDC for Performance Grading	D	D	D	D	D	E	A	E	C	B	D	B	B	C	C	C	B	A	A	A
Pipeline	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Manholes	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Catchpits	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Inlets / Outlets	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Open Drains	2	2	2	2	2	3	5	3	4	3	2	3	3	4	4	4	3	5	5	5
Channels	2	2	2	2	2	3	-	3	4	3	2	3	3	4	4	4	3	-	-	-
Flow Paths / Flow Routes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soakholes	-	-	-	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-
CDS Unit	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chamber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debris Riser	2	2	2	2	2	3	5	3	4	-	2	-	-	4	4	4	3	-	-	-
PWR Dissipator	-	-	-	-	-	-	-	-	-	3	-	3	3	-	-	-	-	-	-	-
Reducer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silt Trap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stilling Chamber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(Zones A - D refer to overall performance A = very poor, D = Good)

Table 4.8 Network Performance Grading

4.5.1.2 Condition

Asset condition reflects the physical state of the asset, which may or may not affect the performance. The performance of the asset is the ability to provide the required level of service to customers. At present, TDC have very little documented knowledge or record

of asset performance except for assets that are obviously underperforming or in such a condition that they are likely to fail.

Council has previously undertaken CCTVs for at least 5% of the piped network annually to provide condition assessment this has now moved to 10%. The outlets and inlet structures were all done in 2020, with outlets currently being resurveyed, these assets are also inspected during ongoing maintenance work.

The assessment of the asset's condition is aligned to its "structural integrity" – what shape is it in? Whereas it may be performing adequately, and the customer is not aware of a reduced level of service, there could still be significant maintenance and repair work, or costs associated with the asset due to its poor physical condition.

Council's maintenance contractor is now collecting condition information regarding the stormwater assets and this information is being downloaded into the asset management system.

The CCTV inspection records coupled with the criticality rating requires that there is funding allocated to cater for the faults that have been found during the condition assessment program.

It is envisaged that as the CCTV program is rolled out, that additional network faults will be located. The Mangakino assessment identified that there are parts of the piped network located under houses. These pipes have been identified as high criticality due to the risk of failure and impacts on private property. The condition assessment data will be adjusted as repairs are undertaken.

As the network age is only averaging 60 years old the bulk of the network renewal funding requirement won't be needed until 2050 onwards.

Rank	Description of Condition
1	**Perfect/Excellent Condition** Only normal maintenance required
2	**Minor Defects Only** Minor maintenance required (5%)
3	**Backlog Maintenance Required** Significant maintenance required (10-20%)
4	**Requires Major Renewal** Significant renewal/upgrade required (20-40%)
5	**Asset Unserviceable** Over 50% of asset requires replacement

Table 4.9 - Condition Assessment Guidelines

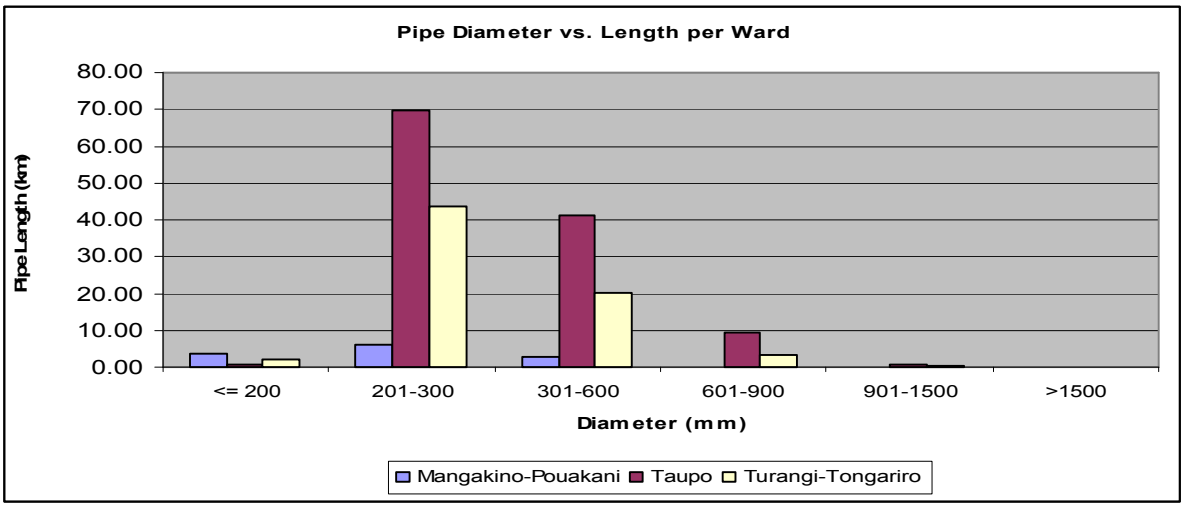


Figure 4.10 - Size of Stormwater Pipes

4.5 ASSET LIVES

Table 4.11 summarizes the asset lives that were used in the calculation of asset depreciation. Asset lives have been determined by TDC asset management staff, based on information in the NAMS guideline, but modified to better reflect the actual situation being experienced in Taupō district.

Asset Type	Expected Life
Pipes	80 - 100
Manholes / cesspits	80 - 100
Flood control systems	15 - 18

Table 4.11 – Asset Lives

The anticipated life of assets is dependent on material type and operational circumstances.

4.6 QUALITY DEVICES

4.6.1 DESCRIPTION

With the adoption of Councils stormwater strategy and the granting of Councils comprehensive stormwater consents, there is more emphasis placed on the quality of the discharges from council's stormwater network, be it from overland flow or the reticulated network.

The Comprehensive consent has a monitoring program that compares receiving water quality with a national data set that enables Council to identify areas where stormwater quality is an issue.

Currently there are a number of capital programs for the inclusion of quality improvement devices into the network. These devices will be located in areas where

stormwater drains from the central CBD areas as well as large outlets from the urban area straight to the Lake shore. Provision of these devices will be determined after Council has undertaken the consultation process.

Currently council has 8 CDS devices within the reticulated network as well as 220 Enviropods located in Taupō and Turangi.

Council's comprehensive consent requires any new cesspits installed under the consent to include sediment and floatable contaminant capture. But for an urban residential street the level of contaminates is low and the extra cost of maintenance of additional Enviropods is not seen as cost effective. For areas such as the CBD, commercial and light industrial areas the capture of pollutants with Enviropods is seen as cost effective.

A report undertaken by Opus International regarding the effectiveness of stormwater quality devices for the Taupō and Turangi CBDS, recommended an initial protection of Enviropods followed by CDS units at or close to major outlets. This philosophy will underpin Councils quality improvement program going forward.

Council will look to provide quality improvement by way of CDS (Hynds Downstream Defender) or similar devices for the major outlets which drain directly to receiving environments.

Council will continue to work with developers and the regional Council to provide the best and most cost-effective stormwater quality improvement devices for Councils network. Recently this has been achieved by more open pond-based systems where pollutant traps are above ground and easily maintained.
The regional council has now released their stormwater guidelines which result in quality improvement at the road incorporating swales.

4.6.2 CAPACITY / PERFORMANCE

The existing CDS units have been sized for a 1 in 5-year storm event. With rainfall events over this return period, the CDS units are able to bypass and thus avoid localised flooding. Any new quality improvement devices will be designed taking into account the new rainfall data but will generally be sized to deal with the first flush only.

CDS units are regularly inspected and are cleaned under the Stormwater maintenance contract and the optimum time between cleans is around four months, but this clean time will vary depending on the size of the catchment and contaminant loadings.

The Enviropods located throughout the district are maintained under the roading maintenance contract and are regularly inspected and cleaned.
Road cesspit capacity can quickly be reduced if Enviropods are not maintained on a regular basis and this does incur some additional maintenance expenditure for the roading division.

Open pond-based systems have been designed either under the old code of practise that required the 1 in 5 storm event or more recently developments have designed to meet a 1 in 10 storm event.

Access to the pond systems for maintenance is easy and the removal of sediment and pollutants is regularly undertaken.

4.6.3 CONDITION

The district quality improvement devices are now included into Councils three waters contract for inspection and maintenance. These devices are regularly inspected as to there condition and are maintained when necessary.
The current condition rating for the quality improvement devices shows that they are in good condition.

4.6.4 AGE

The CDS devices are relatively new devices providing good stormwater quality improvement. 160 of the 220 Enviropods are less then two years old with another fifteen devices less than four years old. Renewal funding for catch bag and enviropods have been allowed for.

4.7 Resource consents

TDC have acquired numerous resource consents for the discharge of stormwater. Table 4.7.1 summarises the consented stormwater discharges, together with the date that the consent expires.

Site	Resource Consent number	Renewal date
Taupō Urban Areas Taupō (& Eastern Bays) Waitahanui Acacia Bay Kinloch	105048	15 June 2027
Turangi Urban Areas Turangi Tokaanu Motuoapa Omori/Pukawa/Kuratau Whareroa Tauranga-Taupō Hatepe	105049	15 June 2027
Waikato Urban Areas Wairakei River Road Atiamuri Whakamaru Mangakino	105050	15 June 2027
Taupō - Poihipi Road (Vaucluse Subdivision) 4 x detention dams	102594	
SH5/Kiddle Road Onekeneke detention dams	104043	1/01/3000
Flood Control works Kowhai chad gullies	793558	1/01/3000
Divert and discharge Bonshaw park Subdiv	840413	1/10/2021
Detention pond Kenrigg Rd	109323	30/11/38
2.4m culvert SH1 Wharewaka	110714	25/03/39
Kuratau/Omori/Pukawa – discharge	732380	2028
Weir Kathleen stream spa rd	114276	8/10/42

Site	Resource Consent number	Renewal date
Kenrigg Rd, Kinloch – dam to create detention pond	109322	30/11/2038

Table 4.7.1 – Summary of Resource Consents Relating to the Discharge of Stormwater

The primary consents that will affect the management of the stormwater activity into the future are the three comprehensive discharge consents (105048, 105049, and 105050). TDC has now surrendered existing consents on sites covered by the Comprehensive Discharge Consents.

Funding has been provided in the LTP for renewal of the comprehensive consent.

4.8 Asset Confidence Rating

The asset valuation assigns confidence ratings to the source data and unit cost rates and to other items as appropriate. The overall confidence rating for the Stormwater Asset is B**-.**

Grade Score	Grade	Description	Accuracy
1-2	A	High Accuracies, data based on reliable documents	±5%
2-3	B	Data based on some supporting documentation	±10%
3-4	C	50% Estimated, data based on local knowledge	±15%
4-5	D	Significant Data Estimated / No Data, data based on best estimate of experienced person	±30%

Key to Asset Confidence Rating

Attribute	Confidence Grade							
	D		C		B		A	
Asset data								
Physical properties								
Location								
Age								
Condition								
Performance								

Attribute	Confidence Grade							
	D		C		B		A	
Deterioration rate								
Financial data								
Opex								
Operation costs								
Maintenance costs								
Asset management costs								
Interest rates								
Depreciation								
Renewals								
Unit rates								
Project scope								
Cost estimates								
Capital works								
Demand forecast								
Project timing								
Project scope								
Project costs								
Project prioritisation								

Storm Water Assets	Average of Data Confidence Score		Confidence Grade
Size	2.5	2.43	C+
Material	2.6		
Length	2.2		
Location	2.20	2.20	B+
Age	2.25	2.25	B+

Summary of Asset Confidence Ratings

Councils knowledge of its asset has increased from the last AMP due to processes put in place around asset and maintenance data capture and storage.

Council has made a significant effort to process and store data records that have been "sitting in boxes" as well as recording data from CCTV records. Council has had additional staff employed soley to bring the data to a level to enable asset staff to provide robust renewal porograms.

Councils "Three Waters" maintenance contractor is also required to check the validity of asset data while undertaking maintenance and update the data if necessary.

The new Asset data base incorporates day to day maintenace operations, and updates assets as maintanece is undertaken. This has enabled council to verify asset data whicle mainteance is being undertaken.

5.0 LEVELS OF SERVICE

5.1 Introduction

A key objective of this Asset Management (AM) plan is to match the level of service provided by the asset with the expectations of customers. This requires a clear understanding of customers' needs, expectations and preferences. The levels of service defined in this section will be used:

- to inform customers of the proposed type and level of service to be offered
- to enable customers to assess suitability, affordability and equity of the services offered
- as a focus for the AM tactics proposed to deliver the required level of service
- to measure the effectiveness of this AM plan
- to identify the costs and benefits of the services offered

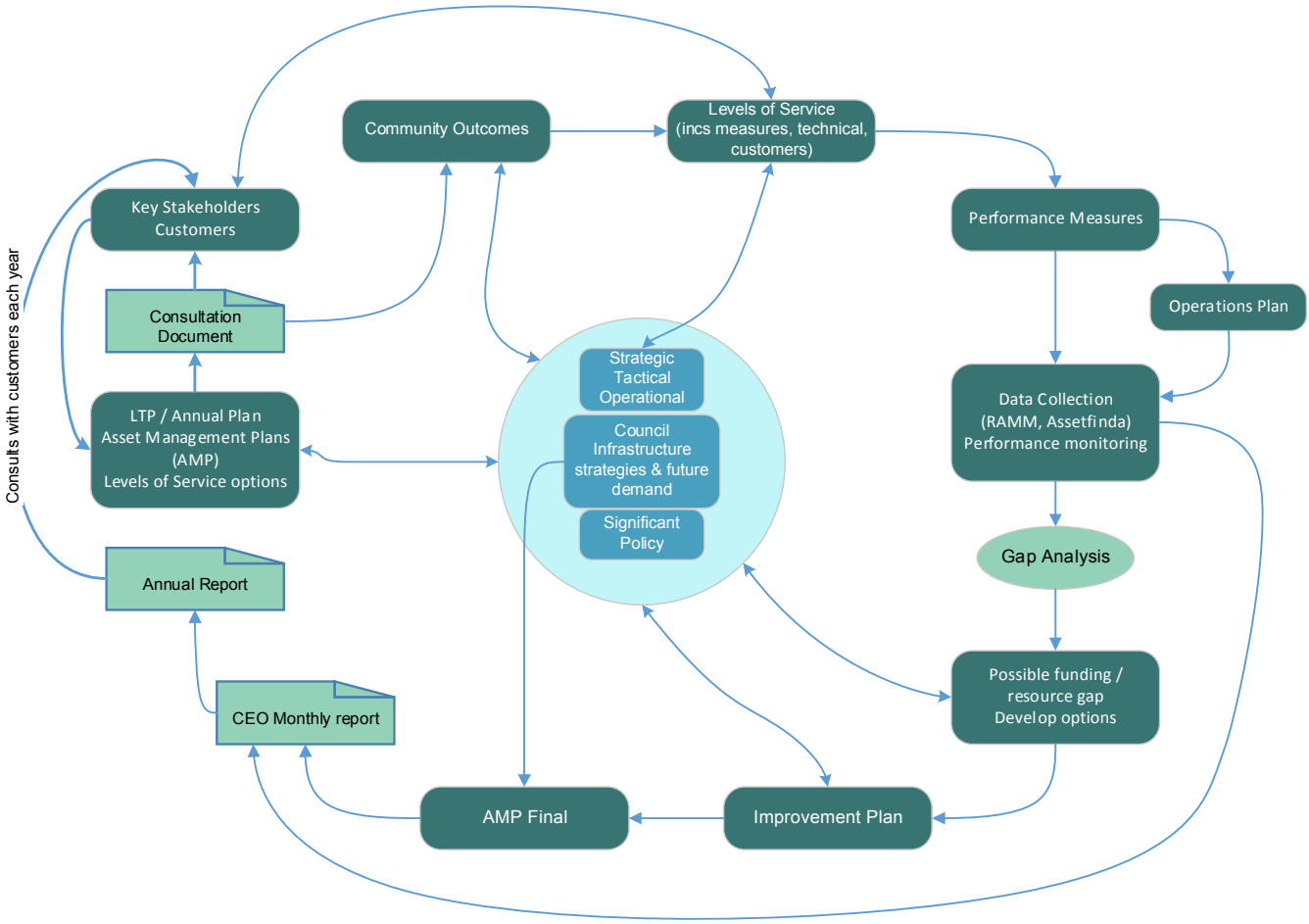
The stormwater network throughout the district falls under Councils comprehensive discharge Consent. While a large proportion of the stormwater assets have an expected life of some eighty to one hundred years their function is governed by the ability of Council to renew the consent once it has expired in June 2027.

Community Outcomes: Provide guidelines for the scope of current and future services offered and manner of service delivery and define general levels of service which the community wishes to receive.

Customer Expectations: Information gained from customers on expected quality and price of services.

Statutory Requirements: Legislation, regulations, environmental standards and Council By-laws that impact on the way assets are managed (i.e.: resource consents, building regulations, health and safety legislation). These requirements set the minimum level of service to be provided.

Strategic and Corporate Goals: Provide guidelines for the scope of current and future services offered and manner of service delivery and define specific levels of service which the organisation wishes to achieve.



Consultation Process and Linkages

The above diagram identifies the consultation process and reporting requirements for levels of service. It also incorporates the links to strategic documents and gap analysis and how this links into the Annual Plan and Long-Term Plan (LTP).

5.2 Types of Levels of Service

5.2.1 OPERATIONAL

Current operational levels of service for stormwater are scheduled in Table 5.2
The levels of service are "how we maintain our existing assets" for our customers.

Operational levels of service fall into two categories:

Technical (asset/product related) measures, which relate to the outputs the customer receives in terms of:

- Quality
- Capacity
- Quantity
- Environmental impacts
- Legislative requirements
- Comfort
- Maintainability
- Safety

- Availability
- Cost/ affordability
- Reliability and performance
- Hazard Effects
- Criticality

Service Quality (service process related) measures, which relate to how the customer receives the service in terms of:

- Tangibles (information sheets etc)
- Responsiveness
- Courtesy
- Empathy (understanding, individual attention)
- Assurance (knowledge, courtesy, trust, confidence)

5.2.2 TACTICAL

The levels of service stated within Table 5-1 are "why we build new assets". These are thresholds which warrant the creation of a new asset in order to maintain an optimum level of service for the asset.

5.2.3 IMPLEMENTATION

The implementation levels of service stated within Table 5-2 are "the standard we build a stormwater asset to".

5.2.4 NATIONAL

The local Govt review has identified a number of non-financial performance measures that must be included in this AMP document. Council also has a Code of practice which is based on the National standard for the provision of Stormwater infrastructure. Regional council also plays a role in asset creation through the comprehensive stormwater consent and requirement to have a quality improvement program.

5.2.5 SIGNIFICANT SERVICE DELIVERED

Significant service for stormwater is to protect public health and property without compromising the environment this includes the effects of erosion.

This service level has been supported by the review of the Councils code of practise which takes into account the effects of climate change, as well as the work being done to identify overland flow paths in our urban areas.

5.3 Current Levels of Service

Stormwater Objective: To provide a stormwater system that, services the whole community, is affordable and managed at lowest possible cost, reduces the incidence of flooding impacts on people and property and is managed in an environmentally sustainable manner.

A * identifies that the level of service or measure is included in the LTP

Number	Core Value / Key Service Criteria	Level of Service	How we measure it (customer)	How we measure it (technical)	Current LoS Performance	How We Monitor Performance	Target LoS Medium Term (1-3 years)	Target LoS Long Term (4-10 Years)
T1	Economy	We manage the stormwater network to protect public health and property without compromising the environment. We mitigate adverse effects of stormwater discharge on the environment and minimise erosion caused by the stormwater network.*	The number of flooding events that occur in a territorial authority district.	Number of flooding events in the district 0 properties each year are affected by flooding inside the habitable dwelling as a result of stormwater originating from public land such as parks, roads and reserves. (this measure excludes properties in designated flood hazard zones)*	no dwelling that had flooding inside of the dwelling	Analysis of flooding incidents reported to Council. Service requests	0 properties each year are affected by flooding inside the dwelling as a result of stormwater originating from public land such as parks, roads and reserves. (this measure excludes properties in designated flood hazard zones)*	0 properties each year are affected by flooding inside the dwelling as a result of stormwater originating from public land such as parks, roads and reserves. (this measure excludes properties in designated flood hazard zones)*
<u>Fault response time</u> Median response time from Council receiving notification of the fault to the time that service personnel reach the site in an emergency event • ≤1hr Median time from Council receiving notification of the fault to the time that service personnel	Percentage of failure responded within the specified time	Median response time from Council receiving notification of the fault to the time that service personnel reach the site. If there is a civil defence event identify it and discuss the impacts of it.	• Service requests • Service requests	Analysis of service requests and contactors KPI	Median response time to attend to a flooding event • ≤1hr (90% of times) Median time to resolve the problem • Within 4 hrs (85% of times)	• Analysis of contract records and service requests • Analysis of contract records and service requests	<u>Fault response time</u> Median response time from Council receiving notification of the fault to the time that service personnel reach the site in an emergency event • ≤1hr Median time from Council receiving notification of the fault to the time that service personnel confirm resolution of the blockage or other fault. • Within 4 hrs	Percentage of failure responded within the specified time

Number	Core Value / Key Service Criteria	Level of Service	How we measure it (customer)	How we measure it (technical)	Current LoS Performance	How We Monitor Performance	Target LoS Medium Term (1-3 years)	Target LoS Long Term (4-10 Years)
confirm resolution of the blockage or other fault. • Within 4 hrs								
	The number of complaints received by a territorial authority about the performance of its stormwater system, expressed per 1000 properties connected to the territorial authority's stormwater system. The number of complaints received by a territorial authority about the performance of its stormwater system, expressed per 1000 properties connected to the territorial authority's stormwater system. Please note that Council's stormwater network drains the roading network so there are no properties who connect to the stormwater network. For the purposes of this performance measure, we have considered that each property within the district benefits from the stormwater network and is therefore "connected" to our stormwater network.	This measure has not been reported on previously.	Less than 8	Less than 8	Less than 8	Less than 8	Less than 8	Less than 8
T2	Economy	Adequate Stormwater provision to minimise erosion from the Stormwater network	Fewer than 10 justifiable complaints of erosion caused by the Stormwater network	There are less the 10 complaints of erosion caused by the stormwater network	0 complaints of erosion caused by the stormwater network .	Analysis of service requests regarding erosion	There are less the 10 complaints of erosion caused by the stormwater network *	There are less the 10 complaints of erosion caused by the stormwater network *

Table 5-1: Tactical Levels of Service

Number	Core Value / Key Service Criteria	Level of Service	How we measure it (customer)	How we measure it (technical)	Current LoS Performance	How We Monitor Performance	Target LoS Medium Term (1-3 years)	Target LoS Long Term (4-10 Years)

Number	Core Value / Key Service Criteria	Level of Service	How we measure it (customer)	How we measure it (technical)	Current LoS Performance	How We Monitor Performance	Target LoS Medium Term (1-3 years)	Target LoS Long Term (4-10 Years)
O1	Environment	Appropriate stormwater quality before discharges enter the receiving environment	Annual survey shows at least 75% of customers are satisfied that the stormwater discharges are of an appropriate quality	Monitoring program as per consent	Survey shows that at least 75% of community are satisfied that the stormwater discharges are of an appropriate quality Monitoring program which monitors 10 sites shows that there have been exceedances compared to the NIWA trigger levels in: Nitrogen, BOD5, E.Coli, Copper and one site recorded an Exceedence for Hydrocarbons.	Monitoring program Satisfaction survey	Survey shows that at least 75% of community are satisfied that the stormwater discharges are of a appropriate quality We comply with all resource consent conditions* An improved quality appropriate to indicators	Survey shows that at least 75% of community are satisfied that the stormwater discharges are of a appropriate quality We comply with all resource consent conditions* An improved quality appropriate to indicators
02		Full Resource Consent Compliance	Numbers of : Abatement notices Infringement notices Enforcement orders convictions	Correspondence from Regional Council	Consents are fully compliant	Correspondence from Regional Council	Consents are fully compliant 0 Abatement notices, Infringement notices, Enforcement orders and convictions	Consents are fully compliant 0 Abatement notices, Infringement notices, Enforcement orders and convictions
O3	Economy	Stormwater services do not cause health and safety issues	No justifiable Health and safety complaints	Less than 5 health nuisances reported per annum from facilities or assets (flooding, ponding, mosquitoes etc.)	2 complaints reported 4 nuisances reported	Analysis of service requests and complaint records Contractors monthly reports	Less than 5 health nuisances reported per annum from facilities or assets (flooding, ponding, mosquitoes etc.)	Less than 5 health nuisances reported per annum from facilities or assets (flooding, ponding, mosquitoes etc.)

Table 5-2: Operational Levels of Service

5.3.1 LINK TO PROJECT

The following table show the current levels of service for the asset and the links between the levels of service adopted and the current projects. Everything we do, we do in order to provide a level of service to the community.

Stormwater Projects	Link to LOS
NEW WORKS	
District Wide	
Gully planting	T2, 01
District renewals	T1,T2, 01,03
Taupō	
Quality improvement devices	T1, T2, 01,03
Brentwood Gully Culvert	T1,T2, 01, 03
Paenoa Rd pipe diversion	T1, T2, 01, 02, 03
Henry Hill and Koha flood prevention	T1, T2, 01, 02, 03
Elisabeth street flood mitigation	T1, T2, 01, 02, 03
Hawai street flood mitigation	T1, T2, 01, 02, 03
Turangi	
Quality improvement devices	T1, T2, 01,03
Mangakino	
Golf Club pond	T1, T2, 01, 02, 03
Swale diversion form Rangatira Drive	T1, T2 03

Table 5-3: Link between Level of Service and Project

5.4 Consultation

Levels of service consultation for the Stormwater Asset is included in the consultation process for the Long-Term Plan (LTP).

- Economy
- Environment
- Engagement
- Financial Prudence

At present resident contact is generally on a one on one situation in the handling of customer complaints or in council and community board meetings. Regular advertised public forums are held to encourage and provide for ratepayer opinions and concerns to be heard. Submissions and suggestions for desired project and improvement work for Council consideration and inclusion into the LTP are called for during consultation.

Consultation on the 2021 LTP will provide the community an opportunity to have input into the levels of service going forward.

Conclusions

The previous consultation process identified that there was a desire in the community to keep the level of service as it is, with a bias to moderately increase the level of service to provide further education and compliance services and provide additional stormwater treatment.

Capital projects are evaluated based on the benefits and outcomes and geographical location is not considered.

5.5 Changes to Level of Service

Capital expenditure to improve the level of service includes;
- Reticulation upgrades
- Treatment and Reticulation Renewals
- Installation of Treatment devices
- Flood prevention

Operational Projects to improve the level of service include:
The network modelling program underpins the overland flow path mapping which identifies the potential hazards to the community to overland flows in a 1/100-year storm.

For a full list of capital projects: (see the Lifecycle and Finance section of this AMP).

- Pipe upgrade investigations for areas that have historic flooding issues.
- District quality improvement of discharges to receiving environments in line with the requirements of the Comprehension Discharge Consents in the form of Enviropods and CDS units.
- The formation of detention ponds in areas that are shown to be at flood risk, detention ponds utilising existing reserve space if acceptable to the local community.
- Network Modelling in the form of Overland Flow paths to determine at risk properties and to drive future network improvement programs.

5.6 Service Level Measurement

Service level achievement is measured by way of service request performance and information gleamed from monthly contract meetings with contractors. The community is also able to submit to Council during annual and ten-year plan development.

Resource consent compliance is reported yearly by the Waikato Regional Council after they undertake onsite audits and reply to complaints and review Councils annual compliance report which is required as a condition of the Comprehensive Consent.

Key performance indicators are reported to council on a monthly basis and overall asset performance is provided in the annual performance report.

Council also report against performance to the Tuwharetoa trust board who are interested in discharge quality and system performance, as well as maintenance regimes.

6.0 FUTURE DEMAND

6.1 Factors Affecting Demand

There are a number of factors that influence demand for the Stormwater assets within the Taupō District. These are described below and include:

- Growth in development and therefore population
- Community expectations

Other factors which influence the demand on the Stormwater asset however not described in detail are:

- Usage Efficiency
- Need for quality improvement
- Climate change
- Resource Consent requirements
- Quality improvement requirementsi8

Council has undertaken modelling works for catchments such as the Taupō CBD and Industrial areas where future growth or network capacity is not sufficient. Council has not undertaken modelling of the entire network due to the cost but may need to undertake this work in certain areas to support the identification of over land flow paths and their effects on private property.

Council uses its service request system as well as contract reports for the three waters contract to determine network utilisation and capacity issues. These sites are then further investigated to determine solutions.

Network demand can be affected by things such as climate change, which has led Council to change its code of practice in regard to network provision to 1:10 network 1:100 flow path provision. Due to climate change, large portions of Councils network is not now appropriately sized, but due to the cost of increasing the network capacity Council has made the decision not to undertake upgrades unless properties are experiencing flooding or for growth and thus rely on overland flow.

Areas such as parts of the Taupō CBD, while there would be impact from 1;100 year event, the need for upgrading is mitigated to a degree by the fact that stormwater will mostly be handled by the overland flow paths (predominantly roads) to the Lake, and so costly upgrades of the network can be delayed. (Some areas will require mitigation) Council has identified where overland flow will enter the lake and undertaken works to mitigate any possible erosion impacts.

The validating of overland flow paths from the Lidar survey will form part of Councils hazards register. Council records information regarding capacity issues, such as manhole lids lifting and flooding incidents and uses this information to plan network upgrades. Council considers that the accuracy of data on the maintenance of the network is sufficient, but more work needs to be done to determine the condition of assets which will drive the renewal program and so has programmed a CCTV program to inspect around at least 10% of the piped network per year.

6.2 Demand Management

Demand management is:

> "……*the modification customer demands for services in order to maximise use of existing assets or to reduce or defer the need for new assets."*

A unique feature of demand management in Taupō District is the local soil structure that allows high levels of ground soakage, but also has the ability of becoming Hydrophobic after long periods without rainfall. (See results of Paenoa Rd event 2011)
Council in 2009 reviewed its Code of Practise for the development of land to allow for the effects of climate change as well as increasing the capacity size requirements of new infrastructure.
Taupō CBD
Council through the District Plan has provided rules that identify that most domestic property are to dispose of stormwater up to a 1:10 year event on site. The district plan also has selected areas within the industrial and CBD areas of the district where more intensive development may occur, and which may require additional infrastructure to service.

As properties can still soak to ground due to the pumice soils, they still have an option when considering developing their sites. Levels of service for this area to date have not been compromised but it is inevitable that developers will want to increase coverage on their sites and will look to Council to provide connections. The provision of this infrastructure will depend on the cost of the network upgrade verses the cost of onsite soakage in the future.

Most, if not all of the central CBD is now hard surface, and a large portion of the buildings are connected to the network. If storm events exceed the current network capacity the over land flow path modelling identifies that the roads act as a conduit to transport Stormwater to the Lake or river.

The Lidar survey data identifies that the over land flow paths (mainly roadways) can cater for large flows and where flow crosses private property these sites will be investigated during the validation process.

Further modelling of the network as part of the over land flow path identification works will also assit in determining future capacity issues in these areas.

This Asset management plan will endeavour to provide the required infrastructure as required by the Growth management plan but must also consider Councils current funding strategy.

Industrial Area Taupō
Areas such as the Taupō industrial area, bounded by Manuka and Matai streets are progressively being built on with buildings having total site coverage. There are still a number of these properties disposing of Stormwater on site, usually by soak holes underneath the building envelope.

Council staff has previously investigated the cost of providing increased service capacity to enable site connections. Part of the catchment would travel south to dispose into the gully adjacent to crown park which would mean the downstream infrastructure would also require increased capacity and the residual catchment would need to drain north into the Tauhara soakage pond. At this stage this is not creating levels of service problems due to the good soakage, but as site development intensifies there may be increased demand to connect to the network.

Currently there has not been a demand to increase coverage over these sites as more industrial and light commercial properties have come onto the market. So growth at this time does not trigger this investment so the project has been pushed out of the thirty year plan and will need to be considered in future Amp documents.

TDC currently uses the following techniques to manage demand for Stormwater:

- Legislation.
- Comprehensive discharge, resource consent requirements and conditions.
- Education through increased customer consultation.
- District Plan.
- Code of Practice
- Education in Schools plus paper and radio
- Non network-based demand measures

Stormwater infrastructure for new developments is supplied by the developer. Council's updated code of practice includes climate change as well as best practice stormwater design.

Council's intention is to use where possible land-based disposal systems where stormwater quality can be enhanced. Where green fields development occurs Councils, comprehensive consent requires that catchment management plans are developed. Council will also continue to develop structure plans that identify the location and size of developments which will impact the ability of areas to develop.

Council is now looking to utilise the numerous gully systems to provide quality improvement and disposal capacity as the gully systems have considerable capacity to store and soak large rainfall events but care must be taken to ensure this soakage potential is not lost during any earthworks.

6.3 Plans Related to Growth

In addition to the general Council planning documents such as the District Plan there are other planning documents that relate to demand in relation to the Stormwater asset. These include:

Growth Management Taupō 2050 - The Council's asset management plans need to be aligned with the strategy to ensure more efficient and affordable provision of infrastructure for the identified growth areas.

- Taupō Urban Structure Plan
- Taupō Town Structure Plan
- Kinloch Structure Plan
- Taupō West Structure Plan
- Southern structure Plan
- Commercial Industrial structure Plan

6.4 Growth

6.4.1 GROWTH MANAGEMENT STRATEGY

In June 2006 the Council adopted Taupō District 2050 (TD2050), the Growth Management Strategy for the District. The growth management strategy identifies where urban growth is anticipated so that land use and infrastructure planning can be aligned. TD2050 has been

incorporated into the District Plan by way of plan changes, particularly Plan Change 21 which identifies the future urban growth areas.

This strategic approach to integrating land use and infrastructure is intended to be supported by subsequent structure planning of the urban growth areas to identify the detailed settlement pattern and infrastructure servicing. Council has prepared structure plans for:

- Kinloch
- Mapara Valley
- South-western Bays Settlements (including Turangi); and
- Commercial and industrial areas within Taupō Township

A growth model was developed based on the anticipated population increase and associated residential lot increases in TD2050. The growth model is reviewed and updated every three years prior to the review of the asset management plans and development of the long term plan. The review of the growth model is based on census data estimates, feedback from developers and analysis of resource consents.

Recent Census Data	**2013**	**2018**
Population	32,907	37,203
Occupied dwelling	13,395	14,094
Unoccupied dwelling	6,171	6,588
Dwelling under construction	78	159
Total private dwellings	19,644	20,844

NEW LOTS TO BE CREATED

Consideration has been given to the optimistic discussions with developers, actual consent numbers over the past three years, demographic considerations[1] and officers' estimates when estimating the potential lot numbers outlined in the *DC Policy* and the *Growth Model*.

The table below outlines those estimates for the next ten years. The areas that are not predicted to have any growth due to current capacity levels, such as, Hatepe, Motuoapa, Whareroa, and Five Mile Bay/Waitahanui have been removed.

All Growth	***2009/17 actuals***	**Taupo District Growt**									
Financial Year Starting	**2009/2010**	**21/22**	**22/23**	**23/24**	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**	**29/30**	**30/31**
Total Residential properties per year	**88**	**151**	**122**	**126**	**122**	**134**	**97**	**94**	**66**	**66**	**66**
Running Total for LTP		**609**	**731**	**857**	**979**	**1113**	**1210**	**1304**	**1370**	**1436**	**1502**
Building Consents	**168**	**151**	**122**	**126**	**122**	**134**	**97**	**94**	**66**	**66**	**66**
Cumulative		**1624**	**1746**	**1872**	**1994**	**2128**	**2225**	**2319**	**2385**	**2451**	**2517**
RESIDENTIAL AREA		**2018-2028 LTP**									
Taupo South	0	55	55	55	55	55	30	30	0	20	0
Taupo North West	2	35	30	30	30	30	30	30	23	0	23
Taupo Town	55	20	20	20	20	20	20	20	17	20	17
Total Lots Created	57	110	105	105	105	105	80	80	40	40	40
Building Consents Issued	78	110	105	105	105	105	80	80	40	40	40
Acacia Bay (including lower Mapara Rd)											
Total Lots Created	0	2	2	2	2	2	2	2	2	2	2
Building Consents Issued	9	2	2	2	2	2	2	2	2	2	2
Kinloch Area											
Total Lots Created	3	12	0	7	0	0	0	0	10	10	10
Building Consents Issued	22	12	0	7	0	0	0	0	10	10	10
Mapara/Blue Ridge Area											
Total Lots Created	3	5	5	5	5	5	5	5	2	2	2
Building Consents Issued	12	5	5	5	5	5	5	5	2	2	2
Five Mile Bay/Waitahanui											
Total Lots Created	0	0	0	0	0	0	0	0	0	0	0
Building Consents Issued	0	0	0	0	0	0	0	0	0	0	0
Turangi											
Total Lots Created	2	2	2	2	2	2	2	2	2	2	2
Building Consents Issued	8	2	2	2	2	2	2	2	2	2	2
Hatepe											
Total Lots Created	0	0	0	0	0	0	0	0	0	0	0
Motuoapa											
Total Lots Created	0	0	0	0	0	0	0	0	0	0	0
Building Consents Issued	6	0	0	0	0	0	0	0	0	0	0
Pukawa/Omori/Kuratau											
Total Lots Created	0	0	3	0	3	0	3	0	0	0	0
Building Consents Issued	8	0	3	0	3	0	3	0	0	0	0
Whareroa											
Total Lots Created	0	15	0	0	0	15	0	0	0	0	0
Building Consents Issued		15	0	0	0	15	0	0	0	0	0
Rural Other											
Total Lots Created	23	5	5	5	5	5	5	5	10	10	10
Building Consents Issued	25	5	5	5	5	5	5	5	10	10	10
Commercial Accommodation HEU											
TKMP		4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
TT		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Industrial/ Retail / Commercial (Gross Floor Area - m^2)											
Taupo											
Industrial		1,362	1,716	1,629	1,319	3,302	2,431	2,517	2,517	2,259	2,345
Commercial		242	305	290	235	588	433	448	448	402	417
Retail		349	439	417	338	846	623	645	645	578	601
Kinloch											
Commercial		-	-	-	-	20	20	20	20	20	20
Retail		18	23	22	18	18	18	18	18	18	18
Mapara Valley											
Commercial		-	-	-	-	-	-	-	-	-	-
Turangi											
Industrial		15	15	15	15	15	15	15	15	15	15
Commercial		10	10	10	10	78	58	60	60	53	56
Retail		10	10	10	10	78	58	60	60	53	56

Table: Estimated lots created over the period 2021-31 from the Taupō Growth Model

1 Jackson, N., "Taupō District, Demographic Trends and Projections, National Institute of Demographic and Economic Analysis", June 2014.

OCCUPANCY PER DWELLING

The long-term trend for more than fifty years has been for a decrease in the number of people per dwelling. This is true across all ages. Occupancy among aging populations is especially low, with widowed partners typically living alone.

Council uses a Household Unit Equivalent (HUE) to convert between population figures and the number of dwellings. Current Census data shows the HUE is approximately 2.6 people per household. In Taupō District, this figure is complicated by holiday homes which form approximately 30% of the district's dwellings. This figure is difficult to fully determine due to the difference between out-of-town ratepayers and what is likely to be deemed a holiday home.

However, as a consequence of this high number of possibly empty homes for a significant part of the year Council needs to consider peak usage and populations when determining demand. This peak demand is particularly relevant when considering demand on infrastructure, such as water and wastewater outlined in detail in the *DC Policy* and *Taupō Growth Model*.

Household numbers are generally not relevant for the stormwater assets, but lot numbers are as this will determine impervious services in new subdivisions.

6.4 Meeting increased/changing demand

Increased/changing demand can be met by using several methods including;

- Non Asset
- Capital
- Operational
- Developer provided

6.4.1 NON ASSET SOLUTIONS

Increased/changing demand can be met by using several methods including;

- On site disposal
- Ongoing education
- Use of ephemeral gullies
- Rain gardens
- swales

6.4.2 CAPITAL EXPENDITURE DUE TO CHANGES IN DEMAND

The development of new lots in the district in the coming ten years will require new infrastructure as well as necessitating the upgrading of the current network to cater for the additional demand.

Developers are responsible for providing new infrastructure in new developments and the increasing of capacity in the existing network if required.

These upgrades may incorporate:

- The use of storage and detention systems
- Low impact urban design
- Above ground stormwater solutions including rain tanks and rain gardens as well overland swales.
- The use of ephemeral gullies for detention, quality improvement and for avoiding erosion.
- Modelling of the network affected.
- Use of best practise Stormwater disposal
- Storm water quality improvement

Council has not provided any capex funding for increases in demand in the short term as this will be developer driven. Capex has been provided for quality improvement and back log demand where the exiting network is below capacity due to climate change or other factors. As the current growth estimates are shown to be reasonably flat there is also no demand funding in the thirty-year funding plan.

Funding has been provided for increased maintenance across new developments in the district. Especially now that the Regional council is requiring the use of swales, as these are maintenance intensive.

Table 1: Capital Projects Required to Service Taupō District Growth

6.4.3 OPERATIONAL EXPENDITURE DUE TO CHANGES IN DEMAND

The development of new lots in the district in the coming ten years will have an impact on operational costs.

- Operational/maintenance expenditure – there may be a change to the cost to operate or maintain Councils assets due to growth or to changes in demand. There may also be increased operations and maintenance due to new assets created. E.g. increased maintenance costs of new Stormwater infrastructure built to cater for growth (swales).

Council will see an increase in operational costs as Council obtains additional Stormwater reserves and gully systems with detention ponds, and gully walls that will require planting mowing and pest plant removal as well a new quality improvement devices that will require clean out.

Funding of this expenditure is discussed in the financial section of this asset management plan (section 9) and strategies for operation and maintenance of assets in section 4.

6.5 Infrastructure Acquired From Developers

TDC will also acquire a number of assets from developers. An estimate of the quantities of these is outlined in the table below.

Asset type	Per year	Total	Value 10yr	Notes
Pipes	1500 m	15000m	$3,000,000	Subdivisions moving to more open systems
Manholes	40	400	$900,000	
Detention Ponds	2	20	$600,000	Sub-divisions require quality improvement prior to final disposal to receiving environments
TOTAL			**$4,500,000**	

Table 2: Predicted Stormwater Assets from New Development

The additional maintenance and operations costs resulting from these new assets are included in the cash flow projections.

6.6 Community Expectations

Customers are primarily concerned with expansion of existing network services such as:

- Pipe network

- Overland flow path provision
- Quality improvement
- Ephemeral gully development
- Health & Safety

6.7 Tourism

The effect of tourism is to increase the population and perceived growth over short periods.

This taken into account in that we design stormwater assets for peak demand and we base this on lots rather that permanent population.

Overall Tourism does not have a significant impact on Councils reticulated network, but Tourism has an impact on the decisions around stormwater quality and the discharges into the receiving environments.

The local community and tourists to the district are no longer satisfied with seeing floatable contaminants coming from stormwater outlets, especially, but not limited to those on the Taupō lakeshore.
This in part has driven the quality improvement program. It has also driven the provision of adequate litter service to make sure that the community and visitors have the ability to discard material appropriately when that are out and about.

As the Lake is also the main tourist attraction and is also used for a number of high-profile events it is imperative that local lake and river quality is not only maintained but enhanced.

7.0 RISK MANAGEMENT

7.1 Introduction

Risk management is an important element in the development and management of assets. For asset management planning to be robust it must be integrated with other corporate risk management processes and that this encompasses strategies for Council's most critical assets, provide for the effects of asset failure and be integrated with disaster recovery plans and business continuity plans. Currently asset management planning is listed as a Top 50 Risk in the Council Risk Register.

7.1.1 BACKGROUND

Council has reviewed and adopted in 1999 a Risk Management Charter. In 2013 Council's Audit & Risk Committee reviewed and adopted a revised Risk Management Charter. Council determined its overall policy is to continually develop a Risk Management System that reflects best practice. Key objectives are:

- "to provide a logical and systematic method for identifying and managing risk within the organisation that will assist the organisation to meet its goals and objectives efficiently and effectively. This achieved by aligning key organisational objectives, risks and mitigating controls,
- to minimise losses and maximise opportunities – Risk Management is an much about defining opportunities as avoiding and mitigating losses
- to improve the decision-making capabilities of staff recognising that the greatest knowledge and capacity for management of risks often rests with those"

Overarching strategies for managing risk within Council are:

- Council's Chief Executive Officer will establish and implement a Risk Management system that is relevant to the organisation and which reflects the provisions of Council's Charter. The overarching objective of that Risk Management system will be to identify, and where feasible, mitigate risk factors that might prevent Council achieving its objectives. Risk Management systems established within Council will reflect prevailing best practice including relevant industry standards – especially AS/NZS Risk Management Standard 4360 and AS/NZS ISO 31000.
- The ongoing effectiveness of Councils Risk Management systems and compliance with them by employees will be demonstrated by appropriate reporting to Council and its appropriate Committees. Currently this is achieved by programed reporting to Council's Audit & Risk Committee who meet 3-4 times per annum.

7.1.1.1 Current Risk Management Status

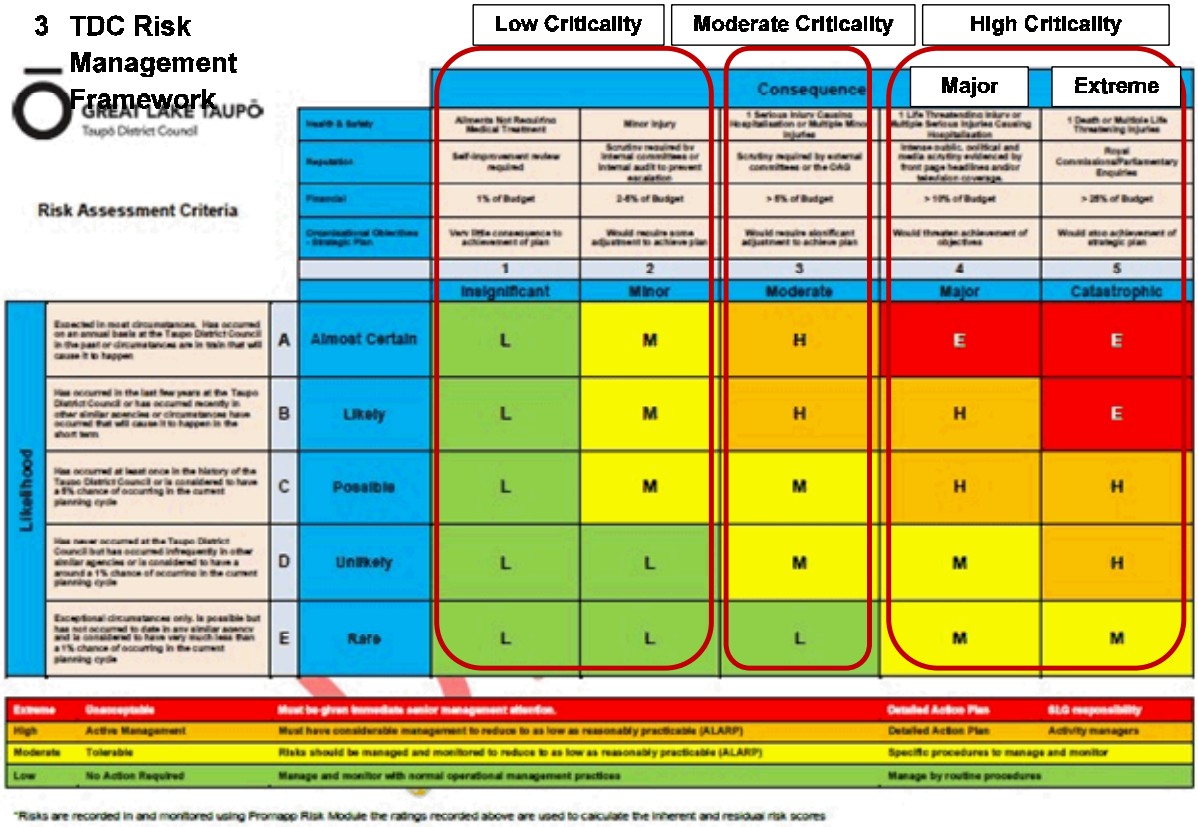
Council has an Audit & Risk Committee, which oversees the governance of a Risk Management Programme within the Taupō District Council. Risk Management is continuously being integrated into Councils culture, philosophy, practices, activities and plans rather than being viewed or practised as a separate programme.

The accountability for the management of risk is not removed from the specific activity managers and the Senior Leadership team or those responsible for the management of assets and this is viewed as a collaborative process between governance and management.

Waikato Regional Council audits the compliance with consent conditions annually, which may affect the environment. The non-compliance with any of the conditions are either modified by WRC and or capital / operational improvement activity is planned to meet those conditions, if they are achievable cost efficiently. These processes have identified components within the TDC Stormwater network that may be vulnerable to seismic, flood or volcanic events and the impact of failure of these assets. The critical assets include pump stations, major pipelines and overland flow paths. Some may even need to be replaced or upgraded.

TDC is also a member of the Waikato Utility Lifelines group and the wider Waikato Civil Defence and Emergency Management Group.

The Three waters maintenance contract includes an after-hours emergency response for network issues and customer complaints. After hours staff (the Tauranga call centre) receives calls and forward emergency calls directly to the contractor who are required to respond in a certain time.
Asset managers are also notified of emergency calls and for Wastewater spills that have come through the Stormwater network there is a spill response protocol.



*Risks are recorded in and monitored using Promapp Risk Module the ratings recorded above are used to calculate the inherent and residual risk scores

7.2 Risk Management Process

The risk management process is an integral part of good management practice. It is an iterative process of continuous improvement that is embedded into existing practices or business improvement.

The main elements of the risk management process to be used at the Taupō District Council are as follows and reflect the risk management standards ISO 31000.2009 and AS/NZS 4360:2004.

a) Communicate and consult

Communicate and consult with internal and external stakeholders of Council as appropriate at each stage of the risk management process and concerning the process as a whole.

b) Establish the context

Establish the external, internal and risk management context in which the rest of the process will be undertaken. Criteria against which risk will be evaluated should be established and the structure of the analysis defined.

c) Identify risks

Identify where, when, why and how events could prevent, degrade, delay or enhance the achievement of asset's objectives.

d) Analyse risks

Identify and evaluate existing controls. Determine consequences and likelihood and hence the level of risk. This analysis should consider the range of potential consequences and how these could occur.

e) Evaluate risks

Compare estimated levels of risk against pre – established criteria and consider the Balances between potential benefits and adverse outcomes. This enables decisions to be made about the extent and nature of treatments required and about priorities.

f) Treat risks

Develop and implement specific cost-effective strategies and action plans for increasing potential benefits and reducing potential costs

g) Monitor and review

It is necessary to monitor the effectiveness of all steps of the risk management process. This is important for continuous improvement. Risks and the effectiveness of treatment measures need to be monitored to ensure changing circumstances do not alter priorities. To ascertain that, the condition assessment of the below ground assets are programmed into CCTV program which is rolled out across the network.

7.2.1 DEFINING ASSET CRITICALITY FOR WATER SERVICES

Taupo District Council Defining Asset Criticality for Water Services

Taupo District Council provides water supply, wastewater drainage and Stormwater drainage to most of the communities within the district. Most of these communities are located immediately adjacent to one of the lakes or rivers that are the primary focus for recreation and tourism by residents and visitors.

Providing these services utilises a wide range of civil, mechanical, monitoring and electrical assets, which need to be operated, maintained and ultimately renewed or enhanced.

The principles of asset management are fundamental to operating these assets and capture the concepts of:

- Delivering the desired service to an agreed Level of Service
- Managing the risks associated with providing the service to an acceptable level
- Seeking to optimise the life cycle costs of owning and operating/maintaining the assets.

A key tool for asset management is the concept of Criticality, which is closely linked to the Consequences of Failure. It follows that low criticality assets have low consequences of failure and can be largely managed on a 'fix when fail' basis. At the other end of the spectrum, high criticality assets have high consequences of failure and the management of such assets will be focussed on trying to avoid failures through a range of pro-active monitoring, inspection, assessment and renewal processes.

Alongside the assessment of 'Consequences of Failure', all assets can also be assessed in relation to their 'Likelihood of Failure', which is largely a measure of their age, life expectancy and the extent of deterioration that has occurred. Assets that exhibit both high consequence and high likelihood represent the highest risk to the organisation's ability to deliver the required services to the community.

Understanding which assets have an elevated criticality allows the organisation to focus resources on their care and eventual renewal. Typically, there is a relatively small number of these assets and the process is manageable.

Equally important is the identification of assets that have the lowest criticality. While these assets still need to be maintained and eventually replaced, this can largely be managed by generic processes with relatively minimal management overview and intervention. In an industry characterised by limited resources in relation to skills, manpower and funding this difference allows the resourcing to be focussed on the assets that will cause the most pain if they fail.

Note: for the full criticality report is stored in Councils Objective data storage system.

7.3 Council Funding for Risk

Council looks to provide funding for disaster recovery through a separate reserve. It appropriates funding each year to a Disaster Recovery Fund reserve to enable access to ready cash in the event of a natural disaster. This is intended to assist reinstatement and to finance any short-term needs in the time between any disaster and the recommencement of services. As at June 2020, the reserve fund had a balance of over $2 million. Council has chosen not to insure it's below ground assets given the position of its reserves.

The TEL Fund was established in September 1995 when TDC sold its investments in Taupō Electricity Ltd and Taupō Generation Ltd. The use of that sale capital and subsequent investment income generated each year are included in Council's Treasury Management Policy. One requirement of that policy is that the portfolio and funds are managed in a manner that reflects their potential utilisation as a disaster recovery fund in the event of a natural disaster within the Taupō district. The value of the fund as at 30 June 2020 is approximately $61.3 million.

With these two funding mechanisms in place Council considers it is prudently but effectively managing the risk of being able to fund both short- and long-term needs with respect to potential natural disaster and subsequent recovery operations in the district.

7.4 Lifelines Risk Assessment

TDC is a member of Waikato utility Lifelines Group. This process aims to identify components within the TDC Stormwater network that may be vulnerable to seismic, flood or volcanic events and the impact of failure of these assets.

7.5 Risk Register

The specific asset risk register (see following) identifies risks, the consequence of the risk, the existing controls in place, treatment options and the level of risk to the asset as assessed and updated by Council Officers.
Risk Classification Matrices

7.5.1 LIKELIHOOD

Likelihood scale for consideration based on **ANZS 4360** is as follows.

Level	**Descriptor**	**Damage / Failure Indicative Frequency**
A	Almost Certain	Once per year or more frequently
B	Likely	Once every three years
C	Possible	Once every ten years
D	Unlikely	Once every thirty years
E	Rare	Once every 100 years
N	Almost Impossible	Once in 10,000 years

Table 1: Risk Likelihood

7.5.2 CCONSEQUENCE

A consequence scale as a result of a risk event occurring based on **ANZS 3460** is shown for consideration as follows.

Level	**Descriptor**	**Description**
5	Catastrophic	Extreme Impact of damage or failure
4	Major	High impact of damage or failure
3	Moderate	Medium impact of damage or failure
2	Minor	Low impact of damage or failure
1	Insignificant	Very little impact of damage or failure
N	Negligible / Nil	Assessment is Nil

Table 2: Risk Consequence

7.5.3 RISK RATING MATRIX

With both likelihood and consequence scales in place a qualitative risk analysis matrix/level of risk can be determined.

	Consequences					
Likelihood	**N**	**1**	**2**	**3**	**4**	**5**
A	N	L	M	H	E	E
B	N	L	M	M	H	E
C	N	L	L	M	M	H
D	N	L	L	L	M	H
E	N	L	L	L	L	M
N	N	N	N	N	N	N

Table 3: Risk Matrix

The rating legend for the matrix, in this example, can be summarized as follows
E = Extreme risk
H = High risk
M = Moderate risk
L = Low risk
N = Negligible risk approaching nil / no risk

7.5.4 RISK MITIGATION MEASURES

High to Extreme risk would normally involve more detailed studies, action plans and management responsibility specifically assigned.

Moderate risk would be managed by monitoring or response procedures and management responsibility specified.

7.5.4.1 Summary of Identified High Risks

This is a summary of the high risks; the complete list is included as table 7-5.

Asset Risk	The Risk	Mitigation Measures
Public safety non-compliance Stormwater quality	Public safety due to high flows in overland flow paths and gullies. And people accessing the stormwater network Containments entering receiving waters through the stormwater network	Outlets and inlets have grills and flow paths have signage Council has a spill response procedure and are funding additional quality improvement devices.

Table-4: Identified High Risks

7.6 Critical Assets

The Stormwater AMP does have some overlap with the transportation AMP when it comes to identifying and providing for overall risk. The transportation AMP has allowed for the risk associated with culverts and stormwater assets in the rural environment while this AMP provides risk analysis for urban stormwater assets.

Flooding has been identified as the highest risk from the breakdown of Stormwater asset delivery. To counter this risk Council has undertaking an overland flow path study, which has identified the path Stormwater will take once the stormwater network is full. Council has also increased the design size for new networks to allow for climate change, this increase in capacity provides greater protection to property and our unique environment from the effects of major rainfall events.

The overland flow path identification will also allow council to protect areas where water will travel overland and enable Council to plan building envelopes on properties to mitigate flooding risk (once completed). To enable Council to have a full understanding of the Risks of flooding on private property, modelling of the network needs to be undertaken as flooding or capacity issues arise. Currently the flow path mapping assumes that the pipes are full but does not fully consider the impact that network may have on flooding levels.

Finds have been allocated in the LTP in the first two years to complete the overland flow path study which will include the pipe network where appropriate.

Council has also identified that with the advent of stormwater treatment at source Council will see an increase in the use of ephemeral gullies as well as pond based systems, the public should be made aware of the Health and safety risks and be prevented access if appropriate. Pond design requires that side slopes are 1-4 to remove the fall hazard. Where fall can’t not be designed out then fences are installed.

Council has a program in place to attach safety grills on inlets and outlets 450 diameter and over to reduce the risk of access. This assessment also must take into account the risks of debris being caught in grate and thus causing flood damage.

Council will also continue to identify manhole lids that “pop” in high rainfall events. Either manholes will be bolted down or a lid with a grill will be placed on to allow water to flow over land if possible.

Through Levels of Service monitoring and continuous condition assessment while implementing the Stormwater Maintenance Contract, critical risks will be effectively controlled.

As Council has now been granted district wide comprehensive Stormwater consents, Council is now responsible for degradation of receiving environments due to stormwater discharge. Council will endeavour, with education and enforcement to make sure that contaminants are not disposed of into the Stormwater system, which would lead to contamination of the receiving environment and a breach of Resource Consent. This can also be undertaken by introducing stormwater quality devices into the network, and four devices (Hynds Downstream Defender) have been installed along the lakefront to date, with more planned in the LTP.

The Stormwater management plan which is a requirement of Councils comprehensive stormwater discharge consent identifies a number of "High Risk" sites (high-risk facility sites are defined as Commercial and industrial sites as listed in Section 3.5.12 of the Waikato Regional Plan). These high-risk sites relate directly to their environmental harm potential from the commercial businesses that operate within their catchment, Council is progressively working through these sites to provide on going maintenance and enforcement and to provide Stormwater quality improvement devices where applicable.

Council is also building a register of quality improvement devices located within the district, these devices are critical in reducing the effects of stormwater on the districts receiving environments, they are maintained on a regular basis.

From an overall risk perspective, it is imperative that Council continues to develop its overland flow study to determine overland flows after either asset failure or assets reaching their design capacity as this study will enable Councils regulatory arm to prevent development in these areas.

In the Taupō district, Council does have a number of gully systems that can be utilised as stormwater flow paths, it is also important that gullies are maintained in Council ownership so that development in them is prevented and also so that they can be planted and maintained appropriately to avoid erosion.

The asset management team have had a number of meetings to determine which assets are critical to the networks based on a number of criteria such as:

- Political
- Environmental
- Value
- Cost to repair
- Capacity
- Discharge location
- Catchment size
- Over land flow path

The identification of these assets has been coordinated by the assets team with the assets selected displayed on a number of maps which will be added to a GIS layer. These maps will also have the lifelines critical assets included as another layer. The GIS layers will be available to the assets managers as well as the civil defence team to enable the coordination of any emergency response program.

The critical assets will undergo regular condition assessments to make sure that renewal and maintenance works are planned appropriately.

The Civil defence team are aware of the overland flow path data as it will assit them in identify where there may be flooding issues in heavy rainfall events.

The layer is also available to the building control staff that can use the draft data to determine if an issue exits prior to allowing building activity to commence.

The Taupo district has seen some major volcanic eruptions over the last twenty years and this issue rates highly in regard to possible risk to the Stormwater network.

A volcanic eruption could see large amounts of ash falling across urban centres that could block the piped network, fill detention ponds and effect over land flow paths. If there were a weather event or even rainfall at the time of the event, then the piped network would be compromised.
The overland flow path model does identify where water will flow in a 1:100yr event and this will give staff an idea as to which areas would be impacted and enable them to concentrate maintenance operations.
As Council has only one significant pump station in the Stormwater network, council would have the ability to take this offline and use the pond for detention in the short term and or bring in an alternative pump if pond levels were to get too high, or make sure that the overland flow path won't impact any property.

Council would implement a program of network cleaning once the volcanic event had ceased to remove material from the pipes before it hardened.

Conclusion

Fundamentally, the Stormwater assets do not have a backlog of renewal and maintenance requirements and have not had a history of unplanned asset failure. Over the term of the Comprehensive Consent and further historically Council has never breached its Consent requirements.

Council now has a robust data management system (Asset Finda) that can accurately combine age, condition, criticality and past maintenance history to determine future renewal spend and asset value. The recently completed criticality assessment of the Three Waters Assets and its inclusion into Asset Finda has enabled increased inspection, and maintenance of critical assets.

The condition assessment program has identified that the piped network is reasonably good condition for its age although there is the need to undertake some renewals over the next ten years.

The Three Waters maintenance contract provides for emergency response as well as real time collection of asset data.

Council is prone to the effects of climate change but Council has modelled over land flow paths and is working on determining properties affected and this Asset Management Plan provides options to lessen impacts.

Increased pressure on Stormwater quality is being provided for in the quality improvement devices being installed in the network as well as the use of land based disposal options. To support quality improvements Council undertakes a comprehensive monitoring program.

Damage to Council infrastructure is funded internally with the provision of a risk funding pool.

Demand is mainly funded by developers apart from backlog capacity improvement and quality improvement.

Asset management Plans are externally audited and progress on service levels and work programs are reported to Council monthly.

Taupo District Council

Stormwater Asset Management Plan

Risk Register

Division :	Assets	Compiled by :	Brent Aitken	Date :	10/05/2021
Asset :	Stormwater & Land Drainage	Reviewed by :		Date :	

NATURAL RISKS

Asset Risks	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls	Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood					
Earthquake	Stormwater & Land Drainage network damaged due to earthquake due to : Pipe Fracture	Moderate	Unlikely	E	3	D	L	
	Earth slip failure	Major	Unlikely	E	4	D	M	
	Access to network, due to roading system failure	Major	Unlikely		4	D	M	
	Surrounding environment flooded due to network failure, not able to access network	Major	Unlikely		4	D	M	
	Land subsidence causing changes of grade in pipe network Blocking of inlet and outlet structures	Moderate	Unlikely		3	D	L	
Volcanic Eruption	Drainage network fails as a result : - Blockage of inlet systems from debris	Major	Likely	E	4	C	M	
Ash fall	Blockage of pipes due to sediment from ash or debris, constricting flows	Major	Rare	E	2	E	L	
	- Access to network blocked	Moderate	Rare		3	E	L	
Lahar	Failure of outlets at streams and rivers through silting of river or stream bed from Lahar mud	Minor	Rare	E	2	E	L	
Flooding	Failure of primary and secondary network by : Blockage from debris	Moderate	Unlikely	E	3	D	L	
	Access to network blocked, contracting staff cannot remedy	Moderate	Unlikely	E	3	D	L	
	- Silting of primary pipe network by debris and silt	Moderate	Likely	E	4	D	M	
	- Damage to private property	Moderate	Likely	E	3	D	L	
Tsunami	Damage to Lake outlet structures from debris and instability caused via waves	Minor	Rare	E	1	C	M	
Fire	Drainage secondary network failure affected by : Reduction in vegetative cover causing erosion and instability in gullies	Major	Possible	E	4	E	L	
	- Greater debris in open watercourse's	Moderate	Possible		3	C	M	
	Primary Drainage network affected by hazardous substance fire or explosion from pollution spill : causing structural damage to pipe and manhole network Damage at outlet from system				4	C	M	
	3rd party damage as a result of fire blow back to various inlets					D	M	

High winds	Potential for structural damage outlet structures from high winds causing : Damage to structural integrity of outlets Silting of pipes Silting of water channels	Minor Minor	Unlikely Almost certain	E	2 2	D A	L M	
Land slip/slide	Silting of primary and secondary network caused from slip, blocking network	Moderate	Possible	E	3	C	M	
Tomos	Failure of primary network as a result of loss of support for pipe system or manhole	Moderate	Likely	NC	3	D	L	
Geothermal activity	Failure of primary network as a result of : loss of support for pipe system or manhole by way of geothermal activity reduction in life assets as a result of geothermal activity	Moderate Major	Possible Likely	NC NC	3 4	C C	M M	

PHYSICAL RISKS

Asset Risk	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls	Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood					
Inadequate design, construction or maintenance of asset	Failure of network as a result of : Damage to network causing flooding Pollutants entering the surrounding environments	Major major	Possible Possible	E E	4 4	C C	M M	

EXTERNAL RISKS

Asset Risk	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls	Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood					
War	Failure or primary network as a result : damage to network by war events - access to maintain network denied as result of war.	Major Major	Almost impossible	NC NC	4 4	N N	N N	
Terrorism	Failure of network as a result of : damage caused by act of terrorism use of network by terrorists for destructive purposes. - access to maintain network denied	Minor Minor Moderate	Rare Rare Rare	NC NC NC	2 3 3	E E E	L L L	
Protest/Riots	Failure of drainage network as a result of : blockage by debris effect of flooding during a protest	Moderate Moderate	Rare Rare	NC PE	3 3	E E	L L	
Vehicle accident	Failure of network due to pollution from vehicle accident - likelihood of accident due to failure of system from flooding events	Moderate	Likely	E	3	B	L	
Contractual obligations not fulfilled by external parties	Delayed works programme potentially resulting from : network failing and causing flooding - increased potential for pollution to reach receiving environment as a result of lack of maintenance, contravention to RC's.	Minor Major	Almost certain Unlikely	E E	2 4	A D	M M	
Excessive costs to maintain, renew or create assets	Excessively high maintenance and construction costs due : disposal of residual material call-outs for flooding events	Moderate	Unlikely		3	D	L	

Lack of contractors to carry out works	Loss of competitive rates and increased contract rates due to having to import contractors from outside the District	Moderate	Unlikely	E	3	D	L	

OPERATIONAL RISKS

Asset Risk	The risk: What can happen and how it can happen	The consequences of an event happening		Adequacy of existing controls	Consequence rating	Likelihood rating	Level of risk	Risk priority
		Consequences	Likelihood					
Commercial competition	Privately run drainage systems affecting performance of TDC's own assets	Major	Possible		4	C	M	
Legislative non-compliance	Not obtaining Resource Consent : - not abiding by LGA major Resource Consent Breach not achieving targets set in MFE guidelines or Council Management/Corporate Goals not achieving Annual Plan objectives not achieving LTCCP objectives	 Major Major Major Moderate Moderate	 Possible Possible Possible Possible Possible	 E E E E E	 4 4 3 3 3	 D C C C C	 M M M M M	
Failure to identify all assets condition and value	Failure of unknown networks by : not already in IMS System recorded incorrectly	 Moderate Moderate	 Possible Possible	 PE PE	 3 3	 C C	 M M	
Incorrect assessment of financing required to renew or create assets	Over-spent budget and/or delayed project completion	Minor	Likely	E	2	B	M	
Community expectation not met	Communities faith and trust of Council lost	Moderate	Likely	PE	3	B	M	
Loss of Council reputation	Communities faith and trust of Council lost	Moderate	Likely	PE	3	B	B	
Public Safety in non-compliance	Public Safety put at risk by flooding event Health risk due to access to pollution event	Major Major	Likely Likely	PE PE	4 4	B B	H H	
Loss of electronic data/information on assets	No access to data : Potential for work to be delayed Loss of data : Work significantly delayed	 Minor Minor	 Rare Rare		 2 2	E	L	
Loss of Council employees from high staff turnover	Loss of local knowledge : present knowledge historical knowledge	Moderate	Likely		3	B	M	

Table 5.1 – Risk Register of Stormwater Assets

INADEQUATE RESOURCING
Short term focus and long term uncertainty due to political swings in strategy and objectives

TREATED RISK	**Moderate** (Risks to be actively managed and monitored with specific procedures)
UNTREATED RISK	**High** (Untolerable. Requires management over and above standard operational procedures to reduce the risk))
UNTREATED LIKELIHOOD	Likely
UNTREATED SEVERITY	Catastrophic
TREATED LIKELIHOOD	Unlikely
TREATED SEVERITY	Catastrophic

NEGATIVE IMPACTS ON ORGANISATION
- Potential to impact of long term financial sustainability
- May cause result in on compliance with legal and regulatory obligations
- Potential to fail to meet customer & ratepayer commitments

TREATMENT MC00102
Modification of the risk by way reduction of the likelihood of the risk occurring by the completion of Long Term and Annual Planning in accordance with sections 93 & 95 of the Local Government Act 2002.

TREATMENT/RISK STATUS
Long term planning id being undertaken as per the requirements of the Local Government Act and these are expected to ensure that adequate resources are available to deliver the policies and outcomes required by the community and is nearing completion

Within Council's risk appetite with no breaches of legal compliance and strategic goals are being achieved and no incidents of reputational damage recorded.

☺

HEALTH AND SAFETY AT WORK ACT 2015
Potential liabilities for elected representatives if all reasonably practical steps are not taken to manage health and safety risks

TREATED RISK	**Moderate** (Tolerable but requires risks to be actively managed And monitored with specific procedures)
UNTREATED RISK	**High** (Untolerable. Requires management over and above standard operational procedures to reduce the risk)
UNTREATED LIKELIHOOD	Possible
UNTREATED SEVERITY	Major
TREATED LIKELIHOOD	Unlikely
TREATED SEVERITY	Moderate

NEGATIVE IMPACTS ON ORGANISATION
- Risk of compromising peoples safety & welfare
- Potential for non compliance with legal and regulatory obligations.
- Penalties for non compliance could have a significant impact of long term financial performance.
- Seen as a failure to meet customer & ratepayer commitments

TREATMENT
The risk is being modified to reduce the likelihood of it occurring by ensuring that the Chief Executive Officer has appropriate processes and procedures in place to reduce and this is managed with specific KPIs in their individual employment agreement.
.

TREATMENT/RISK STATUS
Delegated authority to the Chief Executive Officer and specific KPIs are in their individual employment agreement. Act comes into effect on 4 April 2016. Health and Safety reviews of departments to commence to ensure that the Council is meeting its obligations under the Act.

Council has no appetite for anything that compromises safety, welfare and legal non compliance. No non compliances recorded but 36 minor injuries recorded and 3 moderate injuries that required medical attention. No serious harm incidents.

☺

8.0 LIFECYCLE MANAGEMENT PLAN

8.1.1 OUR DISTRICT

Our district is in the centre of the North Island of New Zealand and within the Waikato Region. Sitting at the heart of our district is the biggest freshwater lake in New Zealand, which is surrounded by mountains, forests, rivers and national parks. Complementing our natural environment are the vibrant and diverse communities that make up our urban places.

Taupo has become a key visitor and event destination possessing many unique attributes such as its panoramic stunning lake and volcanic landscape.

Lake Taupo is the biggest lake in the southern hemisphere, and it is rated by the district as our most important asset

The Taupō District occupies a large proportion of the Central North Island Volcanic Plateau together with the complete catchment area of Lake Taupō and Upper Waikato River areas.

Whilst the majority of the District is situated within the Waikato Region, a small proportion also intrudes into the Bay of Plenty, Hawkes Bay and Manawatu-Wanganui regions. The District comprises 6354sqkm of land and 616sqkm of lake.

Prior to 1950, the District was largely undeveloped and sparsely populated. Since that time, population has increased rapidly to approximately 37,200 (2017/18). Urban growth has focused on Taupō Township and various lakeshore settlements, whilst rural land development has been dramatic with the conversion of scrub wastelands to productive farmlands and vast exotic forest plantations and future conversion to lifestyle properties.

Lake Taupō and its surrounds have also become an important national and international tourist destination, renowned for its scenic attractions and wide-ranging recreational activities.

Stormwater collection and disposal is required to prevent flooding in areas where human activities take place. However, the collection of Stormwater flows can have adverse effects to both public health and the environment. Stormwater flows entrain material that can adversely affect human health including animal faeces, heavy metals and chemicals and deposit them into areas where water may be used for drinking, recreation, or other purposes. Stormwater flows can also contribute to erosion because the collection of water flows and their subsequent discharge provides the flows with energy, which can erode land, gravel, river and lakeshores. For these reasons, management of Stormwater is important in both urban and rural areas.

Taupō District Council provides stormwater service's as part of the roading network or off road via gullies and overland flow paths in the urban areas with in the district (Taupō, Turangi (and Tokaanu), Acacia Bay, Kinloch, Motuoapa, Waitahanui, Omori (Kuratau and Pukawa included), Whareroa, Motutere, Whakamaru, Atiamuri and Mangakino).

This section contains life cycle management plans for the following stormwater asset components:

- Quality Improvement devices
- Reticulation (pipes, manholes, detention ponds, gullies, overland flow paths)

Council has undertaken a criticality assessment that allows council to focus maintenance and renewal expenditure as well as regular asset inspections.
Background data for the asset type including asset description, capacity, performance, condition and valuations is included in the Asset Data section.

This section contains the general *management strategies,* to achieve the levels of service defined in the Level of Service section. These strategies are divided into three main work categories (routine maintenance, renewal, capital and disposal) as illustrated in the following figure.

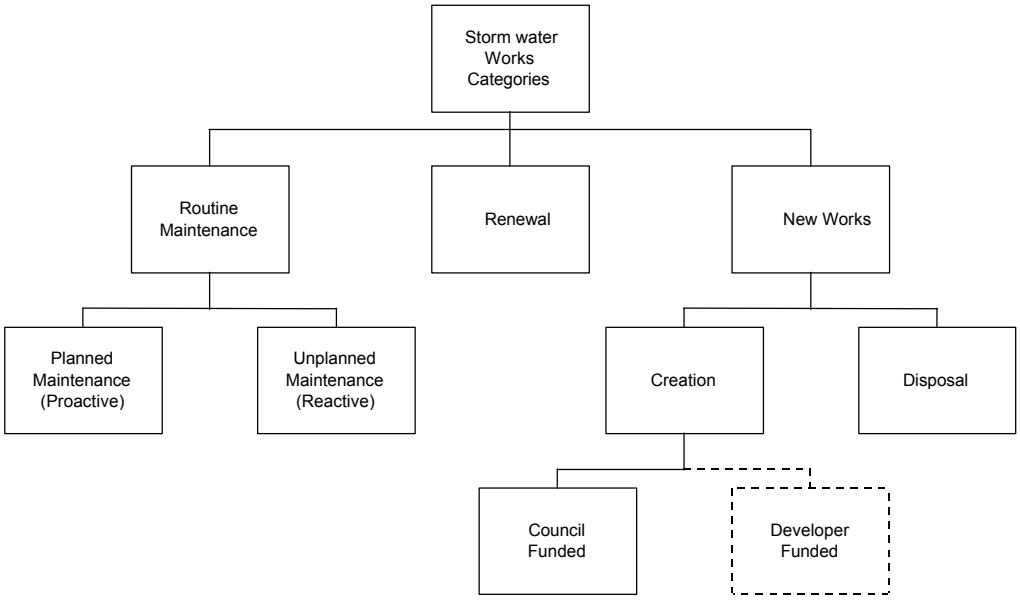


Figure 8-1: Asset Works Categories

The work categories are defined as follows:

Routine Maintenance

Routine maintenance falls into two broad categories as follows:

- Planned (Proactive) Maintenance: Proactive inspection and maintenance works planned to prevent asset failure.

- Unplanned (Reactive) Maintenance: Reactive action to correct asset malfunctions and failures on an as required basis (i.e. emergency repairs).

A key element of asset management planning is determining the most cost-effective blend of planned and unplanned maintenance as illustrated in the following figure.

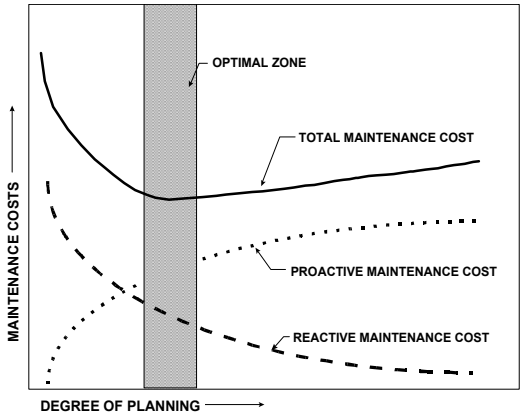


Figure 8-2: Balancing Proactive and Reactive Maintenance

Renewals
This includes replacement and rehabilitation of existing assets to their original condition and capacity.

New Works
Creation Works: New works, which extend or upsize assets, which are required to cater for new development and growth and new works that form part of Councils quality improvement program as required by the Comprehensive Consent and identified by the monitoring program. Creation works fall into two separate categories as follows:

- Council funded - Works funded and constructed by TDC.
- Developer funded - Works funded by developers as part of sub divisional development or by way of contributions that are then vested in Council.

Future developments are funded by developers who must increase the capacity of the downstream network if their development requires additional capacity.

Asset disposal: Retirement or sale of surplus assets. Council has no plans to dispose of any of the Stormwater assets over the period of this Ten-year plan.

A forecast of the 10-year expenditure for each asset group in each of the categories outlined above has been provided in the Financial Summary section.

8.2 Overarching Issues/Strategies for stormwater

Council in 2009 adopted the "Taupō District Council Stormwater Strategy" which identified and provided policy direction for a number of issues relating to stormwater in the district.
These issues fell under the following broad headings.

- Flooding
- Degradation of overland flow paths
- Degradation of Lake Taupō and aquatic environments
- Public health and safety

The strategy adopts 1:10 and 1:100 flow regimes for future development. Capex programs include identification, protection and enhancement of overland flow paths as well as new quality improvement devices. Maintenance programs have become proactive with the ongoing condition assessment of the underground network. Council will continue to protect gully walls from erosion by additional planting. Lake outfalls that silt up when there are high lake levels are inspected prior to bad weather warnings. The coordinated CCTV program, which has assessed at least 10% of the underground network per year, has enabled Council to match age with condition, criticality, and past maintenance history to enable more accurate renewal forecasting.

The strategy provides clear direction around making sure that people and property are not affected by flooding, and the document sets policy around infrastructure design requirements that feed into the review of the Code of Practise.

Overland flow paths have previously not been adequately protected and this has seen in some cases building development that now impedes natural flow paths. Council will endeavour to identify overland flow paths in urban areas and then where they are not council owned, provide some protection over them. This protection measure may be undertaken by negotiation with the property owners or by legal means if necessary.

Council has so far identified the overland flow paths in the urban environments by way of Lidar survey and the intention is for this information once signed off, will be placed on to property files. Progress is still required to enable the data to be released to the public and these are:

1. Field verify flood extents (taking special care around culverts and bridges)
2. Develop a comprehensive log (including pictures and sizes of all culverts. This can be completed during the field verification stage and will be required for any detailed modelling
3. Survey at risk properties making sure that you get both the first floor and garage level (if applicable). It will need to be determined at what level will water start to inundate the property. An identification of the property type / purpose is also needed as this will assit in the damage assessment.
4. The development of a flood damage assessment for a 100-year future climate event, ensuring that the analysis is set up to be re-used for several model runs with varying level of details. The analysis will provide damage estimates during the event based on generic damage vs flood depth curves for varying property types.
5. Model anomalies need to be fixed that were identified in field verification with the inclusion of culverts.
6. Development of model sensitivity runs i.e. (100-year future climate – 10-year event to simulate perfect pipe network). To determine effects of including the network on the flood levels
7. Review of any sensitivity results and rerun damage assessments.
8. Damage assessments will enable determination of further diversion and remediation works
9. The formation of a Council team to advance the project through to information appearing on property LIMs if Council sees this as the preferred outcome.

Quality Improvement

The avoidance of degradation of Lake Taupō and aquatic environments is making sure that Stormwater quality does not affect receiving environments. This is underpinned by conditions set in Councils comprehensive stormwater consent. (Section 30 Quality Improvement Program)

Stormwater quality will drive a large portion of Councils capital expenditure on Stormwater quality improvement devices, such as Enviropods and CDS units (Hynds Down Stream Defenders) and the use of best practise.

The long-term goal is to provide Stormwater quality improvement to all of the direct Lake and River discharges, and this will be achieved over time starting with the larger diameter outlets and working progressively working through the network.

A number of factors need to be considered when identifying appropriate outlets:

- Does the pipe discharge directly to a Lake or River
- Size of the upstream catchment
- If the catchment includes any high risk sites
- If the catchment includes any commercial and industrial sites
- Potential contaminant load

- If the discharge is connected directly to the network (does the discharge go to ground prior to the receiving environment)
- Is the area where the discharge occurs significant to the community

The current plan is to identify and treat Stormwater from pipe outlets 650 diameter and above as these outlets are seen as discharging the largest containment load to receiving environments. Over time, this improvement program will focus on the smaller discharge points.

Public safety
The safety of the public has also set some design criteria around open stormwater systems for Council and developers in the future and has identified specific network reticulation issues such as inlets and outlets and their requirement for them to be safe.

Council will continue to monitor the reticulated network to identify manhole lids that are popping and look to either bolt them down or provide a grate on the top to allow flow to flow over land. This is to reduce the risk of people falling down the manhole after high rainfall events.

Councils comprehensive discharge consent also sets a number of conditions that impact on how Stormwater services are delivered in the future, such as the requirement for Catchment Management Plans for green fields' developments as well as the ongoing monitoring program for stormwater quality.

Changes to Legislation
The Healthy Rivers plan change is still being developed, so this has not resulted in changes to maintenance, renewal or capital spend to date. But it is envisaged that rules around discharge quality are going to be change. Council, under the comprehensive discharge consent, undertake regular testing of discharge quality, and the breath of this testing my be increased to better support funding requirements in the future.

Comprehensive Consent Renewal
Councils current consent expires in 2027 and it is currently unknown what conditions may be applied through any new consent, or how difficult it might be to obtain a new consent. Our rivers and lakes need to be swimmable and this will know doubt bring requirements regarding discharge quality.
Without knowing what these conditions might be it is difficult to determine a different capital program than that which has been put forward for quality improvement in the short to medium term.
With the largest receiving environment (Lake Taupo) and its bed being owned by Tuwharetoa it is envisaged that the Trust Board will be showing a keen interest in any consent renewal process.

Three Waters Reform
With Stormwater being included in the reform discussions, it is likely in the future that Council may not be responsible for the asset outputs or funding requirements of the asset.
The current stormwater AMP ignores any reform discussions and is based on current aspirations and funding requirements.

8.3 Service Delivery and Rationale

The Stormwater service is carried out by a number of providers as shown in Table 8.2.

Service	Provider	Rationale
Asset Management	Council	To maintain the knowledge of the asset in house
Management of Maintenance Contracts	Council	To maintain control of the costs of the services.
Minor Design	Council	In house knowledge and resource available
Major Design	Tendered	To capitalise on external expertise resource/ experience and take advantage of competitive pricing/competition.
Bylaw development	Council	To capitalise on internal expertise resource/ experience.
Strategy Development	Council	To capitalise on internal expertise resource/ experience

Table 8.2: TDC Service and Providers

The following table shows the TDC Three Waters maintenance and renewals contract

Contract Name	Contract No.	Approx. Value ($)	Term (yrs)	Comments	Maintenance /Renewal/ Creation
Three Waters Maintenance Contract Contractor: Downer Construction	1516/155	11.4 mil	5+2+2	Start date was 1 July 2016 Includes: Water, Wastewater, Stormwater	Mostly Maintenance but includes some renewal and creation aspects

Table 8-2.1: TDC Maintenance and Renewal Contracts

8.2.1 Contract types

Lump sum and measure and value contracts are the two types of contract procurement Taupō District Council utilise for project tendering. Where the estimated cost of the project is less than $50,000, a lump sum contract is generally used. If greater than $50,000, a schedule of quantities is provided to enable a measure and value contract be tendered.

Lump sum contract: More than one contractor is asked to supply a fixed price quote for the project. The contractor is responsible for the measurement of quantities.

Measure and value contract: The quantities in the Schedule of Prices are measured by the Engineer, which is provided for evaluating tenders. Each item of work is carried out at the fixed rate set out in the Schedule of Prices. The sum shall be adjusted by any additions or deductions under the contract.

Methods for tendering and evaluation

Tender Evaluation Method	Contract $ Value		
	$0-50,000	**$50,001-$100,000**	**$100,000+**
Expedited Procedures (Negotiation)	√	×	×
Expedited Procedures (Limited Invitation to Tender)	√	√	×
Lowest Price Confirming Tender	√	√	√
Quality-Price Trade Off Method	√	√	√
Weighted Attribute Method	√	√	√

Table 8-2: Physical Works - Method Selection Matrix

Key (×) = not permitted (√) = permitted

Note: For projects with a dollar value of less than $100,000 the expedited procedures are generally the most appropriate methods because administration costs will be less and hence a more reasonable proportion of total contact value.

8.4

Asset Type

8.4.1 STORMWATER NETWORK

Overall Asset Objective:	Council will manage its urban area stormwater systems to avoid, remedy or mitigate adverse effects of Stormwater discharges and in particular to: • Comply with conditions of its Comprehensive discharge consents • Minimise adverse effects of overland flow and flooding • Reduce sediment and contaminant discharges to the receiving environment • Protect and enhance the state of our Lake, rivers, wetlands and natural overland flow paths including Gully systems • Ensure provision of effective stormwater systems as far as practicable, taking into account long-term operability and whole of life costs.

Key network issues are:

- Pipe capacity
- Overland flow path provision
- Stormwater quality

Council has a service level of network provision of 1:10yr event but has not retrospectively upgrade the network unless there is a known flooding or erosion issue. To understand the current network capacity and identify the under-capacity areas that are causing problems, the contract reports and service requests and the overland flow path model are analysed.

Council lacks an operational model of the stormwater network, which hinders Councils ability to determine the networks effect on overland flow path levels, and without a comprehensive model, Council does not have an accurate understanding of the network's capacity.

In general terms, most of the network is sized for 2 to 5-year events but climate change lessens the capacity over time. The litmus paper test in regard to network capacity is have we had any floods. Several areas, mostly in depressions where the network is shown to be inadequate in less than a two-year event, and these sites will need to be addressed over time and when funding permits.

The Lidar survey data is another good indicator of the levels of flooding and inundation that could occur, and by completing the Hazard Work, Council will be able to determine where capacity improvement funding may be best spent.

The current Taupō CBD stormwater network does not have the capacity to match the current Code of Practice requirements, but a look at the Lidar data identifies that in a 1/100 event the roads are able to convey the majority of flow thus negating the need in the short term to increase pipe network capacity. Council is able to use the flow path model to identify where capacity issues are, and this Amp provides options to limit their impact.

8.4.1.1 Historical Expenditure

Historical operational and maintenance expenditure for the Stormwater asset is shown below

	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Operations and Maintenance	1,677,000	1,667,000	1,697,000	1,769	1,839
New Works	175,000	127,000	111,000	391,000	337,000
Renewals	125,000	155,000	325,000	138,000	155,000
Total	**1,977,000**	**1,949,000**	**2,133,000**	**2,298**	**2,331**

Table 8-3: Historical Expenditure

8.4.1.2 Stormwater Network Operations and Maintenance

Maintenance is carried out on the Stormwater network to ensure that the levels of service outlined in the Level of Service section of this document are met. A summary of the change in operations and maintenance due to demand is included in Section 6, with a full financial summary in Section 9.

The network is maintained under the maintenance contract. Some Specialist maintenance such as CCTV and gully planting works are carried out by specialist contractors.

Council has implemented an ongoing CCTV condition assessment program that has to date compiled data for most of the urban networks apart from the Taupo Township. The CCTV program requires the contractor to clean the network as they go which has resulted in a significant amount of roots and sediment being removed from the network.

The contractor undertakes regular inspections of outlets and ephemeral gully systems, this report data along with service requests and CCTV data are then collated and analysed for maintenance and renewal requirements.

Council will CCTV at least 10% of the pipe network per year to enable conditions assessments to be undertaken.

Council's service levels have been included in the three waters maintenance contract in the form of schedule works with differing levels of priority, which are impacted by health and safety aspects as well as cost and environmental impacts. Council's criticality assessment also enables council to perform proactive maintenance on specific high criticality assets.

Gap analysis is undertaken when reviewing maintenance data and costs as well as service requests. This data is collected in Asset Finda, the Three Waters asset data system. This database allows council to consider asset age, condition assessment data and criticality to allow council to focus on proactive and preventative maintenance.
Where gaps in achievement of desired service levels are identified, this results in an options analysis process with possible funding options provided to senior management, and then through to Council.

CCTV data is peer reviewed externally to Council to validate condition assessment and to determine asset maintenance requirements. Priority is given to the worst affected pipes with a consideration to the size of the catchment and the amount of properties affected if the network was to fail.

Pipe maintenance options for damaged pipes vary from dig it up, to reline or renew altogether. These options are considered on a case-by-case basis depending on the location issues and pipe sizes and available funding.

Council funds a mix of proactive and reactive maintenance budgets, with the proactive budget applying to regular asset inspections, CCTV, root cutting programs and sediment removal. The reactive maintenance budgets are prioritised from the inspection results. Any deferred maintenance that is not critical is documented and reprioritised in the follow financial year once the budget is available.

Asset Finda can produce maps of the Stormwater network that show geo- spatially where CCTV inspections have occurred which aids the programming process. The database can also record pipe condition rating in the form of different coloured pipes for different condition rating. The ability to represent condition data in the form of a map greatly enhances the ability at the political level to understand the funding requirements.

Asset Finda can also include all projected renewal and capex expenditure for the Three Waters in map form to enable asset managers to determine where construction synergies might occur.

Root intrusion and sediment build up are the main issues with Turangi Township having a large verge tree stock.
A process of locating all trees on verges is being undertaking in Turangi to enable council to focus its root cutting and removal program going forward. This has resulted in a program of tree removal (98 trees identified for removal) as roots have been impacting on road berms and kerb and channel design.

The improvement of Stormwater quality and the reduction of degradation of receiving environments is achieved by the installations of various improvement mechanisms, such as enviropods in the urban high use areas and Hynds Downstream Defenders above outlets as well as the use of ephemeral gullies where waters are detained to allow sediment / contaminants to drop out.

The maintenance of these mechanisms is shared with the roading division of council who maintain the enviropods and the Three Waters (Downers) contractor who maintain the CDS units. Both Council and Downers (Councils maintenance contractor) have the operational manuals for the Hynds Downstream Defenders. Ephemeral gullies are maintained with a mix of internal parks staff for mowing and selected contractors for gully plant maintenance.

Downers routinely inspects Stormwater outlets that discharge directly to the Lake as these outlets suffer sand build up in certain wind directions, this proactive maintenance reduces the amount of localised flooding incidents from blocked outlets. Ephemeral gullies are also regularly inspected to identify potential blockages and bank instability as well as for mowing and plant maintenance and planting.

Quality improvement devices are scheduled to be emptied three times per year but are inspected after periods of high rainfall to make sure they still have capacity.

Customer service staff log network faults directly into Asset Finda, which links directly to Downers call centre. They then dispatch this information to their field staff.
Depending on the priority of the fault, Downers have differing response times for arrival on site and completion of the fault. High priority faults are also copied to the relevant Council staff and Asset Managers.
Downer field staff when completing the fault log identifies which scheduled items are to be paid and make any changes to the field information pertaining to the network and update the network data if incorrect.

Council can then analyse the historic maintenance spend on specific assets to determine future options if needed for improvement.

OPERATION AND MAINTENANCE PLAN

The Comprehensive Discharge Consents for urban stormwater runoff have a significant impact on the management, operations and maintenance of the stormwater system in the coming years. The consent requires the following:

A monitoring program to:

- Investigate actual and potential adverse effects of stormwater discharges on the receiving environment.
- provide information to develop stormwater initiatives

- determine compliance

A Stormwater Management Plan that records the way in which the municipal stormwater system is operated.

Operational Tactics
The Network maintenance engineers are responsible for the operation of the Stormwater system and are being supported by the Stormwater Management Contractor under the maintenance contract.

Performance measurement of Councils storm water infrastructure is by way of the annual report to WRC as required by council comprehensive discharge consent and by periodic satisfaction surveys. The consent focuses on discharge quality but also recognises the need for adequate flood protection.

Network performance is reported to Council on a monthly basis, with level of service achievement being the focus. This reporting process is also an opportunity for identification of service gaps and network issues.

Overall performance reporting is recorded in the Council annual plan document.

Maintenance Strategy
Maintenance falls into two categories, planned and unplanned, each having quite different triggering mechanisms and objectives;

Unplanned maintenance:	• Corrective work carried out in response to reported problems or defects with the stormwater system (e.g. blocked drain, flooding, scouring, etc.) and analysis of CCTV data.
Planned maintenance	• Preventative maintenance carried out to a predetermined schedule with the aim of ensuring Level of Service, preserving asset design life and, if economic, extending asset life (e.g. the inspection and cleaning of critical system components, i.e. stormwater pump inspections). • On-condition maintenance carried out because of condition or performance evaluations of assets and asset components (e.g., catchpit cleaning).

Maintenance work on stormwater assets include:

Asset inspections
Clearing of pipe blockages and constrictions (sediment build up and root intrusion)
Minor Repairs (joint sealing)
CCTV program
Dealing with the effects of erosion activity
Vegetation and Weed Control (Inlets, Outlets and Gully drainage)
Maintenance of quality improvement devices and the removal of deleterious materials.
Planting of gully walls and the removal of plant pests
Removal of sand build up from lake shore outlets
Undertaking the monitoring program

A formal maintenance contract (Contract TDC/1516/155– Three Waters Maintenance Contract) has been awarded to provide maintenance, inspections, and reporting work for the stormwater network. The benefits that the maintenance contract for the Stormwater assets are: -

- Regular inspection and reporting on assets will allow the asset management system to be populated with condition assessment data (in accordance with the New Zealand Water and Wastes Pipe Inspection Manual (3rd edition, 2006) – thereby allowing optimal decision making (maintenance and renewals) in the future.
- Regular maintenance of stormwater assets – thereby minimising the risk of asset failure resulting in loss of service level and / or flooding / property or environmental damage.
- Addressing day-to-day issues.

The maintenance contract has been reviewed in light of the Comprehensive Discharge Consents that have been granted to ensure that they comply with the conditions of these Resource Consents and enable integration of condition monitoring and electronic data management systems and processes as they are developed.

The contractor is responsible for the placement and maintenance of Councils stormwater quality monitoring devices that collect samples of storm flows that are then analysed to determine flow quality.

Additional expenditure is required in the 25/26 year to renew the three comprehensive consents. With the potential for three waters being taken away from Council, the party responsible for the renewal of the comprehensive consent is unknown at this time.

8.4.1.3 Stormwater Network Renewals

Renewal expenditure is major work that restores an existing asset to its original capacity or the required condition. By renewing plant equipment as required the quality level of service is met.

Council has undertaken comprehensive CCTV program to determine network condition. This program has concentrated on the older pipes and areas where trees would have effects on the integrity of the pipe network.

A large proportion of the stormwater asset is made up of a pipe network predominantly under ground, with a life expectancy of some 80-100yrs and a current age of the network is well below this. To date this has meant that there has been little in the way of a renewal program for this asset. There will continue to be the need for renewal expenditure on Lake Outlets, and this has mainly come from erosion damaging the outlet structures.

Condition data reflects that the underground asset is in a good condition with only localised issues. Due to the flat grade in Turangi, a significant amount of sediment was removed during the CCTV programed works.

Council has found numerous areas where the fibre cable recently laid has passed through either manholes or the piped network, which has generated localised flooding or sediment build up. Council is working with the network owner when these are identified to enable their removal.

The result of the CCTV program is that there have been assets that have needed maintenance, but few assets have needed a full renewal. New maintenance technology means that pipes don't need to be dug up to undertake maintenance, which has resulted in an increase in maintenance expenditure and a reduction in renewal expenditure, and longer lives for the pipe network.

Condition assessment of TDC storm-water infrastructure by area

CCTV condition assessments of approximately 70% of the storm-water assets across the Taupō district have been carried out to enable a determination of asset condition by area for renewal purposes. Each areas asset condition assessment carried out has been graded 1 – 5 as described in the table below. As more condition assessments are undertaken in the coming years a clearer picture will be achieved, and from this an improved renewal program for these assets.

Grade	Condition description and approximate remaining life assessment
1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
2	**Good condition:** Storm-water asset showing first signs of deterioration, asset is expected to meet (80 - 100%) of original life expectation
3	**Average condition:** Storm-water asset has deteriorated and the asset is expected to have (60 - 80%) of original life expectation
4	**Poor condition:** Storm-water asset has deteriorated significantly and the asset is expected to have (40 - 60%) of original life expectation
5	**Very poor condition:** Storm-water asset failing or high risk of imminent failure renewal needed within 0 - 3 years (0 – 40%) of original life expectation

Most storm-water assets had an install date of 1960/70s and had a life expectancy of 80-100 years. Most of the assets are now 40+ years old, 50% through their expected design life.

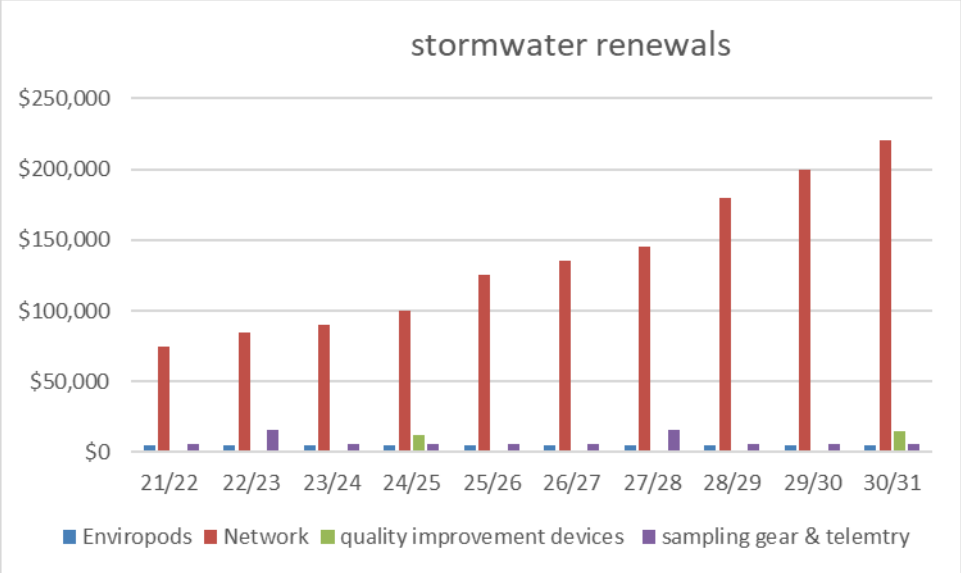
Storm-water condition assessment by area:

Area	Grade	Condition description/approximate remaining life assessment
ACACIA BAY	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
TAUPŌ	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
HATEPE	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
MOTUOAPA	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
TURANGI	3	**Average condition:** Storm-water asset has deteriorated and the asset is expected to have (60 - 80%) of original life expectation
PUKAWA	3	**Average condition:** Storm-water asset has deteriorated and the asset is expected to have (60 - 80%) of original life expectation
OMORI	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
KURATAU	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
WHAREROA	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)
WAIRAKEI	2	**Good condition:** Storm-water asset showing first signs of deterioration, asset is expected to meet (80 - 100%) of original life expectation
KINLOCH	2	**Good condition:** Storm-water asset showing first signs of deterioration, asset is expected to meet (80 - 100%)

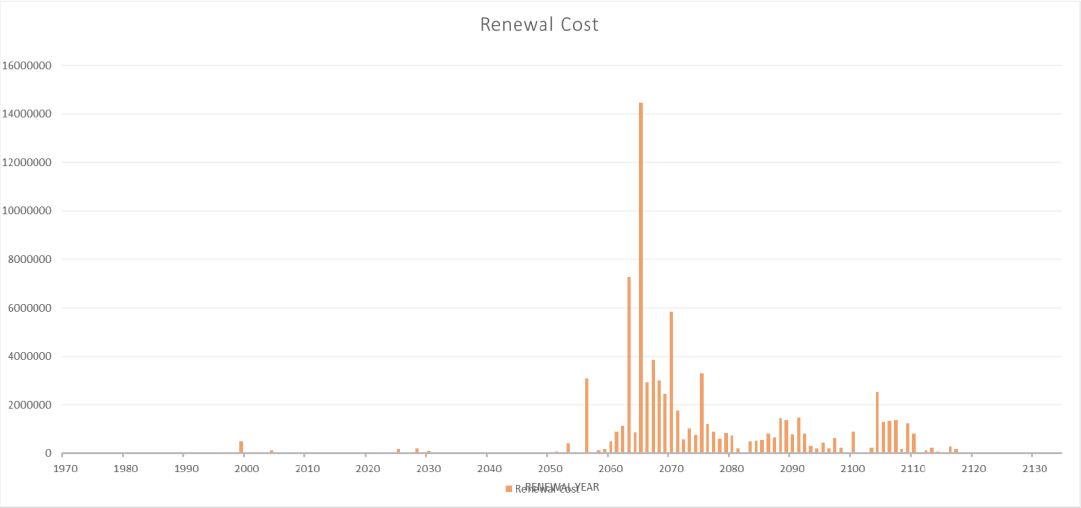
		of original life expectation
MANGAKINO	2	**Good condition:** Storm-water asset showing first signs of deterioration, asset is expected to meet (80 - 100%) of original life expectation
WHAKAMARU	3	**Average condition:** Storm-water asset has deteriorated and the asset is expected to have (60 - 80%) of original life expectation
ATIAMURI	1	**Very good condition:** Storm-water asset should meet or exceed designed life expectation (100 % +)

Conclusion: From the information received so far the condition of the storm-water assets across the district is generally very good and it is expected that the bulk of the assets will meet or exceed their designed life expectation. There are some areas were the storm-water assets have deteriorated quicker than expected due environmental factors such as local soil conditions and ground movement.

10 Year Renewal funding



The above graph shows the required funding levels over the next ten years based on condition, criticality and age. As Council has concentrated the CCTV work in areas outside of the Taupo Township, which makes up 60% of the overall network, the funding level outside of the ten-year window has been estimated to plateau. This is due to the bulk of the age based renewal cost not being until 2060. Long term funding estimates will change as more condition information is obtained.



Above graph identifies the age-based renewal funding, reflecting the 100 life given to a majority of the piped network. This funding profile will be adjusted, with some good quality condition assessed pipes having extended lives.

Forward CCTV program

Council has provided funding to allow for 10% of the stormwater network to be condition assessed each year. Data provided from this work will allow ongoing improvement to long-term renewal expenditure.

Over the next three years, the condition assessment program will concentrate on the network mainly in the Taupo township, concentrating on the older parts of the town.

Some additional works will be undertaken to support shovel ready programs to make sure that assets are not going to be needed to be renewed after the shovel ready projects have been completed.

8.4.1.3.1 Future Renewals 10yr only

	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Enviropods	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000
Network	$ 75,000	$ 85,000	$ 90,000	$ 100,000	$ 125,000	$ 135,000	$ 145,000	$ 180,000	$ 200,000	$ 220,000
quality improvement devices				12000						$ 15,000
sampling gear & telemtry	$ 6,000	$ 16,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 16,000	$ 6,000	$ 6,000	$ 6,000
Total	$86,000	$106,000	$101,000	$123,000	$136,000	$146,000	$166,000	$191,000	$211,000	$246,000

8.1.1.4 Stormwater Network Creation

The Capex program maintains the ability of the Stormwater network to continue to provide for Stormwater disposal in the district. The capital program provides for pipe capacity issues, which are therefore backlog expenditure as well as stormwater quality improvement and erosion control measures.

The District stormwater network is created through a number of drivers, firstly by developers providing stormwater infrastructure as required by Councils code of practise and secondly by Council due to insufficient capacity or treatment ability.

Council's infrastructure strategy and growth model require consideration in regards to network development, but most infrastructure development is provided by developers and are consented through the Regional Council. Council then takes ownership of the new network after the development has been approved the infrastructure is adopted into Councils comprehensive consent.

Developer Created
This has seen in recent time more above ground stormwater networks that provide stormwater treatment prior to final disposal into receiving environments, meaning that Council will in the future inherit potentially less piped networks and more pond and gully based systems. Above ground, systems while far better at providing quality improvement inherently cost more to maintain but provide better environmental outcomes.

New developments may also incorporate other types of quality improvement devices that fit into the piped network; these will require ongoing maintenance expenditure.

Developments in previously undeveloped catchments (Green Fields) have to provide a Catchment Management Plan, these plans will provide development conditions based on the ability for the catchment to treat and dispose of stormwater adequately.

Council Created
The second driver for new or enlarged development of the stormwater network is due to changes in legislation (Resource Consents) which require better treatment than the existing network can provide.

Lack of capacity is also a driver, this may be due to changes in the disposal options for selected areas, such as Commercial and CBD areas that would want to fully develop properties, but must connect to a network to do so, thus requiring the network to be improved to provide the desired capacity.

A list of the proposed capital works is detailed below and is a mix of backlog works to minimise flooding effects and Stormwater quality improvement.
These projects include:

- Elisabeth flood investigation and mitigation
- Hawai street flood mitigation
- Various quality improvement devices
- Mangakino flood protection
- Mangakino pond retic
- Paenoa rd pipe diversion
- Tamatea reserve flood mitigation investigation and options
- Kimberley reserve flood mitigation investigation and options

- Two-mile bay flood mitigation and investigation

Capital Program validation

Mangakino pond and retic upgrade
The December 2009 report undertaken by CPG for Council identified that the stormwater network in Mangakino is sized generally for a 2-year event. The report also identified the stormwater manhole and infrastructure near the Golf course will regularly flood in under a 1-year event, this is supported by erosion on the access Rd and a large rock that has been placed onto the manhole lid to keep it from lifting.
The infrastructure at this point has multiple lines joining the single discharge line to the lake, thus causing back up in the line and causing the manholes up stream to lift regularly. This project will divert stormwater into a stormwater detention pond nearby that will have a high-level discharge to the golf course as an overland flow.

Driver is level of service

Various Quality improvement devices
The placement of enviropods was the first of the treatment train to provide quality improvement from the main stormwater outlets to the Lake. The second part of this treatment process was to install CDS or similar units as recommended by the Opus report to further capture gross pollutants before they reach the receiving environment.

A recent beach inspection after a period of no rainfall identified a large number of gross pollutants around the major outlets to the Lake. Most of the gross pollutants were plastic in nature ranging from plastic bags to bottles and other material that had washed down the network.

Councils monitoring program identifies that the first flush is still placing significant amount of contamination into the lake, with first flush readings above parameters for a number of indicators.

CDS units being the second part of the treatment train will capture heavy metals as they are attached to the fine sediments. (Opus, Taupō Contaminant Modelling and Treatment Options 2008)

The installation of the "Hole In One" Downstream Defender has resulted a visual quality improvement of the storm flows out of this outlet. Comments from the golf ball divers reflects a significant increase in water quality. The first clean out of the device removed four cubic metres of sediment and floatable contaminates.

Treatment Efficiency	Total Sediment (TSS) % Reduction	Total Zinc % Reduction	Total Copper % Reduction	Total Hydrocarbons % Reduction
Enviropods and CDS Units	81.8	73.5	77.5	85.1

Stormwater quality improvement devices are programed for the major outlets that feed directly into the lake or river receiving environments and that have large upstream catchments, which convey significant contaminant loads.

This Asset Management Plan builds on the original quality improvement program and looks to improve discharge quality from large catchments and high usage i.e. where there are high vehicle numbers or industrial areas where the pollutant load is high. Areas where outlets discharge to gullies and ponds are excluded as these areas allow for pollutant capture.

The provision of quality improvement devices would fall under condition 30 of the resource consent that requires a quality improvement program

The driver is Resource consent and level of service.

Overland Flow Path Remediation (now an Operational project)

Council has a responsibility to manage the way land is used to avoid or mitigate the effects of natural hazards (s31 of the RMA1991)

Section 35 of the Resource Management Act (1991) requires Councils to monitor the environment, and maintain records of natural hazards.

Councils Lidar survey work to date has identified where flow paths will be in a 1:100-year event and can provide water depth and velocity. This work has not been validated as the piped network has not been included, but the model has identified a number of areas where stormwater will effect property and lead to flooding. The funding identified is to allow on site field verification works to continue.
To get this project to the final stage of placing information on to Lim report there needs to be a cross organisational team established which builds on the experience of the Lake flooding process as well as part of the IT team to make sure that the information captured is in the most usable form. To fully validate the model assumptions Council may need to develop a model of the storm water network, which would come at considerable cost.

An alternative option is to develop a model of the network for areas at risk only, which would reduce the overall cost and this could be funded over time prioritised on the overall risk to properties. This would mean that the Lim information would not be available in the short to medium time frame but the model would still be a great asset to determine where flooding exists and to plan for remedial actions. Further funding needs to be allocated to undertake further modelling.

Driver is risk and level of service

Flood remediation and investigations and option selection

The over land flow paths work has identified a number of properties in the district that will be impacted by over land flows. The projects listed above will determine future options to reduce the impact. A number of these locations have reserves available to enable detention ponds but they would be located in residential areas where the community are not usually supportive of ponds due to the health an safety risks. An options analysis will be undertaken with options presented to council. In some cases, due to the depth of flow path council may only be able to reduce the impact and not remove it altogether.

The projects will incorporate additional asset inspections and validation, as well as the identification of affected property floor levels to enable council to fully determine current flooding impacts.
Solutions may incorporate new pipe discharges to the lake which will need sign off from both the regional council and the Tuwharetoa Trust board.

Table 8.6 Capital expenditure

	Budget Comments	Total Spend	2021/22 Spend	2021/22 Year2 (2022/23) Spend	2021/22 Year3 (2023/24) Spend	2021/22 Year4 (2024/25) Spend	2021/22 Year5 (2025/26) Spend	2021/22 Year6 (2026/27) Spend	2021/22 Year7 (2027/28) Spend	2021/22 Year8 (2028/29) Spend	2021/22 Year9 (2029/30) Spend	2021/22 Year10 (2030/31) Spend	2021/22 Year11 (2031/32) Spend
Grand Total		**10,236,000**	**441,000**	**497,000**	**826,000**	**837,000**	**803,000**	**471,000**	**802,000**	**2,196,000**	**1,961,000**	**496,000**	**256,000**
10410 - Enviropods		0	0	0	0	0	0	0	0	0	0	0	0
10413 - Sampling gear & telemetry		0	0	0	0	0	0	0	0	0	0	0	0
10414 - Enviropod protection		0	0	0	0	0	0	0	0	0	0	0	0
10417 - Two Mile Bay (Boat Ramp) improvement device		0	0	0	0	0	0	0	0	0	0	0	0
10426 - Hawaii reserve detention pond		0	0	0	0	0	0	0	0	0	0	0	0
10428 - Brentwood Gully Lakeshore eroison control contribution		0	0	0	0	0	0	0	0	0	0	0	0
10429 - Paenoa RD pipe diversion single barrel to south gully		0	0	0	0	0	0	0	0	0	0	0	0
10650 - Network		0	0	0	0	0	0	0	0	0	0	0	0
10653 - Brentwood gully culvert		0	0	0	0	0	0	0	0	0	0	0	0
10655 - Turanga Place improvement device		0	0	0	0	0	0	0	0	0	0	0	0
10959 - Stormwater Renewals Crown Rd		0	0	0	0	0	0	0	0	0	0	0	0
10995 - Redoubt Street Stormwater Improvement Device		288,000	0	288,000	0	0	0	0	0	0	0	0	0
10996 - Waikato street Stormwater Device		238,000	238,000	0	0	0	0	0	0	0	0	0	0
11024 - Mobil Station stormwater quality Improvement Device		275,000	0	0	0	0	275,000	0	0	0	0	0	0
11025 - Norman Smith stormwater quality Improvement Device		395,000	0	0	0	395,000	0	0	0	0	0	0	0
11026 - Paenoa Rd Pipe diversion		310,000	0	50,000	260,000	0	0	0	0	0	0	0	0
11027 - Puataata Rd stormwater quality Improvement Device		260,000	0	0	0	0	0	0	10,000	250,000	0	0	0
11028 - Spa Rd at Totara street stormwater quality Improvement Device		285,000	0	0	0	0	0	285,000	0	0	0	0	0
11029 - Tui Street stormwater quality Improvement Device		260,000	0	0	0	0	0	10,000	250,000	0	0	0	0
11030 - Huia Street stormwater quality Improvement Device		260,000	0	0	0	0	0	0	0	10,000	250,000	0	0
11031 - Kohineheke reserve 2nd Stormwater Improvement Device		290,000	0	0	290,000	0	0	0	0	0	0	0	0
11032 - Mango Golf club pond retic		90,000	90,000	0	0	0	0	0	0	0	0	0	0
11033 - Hawai Gully Flood Mitigation		210,000	0	0	20,000	30,000	160,000	0	0	0	0	0	0
11034 - Mangakino Stormwater Flood Mitigation		502,000	25,000	53,000	155,000	269,000	0	0	0	0	0	0	0
11035 - Stormwater Renewals		1,770,000	88,000	106,000	101,000	123,000	136,000	146,000	166,000	191,000	211,000	246,000	256,000
11037 - Taupo Urban Stormwater Modelling		0	0	0	0	0	0	0	0	0	0	0	0
11063 - Two Mile Bay Gully Flood Mitigation		210,000	0	0	0	20,000	190,000	0	0	0	0	0	0
11108 - Kimberly Reserve Gully Flood Mitigation		2,703,000	0	0	0	0	42,000	30,000	336,000	1,645,000	0	0	0
11115 - Elizabeth Street Gully Flood Mitigation		250,000	0	0	0	0	0	0	0	0	0	250,000	0
11394 - Tamatea Flood Mitigation		1,640,000	0	0	0	0	0	0	40,000	100,000	1,500,000	0	0

8.1.1.5 Stormwater Network Disposal

Council does not dispose of Stormwater infrastructure, as Council needs to be able to continue to control the infrastructures performance.

Where privately owned gully systems act as overland flow paths, Council will work to protect these flow paths into the future to prevent development in these areas and to remove obstructions from flow paths to avoid the risk of flooding.

Gully systems also provide additional benefits over and above the conveyance of stormwater, in that they can act as passive transport routes and can enhance the natural environment to attract native bird species.

Assets disposed of out of Council's stormwater network will also have to be removed from councils Comprehensive discharge consent, and will need a business case provided to the SLG and or Council to approve.

8.4.2 RESOURCE CONSENTS

TDC have a set of Comprehensive discharge consents from Environment Waikato, which expire in 2027 that cover all discharges from Councils stormwater network in the district.

Site	Resource Consent number	Renewal date
Taupō Urban Areas Taupō (& Eastern Bays) Waitahanui Acacia Bay Kinloch	105048	15 June 2027
Turangi Urban Areas Turangi Tokaanu Motuoapa Omori/Pukawa/Kuratau Whareroa Tauranga-Taupō Hatepe	105049	15 June 2027
Waikato Urban Areas Wairakei River Road Atiamuri Whakamaru Mangakino	105050	15 June 2027

9.0 FINANCIAL SUMMARY

9.1 Process of Determining Financial Forecast

The provisional 30year financial forecast for Stormwater was determined by identifying new works, and the continuation/evaluation of current maintenance and renewal strategies within the reticulation network. Changes to the operations (OPEX) and capital projects (CAPEX) expenditure are generally due to maintaining current level of services and increased contract rates.
Level of service consultation carried out in the previous LTP indicated the community were generally satisfied with Councils current spending within the various asset groups. This feedback was also used when determining provisional budgets. Refer to table 9.4 for the final version of the 10-yr financial forecasts for both OPEX and CAPEX budgets. A Council wide 10yr expenditure review is carried out. The strategy for this review is to:

- assign realistic timing to projects given the resources available under Councils current funding sources and in relation to impacts in other Asset Management Plans.
- optimise timing of projects.
- generate consistent budgeting philosophies across all Council divisions.
- align expenditure with growth predictions.

Funding Strategy
The focus of this AMP is to identify the optimum (lowest lifecycle) cost for the Stormwater cost centre and to identify the cost for each asset group necessary to produce the desired level of service. How this cash flow will be funded is outlined in Council's long-term financial strategy.

Current funding sources available for stormwater include:

- Rates – income generated by the collection of general, separate and differential rates.
- One off capital contribution – contributions made by individual developers for projects that are of particular benefit to them that are being constructed by TDC
- Private (developer) funded works – projects completely built and funded by developers where ownership is handed over to TDC on completion (vested assets).
- Interest on general funds.

The Stormwater service provision is funded by Council, 100% through general rate which reflects the general public good of having properties not being flooded and good quality stormwater entering receiving environments.

In order to provide for on-going operation of the Stormwater network Council will need to continue to invest capital expenditure within the district.

Council will also receive infrastructure from developers which will fall under Councils Comprehensive discharge consent prior to Council accepting the new infrastructure.

The provision of Capital expenditure for growth projects can be undertaken through deed of arrangement with developers as Council has made the decision not to apply development contributions.

The overall Stormwater cost centre is currently funded by general rate as urban stormwater infrastructure protects private property from flooding and erosion. There is clearly a public

component in relation to the runoff of water onto roads and to ensure access to properties during periods of high flooding. There is also an intergenerational component.

9.1.1 ALLOCATION OF FUNDS

The process of allocating funds is generally based on:

- Maintenance and operations are funded from General Rates.
- Renewal works are funded by Depreciation.
- New Works are funded by either or a combination of Loans, Individual Contributions (e.g. to increase downstream pipe capacity) and Depreciation (if it has not all been used for Renewal Works).

9.2 Historical and Forecast Expenditure

Detailed historic expenditure for each asset group is included within the lifecycle section for that asset.

Budgeted stormwater expenditure for the next 10 years is summarised on the following pages.

9.2.1 OPEX: OPERATING AND MAINTENANCE EXPENDITURE

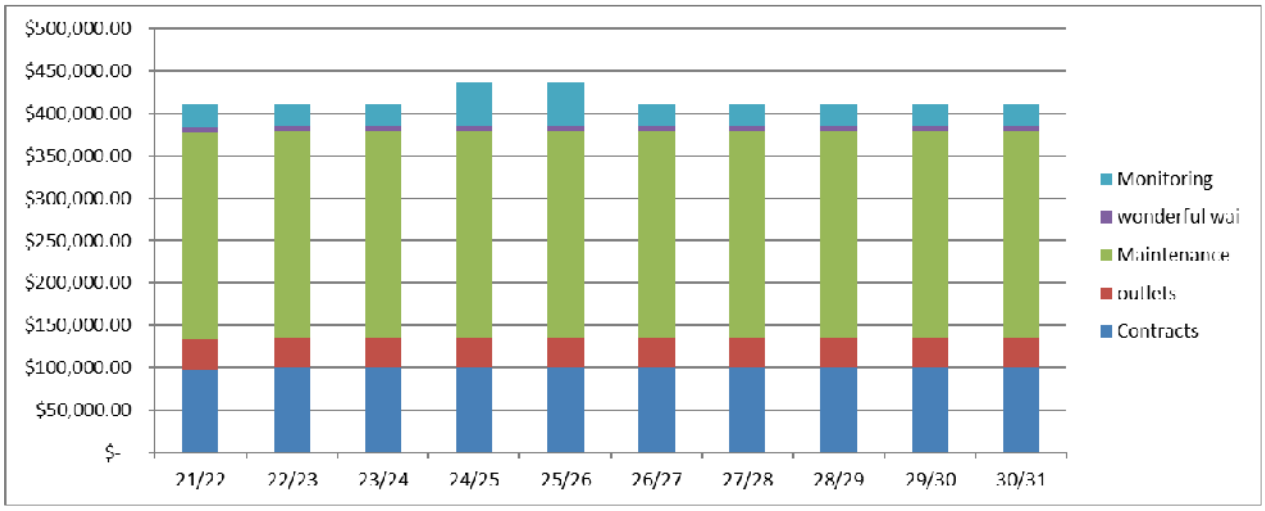


Figure 9-1: Operating and Maintenance Expenditure ($,000)

Operation and maintenance costs average approximately $450k/year for the next 10 years and this is similar to the preceding years. 30yr operational costs can be found in the appendices. Increase in 24 - 26 is to allow for consent renewals.

The maintenance is carried out by contractors who are appointed in accordance with Council's procurement policy.

CAPEX: RENEWAL EXPENDITURE

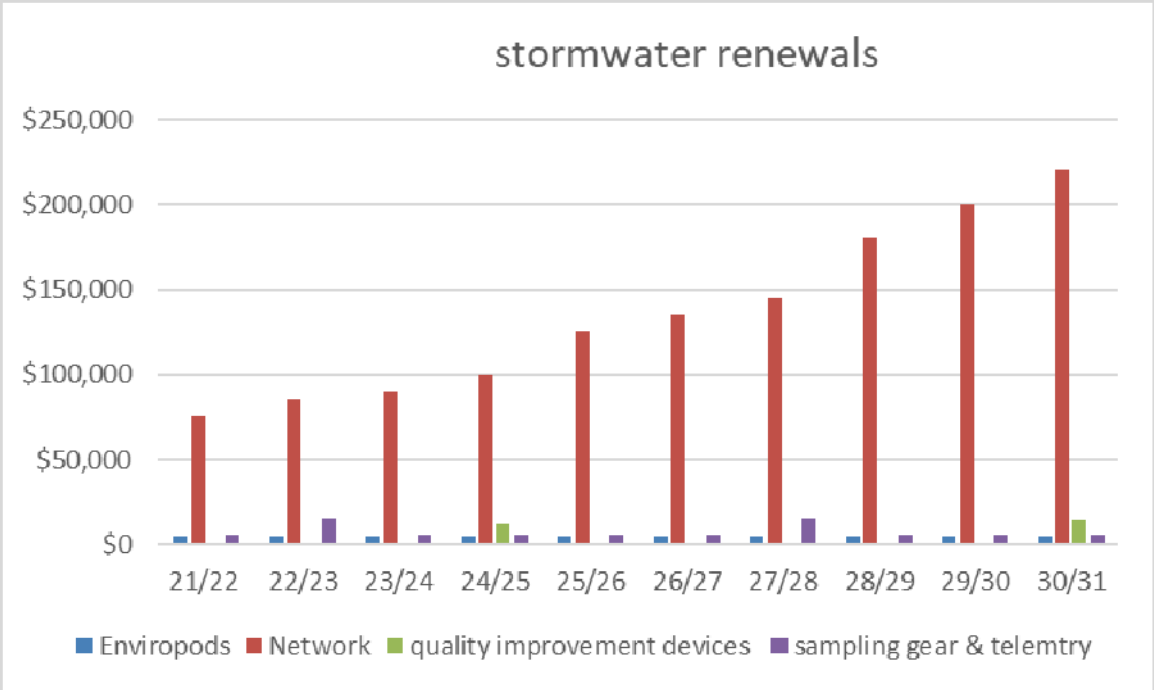


Figure 9-2: Renewals Expenditure ($,000)

Renewals include any items where an existing asset is replaced for example outlet structures pipe etc. Council has also invested in Enviropods to improve the quality of its lake discharges these will need ongoing renewal expenditure.
Quality improvement devices will require renewal expenditure during the 10-year period.

Generally, the timing of renewal for an asset is based on condition assessment data gathered by CCTV or by visual inspection, the criticality of the asset, past maintenance history and the age of the asset compared to its useful life. Loss in service potential is calculated by straight-line depreciation except for land which is not depreciated. The depreciation rates are applied at a component level and are dependent on the remaining useful life of each component. The total useful lives have been updated and are assumed as follows as per Asset Valuation report.

Component	Useful Life (years)
Manholes & cesspits	75 -100
Pipes	80- 100
Flood control systems	50- 100

Table 9-1: Stormwater Asset Useful Lives

A summary of the depreciation of stormwater assets is presented in the Taupō District Council Annual Report.

9.2.2 CAPEX: NEW WORKS EXPENDITURE

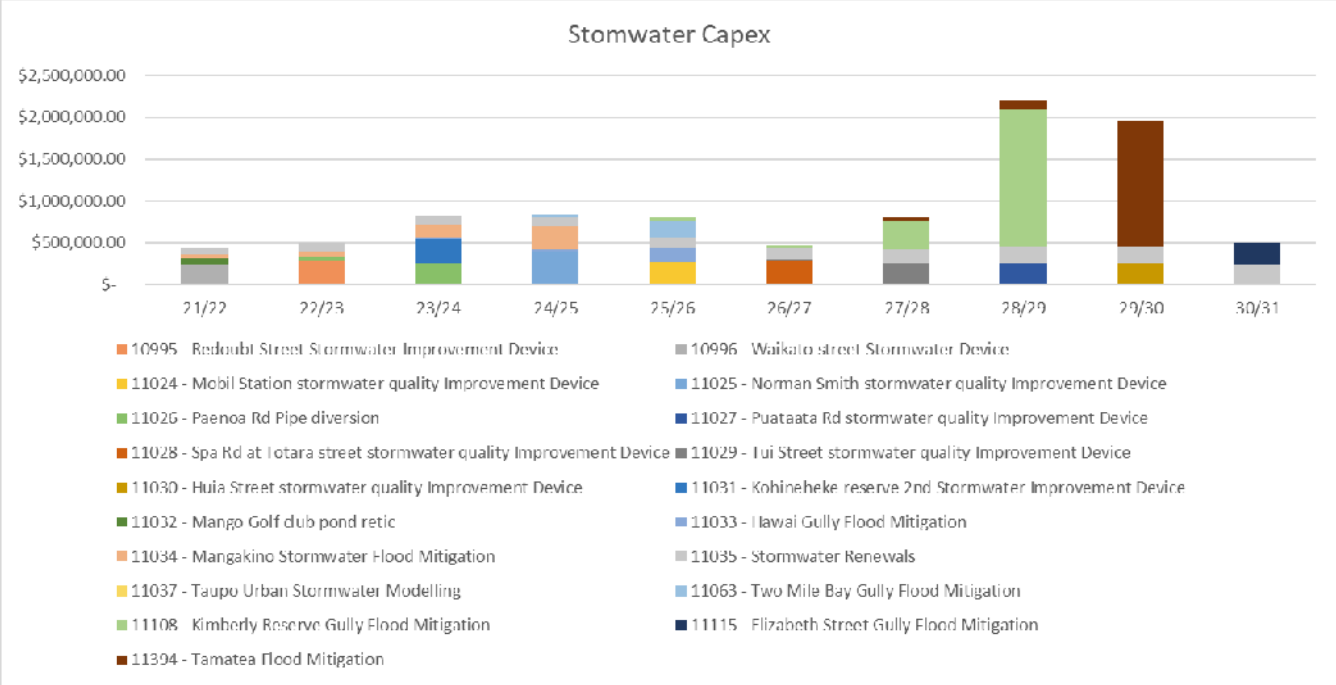


Figure 9-3: New Works Expenditure ($,000)

New works expenditure is governed by works required to meet resource consent requirements, risk and levels of service. Structure Planning documents have been and will continue to be used to support the assessment of future expenditure.

Expenditure reflects the ongoing quality improvement device installations, and the peak between 28-30 reflects possible solutions to overland flow path mitigation.

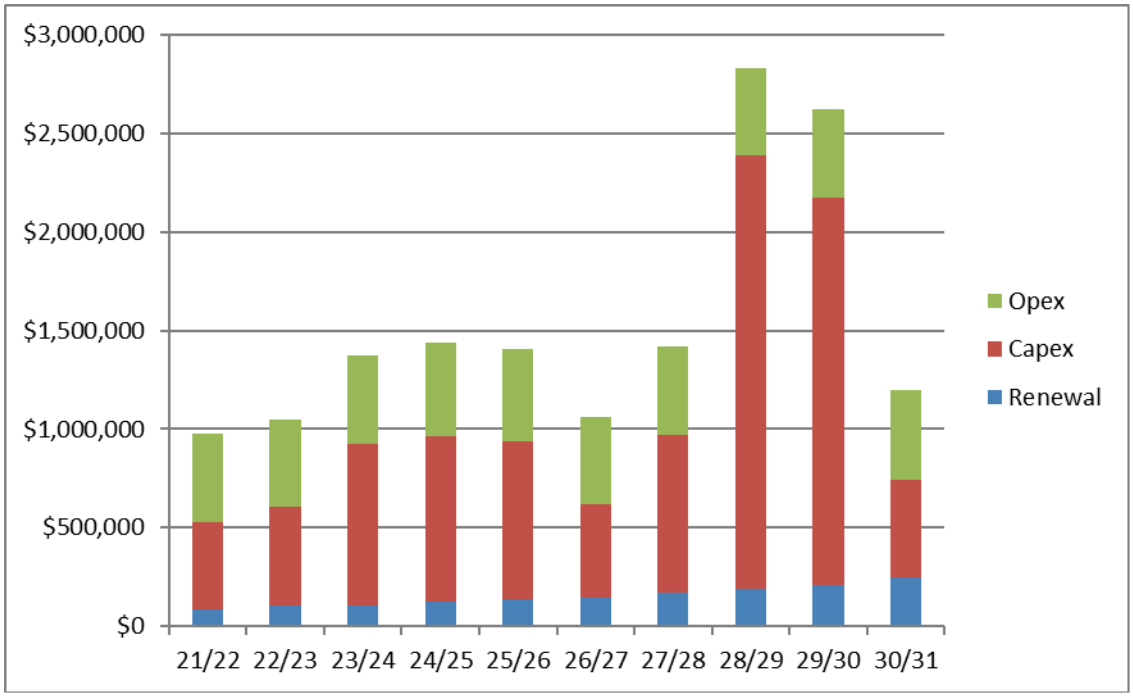
9.2.3 CAPEX: DISPOSAL

Council will not be disposing of any Stormwater assets over the period of this AMP. The disposal of Stormwater assets needs to be supported by a business case signed off by the senior leadership group.

9.2.4 EXPENDITURE LINKAGES TO LEVEL OF SERVICE

Section 5 (LOS) outlines how each of the budgeted items relates back to the level of service being provided.

9.3 Total Expenditure and Funding



9.4 Valuation of Stormwater Assets

Stormwater assets provide a continuing service to the community and are not generally regarded as tradable. The cost to replace an asset with the Modern Equivalent Asset (MEA) is used as a basis to determine replacement value.
Refer to Section 4 (Asset Data), for a summary of the valuation of Stormwater assets. A full valuation report is available on request.

Rates for renewal costs are taken from current operational contract rates. These rates are compared to like contracts in NZ. Rates for specific items are identified and compared from various suppliers

9.5 Financial Assumptions

The financial assumptions are included in the Introduction Section (section 1).

9.6 Financial Confidence Levels

The confidence in the asset data used as a basis for the financial forecasts has been assessed using the following grading system from the International Infrastructure Management Manual – Australia/New Zealand Edition, April 2000.

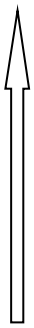
Confidence Grade	General Meaning
A	Highly reliable. Data based on sound records, procedure, investigation and analysis, documented properly and recognised as the best method of assessment

Confidence Grade	General Meaning
B	Reliable. Data based on sound records, procedures, investigation and analysis, documented properly but has minor shortcomings, for example the data are old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation.
C	Uncertain Data based on sound records, procedure, investigation and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade A or B data are available
D	Very Uncertain. Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

Table 9-2: Confidence Grading Table

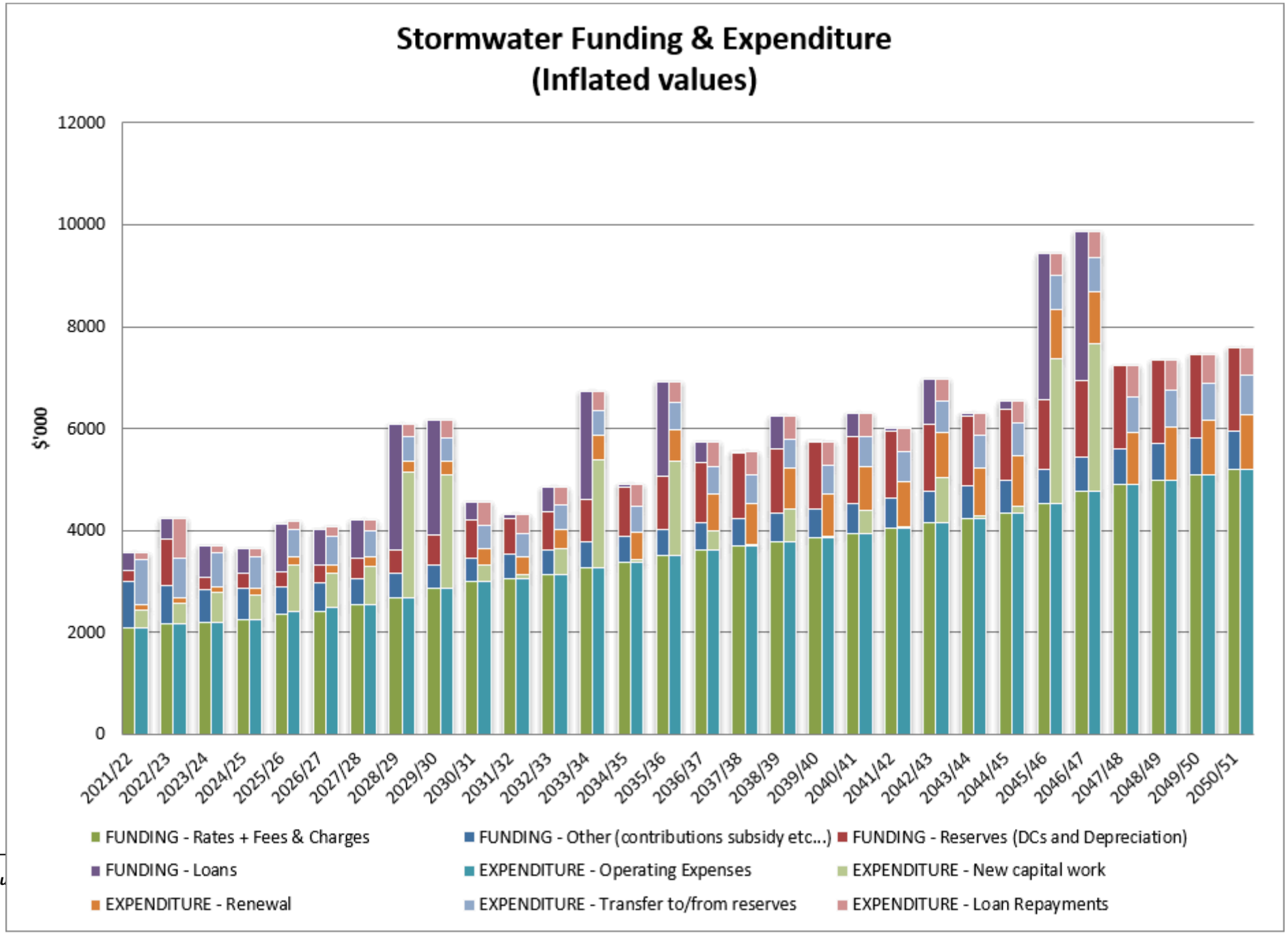
The confidence level is A overall.

Financial forecasts within the first three years are reliable with the reliability decreasing with time. The reliability depends on the phase of the project, with reliability increasing as the project moves from scoping to construction.

Construction Design Investigation Scoping	1. Increasing reliability 

Stormwater
Financial Summary
For the 2021-51 Asset Management Plan

	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	41/42	42/43	43/44	44/45	45/46	46/47	47/48	48/49	49/50	50/51
Revenue																														
General Rates	-2,097	-2,164	-2,192	-2,256	-2,348	-2,425	-2,538	-2,670	-2,859	-2,996	-3,060	-3138	-3280	-3376	-3506	-3613	-3687	-3780	-3862	-3953	-4039	-4150	-4248	-4339	-4529	-4764	-4900	-4993	-5090	-5191
Targeted Rates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vested Assets	-896	-772	-658	-619	-541	-547	-507	-487	-456	-460	-471	-483	-495	-508	-520	-533	-547	-560	-574	-589	-603	-618	-634	-650	-666	-683	-700	-717	-735	-753
Total Revenue	**-2,992**	**-2,936**	**-2,850**	**-2,875**	**-2,889**	**-2,972**	**-3,045**	**-3,157**	**-3,314**	**-3,456**	**-3,531**	**-3,621**	**-3,776**	**-3,884**	**-4,026**	**-4,146**	**-4,234**	**-4,340**	**-4,437**	**-4,542**	**-4,642**	**-4,768**	**-4,882**	**-4,989**	**-5,195**	**-5,447**	**-5,600**	**-5,710**	**-5,825**	**-5,944**
Operating Expenses																														
Maintenance Costs	478	497	462	415	427	439	453	467	483	498	511	523	536	550	564	578	592	607	622	638	654	670	687	704	722	740	758	777	796	816
Operations Costs	67	69	71	100	160	135	80	83	85	88	90	92	95	97	100	102	105	107	110	113	115	118	121	124	127	131	134	137	141	144
Interest on Borrowings	120	113	103	107	119	133	149	192	252	273	268	266	294	315	331	351	343	339	335	329	323	324	325	315	347	420	447	429	412	395
Depreciation	1,041	1,103	1,150	1,202	1,254	1,312	1,371	1,430	1,514	1,591	1,632	1,683	1,767	1,812	1,894	1,949	1,999	2,061	2,113	2,175	2,230	2,304	2,362	2,424	2,542	2,664	2,730	2,799	2,869	2,940
Overheads	390	381	405	431	444	464	486	499	524	546	560	574	588	603	618	633	649	665	682	699	716	734	753	771	791	810	831	851	873	895
Total Operating Expenditure	**2,097**	**2,164**	**2,192**	**2,256**	**2,404**	**2,483**	**2,538**	**2,670**	**2,859**	**2,996**	**3,060**	**3,138**	**3,280**	**3,376**	**3,506**	**3,613**	**3,687**	**3,780**	**3,862**	**3,953**	**4,039**	**4,150**	**4,248**	**4,339**	**4,529**	**4,764**	**4,900**	**4,993**	**5,090**	**5,191**
Net Deficit (Surplus) of Operations	**-896**	**-772**	**-658**	**-619**	**-484**	**-489**	**-507**	**-487**	**-456**	**-460**	**-471**	**-483**	**-495**	**-508**	**-520**	**-533**	**-547**	**-560**	**-574**	**-589**	**-603**	**-618**	**-634**	**-650**	**-666**	**-683**	**-700**	**-717**	**-735**	**-753**
Funded by:																														
Transfers to/from Reserves	-896	-772	-658	-619	-484	-489	-507	-487	-456	-460	-471	-483	-495	-508	-520	-533	-547	-560	-574	-589	-603	-618	-634	-650	-666	-683	-700	-717	-735	-753
Renewals	**88**	**110**	**107**	**134**	**153**	**168**	**198**	**235**	**268**	**323**	**351**	**394**	**467**	**551**	**639**	**731**	**820**	**816**	**837**	**857**	**879**	**901**	**923**	**974**	**970**	**994**	**1,019**	**1,044**	**1,071**	**1,097**
Capex																														
Redoubt Street Stormwater Improvement Device	0	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Waikato street Stormwater Device	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mobil Station stormwater quality Improvement Device	0	0	0	0	309	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norman Smith stormwater quality Improvement Device	0	0	0	431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paenoa Rd Pipe diversion	0	52	276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Puataata Rd stormwater quality Improvement Device	0	0	0	0	0	0	12	308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spa Rd at Totara street stormwater quality Improvement Device	0	0	0	0	0	329	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tui Street stormwater quality Improvement Device	0	0	0	0	0	12	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Huia Street stormwater quality Improvement Device	0	0	0	0	0	0	0	12	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kohineheke reserve 2nd Stormwater Improvement Device	0	0	308	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mango Golf club pond retic	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hawai Gully Flood Mitigation	0	0	21	33	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mangakino Stormwater Flood Mitigation	25	55	0	0	174	310	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Two Mile Bay Gully Flood Mitigation	0	0	0	22	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimberly Reserve Gully Flood Mitigation	0	0	0	0	47	35	400	2,023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elizabeth Street Gully Flood Mitigation	0	0	0	0	0	0	0	0	0	328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tamatea Flood Mitigation	0	0	0	0	0	0	48	123	1,908	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kimberly reserve flood mitigation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,430	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
miro street investigation	0	0	0	0	0	0	0	0	0	0	54	138	2,118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tauhara rd / Doc stormwater pond development	0	0	0	0	0	0	0	0	0	0	0	0	0	29	30	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0
crown Rd Pond Retic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	639	0	0	0	0	0	0	0	0	0	0	0	0
Rakaunui Rd retic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	882	0	0	0	0	0	0	0	0
Kinloch quality improvement devcie	0	0	0	0	0	0	0	0	0	0	0	0	0	14	386	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mangakino quality improvement device	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	420	0	0	0	0	0	0	0	0	0	0
Taupo CBD upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	148	2,847	2,918	0	0	0	0
lake Tce quality improvement device	0	0	0	0	0	0	0	0	0	0	13	358	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total New Capex	**353**	**405**	**605**	**485**	**923**	**685**	**757**	**2,466**	**2,226**	**328**	**67**	**496**	**2,118**	**43**	**1,845**	**380**	**31**	**639**	**16**	**453**	**34**	**882**	**54**	**148**	**2,847**	**2,918**	**0**	**0**	**0**	**0**
Total Capex	**441**	**514**	**713**	**620**	**1,076**	**854**	**955**	**2,701**	**2,494**	**650**	**418**	**890**	**2,585**	**595**	**2,484**	**1,111**	**851**	**1,455**	**853**	**1,311**	**913**	**1,782**	**978**	**1,122**	**3,817**	**3,911**	**1,019**	**1,044**	**1,071**	**1,097**
Funded by:																														
Loans raised	211	-379	467	335	766	490	537	2,234	1,881	-114	-296	145	1,761	-384	1,433	-89	-435	190	-440	15	-405	459	-387	-278	2,432	2,406	-608	-584	-560	-538
Transfer from reserve(s)	230	894	246	284	310	364	418	467	613	764	714	745	824	979	1,051	1,200	1,285	1,264	1,293	1,296	1,318	1,324	1,365	1,400	1,384	1,506	1,627	1,628	1,631	1,635
	441	**514**	**713**	**620**	**1,076**	**854**	**955**	**2,701**	**2,494**	**650**	**418**	**890**	**2,585**	**595**	**2,484**	**1,111**	**851**	**1,455**	**853**	**1,311**	**913**	**1,782**	**978**	**1,122**	**3,817**	**3,911**	**1,019**	**1,044**	**1,071**	**1,097**


Stormwater Funding & Expenditure
(Inflated values)
$'000
12000
10000
8000
6000
4000
2000
0
2021/22
2022/23
2023/24
2024/25
2025/26
2026/27
2027/28
2028/29
2029/30
2030/31
2031/32
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2048/49
2049/50
2050/51
FUNDING - Rates + Fees & Charges
FUNDING - Other (contributions subsidy etc...)
FUNDING - Reserves (DCs and Depreciation)
FUNDING - Loans
EXPENDITURE - Operating Expenses
EXPENDITURE - New capital work
EXPENDITURE - Renewal
EXPENDITURE - Transfer to/from reserves
EXPENDITURE - Loan Repayments

10.0 ASSET MANAGEMENT PRACTICES

10.1 Current Asset Management Practices

This section outlines the decision-making tools Taupō District Council (TDC) currently uses to determine long term maintenance, renewal and creation expenditure for Stormwater assets.

Council asset management plans are regularly externally reviewed, with these reviews enabling asset managers to identify areas in the amp that need to be refined. The refinement process has been placed into the improvement section of the AMP. The Asset management group has been established to provide group support to the development of amps going forward.

Asset Management plans are compiled by individual asset managers responsible for their assets. Asset managers are also part of the Asset Management Team who work together to ensure quality outcomes. The team has key relationships with the policy division to make sure that customer expectations are understood as well as key outcomes are achieved. The Finance team also assit in the preparation of finance section. Project information as well as overall budgeting is then passed to senior management to enable further analysis as well as support. Asset management plans are then presented to Council where further prioritisation occurs.

On-going NAMS training is available to all staff involved in the production of the asset management plans to facilitate the best management of the assets.

AM practices fall under three broad headings:

Processes: The necessary processes, analysis and evaluation techniques needed for life cycle asset management.
Information Systems: The information support systems used to store and manipulate the data.
Data: Data available for manipulation by information systems to produce the required outputs.

10.2 Asset Management Processes

10.2.1 ATTRIBUTE DATA COLLECTION AND VALIDATION

Data collection is completed by:

- Stormwater Maintenance contractors providing updated asset information as maintenance works are completed.
- Contractors supplying data where an asset is renewed or installed
- As built data from new subdivision works
- CCTV data allows for condition assessment and fault finding
- Criticality assessment overlays maintenance and renewal program

Validation is completed by way of TDC auditing of contractor's work sheets and reviewing CCTV data. Council has employed Project Max, to independently review CCTV work which includes evaluation of contractor performance as well as confirmation of condition assessment and recommendations for maintenance and renewal works.

Councils asset database (Asset –Finda) records all asset data as well as performs valuation, contract payment processing and asset validation. This data base also enables the programing of network renews based on age, criticality, condition, and maintenance records.

10.2.2 NEW DEVELOPMENT APPROVALS/AS-BUILT RECORDS

The Development Engineer approves completed works and ensures that the following people are issued a copy of all final documents, e.g. plans, pipe and manhole testing results.

- GIS – via the GIS help desk email address
- Utility Asset Officer (who will discuss any issues with the Asset Manager if required).
- Asset data is logged into Asset-Finda and into the GIS data systems
- Vested asset information is uploaded into the finance system.

10.2.3 PROCUREMENT

Council developed a Procurement Manual, and the document provides guidelines regarding Council procurement and tender evaluation methods.

10.2.4 LEVEL OF SERVICE CONSULTATION

The level of service consultation provides feedback from residents and ratepayers of the Taupō District. The responses from this consultation provide input into how the asset is managed. Level of service consultation will be undertaken as part of the LTP consultation process.

10.2.5 INFORMATION FROM CONTRACTORS

Processes for collection of data (maintenance, condition, new assets, renewals, performance etc) clearly defined and efficiently administered through asset maintenance contracts. Council has provided set requirements in the contract documents that clearly set out Councils data capture requirements and the processes to get this information into the required data set. Council's current contractor Downer Construction can automatically upload data into Asset – Finda as the network is maintained or renewed.

10.2.6 STANDARD OPERATING PROCEDURES

Standard Operating Procedures are being developed to assist in the operation and maintenance of assets. This process is ongoing with new procedures being developed as the need arises and updates being made as required. Most of the stormwater asset is piped based but there are requirements for the cleaning of quality improvement devices and the management and maintenance of the ephemeral gully systems.

Quality improvement devices have individual maintenance programs and procedures.

10.2.7 ASSET MANAGEMENT ACCOUNTING AND ECONOMICS

Council uses a renewal accounting system.
Infrastructure assets are those public facilities which provide for the delivery of services and sustained standard of living. They primarily comprise the Council's fixed utility systems including roads, streets and footpaths, the water and sewerage reticulation systems, the stormwater system, bridges and culverts.

Infrastructure assets are deemed to have the following attributes:

- they are large networks constructed over several generations;

- they have very long useful economic lives;
- they have a high initial cost;
- they provide a benefit and/or a social service rather than a commercial service, i.e. the assets are used by or for the community as a whole, servicing all the City's residents and visitors The assets are not usually capable of subdivision for ready disposal, because of legal or other restrictions, and consequently are not readily disposable within the commercial marketplace;
- assets are not normally depleted as their service capability is fully maintained in perpetuity, i.e. they are expected to have an indefinite life if adequately maintained although portions of the network will be replaced from time to time.

Assets are systematically evaluated as required, approximately every three years but more regularly for critical assets or in areas where there is a flat grade in the piped network and where the network suffers from silt and sediment build-up.

Depreciated replacement cost is calculated having regard to an allowance for the expired portion of the expected useful economic life for each category of infrastructure asset.

TDC uses the principles of accrual accounting to measure costs of services provided and recognise revenues.

Renewal accounting treats all upgrading, reconstruction, renewal and renovation work which does not increase the capacity or service potential of assets as operating expenditure.

Operating expenditure can be divided into two broad categories; normal ongoing day to day routine preventative and reactive maintenance works, and those other more infrequent larger projects that upgrade or renew the asset to its previous service potential.

Creation expenditure involves increases in an asset's service potential or the creation of new assets.

All expenditure on infrastructure assets will therefore fall into one of three categories:

10.2.7.1 Routine Maintenance Expenditure

Routine maintenance projects can be expected to display some or all of the following characteristics:

- regular and ongoing annual expenditure necessary to keep the assets at their required service potential,
- day to day and/or general upkeep works designed to keep the assets operating at required levels of service,
- works which provide for the normal care and attention of the asset including repairs and minor replacements,
- minor response type remedial works i.e., isolated failures requiring immediate repair to make the asset operational again.

10.2.7.2 Renewal Expenditure

Work displaying one or more of the following attributes, can be classified as renewal expenditure.

- works which do not increase the capacity or service potential of the asset, i.e. works which upgrade and enhance the assets restoring them to their original size, condition, capacity etc,

- the replacement component of augmentation works which increase the capacity of the asset, i.e. that portion of the work which restores the assets to their original size, condition, capacity etc.,
- the replacement component of a new work which replaces the redundant element of an existing asset,
- reconstruction or rehabilitation components of works involving improvements, realignment and re-grading,
- renewal and/or renovation of existing assets, i.e., restoring the assets to a new or fresh condition.

10.2.7.3 New Works Expenditure

New works expenditure projects displaying one or more of the following characteristics:

- construction works which create a new asset that did not previously exist in any shape or form,
- expenditure which purchases or creates a new asset (not a replacement) or in any way improves an asset beyond its original design capacity,
- upgrade works which increase the capacity of the asset,
- construction works designed to produce an improvement in the standard and operation of the asset beyond its current capacity.

To the extent that a project results in replacement of an asset caused by physical deterioration, and provides capacity for increased demand, proportions should be allocated to both creation and renewals on the basis of marginal cost.

It is recommended that the split between creation and renewal expenditure is based on marginal cost. This recognises the full cost of renewing the existing asset to its original service potential is an expense as this expenditure cost does not contribute to improving the asset beyond its original design capacity.

10.2.8 THE LONG TERM PLAN (LTP) PROCESS

The Long Term Plan (LTP) process considers the community outcomes, statutory requirements, the headline indicators and external pressures to determine what Council can or should be doing to help the community work towards its desired future.

The LTP also contains an action plan that sets out how Council will undertake its strategic goals and details the specific activities, functions and initiatives undertaken in the short term (three years) and long term (10 years) and longer term (30 years).

The LTP draws on information from other documents including the Asset Management Plans and models it in financial terms over a ten year horizon.

The LTP is updated every three years with this LTP being currently developed for the 2021 to 2031 period.

10.2.9 THE ANNUAL PLAN PROCESS

The Annual Plan is an action plan that sets out how Council will undertake its strategic goals and details the specific activities, functions and initiatives undertaken. It is produced in the years when a LTP is not. It will also outline deviations from the LTP.

10.2.10 STANDARDS AND GUIDELINES

In all Stormwater works there are standards and guidelines that are available to ensure that Council is following 'best practice'. This includes national standards on pipe laying, onsite Stormwater treatment, subdivision and development and the TDC Code of Practice for Land Development.

Whereas Acts and Regulations determine minimum levels of service, standards and guidelines provide the means of compliance with specific levels of service. Best practice in regard to stormwater service delivery is constantly evolving, as new technology advances, so do the communities' expectations around environmental outcomes.

10.3 Asset Management Information Systems

10.3.1 ASSET MANAGEMENT SYSTEM

Council has purchased and implemented Asset Finda which is an Asset Management System that contains the data for Water, Wastewater and Stormwater Assets. The data held in this system links directly with the GIS system and the finance system.

10.3.2 GIS

The GIS stores all the spatial data relating to the assets. The data is taken from the AMS. Some GIS data is also available to the public to view.

10.3.3 SERVICE REQUEST SYSTEM

This is the system used by Council to record customer complaints, comments or compliments. The information is entered into the system when a customer calls and the call will be categorised depending the issue. Service requests are added into Asset-Finda and then sent to the contractor for completion.

10.3.4 ASSET VALIDATION BY CONTRACTORS

Data is collected daily by maintenance and capital works contractors. This information is then updated into Asset-Finda.

10.3.5 SPM (DEVELOPMENT CONTRIBUTION CALCULATIONS) DO NOT APPLY FOR THE STORMWATER ASSET

Capital works project costing are inputted into SPM along with their respective breakdowns of cost e.g. proportion of the project that is growth, backlog or renewal. The level of Development Contribution (DC's) is then calculated for forward financial planning and income projections. Development contributions are not required for the stormwater cost centre.

10.3.6 MONITORING DATA

All results from monitoring is stored into one central laboratory database. This database is updated by Laboratory staff and includes data from in-house testing as well as testing carried out by external laboratories. Relevant data is extracted and provided in the annual Consent report.

10.3.7 PROMAPP

Promapp is a procedure development programme that is being used to develop standard operating procedures for all Council business.

10.3.8 OBJECTIVE

Objective is Council's electronic document management system. All information relating to Council business is saved in this system for easy retrieval when required. This includes incoming and outgoing correspondence especially emails and letters. Objective is currently in the process of being renewed with a new document management system.

10.3.9 HISTORIAN

Historian is a data management programme that allows easy viewing of operational data such as daily flows or plant measurements.

10.4 Data

10.4.1 ACCOUNTING COST DATA

Cost data for the asset groups are identified in the accounting records.

The work category type (maintenance, renewals, and new works) is identified. Marginal costs are only separately identified for significant works. Minor asset expenditure (traffic controls, service lanes) may not be separately identified.

10.4.2 GROWTH MODEL

The growth model is updated on an annual basis to reflect changes in development patterns. This model predicts the spread and level of growth within the Taupō District Council Area. This model assists Asset Managers in planning forward works for their respective assets.

10.4.3 ASSET VALUATION

The asset valuation provides a three yearly update of the value of the Stormwater Asset. New assets or disposed of assets are taken into account at this time.

10.4.4 CONDITION ASSESSMENT

Condition assessments are carried out by both contractors and council staff. This process is both formal and informal. Reticulation conditional information is contained within contractor reports.
CCTV works are tendered out as Council looks to condition assess at least 10% of the network per year.

10.4.5 OPERATIONAL DATA

Operational data is available on objective, on site and through Historian.

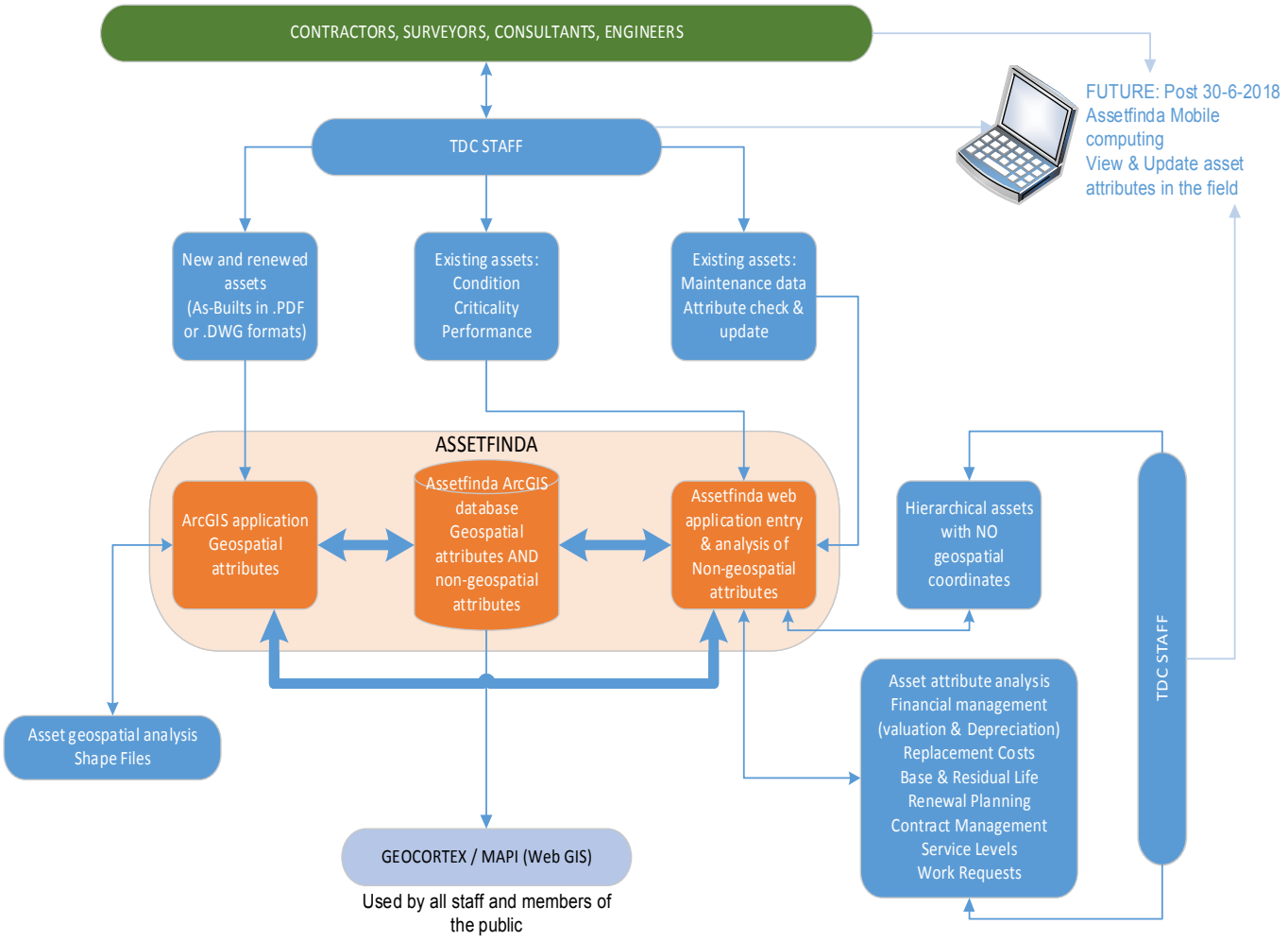


Figure 10-1: Asset Management System / GIS Data Recording Flow

10.4.6 DATA QUALITY ASSURANCE

The following are quality assurance regimes:

- Data Collection:
  - The contractor is responsible for GPS data collection following council standards (council doesn't accept any data with more than 0.3 m error in GPS coordinates).
  - TDC staff is continuously collecting data for historical assets which are updated after verification.
  - Project management team provides as built and field data and advise AMS team to update the information in asset register and or GIS.
- Data entry: Currently council is doing manual entry of the data using ArcGIS import capabilities CAD files and PDF files.
- Data maintenance: This is partially done by council staff whenever the contractor finds any variance in existing data and physical asset in the ground. In future it is envisaged that some efficiency will be developed with an upgrade of AssetFinda and field staff will be able to update asset attributes directly and it will be validated using quality assurance protocol developed at that time.

10.5 Asset Management Policy

PURPOSE

The Asset Management Policy supports Council's strategic goals found in the 2021 LTP of:

- Ensure that the Taupo District remains a great place to live
- Promote economic development
- Protect our water resources and use them wisely
- Maintain the quality infrastructure that we have
- Keep rates and debt affordable

OBJECTIVE

The objective of Council's Asset Management Policy is to:

- ensure service delivery is optimized to deliver agreed community outcomes and levels of service for both residents, visitors and the environment
- optimize expenditure over the life cycle of the assets
- risks are managed appropriately
- provide a service delivery that is sustainable

PRINCIPLES

The following principles will be used by Council to guide asset management planning and decision making:

- effective consultation to determine appropriate levels of service
- Integration of asset management within Council's strategic, tactical and operational planning frameworks including corporate, financial, and business planning
- Informed decision making using a lifecycle and risk management and inter-generational approach
- Transparent and accountable asset management decision making
- Sustainable management of assets for present and future needs

CORPORATE FRAMEWORK

This Asset Management Policy links to Council's LTP, Infrastructure and Financial Strategy and Asset Management Plans. It builds on Council's strategic goals by promoting an integrated approach to the management of service delivery and across all asset classes.

STRUCTURED ASSESSMENT of ASSET MANAGEMENT PRACTICE

Council has undertaken a structured assessment of the appropriate level of asset management practice for each of the asset classes. This structured assessment follows the guidelines provided in Section 2.1.3 of the International Infrastructure Manual (IIMM 2011v4). The level of maturity determined for each asset class can be found in introduction section of the respective Asset Management Plan.

IMPLEMENTATION and REVIEW of POLICY

This Asset Management Policy has been implemented in 2021. The next full review of this Asset Management Policy shall be completed in June 2020 prior to completing asset management plan updates to support the 2021 LTP.

MATURITY ASSESSMENT

In the first quarter of 2021 the maturity level of each of the Asset Management Plans has been assessed through an external review process to determine the actual level of maturity. This review will form the basis for the further refinement of each of the AMP's Improvement plans.

11.0 IMPROVEMENT PLAN AND MONITORING

11.1 Improvement Plan

Improving the management of Taupō District Council's Stormwater assets is a continual and ongoing process.

During the course of updating this plan, AM improvement tasks have been noted for follow-up over the next three years in conjunction with reviewing and improving this plan. This programme reflects the overall aim of improving asset management practices, which is to deliver the right level of service at the lowest long-term cost to TDC's customers.
The highest improvement tasks all focus on meeting that goal by:

- Ensuring the right level of funding is being allocated to maintain the asset service potential.
- Consulting with customers to ensure that their views are considered when selecting the best scenario.
- On-going NAMs training is provided for staff involved in the production of the asset management plans to facilitate best management of the assets.
- Asset Managers participate in the Council's asset management planning group which facilitates improvements in planning for all categories of assets.

11.1.1 BACKGROUND

The Asset Management Plan (AMP) has been updated to reflect changes in national policy (Local Govt Act amendment) and local thinking.

The AMPs were independently peer reviewed in October 2018 and has been improved in line with this review. Details from the latest review can be found in the report from Waugh Infrastructure Management Ltd:

This independent peer review looked at the Wastewater, Water and Stormwater AMPs and a number of improvements were identified from this review to raise these AMPs from core to advanced, where appropriate.

A detailed assessment has been done, where all asset managers have met regularly to discuss the methodology, on how to implement and manage these recommendations. The methodology chosen to implement these improvements was to filter all individual scores from 0 to 5 and give a higher priority to those with a 0 or 1 score particularly where the consequence of not doing these is major.

Most, if not all of the recommendations with a 0 or 1 score have now been completed where score 2 and above will be included in the planned improvement process.

Council now has an adopted AM policy or overarching strategy. A memo was presented at the SLT level which outlined the need for robust asset management planning in order to ensure the defensibility of the long term planning with TDC and provide SLT with a corporate framework and a direction sought from SLT. SLT decided to identify which AMPS would be Core or Advanced with the main difference between core and advanced being that at an advanced level future demand is predicted, high knowledge of assets owned, including condition assessment and performance etc.

On-going NAMS training is provided to all staff involved in the production of the asset management plans to facilitate the best management of the assets.

Asset Management plans are compiled by individual asset managers responsible for their assets. Asset managers are also part of the Asset Management Team who work together to ensure quality outcomes. The team has key relationships with the policy division to make sure that customer expectations are understood as well as key outcomes are achieved. The Finance team also assist in the preparation of finance section. Project information as well as overall budgeting is then passed to senior management to enable further analysis as well as support. Asset management plans are then presented to Council where further prioritisation occurs.

With the introduction of Asset Finda, and the implementation of the proactive maintenance program which includes the CCTV program asset managers have a far greater understanding and knowledge of their assets which has also enabled a more robust asset management plan to be developed.

The Stormwater / Solid Waste Asset Manager is responsible for the production of the Stormwater Asset Management Plan.

11.2 Improvement Programme Resources (cost and time) have yet to be approved and are only estimates at the time of updating AMP. These may need to be reviewed when task is in progress to judge if timeframe and cost is realistic

Task ID	Area for improvement	Action/task description	Priority	Target date	Resources		Status
					Resource	Progress/ comments	
1	AMP coordination	Make sue we don't dig up the road twice	1	21/22	TDC internal	Look how we can identify projects and coordinate them across the council	ongoing
2	Risk management	Ongoing identification of Stormwater Critical Assets	3	2021-31	TDC Internal	Internal planning	Completed, but now ongoing
3	Life Cycle Management Plan	H & S review of network	3	2021-23	TDC Internal	Detailing requirements feedback for maintenance contractor and asset surveys	On-going
4	Level of service	Level of service review and public consultation	2	20/21	TDC Internal	Work with comms regarding issues requiring consultation	Level of service consultation to be undertaken as part of the LTP process
5	Finance	Annual plan project review	1	To review prior to each annual plan document release	TDC Internal	Will need to align with funding ability	Completed prior to LTP consultation, will reassess after consultation
6	Asset Management Practises	review of AMP documents and preparation methodology what are the learnings	1	21/22	TDC Internal / external	Review will look to build on 2021 docs	Not started
7	Asset Management Practises	LTP preparation	1	2020/21	TDC Internal	Will need to align with funding ability	completed
8	Asset Management practises	Complete update from Waugh report for priorities 2 and 3	2	21-23	TDC internal	To be developed in conjunction with AMP team	ongoing
9	Valuations	AMP is to be updated the data from the latest asset valuation data.	3	2021	Consultant	As required	Data updated for relevant AMP.
10	Improvement Programme	To be monitored and updated regularly	2	ongoing	TDC Internal	ongoing	ongoing
11	Gap analysis	Update improvement plan to show the extent of the gap between existing practice and best practice.	2	ongoing	TDC Internal	ongoing	ongoing
16	Respond to external Asset management plan review	Finalise prioritisation and timing of improvement tasks	1	On going	TDC Internal	In Progress	Underway
17	Evaluate and plan for impact of changes to legislation	Various policy changes will impact stormwater assets in the future	2	22-25	TDC Internal	policy still being developed	Not started
18	Develop a gully planting schedule	Program to identify gully works with priorities	1	2021/23	TDC internal	ongoing	On-going
19	Condition Assessment	Develop a CCTV program for at least 5% of network per year	1	2021/23	TDC Internal	ongoing	On-going

20	Prepare for Comprehensive consent renewal	Consult with WRSC and other parties regarding any possible new conditions	1	23-25	TDC Internal / some external consultant support	Develop in conjunction with WRC	Not started
21	Finance	Develop business cases for developing project lists	1	21-23	TDC internal	Monitored quarterly	Completed for this LTP round
22	Revaluate monitoring program	Determine if pre and post quality improvement device sampling should be undertaken	2	21-23	TDC Internal	Will work with environment scientist to determine value of data	underway

Table 1: Improvement Plan

11.2.1 COMPLETED IMPROVEMENT PLAN TASKS

Following is a list of Improvement Plan Tasks that have been completed since the development of the last Asset Management Plan.

- Input into reserves management plans
- Implemented condition assessment program CCTV
- Developed projects and business cases for properties impacted by over land flow
- Asset data system has been implemented
- A criticality assessment has been undertaken
- Health and Safety review is ongoing
- Levels of service consulted on during the LTP process
- Annual plan project review is ongoing
- Improvement tasks have been updated; more work needs to be undertaken
- Implemented proactive maintenance program
- Renewal program based on age, maintenance history, condition and criticality has been provided
- Comparison of asset data with data in Ram, and removal of duplication and updating of data to reflect asset owner
- Developed and adopted plant lists for gully development
- Developed list of improvement device locations and business cases
- Undertaken an outlet survey to identify renewal and maintenance expenditure
- Completed business cases for capital and renewal expenditure for 2021 LTP

11.3 Monitoring & Review Procedures

The most important review procedure is the 3-yearly review of the AMP that takes into account asset performance during the previous 3 years and identifies future trends and input into Council's strategic planning process. The 3-yearly cycle of TDC strategic planning is as shown in below.

The AMP group collectively identify any changes/updates required to the main text and comments are made and discussed with the AMP group before any changes are made to Individual AMPS. Any changes to the text are made using track changes for auditing purposes, the changes made can be easily seen between the draft and final documents. These are saved in Council's Objective filing system.

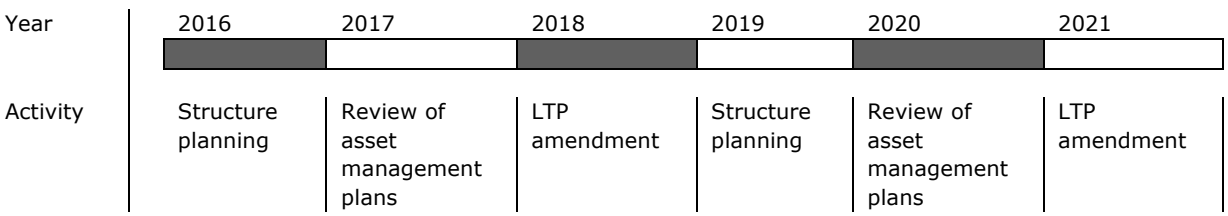


Figure 1: TDC Three Yearly Planning Cycle

The framework for the 3-yearly review of the AMP in terms of the breadth of considerations is illustrated in the following figure.

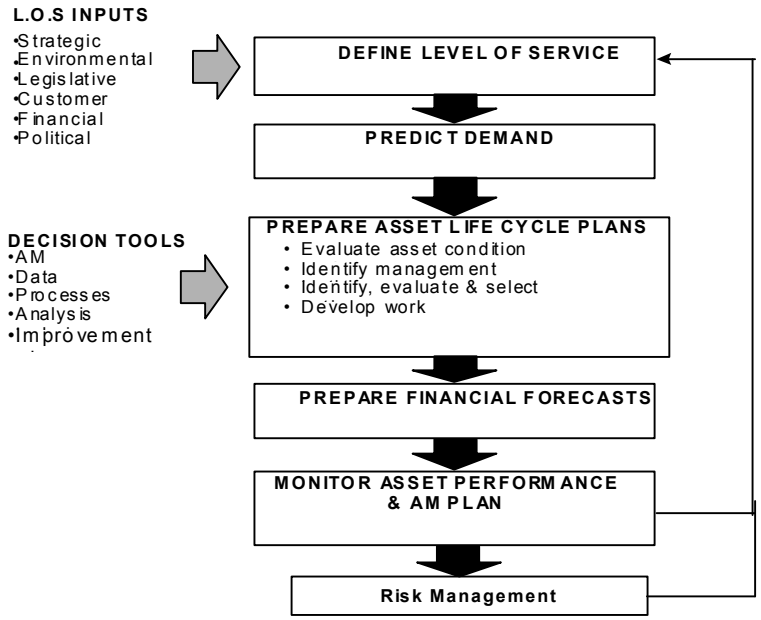


Figure 2: Asset Management Plan Review Procedure

ASSET MAINTENANCE, RENEWAL AND CAPITAL EXPENDITURE POLICY

OBJECTIVE

- To ensure expenditure is classified appropriately in accordance with generally accepted accounting practice.
- To provide an awareness to staff of different categories of expenditure on assets.
- To provide consistency with the asset management plans.
- To provide consistency with treatment of expenditure.

The policy provides guidance on the treatment of asset expenditure. The asset management plans (AMPs) are the documents that manage the assets and any guidance by this policy should be consistent with the AMPs.

COVERAGE OF POLICY

A revaluation of the assets occurred in May 2017. The capacity at that date is an appropriate starting point as the remaining useful life of the asset has been determined and the existing capacity is set.

DEFINITIONS

Asset expenditure can be deemed to fall into one of the following five categories:

Table one:

Expenditure Type	Description	Treatment
Operational	Activities which have no effect on asset condition but are necessary to keep the asset utilised appropriately (i.e. Power costs, overhead costs, etc.).	Operational (expense)
Maintenance	The ongoing day-to-day work required to keep assets operating at required service levels, i.e. Repairs and minor replacements.	Operational (expense)
Renewal	Significant work that restores or replaces an existing asset towards its original size, condition or capacity.	Capital (add to Fixed Asset Register)
New Work/Capital Expenditure	A new asset, works to create a new asset, or to upgrade or improve an existing asset beyond its original capacity or performance, in response to changes in usage, customer expectations, or anticipated future needs.	Capital (add to Fixed Asset Register)
Disposal	Any costs associated with the disposal of a decommissioned asset.	Operational (expense)

(Source: International Infrastructure Management Manual April 2000)

APPLICATION RULES

Appropriate general ledger codes have been set up to facilitate the coding of operational/maintenance, renewal and capital expenditure.

In determining the classification of asset expenditure consideration should be made of:

- Service Potential
  Service potential is the capacity that the system can produce from 1 July 1998. The key element in determining the expenditure classification of expenditure is the effect or change on the service potential of the asset or system.

    1. Where the service potential is restored to its original level, this constitutes renewal expenditure.

    2. Where the service potential increases above the current service potential, this constitutes capital expenditure.

- Thresholds

    1. The appropriate threshold for reviewing expenditure classification is at the component level e.g. Generally if expenditure does not constitute a component it should be considered maintenance. For information on the component levels refer to the individual asset component registers.

    2. Consider the materiality of the expenditure (in value and in substance). As guidance expenditure < $700 should to be treated as maintenance expenditure. In most instances it is not practical to capitalise expenditure below this level.

- Review the expenditure classification table (table one)
  Analyse the expenditure by the classification definitions listed in table one.

- Use the following specific examples and guidance for asset categories:

ROADING

Guidance has been provided by Audit New Zealand, Transfund and Roading Asset Management Plan:

Description	Definition	Examples	Expense
Pavement	Normal care and attention of the roadway to maintain its structural integrity and serviceability.	• Pavement patching and repairs, including potholes. • Shoulder maintenance • Maintenance and repair of surface water channels and subsoil drainage. • Stream clearing. • Grading of unsealed roads.	Operational
Pavement Maintenance (metalling)		• Replacement of wearing and running course metal on unsealed roads performed annually. • Replacement of wearing and running course metal on unsealed roads performed less frequently than annually (e.g. on a three to five year cycle).	Operational Capital (renewal)
Area Wide Pavement Treatment	Pavement maintenance techniques where the least-cost maintenance options is an area-wide treatment.	• Overlays • Rip and relay • Chemical stabilisation.	Capital, however guidance to be used: • greater than 50m urban is Capital (renewal) • greater than 250m rural is Capital (renewal) • less than these distances is Operational.
Major Drainage Control	Drainage work which is not routine in nature but which is clearly demonstrated to reduce future maintenance costs.	• Renewal or installation of culverts. • Repair and replacement of kerb and channel >50m • Installation of water channels, sub-soil drainage or kerb and channel.	Capital (renewal for replacement, improvement for new)
Maintenance Chip Seals	Pavement re-surfacing of an established sealed road.		Capital, however guidance to be used: • greater than 50m urban is Capital (renewal) • greater than 250m rural is Capital (renewal) • less than these distances is Operational.

Description	Definition	Examples	Expense
Thin Asphaltic Surfacing	Surfacing treatment technically necessary as an alternative to conventional chip sealing.		Capital, however guidance to be used: • greater than 50m urban is Capital (renewal) • greater than 250m rural is Capital (renewal) • less than these distances is Operational.
Seal Widening	Widening existing seal where this is the least cost option to overcome edge break or to reduce shoulder maintenance.		Capital, however guidance to be used: • greater than 50m urban is Capital (renewal) • greater than 250m rural is Capital (renewal) less than these distances is Operational.
Bridge Maintenance (routine)	Maintenance of the condition and appearance of a bridge.	• Repairs to handrails. • Non-structural painting. • Repair to retaining walls. • Stream clearance.	Operational
Bridge Maintenance (structural)	Repairs to a bridge where design input is required.	• Replacement of timber decks. • Replacement of damaged or deteriorated structural members. • Sandblasting and painting of structural members. • Foundation protection.	Capital (renewal)

Description	Definition	Examples	Expense
Amenity/Safety	The normal care and attention of the road corridor to maintain safety and aesthetic standards, other than work covered by pavement maintenance.	• Ice control. • Vegetation control. • Litter control. • Removal of graffiti. • Removal of crash debris.	Operational
Street Cleaning	30% of the cost of cleaning the carriageway within 2m of the kerb in urban areas.	• Cleaning channels. • Cleaning sumps. • Cleaning cesspits.	Operational
Traffic Services	The normal care and attention of roading furniture and traffic control devices that promote a safe and efficient roading system.	• Maintenance of signs, guardrails and sight rails. • Provision of maintenance of road markings. • Operation and maintenance of traffic signals.	Operational
Traffic Services		• Replacement and provision of signs, guardrails and sight rails. • Replacement of traffic signals.	Capital (renewal)
Carriageway Lighting	Maintenance and power costs associated with the operation of street lighting.	• Maintenance and power costs. • Conversion of existing mercury vapour and fluorescent fittings to high pressure sodium. • Renewal of existing lighting systems.	Operational Capital (renewal) Capital (renewal)
Cycleway Maintenance	Maintenance of the pavement and furniture associated with cycleways.	• Pavement repairs including potholes.	Operational
Professional Services (operational items)	Professional services fees and maintenance management activities.	• Professional services to manage operational activities. • Manage the road assessment and maintenance management system and undertake pavement deterioration modeling.	Operational
Professional Services (capital items)		• Professional services to manage capital activities.	Capital
Preventative Maintenance	Non-routine work that does not qualify as emergency reinstatement required to protect the serviceability of the road.	• New works that protect existing road from sea or river damage. • Drainage installed in incipient slips. • Protection planting.	Capital (improvement)

Description	Definition	Examples	Expense
Emergency reinstatement	Unforeseen significant expenditure, for the restoration of road to a standard no better than that which existed before the damage.	• Clear slips minor. • Reinstatement of carriageway following a major slip or 'drop out' that has restricted a traffic line.	Operational Capital (renewal)
Emergency reinstatement (structure)		• Retaining walls	Capital (betterment component)
Rehabilitation	Rehabilitation of pavements where economically justified.	• Pavement smoothing with asphaltic or granular overlays.	Capital, however guidance to be used: • greater than 50m urban is Capital (renewal) • greater than 250m rural is Capital (renewal) less than these distances is Operational.
Footpaths Maintenance		• Repairs to concrete, asphaltic concrete, interlocking blocks and seal footpaths • Replacement of concrete, asphaltic concrete, interlocking blocks and seal footpaths < 50m.	Operational
Footpaths Maintenance		• Replacement of concrete, asphaltic concrete, interlocking blocks and seal footpaths > 50m.	Capital
Footpath construction		• New concrete, asphaltic concrete, interlocking blocks and seal footpaths.	Capital
Construction – Minor Safety Improvements		• Traffic calming measures • New guard rails	Capital (improvement)
Construction – New Roads	Construct new roads, on/off street carparking	• Formation, kerb & channel, pavement	Capital
Construction – Seal extension	Construct new sealed pavements		Capital (renewal and improvement)
Construction – Reconstruction	Upgrading/reconstructing urban streets		Capital (renewal and improvement)
Construction – bridges			Capital (renewal and improvement)

WATER

Description	Definition	Examples	Expense
Reticulation	Pipes	• Pipe repair, pipe replacement (less than a block/section) • Pipe and valve replacement, renewal or new works(a block/section or more)	Operational Capital
Reticulation	Hydrants, Valves, Meters, Connections	• repair, replacement (less than a block/section) • replacement, renewal or new works(a block/section or more)	Operational Capital
Pump stations	Valves, Pumps, Pipes, Telemetry, Filters, Plant, Bores	• Consider by component level whether repair, renewal or new works	Use application rules
Treatment	Tanks, Plant	• Consider by component level whether repair, renewal or new works	Use application rules

WASTEWATER

Description	Definition	Examples	Expense
Reticulation	Pipes, connections, manholes	• Pipe repair, pipe replacement (less than a block/section) • Pipe replacement, renewal or new works(a block/section or more)	Operational Capital
Treatment Plant	Site works, equipment, tanks	• Consider by component level whether repair, renewal or new works	Use application rules
Pump stations	Pumps, Valves, Control Chambers	• Consider by component level whether repair, renewal or new works	Use application rules

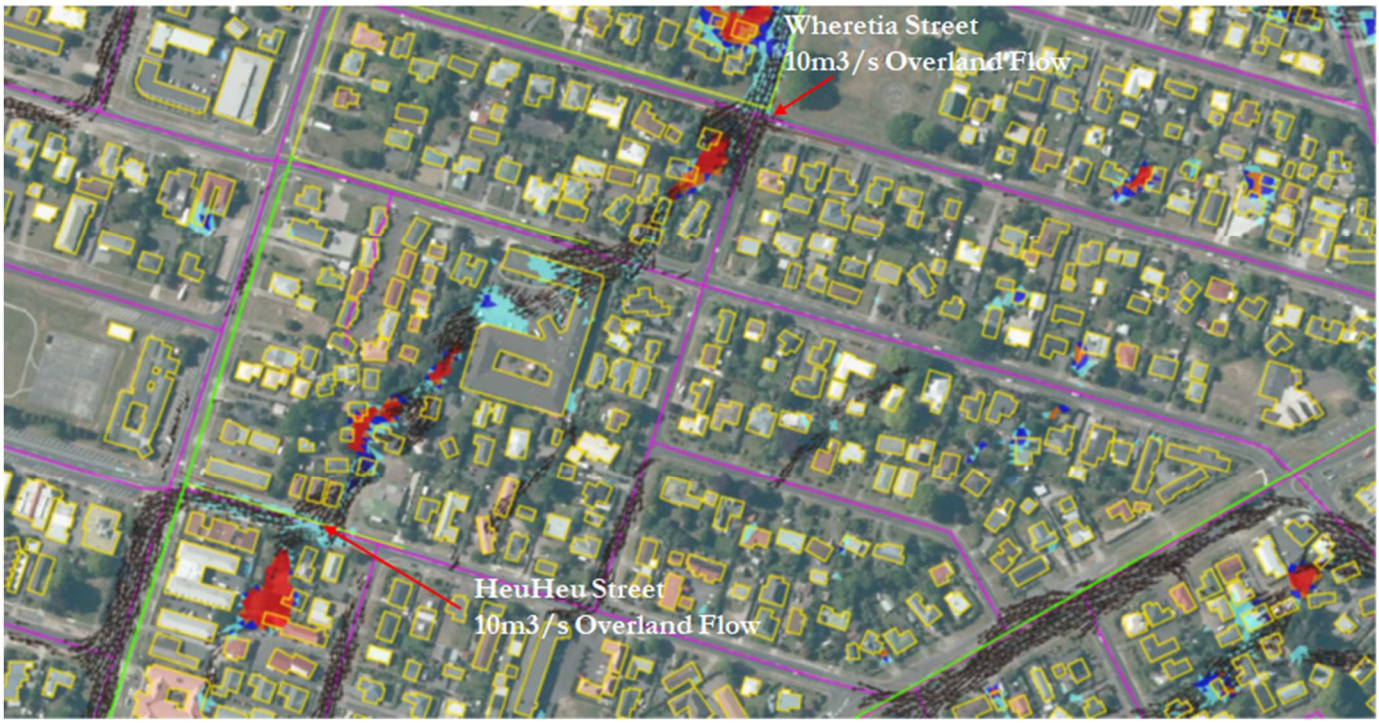
STORMWATER AND LAND DRAINAGE

Description	Definition	Examples	Expense
Reticulation	Pipes, Cesspits, Inlets, Manholes, Outlets, Soakholes	• Less than a section • Greater than a section	Operational Capital

BUILDINGS

Description	Definition	Examples	Expense
Structures	Buildings	• Repaint roof • Replace roofing iron, replace spouting • Replace tap in Superloo • Improve plumbing, replace all Superloo taps to improved taps	Consider application rule Operational (repair) Capital (renewal) Operational (minor replacement) Capital (major replacement)

LTP Business Case 1 to 3 years

Project Name	Elizabeth Street Gully Flood Mitigation.		
Description	The 100-Year flood map below for Elizabeth Street Gully is based on the latest flood model and indicates significant overland flows for a 100Yr rain event. Public safety and Council property are at risk within this flow path.  Figure 1. 100-Year Overland Flows Quantified within the Elizabeth Street Gully System.  Figure 2. 100-Year Overland Flows Quantified within the Elizabeth Street Gully System.		
Business Owner	Brent Aitken	**BC Author**	Brent Aitken/CDM
Project Size	Large	**Project Complexity**	Quest – "Know What Not How"
Programme	4-months est.	**Location**	Elizabeth Street Gully as indicated in Figures 1 & 2.

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	4	Total of both Scores 8
Secondary	Maintaining Levels of Service	4	
Background	This is a level of service project. The overland flow path model shows that properties, schools, and businesses within the flow path have a risk of being damaged due to the amount of stormwater flowing through the properties in extreme rainfall events. More detailed modelling and survey is essential to better quantify the level of risk and potential flood mitigation options and habitable floors need to be accessed to determine properties at risk.		
Business Need	Mitigation of Flood Risk to the public, properties, Schools, and businesses from stormwater overland flows.		

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Mitigating Stormwater flooding	Future Flood mitigations	Social
Improve level of service	Residents and Business owner's appreciation of protecting and looking after their wellbeing.	Improve resident's way of life.	Social

Opportunity	Reduce flood risk to buildings and community satisfaction		
Scope	**In**	**Out**	
	• Investigation / Survey • Hydraulic Modelling • Consultation • Design • Construction		
Constraints	H&S risk of having stormwater ponds in urban areas.	**Assumptions**	That the local community will be supportive of having a detention pond on reserves following the overland flow path. The reserve management plan can accommodate Stormwater detention.
Dependencies			
Stakeholders	Council, Tuwharetoa Trust Board, WRC		
Change Mgmt.	Flood Risk Awareness		
Risk of Doing	Construction risk	**Commentary**	Unknowns of underlying soil conditions that could impact the construction process.
Risk of Not Doing	Flooding may occur in an intense rain event as seen on flood maps.	**Commentary**	Not acceptable to property owners, School and Business owners.

Options Analysis *(add more options if applicable)*

	Option One: Change Nothing	Option Two: Detention Pond	Option Three: Stormwater Conveyance
Overview	These large overland flows will be contributing to flooding of properties, schools, and businesses within the flood paths.	Building shallow detention ponds at Pihanga street reserve to contain stormwater.	Increase conveyance capacity and dedicated flow-paths away from property and public risk utilising existing stormwater pipe routes and adding scruffy domes to reserves.
Advantages	Limits costs	Less construction cost with land available for storage within gully system (reserves).	Increasing capacity for current and future rainfall events diverting stormwater and protecting properties, schools, and businesses.
Disadvantages	Public safety and property at significant risk during large rainfall events.	Creating a catchment with a shallow bund and sloping of sides of reserve.	Higher cost and Iwi consent requirements to increased discharge / outfalls.
Costs	Unknown Property damage, maintenance, and clean-up costs	Investigations Surveying = $31,547 Modelling / Concept Design / Consenting = $34,570	250K signals future cost
Achievability	None	Stage 1	Stage 2
Recommendation	Option 2. Budget for Investigation and Survey to better understand the issues and potential solutions. Options analysis has been moved to the Opex budget in year two and three of the LTP		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?

- The procurement strategy will be to invite at least four local experienced contractors.
- Contract management arrangements are that contract, and project management is undertaken inhouse.
- Consultation with local community is key
- Preferable to undertake project over Summer to avoid dust and erosion as far as possible
- Timeframes, Construction expected to be over 4 months weather permitting

Project Outputs – the things the project is going to deliver

Output	Output Quality Details
Investigation and Design	Determine levels and sizing of detention pond
Contract document and procurement	Selection of experienced contractor
Contain stormwater	Containment by ponding will reduce flooding to properties.
Diverting of stormwater	Diverting of stormwater as best possible away from properties and businesses.

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)

Risk	Likelihood	Impact	Score
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements

Role	Primary Responsibilities	Internal or External	FTE Estimate	Duration Estimate
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	Internal	1	200Hrs
Engineer	ICM Hydraulic Modelling / Investigations	Internal	1	256hrs
Project Manager	General project and Contract management	Internal	1	100hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Investigation & Survey	$31,000	Opex
Modelling / Concept Design / Consenting	$34,000	Opex
Construction	250,000	Capex
Total Estimated Capital Cost		
Total Estimated Operational Cost/year		
Total Estimated cost	$315,000	
How accurate are your estimates? Costs fairly accurate (+/-30%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)		Investigation survey Modelling Options (OPEX)	Consenting / Concept Design Consultation (OPEX)							Construction
Cost of phase and year spent		$31,000	$34,000							$250,000

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

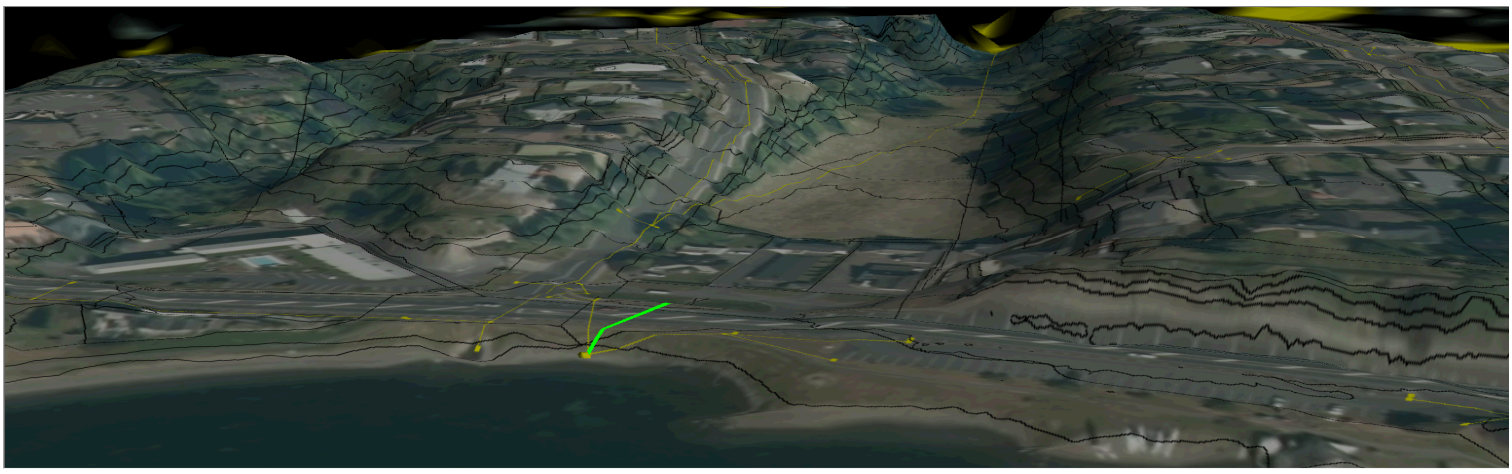
Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Hawai Gully Flood Mitigation
Description	This is a Level of Service project to protect 4 properties and motel businesses at significant flood risk, as located from 308 – 314 Lake Terrace (next to Hawai St). The 100-Year overland flow-path model shows that the properties on the lake front at the end of Hawai Street are at significant flood risk. Hawai Reserve provides an opportunity for stormwater detention with bunding to contain flood waters, in the form of two detention ponds. A future project may entail a new larger outfall under the road as the current capacity means water is backing up.  **Figure 1: 100-Year Flood Map – Existing Situation & 3D image of Properties At-Risk within gully below**



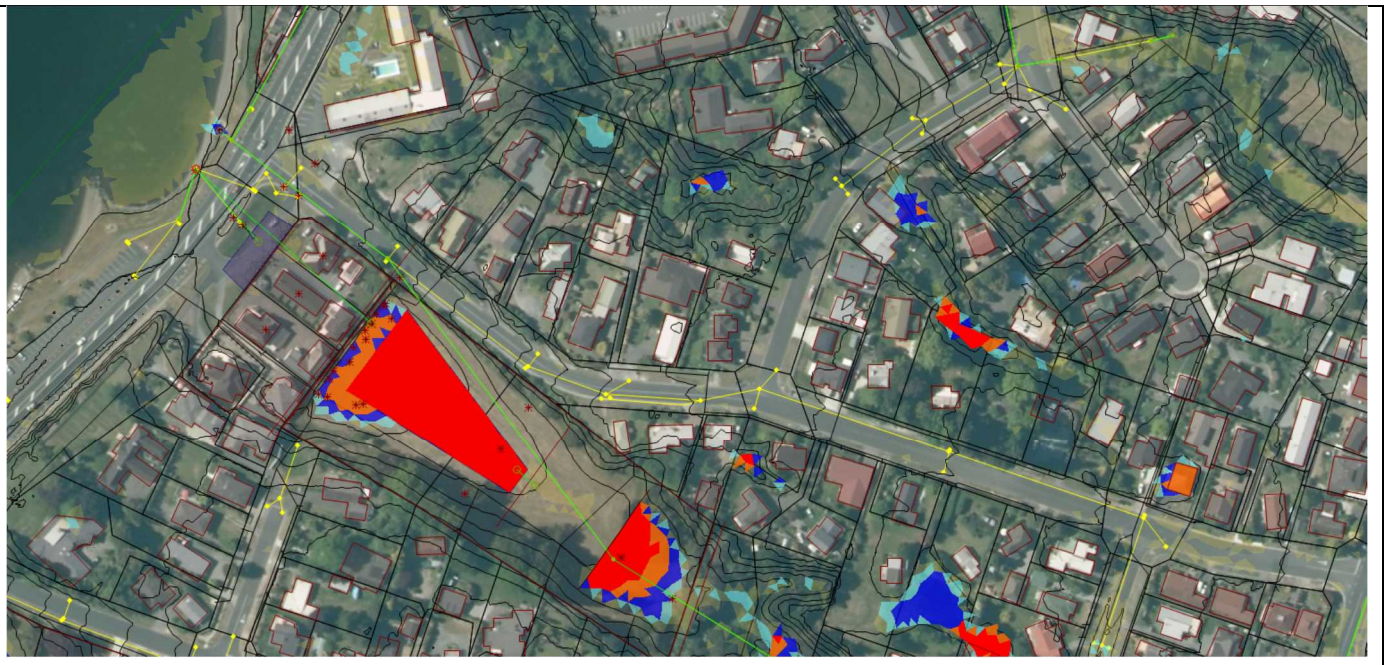


Figure 2: Flood Detention reduces downstream flood depths

Business Owner	Brent Aitken	**BC Author**	Brent Aitken
Project Size	Lite	**Project Complexity**	Paint by numbers
Programme	5-weeks during summer	**Location**	Hawai Street Reserve

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	4	Total of both Scores 7
Secondary	Protecting our environment	3	
Background	This is a level of service project. The overland flow path model shows that the properties on the lake front at the end of Hawai Street will be impacted by flood depths over 1m due to their location at the bottom of the gully. There is an opportunity with the Hawai Reserve behind to provide two detention ponds with bunds at 1.5m high to contain flood waters.		
Business Need	Mitigation of flooding properties and businesses downstream of the Reserve.		

Benefits and Wellbeings (see appendix)

Benefit	**How will you quantify and track**	**Benefit Type**	**Wellbeing**
Improved Public Health	Mitigating Stormwater flooding	Future Flood mitigations	Economic
Improve level of service	Residents and Business owner's appreciation and protecting their wellbeing.	Improve resident's safety and wellbeing	Social
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved discharge quality	Economic

Opportunity	Reduce flood risk to buildings and improve community satisfaction	
Scope	**In**	**Out**
	• Investigation / Survey • Hydraulic Modelling	• Upgrade of existing infrastructure. • Adding detention storage on Hawai Reserve.

	• Design • Construction	• Diverting Stormwater through drilled conveyance	
Constraints	The community may not like an area that may flood due to the risk to children, but the pond would be designed to have low sloping sides so that you could not fall into it.	**Assumptions**	That the local community will be supportive of having a detention pond on the reserve. The reserve management plan can accommodate Stormwater detention.
Dependencies	Dependent on community buy-in		
Stakeholders	Council, Residents, Tuwharetoa Trust Board, WRC		
Change Mgmt.	N/A		
Risk of Doing	Construction risk	**Commentary**	Soil conditions need to be determined to ensure no piping risk, or potential for failure of the bunds.
Risk of Not Doing	Flooding will occur during extreme rainfall as seen on flood maps.	**Commentary**	Not acceptable to property and business owners.

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two: Detention Pond (Stage 1)**	**Option Three: Stormwater Conveyance (possible Stage 2)**
Overview	Flood risk will remain, noting that these properties have been allowed to be constructed at the bottom of a significant gully	Dropping of ground level by 1m and building two detention ponds within Hawai Reserve to contain stormwater.	Increase conveyance capacity and dedicated flow-path utilising a drilled 1.5dia stormwater pipe from reserve to lake terrace with new outfall structure to the lake.
Advantages	Limits spending	Less construction cost with land available for storage within gully system	Increasing capacity for current and future rainfall events diverting stormwater and protecting properties and businesses.
Disadvantages	Ongoing flood risk to properties and businesses	Creating catchments with two 1.5m bunds and sloping of sides of reserve.	Iwi consent requirements to increased discharge / outfalls.
Costs	Limited to clean up and flood damage following floods	$165,000 + investigation/design	$75,000 + investigation/design
Achievability	N/A	When construction is complete the flattened area could be multi-purpose and used for a playing field	Subject to iwi approval and necessary consents (hence staging)
Recommendation	Option 2 (detention) is a proposed Stage 1 and Option 3 (conveyance) is proposed to follow once all necessary consents are obtained, noting that Stage 3 is essential for full success.		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?

- The procurement strategy will be to invite at least three local experienced contractors.
- Contract management arrangements are that contract, and project management is undertaken inhouse.
- Consultation with local community is key
- Preferable to undertake project over Summer to avoid dust and erosion as far as possible
- Timeframes, Construction expected to be over a five-week period weather permitting

Project Outputs – the things the project is going to deliver

Output	Output Quality Details
Investigation and Design	Determine soil suitability, levels and sizing of detention pond
Contract document and procurement	Selection of experienced contractor
Contain stormwater	Containment by ponding will reduce flooding to properties.
Diverting of stormwater	Diverting of stormwater away from properties and businesses as best as possible.

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	Internal	1	60Hrs
Engineer	ICM Hydraulic Modelling / Investigations / Design	Internal	1	200hrs
Project Manager	General project and Contract management	Internal	1	40hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Investigation / Consenting / Design	$45,000	Capital
Construction Incl 25% Contingency	$165,000 + $75,000	Capital
Total Estimated Capital Cost		
Total Estimated Operational Cost/year		
Total Estimated cost	$ 285,000	
How accurate are your estimates Costs fairly accurate (+/-30%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y 6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)			Investigate/ Design / Options consultation	Design / Consent	Bunding Construction (Stage 1)					Outfall Construction (Stage 2)
Cost of phase and year spent			$20,000	$20,000	$165,000					$75,000

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Hawai Street Stormwater Improvement Device
Description	The project is to place a Hynds Downstream defender into the stormwater network above the Hawai Street Stormwater Outlet  Access into the reserve for construction vehicles, and in the longer term, maintenance vehicles is limited so an access track will be formed as part of this project.

Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Pint by numbers, some risk around ground water levels may influence end pricing
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Most likely to be placed in the Hawai street reserve adjacent to Hawai street

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	Total of both Scores 5
Secondary	Public Health and Safety	2	

Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Social
Protecting our waterways	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Environmental
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved discharge quality	Environmental
Improve level of service	Measure contaminates removed when device is cleaned	Removal of contaminates from stormwater discharges into Lake	social

Opportunity	Relationship with Iwi, Tourists have clean lake, community satisfaction	
Scope	**In**	**Out**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water Access ramp to get truck to site off Hawai street	• Upgrade of existing infrastructure

Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay Underlaying soil may be rock or worse requiring additional works around foundation of the device	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure. Underlying soil thought to be pumice / have allowed additional funds to allow for foundation support
Dependencies	Time it takes to fabricate the device can be up to 3 months		
Stakeholders	Council, Tuwharetoa Trust Board, WRC, community, Three waters contractors for ongoing maintenance		

Change Mgmt.	none		
Risk of Doing	Construction risk	**Commentary**	The installation of the device will require at 5m deep hole to be dug which could be in ground water. Also, we do not know the exact underlying soil conditions, it is thought to be pumice but could contain rock or worse which would impact the build process
Risk of Not Doing	Stormwater will continue to be discharged into the Lake at Two Mile Bay without any quality improvement	**Commentary**	Stormwater network discharges directly into lake Taupo from a significant up stream catchment, with no quality improvement

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	There is a large upstream catchment that drains into the lake without treatment, this discharge will continue	Locate the device into the Hawai street reserve	Locate the device in the pocket park, or in the roadway
Advantages	No capital spend	Less construction cost, due to reserve being grass	Would collect all of the catchment
Disadvantages	There is a large upstream catchment that drains into the lake without treatment, this discharge will continue	Will miss collecting a small portion of the network on Hawai street	This will increase the construction costs and may close a section of the road for 2+ weeks
Costs	Environmental and health cost hard to measure, possible tourist backlash re contaminants	Capital = $330K Operational 3yr = $2,700.	Capital = $350K Operational 3yr = $2,700.
Achievability	None	Not being able to use the reserve as the other locations will increase the price due to no real room to fit the device in	Due to the size of the device and the associated pipe work it will be difficult to install this device anywhere except the reserve
Recommendation	Preferred option is to install a Hynds Downstream Defender upstream from the beach outlet		

RECOMMENDED OPTION

Delivery Approach – Option 2. Locate the device in the Hawai street reserve

<Describe the following at a high level:>

- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Timeframes, installation will be over a three-week period weather permitting
- Successful contractor will order the device ad program installation reflecting the delivery date

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements
Contract document and procurement	Selection of experienced contractor
DDU installed	On site construction

Access ramp into reserve off Hawai street	Currently access too the site is limited regarding large vehicles so an access ramp needs to be formed

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	15%	1 month
Investigate and design	Construction drawings	External	75%	1 month
contractor	construction	External		1 month

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
design	$8,000.00	Capex
Installation of device	$ 322,000.	Capex
Maintenance of device (removal of contaminants)	$2700.00 annually	Opex
Total Estimated Capital Cost	$330,000.00	
Total Estimated Operational Cost/year	$2700.00	
Total Estimated cost	$ 330,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)	Design Installation									
Cost of phase and year spent	$8000 $322,000									

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>

Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 7 to 10 years

Project Name	Huia Street stormwater quality Improvement Device		
Description	Place a stormwater quality improvement device above the stormwater outlet adjacent to Huia street		
Business Owner	Brent Aitken	**BC Author**	**Brent Aitken**
Project Size	Lite	**Project Complexity**	Paint by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Adjacent to Huia street on the Taupo lake front

Strategic Objective *(see appendix below to select primary and secondary)*			
		Score	**Project Score Total**
Primary	Public health and safety	2	Total of Both Scores 5
Secondary	Protecting our Environment	3	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district		
Option/s	Place a quality improvement device into the network		
Benefits and Wellbeings	Legislative compliance - Environmental Improved Public Health – Social Protecting our waterways – Economic Improved level of service – social		

Scope	**In**	**Out**	**Maybe**
	• Investigation • Design Installation / Construction		Infrastructure upgrade
Potential Issues with preferred option	Location of device		
Risk of Doing Nothing	Contaminate discharge levels will not change		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)							Design	Installation / Construction		
Cost of phase and year spent							$10,000	$250K		

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

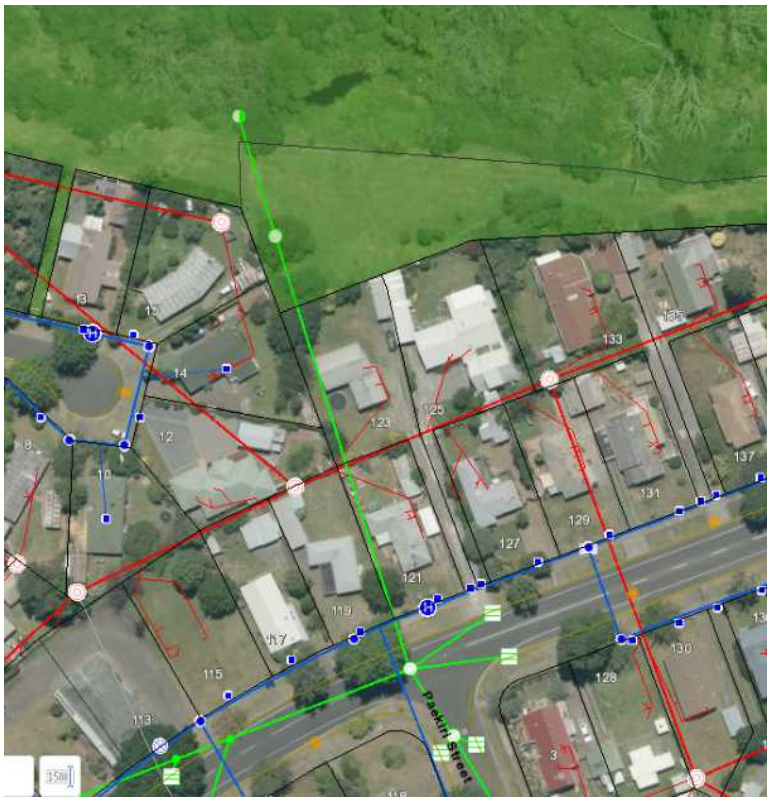
Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Kohineheke reserve 2nd Stormwater Improvement Device		
Description	The project is to place a Hynds Downstream defender into the stormwater network above what was the Kohineheke Reserve Stormwater Outlet adjacent to Paekiri street Turangi  There is a large up-stream catchment, that currently has no discharge quality improvement prior to the flow reaching the receiving environment. This outlet discharges into the reserve area that has been handed back to local owners. Part of the agreement with the landowners is that Council provided discharge quality improvement and this project would meet this condition. Council also has a requirement in the Comprehensive Consent that Council has a discharge quality improvement program and this project meets this condition.		
Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Print by numbers, It might be a little tight getting the device next to the existing Manhole
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	See above Map The device would be placed in the grass area behind the houses

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	Total of both Scores 5
Secondary	Public Health and Safety	2	

Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake and rivers	Social
Protecting our waterways	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake and rivers	Environmental
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved discharge quality	Environmental
Improve level of service	Measure contaminates removed when device is cleaned	Removal of contaminates from stormwater discharges into Lake and rivers	social

Opportunity	Relationship with Iwi, Tourists have clean lake, community satisfaction	
Scope	**In**	**Out**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water	• Upgrade of existing infrastructure

Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay Underlaying soil may be rock or worse requiring additional works around foundation of the device	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure. Underlying soil thought to be pumice / have allowed additional funds to allow for foundation support
Dependencies	Time it takes to fabricate the device can be up to 3 months Obtaining authorisation form land owners to place the device on the reserve		

Stakeholders	Council, Tuwharetoa Trust Board, WRC, community, Three waters contractors for ongoing maintenance, land owners		
Change Mgmt.	Include new device into maintenance program		
Risk of Doing	Construction risk	**Commentary**	The installation of the device will require a deep hole to be dug which could be in ground water. Also, we do not know the exact underlying soil conditions, it is thought to be pumice but could contain rock or worse which would impact the build process
Risk of Not Doing	Stormwater will continue to be discharged into the receiving environment without any quality improvement	**Commentary**	Stormwater network discharges directly into the receiving environment from a large upstream catchment

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	There is a large upstream catchment that drains into the receiving environment with out treatment, this discharge will continue	Locate the device into the road reserve	Locate the device into the river reserve
Advantages	No capital spend	Easy access to install device	Would collect all of the catchment
Disadvantages	There is a commercial industrial upstream catchment that drains into the receiving environment without treatment, this discharge will continue	May need to relocate the exiting manhole if there is not enough space to get the device in next to it	Possible ground water
Costs	Environmental and health cost hard to measure, possible tourist backlash re contaminants	Capital = $340,000 Operational 1yr = $2700	Capital = $290K Operational 1yr = $2700
Achievability	None	Not being able to use the reserve as the other locations will increase the price due to a tight fit at the road reserve	Due to the size of the device and the associated pipe work it will be difficult to install this device anywhere except the reserve
Recommendation	Option 3 Preferred option is to install a Hynds Downstream Defender upstream of the outlet on the reserve NOTE: Changed to option 2 due to possible reluctance by new land owners to have infrastructure on their land		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?

<Describe the following at a high level:>

- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Timeframes, installation will be over a three-week period weather permitting
- Successful contractor will order the device ad program installation reflecting the delivery date

Project Outputs – the things the project is going to deliver

Output	Output Quality Details
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements
Contract document and procurement	Selection of experienced contractor
DDU installed	On site construction

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	15%	1 month
Investigate and design	Construction drawings	External	25%	1 month
Contractor	Construction		1	1 month

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
design	$10,000.00	Capex
Installation of device	$ 330,000.	Capex
Maintenance of device (removal of contaminants)	$2700.00 annually	Opex
Total Estimated Capital Cost	$340,000.00	
Total Estimated Operational Cost/year	$2700.00	
Total Estimated cost	$ 340,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)			Design installation							
Cost of phase and year spent			$10,000 $340,000							

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

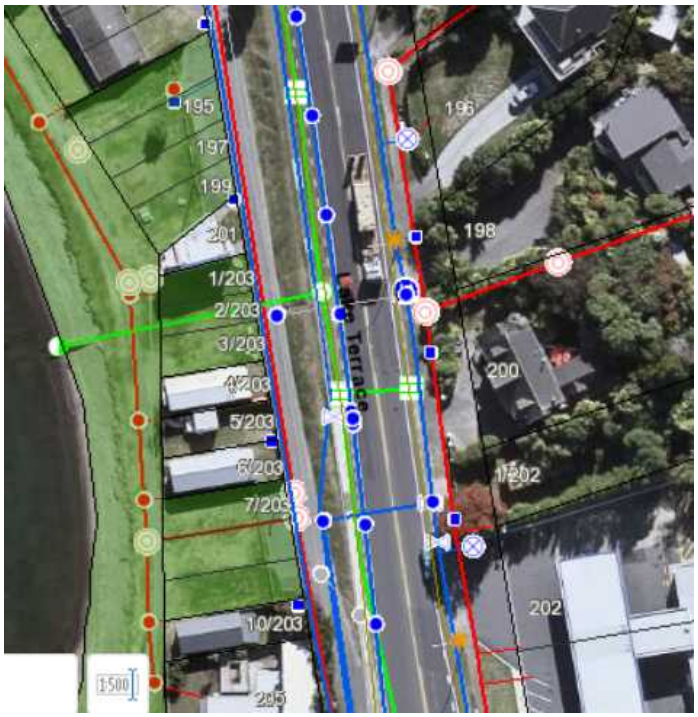
Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 4 to 6 years

Project Name	Lake Tce Near Napier Rd stormwater quality Improvement Device		
Description	The project is to place a Hynds Downstream defender into the stormwater network above the outlet that discharges into Lake Taupo adjacent to the Mobil Station on Lake Terrace  There is a large up-stream catchment, that currently has no discharge quality improvement prior to the flow reaching the receiving environment. This outlet discharges into Lake Taupo as shown above. This device could capture contaminants arising from any spill from the Fuel station.		
Business Owner	Brent Aitken	**BC Author**	Brent Aitken
Project Size	Lite	**Project Complexity**	Print by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	See above map. The device would be placed in the grass area up from the outlet We will need to cut a section of the path and replace it

Strategic Objective *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	5
Secondary	Public Health and Safety	2	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement		
Option/s	Place a quality improvement device into the network		

Benefits and Wellbeings *(see appendix)*		
Benefit	**Benefit Type**	**Wellbeing**

Improved Public Health	Removal of contaminates from stormwater discharges into Lake and rivers	Social
Protecting our waterways	Removal of contaminates from stormwater discharges into Lake and rivers	Economic
Legislative Compliance	Improved discharge quality	Environmental
Improve level of service	Removal of contaminates from stormwater discharges into Lake and rivers	social

Opportunity	Relationship with Iwi, Tourists have clean lake and river, community satisfaction		
Scope	**In**	**Out**	**Maybe**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water Will have to replace a section of the path to fit the device in	• Work in the roadway	

Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay This device will be installed at Lake level or just above it and there will need to be a deep cut to get the device in, so dewater will be needed during construction Consent requirements for placing more infrastructure on the reserve	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure. Consent to place additional infrastructure would be granted
Dependencies	• Approval from Iwi re device location	**Stakeholders**	Council, Tuwharetoa Trust Board, WRC, landowners, community, maintenance contractors
Potential Issues with the preferred option	Consultation regarding location		
Risk of Not Doing	Contaminate discharge levels will not change		

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements

Contract project management	Selection of experienced contractor
DDU installation	On site construction
Improved stormwater runoff into Lake Taupo	Stormwater monitoring program, visual improvement of discharge, measured contaminate load when devices are cleaned

Project Resources – Role Name	**Internal/External**	**Primary Responsibility**
Project manager	Internal	Project completion
Consultant	External	design
Contractor	External	Construction / installation

Cost Summary		
Item	**Estimated Cost**	**Capital or Operational**
design	15,000	
Construction installation	$260,000	
Total Estimated Capital Cost	$275,000	Capital
Total Estimated Operational Cost/year	$ 1500	Operational
Total Estimated cost	$ 275,000.00	

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)					Design Installation					
Cost of phase and year spent					$15K $260,000					

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
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Placemaking

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Risk Matrix

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Likely 4	Low	Medium	High	High	Extreme
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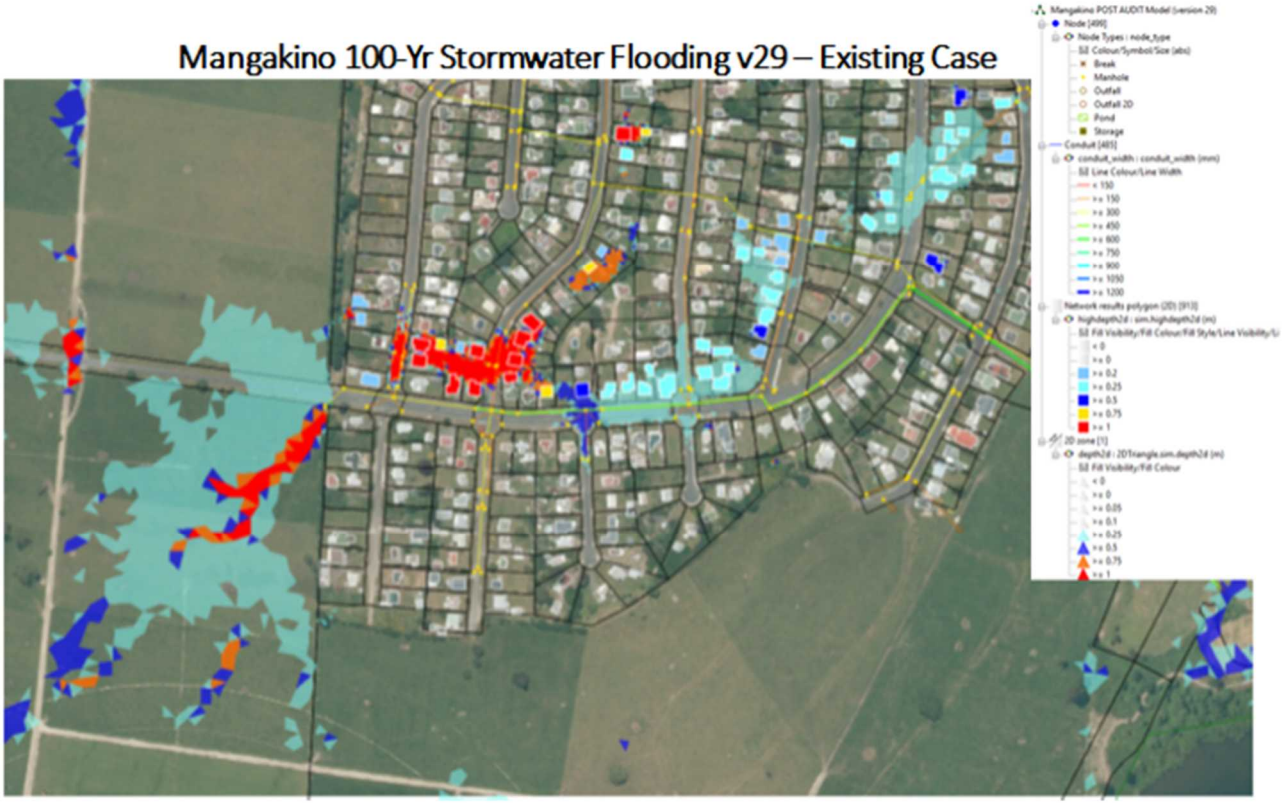
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	**Mangakino Stormwater Flood Mitigation**
Description	65 Mangakino properties are at flood risk with 12 having flood depths greater than 1m. The majority are located between Huamai street and Kowhai Street, off Rangatira Drive in Mangakino. The current flooding is due to dwellings built within a low-lying ponding area with stormwater flowing from the rural catchment down Rangatira Drive. The stormwater network has insufficient capacity for the flows into this ponding area at intersections, Rata Street, Matai Street, with flooding between Huamai and Kowhai streets. This project will create a swale through the farmland to allow storm flows to get to the lake and not flood the town. The project will also provide bunding adjacent to the main road. A future part of the project will be to add in a storm water pipe on Rangatira drive that will drain back to the farm land in large storm events.  **Figure 1: 100-Year Flood Map – Existing Situation**

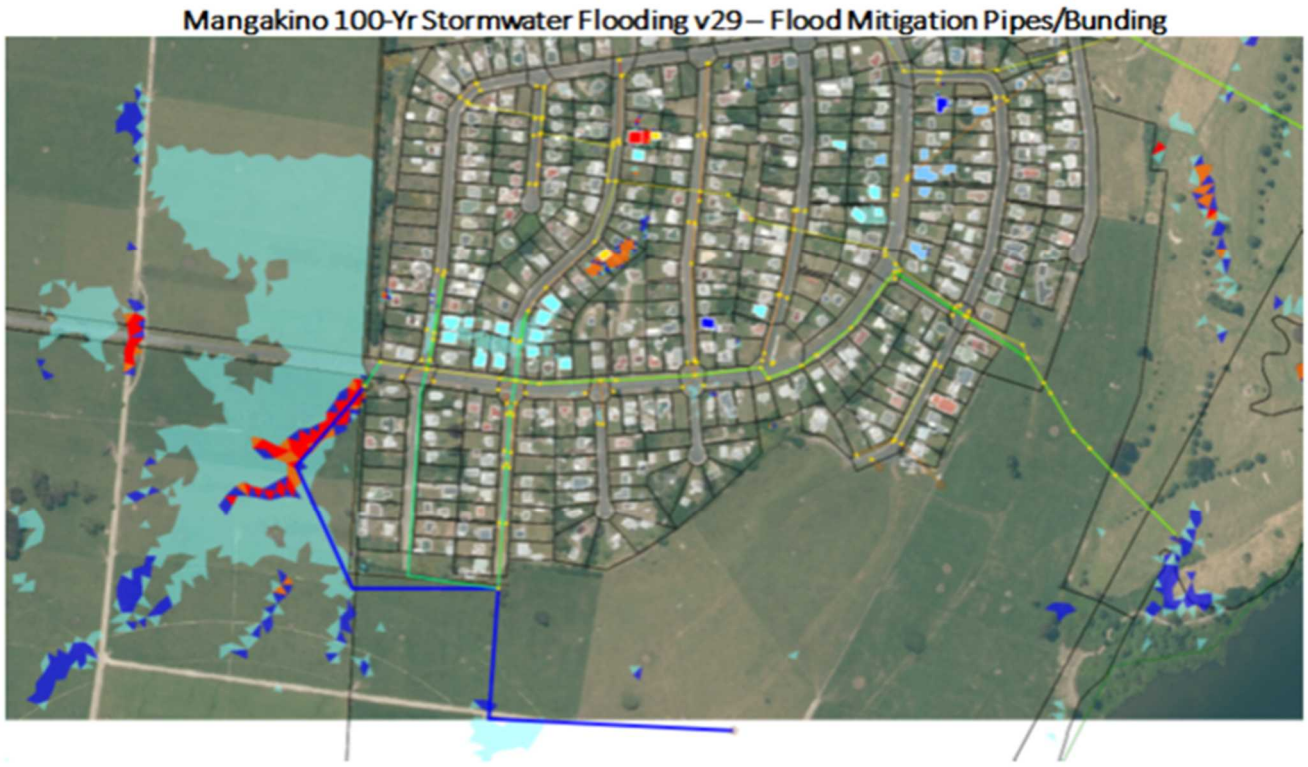


Figure 2: Post- Flood Mitigation - Bunding and piping flooded areas to a proposed relief swale

Business Owner	Brent Aitken	**BC Author**	**Brent Aitken / CDM**

Project Size	Lite	**Project Complexity**	"Paint by Numbers"
Programme	12-weeks during summer	**Location**	Mangakino

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	3	Total of both Scores 7
Secondary	Maintaining Levels of Service	4	
Background	The improvements reflect the requirements of Councils Stormwater strategy identification as a policy action that will look at where flooding issues are identified and will also meet the requirements of the Comprehensive Stormwater Consent as it will mitigate future 100-Year floods to an acceptable level.		
Business Need	Flooding of private properties and ponding on main roads leading into Mangakino town caused by over land flow coming off the rural catchment above.		

Benefits and Wellbeings (see appendix)

Benefit	**How will you quantify and track**	**Benefit Type**	**Wellbeing**
Improve level of service	Reduction of flooding on properties	Improve Residents way of life	Social
Improved Public Health	Mitigating damages/losses to residential properties	Future Flood mitigation	Economic
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Council reports on the amount of flooding on properties	Economic

Opportunity	Reduce flood risk to properties and road users, community satisfaction, health & safety obligations			
Scope	**In**		**Out**	
	• Consultation with farm owner • Investigation • Design • Construction		• Upgrade of existing infrastructure	
Constraints	Negotiations with property owner in regard to bunding and 800m drainage swale across private land.	**Assumptions**	Landowners will consent to the works to relieve property and road flooding	
Dependencies	Dependant on landowner approvals & consents as may be required			
Stakeholders	Council, Mangakino residents, Landowner/s			
Change Mgmt.	N/A			
Risk of Doing	Increased flow to lake across private rural land	**Commentary**	N/A	
Risk of Not Doing	Ongoing risk of flooding to private properties and roads.	**Commentary**	Properties and roads will continue to experience significant flood depths.	

Options Analysis *(add more options if applicable)*

	Option One: Change Nothing	Option Two: Pipe Upgrades	Option Three: Bunding & Flood Relief Drainage Swale
Overview	Continuous flooding to private properties at Haumai & Kowhai Street and Ponding on main road at Rata and Matai intersections.	Upgrading stormwater pipe network along existing alignments through Mangakino	Bunding may protect the west side of the town. Drainage swale from existing culvert at Rangatira Drive south adjacent to properties and then east directing rural flows towards lower ground.
Advantages	Only costs are ongoing flood damage and maintenance	Prevention of flooding properties and for future related contingencies.	Mitigating rural flows entering town on Rangatira Drive and flooding properties in and around Huamai, Kowhai, Kahu & Hinau Streets. Possible cost share with farm owners
Disadvantages	Residents continue to suffer significant stormwater flooding	Road works and construction passing property entrances obstructing movement of community. Current pipe network passing through private property	Landowner consents required and possible compensation payable Possible consent for discharge point
Costs	Flood damage and maintenance. Risk of litigation	Capital > $1M (approx. 1000m @ $1000/m)	Capital Estimate $498,000
Achievability	N/A	Significant difficulties and expense upsizing all retic through private properties and roads through Mangakino	Relatively easy subject to landowner consents and further investigations
Recommendation	Option 3: Staged with swale/bund construction initially and pipework installed in later years		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?
• The procurement strategy, will be to invite three local experienced contractors to tender • Contract / project management is undertaken in-house or using panel consultants • Consultation with Local community is key. • Preferable to undertake project over summer to avoid dust and erosion as far as possible. • Timeframes - Construction expected to be over a 3-week period weather permitting.

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and design	Identifying flooding properties and discussions with property owners the project expectations. Designing of bund wall & drainage swale not to be a safety hazard but to be an improvement to the town flooding mitigation plan. This will incorporate landowner agreement
Contract document and procurement	Selection of experienced contractor
Improved flooding mitigation for property owners.	Construction of bund wall, drainage swale, and extending existing pipe network to mitigate flooding towards lower ground for a 100-year rainfall event.

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**

Landowner may not consent to the swale across their land	Moderate	Moderate	Medium
Bad weather delaying works	Moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Project Manager	General project and Contract management	Internal	10%	6 months
Designers	Designing of Bund Wall and Drainage Swale	External	50%	6 weeks
Project Manager	Consultation	Internal	10%	3 months
Contractor	Construction	External	65%	3 weeks

Cost Estimate Summary – for recommended option 3		
Item	**Estimated Cost**	**Capital or Operational**
Investigation / Survey / Geotech / Consenting / Design	$77,850	Capital
Construction	$424,370	Capital
Total Estimated Capital Cost	$502,220	
Total Estimated Operational Cost/year		
Total Estimated cost	$502,220	**Including 25% contingency**
How accurate are your estimates Costs fairly accurate (+/-20%)		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)	Survey / Consents	Investigation / Design	Construction Swale	Construction Staged						
Cost of phase and year spent	$25,000	$53,000	$155,000	$269,000						

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
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Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
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Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
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Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
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5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
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Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Mango Golf club pond retic
Description	The Pipe network that passes next to the Mangakino Golf is surcharging in storm events above 1:5, meaning that the manhole lids are regularly popping. There is currently a large rock holding one lid form coming off.

This project will place a high level surcharge pipe that will allow storm flow to divert from the outlet pipe in to an old sludge pond that was earth worked for this reason.

It is envisaged that pipe could be directionally drilled, with a bubble up sump in the floor of the pond, the existing scrub will need to be removed with the pond planted with natives once the pipe work has been installed.

The pond has significant storage capacity but in the event of it filling, storm flow would harmlessly flow across the golf course to the lake.

Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Pint by numbers, some risk around ground water levels may influence end pricing
Programme	Reduction of flooding incidents	**Location**	Surcharge pipe to go into the network next to the Mangakino Golf club utilising the old sludge pond

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	

Secondary	Public Health and Safety	2	Total of both Scores 5
Background	The manholes adjacent to the Mangakino golf course building are constantly popping causing erosion and a risk to public health and safety. This due to two 300 dia pipes joining at a manhole with a 300 dia pipe leading to the discharge point		
Business Need	A high level surcharge pipe installed to take excess flow to an old sludge pond nearby, where it can soak to ground		

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Social
Protecting our waterways	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Environmental
Improve level of service	No incidences where the manholes are surcharging	No erosion from surcharging network	social

Opportunity	Reduce the H&S risks of manholes surcharging	
Scope	**In**	**Out**
	• Investigation • Design • Construction Removal of scrub from pond Directional drilling of pipe Installation of bubble up sump Planting of pond Fencing of pond	• Upgrade of existing infrastructure

Constraints	Contours around the exiting surcharging manhole may mean an additional manhole needs to be installed	**Assumptions**	That the Mangakino Golf club members are supportive of the project
Dependencies	Golf club support		
Stakeholders	Council, Mangakino golf club users		
Change Mgmt.	none		
Risk of Doing	Construction risk	**Commentary**	Ground conditions are unknown for directional drilling
Risk of Not Doing	Manhole lids will continue to surcharge with the risk to people and property	**Commentary**	It is a H&S risk to have the lids coming off

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	Currently the manholes are currently popping as the stormwater lines is surcharging as it under capacity	Install a surcharge line to the old sludge pond to prevent the lids popping	Install a surcharge line to the old sludge pond to prevent the lids popping. Plus add a line from the soakage pond to the lake outlet
Advantages	No capital spend	No H&S or erosion risk s from the lids coming off	Would prevent the storage pond from surcharging
Disadvantages	There will continue to be a risk and life and property with the manhole lids coming off	Cost of capital	Extra cost in piping to the Lake
Costs	There is some H&S and political risk of something happening with the lids coming off	Capital = $90K Operational 3yr = $1500.	Capital = $290K Operational 3yr = $1500.
Achievability	None	This is a fairly straight forward project, with the only unknown being the underlying soil types which may impact the drilling price	Placing the pipe through the golf course would cause some short term impact to the golf course
Recommendation	Preferred option is option 2 which is to install a surcharge line to the old sludge pond		

RECOMMENDED OPTION

Delivery Approach – Option 2. Connect a pipe to the manhole and allow surcharging flwo to go to the sludge pond and soakage

<Describe the following at a high level:>

- Discussions with the Golf club
- Design of the pipe
- Ask three contractors to price the works
- Project management to undertaken in house
- Installation period would be 3 weeks weather permitting

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation / design and consultation with golf club	Agreement with golf club users re alignment of pipes and timing of works
Contract document and procurement	Selection of experienced contractor
construction	Scrub and blackberry removed from the pond Pipes and bubble up manhole installed
Planting	Pond planted with nice pretty native plants
Fencing	Once works have been completed the od will be fenced for safety

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	15%	3 weeks
Investigate and design	Construction drawings	External	75%	1 weeks
construction	Installation of pipes, plants , fencing	External	100%	3 weeks

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
design	$5000.00	Capex
Installation of device	$85,000	Capex
Maintenance of device (removal of contaminants)	$500	Opex
Total Estimated Capital Cost	$90,000.00	
Total Estimated Operational Cost/year	$500.00	
Total Estimated cost	$ 90,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)	Design Installation									
Cost of phase and year spent	$5000 $85000									

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 4 to 6 years

Project Name	Norman Smith stormwater quality Improvement Device		
Description	The project is to place a Hynds Downstream defender into the stormwater network above the outlet that discharges in the Waikato River at the boat harbour  There is a large up-stream catchment, that currently has no discharge quality improvement prior to the flow reaching the receiving environment. This outlet discharges into the Waikato river as shown above with some consultation needed with the landowners Mercury energy to site the device on their land. Currently there are two separate 600dia pipes that join at the outlet. We will need to join thee pipes above the outlet to enable the full flow to be treated		
Business Owner	Brent Aitken	**BC Author**	Brent Aitken
Project Size	Lite	**Project Complexity**	Print by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	See above map. The device would be placed in the grass area up from the outlet

Strategic Objective *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	5
Secondary	Public Health and Safety	2	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		

	This outlet has two pipes joining into the outlet and may need an additional manhole placed upstream of the device with some pipe realignment
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement
Option/s	Place a quality improvement device into the network

Benefits and Wellbeings *(see appendix)*

Benefit	Benefit Type	Wellbeing
Improved Public Health	Removal of contaminates from stormwater discharges into Lake and rivers	Social
Protecting our waterways	Removal of contaminates from stormwater discharges into Lake and rivers	Economic
Legislative Compliance	Improved discharge quality	Environmental
Improve level of service	Removal of contaminates from stormwater discharges into Lake and rivers	social

Opportunity	Relationship with Iwi, Tourists have clean lake and river, community satisfaction		
Scope	**In**	**Out**	**Maybe**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water	• Work in the roadway	• Joining of the flow above the outlet to enable the full flow to be treated • Realignment of pipes to the manhole

Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay There are two discharge pipes so we will endeavour to join these pipes above the outlet so that we can treat the entire flow	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure. We can join the pipes to allow for the full flow to be treated, currently there are two separate 600 diameter pipes that join at the outlet
Dependencies	• The landowners (Mercury Energy) providing permission to locate the device on the location identified	**Stakeholders**	Council, Tuwharetoa Trust Board, WRC, landowners
Potential Issues with the preferred option	The landowners will need to be consulted on the device location and permission will need to be granted to locate the device		
Risk of Not Doing	Contaminate discharge levels will not change		

Project Outputs – the things the project is going to deliver

Output	Output Quality Details
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements
Contract project management	Selection of experienced contractor
DDU installation	On site construction
Improved stormwater runoff into Lake Taupo	Stormwater monitoring program, visual improvement of discharge, measured contaminate load when devices are cleaned

Project Resources – Role Name	Internal/External	Primary Responsibility
Project manager	Internal	Project completion
Consultant	External	design
Contractor	External	Construction / installation

Cost Summary		
Item	**Estimated Cost**	**Capital or Operational**
design	15,000	
Construction installation	$380,000	
Total Estimated Capital Cost	$395,000	Capital
Total Estimated Operational Cost/year	$ 1500	Operational
Total Estimated cost	$ 395,000.00	

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)				Design Installation						
Cost of phase and year spent				$15K $380,000						

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
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Empowering People	Process Efficiency	Protecting our Waterways	
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Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
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Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

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1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
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4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
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5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

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5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

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Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Paenoa Rd Pipe diversion		
Description	The project is to divert stormwater flow from going down Paenoa rd as currently there are number of houses that are impacted. Discussion with landowners has been ongoing over a number of years and ultimately the project will only proceed with acceptance from the landowners The project would pipe the flow below Acacia Bay to the southern gully on Paenoa Land and would incorporate large pipes and earthworks to enable this plus planting of the gully.  This catchment is catchment is 500Ha in size and the 100yr flood flows are significant. No agreement has bee reached to date, and there is a chance that the final solution may not reflect this current project		
Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Pint by numbers, with earthwork and pipe works to divert catchment flows
Programme	Complete landowner discussions and settle on final design. Design WRC consent Construction Planting	**Location**	The works will be undertaken on the down stream side of Acacia bay rd

Strategic Objectives *(see appendix below to help score Strategic Objectives)*		
	Score	**Project Score Total**

Primary	Protecting our environment	4	Total of both Scores 9
Secondary	Public Health and Safety	4	
Background	The Brentwood subdivision diverted catchment flow into the gully that passes through houses at the bottom of the catchment. Only one of the houses currently has a building consent, but it is the one that would mostly be impacted as it is within the flow path. Discussions with landowners and Trustees has been drawn out over ten years without progress, but a solution still needs to be found to reduce the impact on people and property. Another consideration regarding this issue is the Maori land is to be partitioned off to different owners and any solution will impact different parcel owners.		
Business Need	To divert catchment flows away from the houses at the bottom of Paenoa Rd		

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Flows will not impact the houses at the bottom of the catchment	Improved H&S for the people and houses	Social
Protecting our waterways	The current flow path is being impacted at the beach edge with numerous erosion incidents over time, which will continue	Avoidance of erosion of the flow path	Environmental
Legislative Compliance	Council is required to mitigate flow path erosion	Improved discharge quality	Environmental

Opportunity	Relationship with Landowners, Paenoa Trustees, Tuwharetoa Trust board	
Scope	**In**	**Out**
	Landowner and Trustee agreement Design WRC Consent Construction Earthworks Pipe installation with wing wall Erosion protection Planting	• Upgrade of existing infrastructure • Access over the flow path has not been included

Constraints	Landowner agreement has been the stumbling block to date, but we are working with a new landowner representative who may be able allow the parties to reach consensus	**Assumptions**	Land owner agreement can be reached
Dependencies	Landowner agreement		
Stakeholders	Council, Tuwharetoa Trust Board, WRC, Paenoa landowners / Trustees		
Change Mgmt.	none		
Risk of Doing	Earthworks will need to be undertaken in a period of fine weather to avoid damage from catchment flows	**Commentary**	The above catchment is 500ha and so a significant rain event during construction could severely impact the works
Risk of Not Doing	There is a large catchment above the houses, it is only a matter of when the next significant storm event will impact them	**Commentary**	500Ha above will generate significant flow which has already caused multiple erosion events and damage to property and put lives at risk

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	Flows down Paenoa rd will continue with the risk to life and property	Divert the flow to the southern gully by installing diversion pipes Some planting for erosion control will be needed	Take some of the catchment flow across Jarden land
Advantages	No capital spend	Mitigates the risk to life and property	Would lessen the impact from large storm events on the southern flow path
Disadvantages	Ongoing issue of property damage in large rain events	It will be difficult to get consensus from landowners	Would mean the gully running through Jarden property would need to cater for additional flow
Costs	Could be some political cost if damage was to occur	Capital = $310K	Capital = $1.5mil It is envisaged that Jarden would pay a portion of this cost, but this option is not currently o the table .
Achievability	None	Landowner consensus has been difficult to achieve to date	Brings some complexity to the Jarden property gully
Recommendation	Option 2 which is to divert storm flows down the southern gully on Paenoa land		

RECOMMENDED OPTION

Delivery Approach – Option 2. Locate the device Mercury land at the last manhole (see photo)

<Describe the following at a high level:>

- Negotiations with landowners
- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Timeframes, installation will be over a 1 month period weather permitting

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Negotiations with landowners	Agreement on southern gully usage
Design	Enable final consenting
Tender	Go out to the market
Construction	Earthworks and pipe installation, with planting

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	25%	1 month
Investigate and design	Construction drawings / Options / consultation	External	75%	1 month
Contractor	Construction	External	100%	1 month

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Installation of device	$ 300,000	Capex
planting	$10,000	capex
Total Estimated Capital Cost	$310,000.00	
Total Estimated Operational Cost/year		
Total Estimated cost	310,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)		Construction	Construction							
Cost of phase and year spent		$50,000	$260,000							

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 7 to 10 years

Project Name	Puataata Rd stormwater quality Improvement Device		
Description	Place a stormwater quality improvement device above the stormwater outlet that drains from Puataata Rd into the adjacent stream		
Business Owner	Brent Aitken	**BC Author**	**Brent Aitken**
Project Size	Lite	**Project Complexity**	Paint by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Near where the stream passes under Puataata Rd in Turangi

Strategic Objective *(see appendix below to select primary and secondary)*			
		Score	**Project Score Total**
Primary	Public health and safety	2	Total of Both Scores 5
Secondary	Protecting our Environment	3	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district		
Option/s	Place a quality improvement device into the network		
Benefits and Wellbeings	Legislative compliance - Environmental Improved Public Health – Social Protecting our waterways – Economic Improved level of service – social		

Scope	**In**	**Out**	**Maybe**
	• Investigation • Design Installation / Construction	Infrastructure upgrade	Access Rd realignment
Potential Issues with preferred option	Location of device		
Risk of Doing Nothing	Contaminate discharge levels will not change		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)							Design	Installation / Construction		
Cost of phase and year spent							$10,000	$250K		

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Redoubt Street Stormwater Improvement Device
Description	The project is to place a Hynds Downstream defender into the stormwater network above the Redoubt Street Stormwater Outlet. This outlet takes flow from the central CBD of Taupo as well as flow from the commercial, industrial area north of Spa road. 

Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Pint by numbers, some risk around ground water levels may influence end pricing
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Most likely to be placed in the road reserve adjacent to the outlet but may also have to go in the road, dependant on design

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	Total of both Scores 5
Secondary	Public Health and Safety	2	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement		
Benefits and Wellbeings (see appendix)			

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Social
Protecting our waterways	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Environmental
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved discharge quality	Environmental
Improve level of service	Measure contaminates removed when device is cleaned	Removal of contaminates from stormwater discharges into Lake	social

Opportunity	Relationship with Iwi, Tourists have clean lake, community satisfaction		
Scope	**In**	**Out**	
	• Investigation • Design • Construction Determine location Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water	• Upgrade of existing infrastructure	
Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay Underlaying soil may be rock or worse requiring additional works around foundation of the device The contours at the end of Redoubt street make it difficult to place the device	**Assumptions**	The current pipe levels should allow for a device to sit within the current infrastructure. Underlying soil thought to be pumice / have allowed additional funds to allow for foundation support. That we can fit the device in just upstream of the outlet
Dependencies	Time it takes to fabricate the device can be up to 3 months		
Stakeholders	Council, Tuwharetoa Trust Board, WRC, community, operations contractor for maintenance		
Change Mgmt.	none		
Risk of Doing	Construction risk	**Commentary**	The installation of the device will require at 5m deep hole to be dug which could be in ground water. Also, we do not know the exact underlying soil conditions, it is thought to be pumice but could contain rock or worse which would impact the build process.

			Bank instability close to the outlet may mean we need to move away from the desired location which is just upstream of the outlet
Risk of Not Doing	Stormwater will continue to be discharged into the Waikato river without any quality improvement	**Commentary**	Stormwater network discharges directly into the harbour from a significant up stream catchment

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	There is a large upstream catchment that drains into the river at the harbour without treatment, this discharge will continue	Locate the device into the pocket park at the cnr of Redoubt street	Locate the device in the road reserve
Advantages	No capital spend	Less construction cost, due to reserve being grass	Would collect all of the catchment
Disadvantages	There is a large upstream catchment that drains into the lake without treatment, this discharge will continue	Will miss collecting a small portion of the network on Hawai street	This will increase the construction costs and may close a section of the road for 2+ weeks
Costs	Environmental and health cost hard to measure, possible tourist backlash re contaminants	Capital = $280K Operational 3yr = $2,700.	Capital = $310K Operational 3yr = $2,700.
Achievability	None	Not being able to use the reserve as the other locations will increase the price due to no real room to fit the device in	Due to the size of the device and the associated pipe work it will be difficult to install this device anywhere except the reserve
Recommendation	Preferred option is to install a Hynds Down stream Defender upstream from the outlet in the pocket park if we can get the levels to work		

RECOMMENDED OPTION

Delivery Approach – Option 2 locate device in the pocket park

<Describe the following at a high level:>

- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Timeframes, installation will be over a three-week period weather permitting
- Successful contractor will order the device ad program installation reflecting the delivery date

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements
Contract document and procurement	Selection of experienced contractor
DDU installed	On site construction
Reinforced area for maintenance truck to service the device	A large sucker truck will be needed to empty the device and will need a secure location due to the weight of the truck once full

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	15%	1 month
Investigate and design	Construction drawings	External	25%	1 month
Contractor	Construction	External	1	1 month

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
design	$8,000.00	Capex
Installation of device	$ 280,000.	Capex
Maintenance of device (removal of contaminants)	$2700.00 annually	Opex
Total Estimated Capital Cost	$288,000.00	
Total Estimated Operational Cost/year	$2700.00	
Total Estimated cost	$ 288,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)		Design Installation								
Cost of phase and year spent		$8000 $280,000								

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 4 to 6 years

Project Name	Spa Rd at Totara street stormwater quality Improvement Device		
Description	The project is to place a Hynds Downstream defender into the stormwater network above the outlet that discharges into Lake Taupo near Taupo Bungy  There is a large up-stream catchment, that currently has no discharge quality improvement prior to the flow reaching the receiving environment. This outlet discharges into Lake Taupo as shown above. This device could capture contaminants arising from the light industrial catchment		
Business Owner	Brent Aitken	**BC Author**	Brent Aitken
Project Size	Lite	**Project Complexity**	Print by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	See above map. The device would be placed in the Bungy carpark up from the outlet

Strategic Objective *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	5
Secondary	Public Health and Safety	2	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement		

Option/s	Place a quality improvement device into the network		
Benefits and Wellbeings *(see appendix)*			
Benefit		**Benefit Type**	**Wellbeing**
Improved Public Health		Removal of contaminates from stormwater discharges into Lake and rivers	Social
Protecting our waterways		Removal of contaminates from stormwater discharges into Lake and rivers	Economic
Legislative Compliance		Improved discharge quality	Environmental
Improve level of service		Removal of contaminates from stormwater discharges into Lake and rivers	social
Opportunity	Relationship with Iwi, Tourists have clean lake and river, community satisfaction		
Scope	**In**	**Out**	**Maybe**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water The device will go into the carpark at the bungy so we will have to resurface the area affected	• Work in the roadway	Pipe renewal
Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay Make sure that any deep cut does not impact the cliff face	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure.
Dependencies	• Work with Taupo bungy to minimise impact of construction and future maintenance of the device	**Stakeholders**	Council, Tuwharetoa Trust Board, WRC, landowners, community, maintenance contractors, Taupo bungy
Potential Issues with the preferred option	Consultation regarding location		
Risk of Not Doing	Contaminate discharge levels will not change		

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**

Investigation and design	Determine levels and sizing of defender Unit and foundation requirements
Contract project management	Selection of experienced contractor
DDU installation	On site construction
Improved stormwater runoff into Lake Taupo	Stormwater monitoring program, visual improvement of discharge, measured contaminate load when devices are cleaned

Project Resources – Role Name	**Internal/External**	**Primary Responsibility**
Project manager	Internal	Project completion
Consultant	External	design
Contractor	External	Construction / installation

Cost Summary		
Item	**Estimated Cost**	**Capital or Operational**
design	15,000	
Construction installation	$270,000	
Total Estimated Capital Cost	$285,000	Capital
Total Estimated Operational Cost/year	$ 1500	Operational
Total Estimated cost	$ 285,000.00	

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)						Design Installation				
Cost of phase and year spent						$15K $270,000				

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
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5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
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3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
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5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
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Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years
Stormwater Renewals

Project Name	Stormwater Renewals
Description	Council currently has 264Km of stormwater pipes, with 3500 manholes, Enviropods, sampling and monitoring equipment, quality improvement devices, inlets and outlets, pond fencing and pump stations Council will continue to undertake CCTV inspections on 5% of the network annually to identify renewal works. Council is also undertaking a condition assessment of network outlets The vast majority of the stormwater pipe network is reinforced concrete These condition assessments have allowed Council to reduce the amount of funding required for the stormwater network in the short to medium term. Renewal costs are based on age condition and criticality of the assets 

Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Print by numbers, ongoing renewal of pipe and associated infrastructure
Programme	Stormwater renewal program	**Location**	In various locations throughout the district

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Maintaining levels of service	3	Total of both Scores 6
Secondary	Health & Safety	3	
Background	This project is part of an ongoing program of renewing of assorted stormwater infrastructure throughout the Taupo district		
Business Need	Maintaining levels of service by renewing storm water assets as when required reflecting on age, condition and criticality of the assets		

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Environmental	Conditions set under Councils comprehensive stormwater consent require council to operate a functional storm water infrastructure	Legislative compliance	Economic
Improved public Health	Properties are not flooded	Risk to property is minimised	Social
Improved public safety	People are not impacted by storm flows	Risk to people is minimised	social

Opportunity	To maintain current levels of service for the Stormwater infrastructure		
Scope	**In**	**Out**	
	Renewal of pipe work and associated infrastructure when required		
Constraints	Will vary depend on the asset	**Assumptions**	none
Dependencies	Maintenance / Capital contractor availability		
Stakeholders	Council, community, tourists, Taupo Tourist operators regarding our clean and green image		
Change Mgmt.	No change management		
Risk of Doing	varied	**Commentary**	Depends on what is being renewed
Risk of Not Doing	Infrastructure failure can lead to risk to life and property and the environment	**Commentary**	The stormwater infrastructure is designed to minimise the impact of stormwater on people, property and the environment.

	Option One: Change Nothing	Option Two <List Option>
Overview	Don't renew infrastructure as required	Renew of stormwater infrastructure as required due to age condition and criticality
Advantages	No capital renewal spend	Minimises the possibility of Infrastructure failure as this has legislative outcomes, and puts life and property at risk
Disadvantages	Infrastructure failure has legislative outcomes, and puts life and property at risk	Ongoing cost of renewal program
Costs	Political, environmental and legislative costs	Capital various see cost section below
Achievability	None	This is business as usual

Recommendation

Option2. Renew of stormwater infrastructure as required due to age condition and criticality

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?
Ongoing condition assessment program will enable council to prioritise the Stormwater renew program across the district

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Condition assessments	CCTV program and physical inspection
Program prioritisation	Review of renewal works, based on age, condition and criticality
Assets renewed	Specific infrastructure renewed
Data captured	Asset finda updated

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
General construction risks	unlikely	Minor	Insignificant

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Contractor	Condition assessment	External	15%	4 months
Asset Manager	Installation	Internal	5%	8 months
Contractor	Installation	External	75%	8 months
Asset data capture	Updating asset data	Internal	10%	2 weeks

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Enviropods Network Improvement devices Sampling gear	$1,512,000 over ten years Average $151000 per year	Capex
Total Estimated Capital Cost	Ten year cost of $1,512,000	Capex
Total Estimated Operational Cost/year		

Total Estimated cost	$151K average	Capex
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Infrastructure renewals	$88K	$106K	$101K	$123K	$136K	$146K	$166K	$191K	$211K	$246K

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
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5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
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4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
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Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
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5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
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Protecting our Environment

Score	Criteria	Example Project/s
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2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
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Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
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4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
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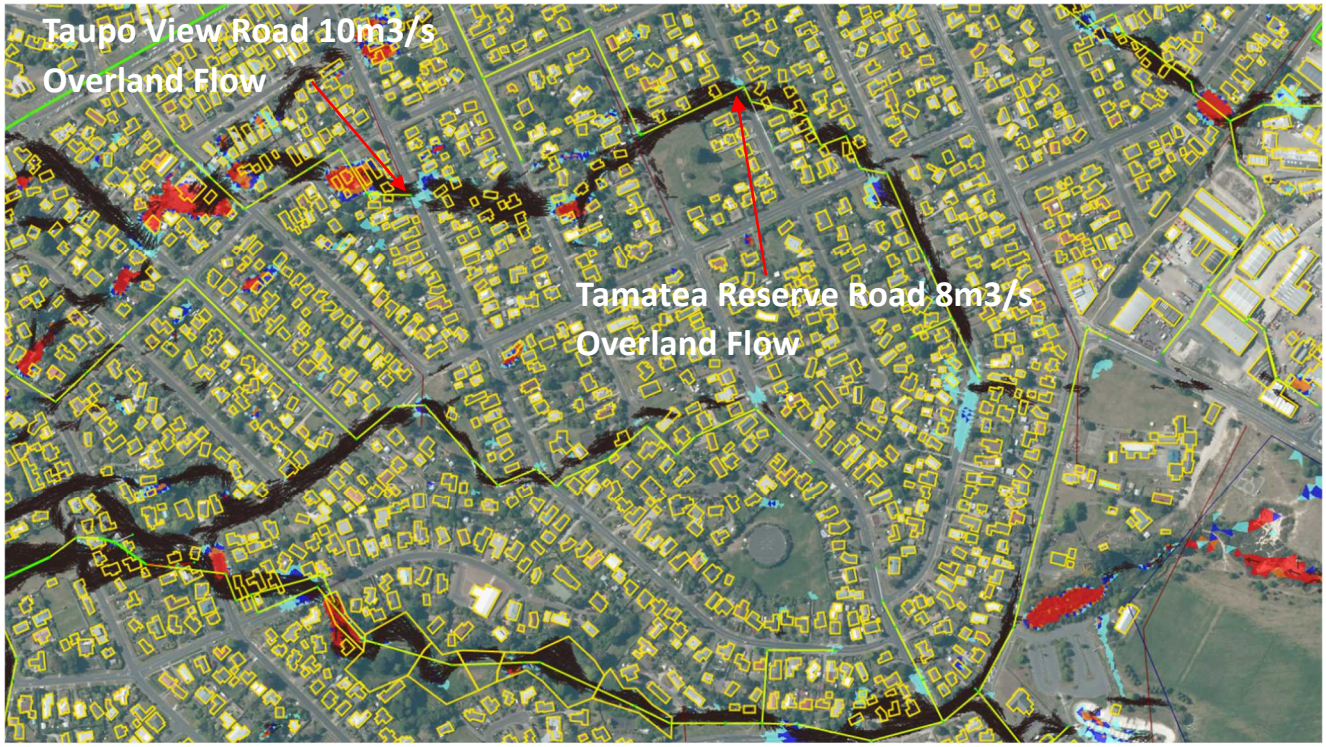
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Tamatea Reserve Gully Flood Mitigation		
Description	The 100-Year flood map below for Tamatea Reserve Gully indicates significant overland flows for a 100Yr rain event. Public safety and Private property are at high risk within this flow path.  Figure 1: 100-Year Overland Flows Quantified within the Tamatea Reserve Gully System.		
Business Owner	Brent Aitken	**BC Author**	Brent Aitken
Project Size	Large	**Project Complexity**	Quest – "Know What Not How"
Programme	4-months est.	**Location**	Tamatea Overland Flow path

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	3	Total of both Scores 6
Secondary	Maintaining Levels of Service	3	
Background	This is a level of service project. There are existing flood mitigation devices within the gulley system. These include piping to alleviate the flooding over Tamatea road, Koha road and Taupo View road but these are not sufficient to deal with the significant 100-Year overland flows. More detailed modelling and survey is essential to better quantify the level of risk and potential flood mitigation options. Expenditure allows for consenting / consultation and design and currently increasing the pipe size is budgeted in year 9 of the LTP, but consultation will determine if this is a pipe and detention in some form.		
Business Need	Mitigation of Flood Risk to the public and properties / businesses from stormwater overland flows.		

Benefits and Wellbeings (see appendix)	

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Mitigating risk people and property during flood events	Flood mitigation	Social
Improve level of service	Residents and business owner's appreciation of protecting and looking after their wellbeing.	Improve resident's way of life.	Social

Opportunity	Reduce flood risk to properties and community satisfaction		
Scope	**In**	**Out**	
	• Investigation / Survey • Hydraulic Modelling • Design options	Construction	
Constraints	H&S risk of ponds in urban areas	**Assumptions**	That the local community will be supportive of having a detention pond on reserves following the overland flow path adding to the conveyance down to the lake. The reserve management plan can accommodate Stormwater detention.
Dependencies			
Stakeholders	Council, WRC, community, local landowners		
Change Mgmt.	Flood Risk Awareness		
Risk of Doing	Construction risk	**Commentary**	Unknowns of underlying soil conditions; it is thought to be pumice but could contain rock which would impact the construction process.
Risk of Not Doing	Flooding may occur in an intense rain event as seen on flood maps.	**Commentary**	Not acceptable to property and business owners.

Options Analysis *(add more options if applicable)*

	Option One: Change Nothing	Option Two: Detention Pond	Option Three: Stormwater Conveyance
Overview	These large overland flows will be contributing to flooding of properties and businesses within the flood paths.	Investigate the option of building a shallow detention pond within Tamatea Reserve to direct stormwater to scruffy dome in a possible phase 2 of construction.	Increase conveyance capacity and dedicated flow-paths away from property and public risk. Increased network capacity from Tamatea reserve to an outfall yet to be determined.
Advantages	none	Less construction cost with land available for storage within reserve.	Increasing capacity for current and future rainfall events diverting stormwater and protecting properties and businesses.
Disadvantages	Public safety and property at significant risk during large rainfall events.	Creating a catchment with a low bund and slopping of sides of reserve.	Higher cost and Iwi consent requirements to increased discharge / outfalls.
Costs	Unknown Property damage, maintenance, and clean-up costs	Investigation design $58000 Capital pond Estimate $58,000	Capital Estimate $1,500,000
Achievability	None	Community in agreement of building detention pond within reserve.	Community in agreement with conveying water through new piped network to lake or river outfall.
Recommendation	Option 3: Options analysis and possible increase in network capacity		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?
• The procurement strategy will be to invite at least four local experienced contractors. • Contract management arrangements are that contract, and project management is undertaken inhouse. • Consultation with local community is key • Preferable to undertake project over Summer to avoid dust and erosion as far as possible • Timeframes, Construction expected to be over 4 months period weather permitting

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and Design	Determine levels and sizing of detention pond
Contract document and procurement	Selection of experienced contractor
Contain stormwater	Containment by ponding will reduce flooding to properties.
Diverting of stormwater	Diverting of stormwater as best possible away from properties and businesses.

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	Internal	1	60Hrs
Engineer	ICM Hydraulic Modelling / Investigations	Internal	1	200hrs
Project Manager	General project and Contract management	Internal	1	100hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Investigation / Survey / Geotech options analysis/ Consenting / Consultation / Design	$140,000	Capital
Construction Phase 2 (network Upgrade)	$1,500,000	Capital
Total Estimated Capital Cost		
Total Estimated Operational Cost/year		
Total Estimated cost	$1,640,000	Capital
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)							Design consultation etc	Options consultation design	Construction	
Cost of phase and year spent							$40,000	$100,000	$1,500,000	

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

Project Name	Kimberly Reserve Gully Flood Mitigation
Description	The Kimberly Reserve follows a major overland flow-path for a catchment that includes part of the industrial area and extends around to Kiddle Drive and further. The pipe network in this area is designed to cater for less than a 10yr event. Manhole lids have popped which is a health and safety risk to our community. There is also a property in the reserve flood zone that regularly floods in these events.

Figure 1: Pre- Flood Mitigation

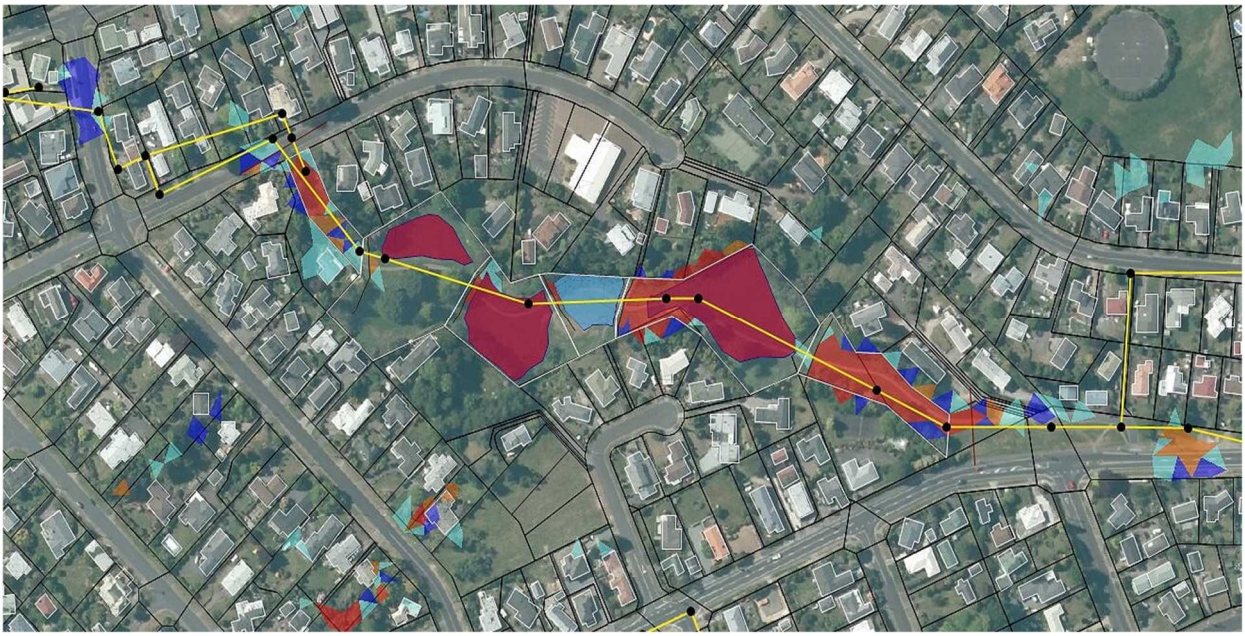


Figure 2: Post- Flood Mitigation with Bund Walls in Reserve.

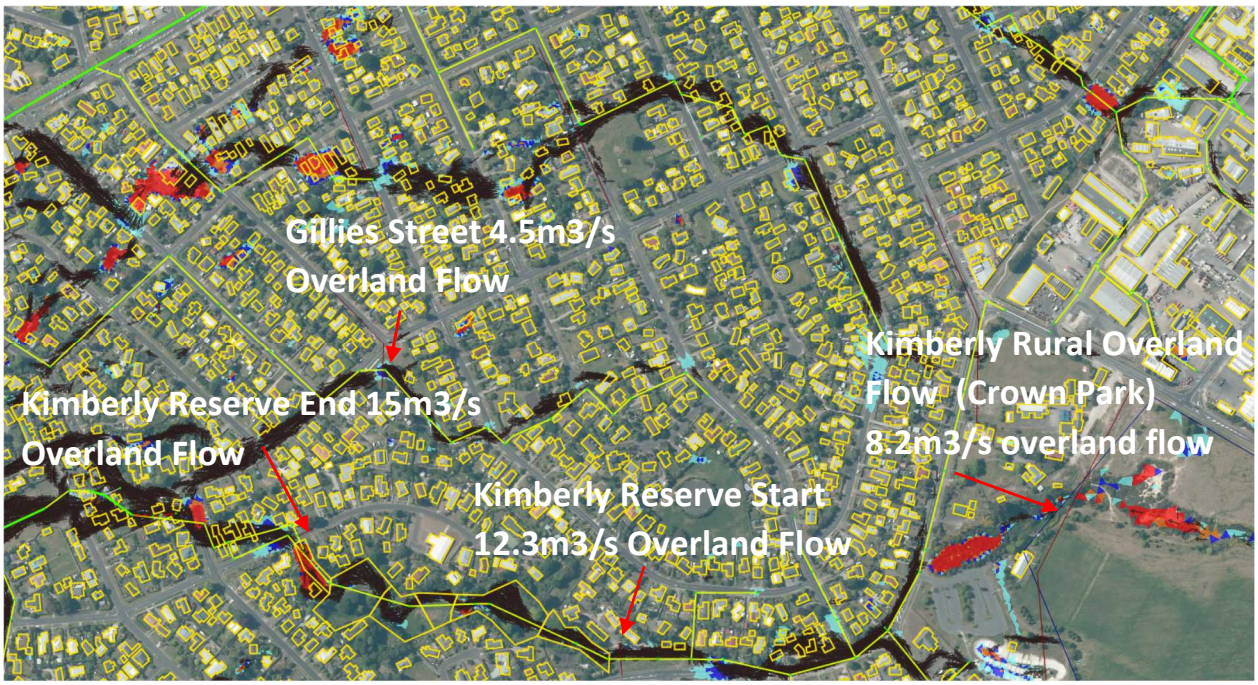


Figure 3: 100-Year Overland Flows Quantified within Kimberly Reserve Gully System.

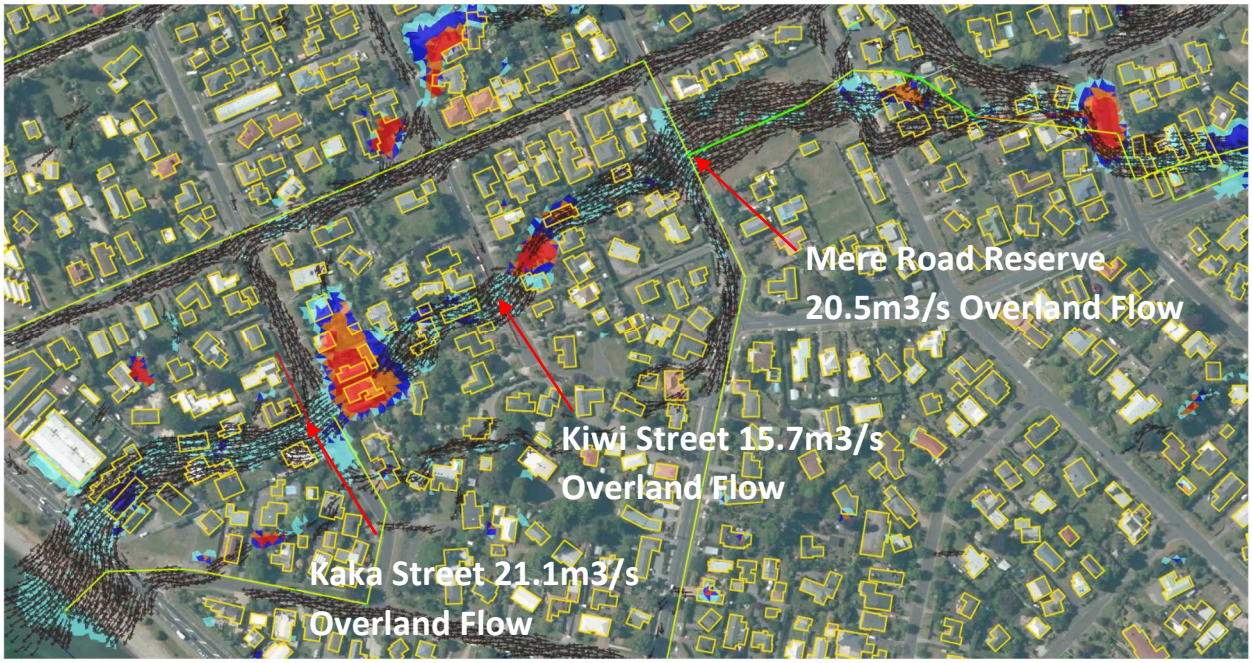


Figure 4: 100-Year Overland Flows Quantified within Kimberly Reserve Gully System. Towards lake front.

Business Owner	Brent Aitken	**BC Author**	Brent Aitken / CDM
Project Size	Large	**Project Complexity**	Quest – “Know What Not How”
Programme	5-months est.	**Location**	From Kimberly Reserve, 33 Henry Hill Rd

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	3	Total of both Scores 6
Secondary	Maintaining Levels of Service	3	
Background	The Kimberly Reserve is within a major overland flow path for a catchment that includes a part of the industrial area and goes around to Kiddle Drive and further. The pipe network in this area is designed to cater for less than a 10yr event. Manhole lids have popped, and this is a health and safety risk to our community. There is a property at the bottom of the catchment that has been flooded and will continue to be as it sits within the overland flow path. It is listed on Councils hazards database as being in a flood zone. The option is to create ponding areas within the Kimberly reserve to provide for at least a 10yr event in the short term and purchase the house to remove the most at risk property. This property will still flood in heavy rainfall, but instead of manholes lids popping we can bring the water to the surface to pond until the intensity of the event diminishes and the water can feed back into the piped network.		
Business Need	Mitigation of Flood Risk to the public and properties / businesses from Stormwater Overland Flows.		

Benefits and Wellbeings (see appendix)			
Benefit	**How will you quantify and track**	**Benefit Type**	**Wellbeing**
Improved Public Health	Mitigating risk of injury or drowning during flood events	Flood mitigation	Economic
Improve level of service	Residents and business owner's appreciation of protecting and looking after their wellbeing.	Improve resident's way of life.	Social

Opportunity	Reduce Flooding risk to properties, community satisfaction		
Scope	**In**	**Out**	
	• Investigation / Survey design options • Consultation • Hydraulic Modelling • Design • Construction • Upgrade of existing infrastructure • Create ponding within the Gully to accommodate flood risks downstream. • Diverting Stormwater through conveyance.		
Constraints	Property Owners not in agreement with the increase storage ponds within the Kimberly reserve gully due to the Health & Safety risk.	**Assumptions**	Pre-Discussions with Property Owners to make aware of future issues with flooding and will be supportive of all upgrades.
Dependencies	Approvals from property owners and Reserves Management for detaining stormwater in reserve.		
Stakeholders	Council Reserves, Property owner of 33 Henry Hill.		
Change Mgmt.	N/A		
Risk of Doing	Construction risk	**Commentary**	Clashing with existing infrastructure or other services. Unknowns of underlying soil conditions that could impact construction process.

Risk of Not Doing	Significant flooding may occur during intense rain events and causing health and safety issues for council, also the house at number 33 Henry Hill Rd will still flood.	**Commentary**	Flooding of Properties in and after Kimberly reserve due to properties built previously within flood way.

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two: Purchase Property & Create Ponding Areas.**	**Option Three: Stormwater Conveyance**
Overview	These large overland flows will be contributing to flooding of Property No. 33 Henry Hill Road and surrounding areas. Manhole lids will also continue lifting.	Council to purchase existing flooding Property as well as increasing ponding areas throughout the reserve to provide for at least 10year events in the short term.	Increase conveyance capacity and dedicated flow-paths away from property and public risk.
Advantages	None, Will still flood areas in and around reserve.	Less construction cost, due to already some smaller catchments that just need upgrading to optimise storage detention.	Increasing capacity for current and future rainfall events diverting stormwater and protecting properties and businesses.
Disadvantages	Risk to people and property in large rain events.	Reserve will have added bund walls and overflow pipe network to each storage pond.	Higher cost and Iwi consent requirements to increased discharge / outfalls.
Costs	Unknown Property damage, maintenance, and clean-up costs	Capital Estimate $ 336,336 + Value of Property est $600,000	Capital Estimate $ 1,645,225
Achievability	N/A	Community in agreement of building detention ponds in reserve.	Community in agreement with adding stormwater piping from reserve down to lake with new outfall.
Recommendation	Option 2: Staged with detention ponds construction initially and pipework (option3) installed in later years		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?

- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Consultation with local community is key
- Preferable to undertake project over Summer to avoid dust and erosion as far as possible
- Timeframes, installation will be over 4 month period, weather permitting

Project Outputs – the things the project is going to deliver

Output	**Output Quality Details**
Detention ponds	With careful Geotech and safety consideration in design
Pipework	Designed to minimise disruption and maximise conveyance capacity

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)

Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	Moderate	Moderate	Medium
Bad weather delaying works	Moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	External	1	80Hrs
Engineer	ICM Hydraulic Modelling / Investigations	External	1	200hrs
Project Manager	General project and Contract management	Internal	1	60hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Investigation / Survey / Geotech / Consenting / Design	$72,000	Capital
Construction Phase 1	$336,000	Capital
Construction Phase 2	$650,000	
Property Purchase (33 Henry Hill)	$1,645,000	Capital
Total Estimated Capital Cost	$2,703,000	
Total Estimated Operational Cost/year		
Total Estimated cost	$2,703,000	**Including 25% Contingency**
How accurate are your estimates? Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y15**
Phase (Initiate, Plan, Execute)					Geotech survey design options consultation	Consenting / Design	Construction Phase 1	Construction Phase 2		Property Purchase
Cost of phase and year spent					$42,000	$30,000	$336,000	$1,645,000		$650,000

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	
Date	

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
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4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
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4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
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3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

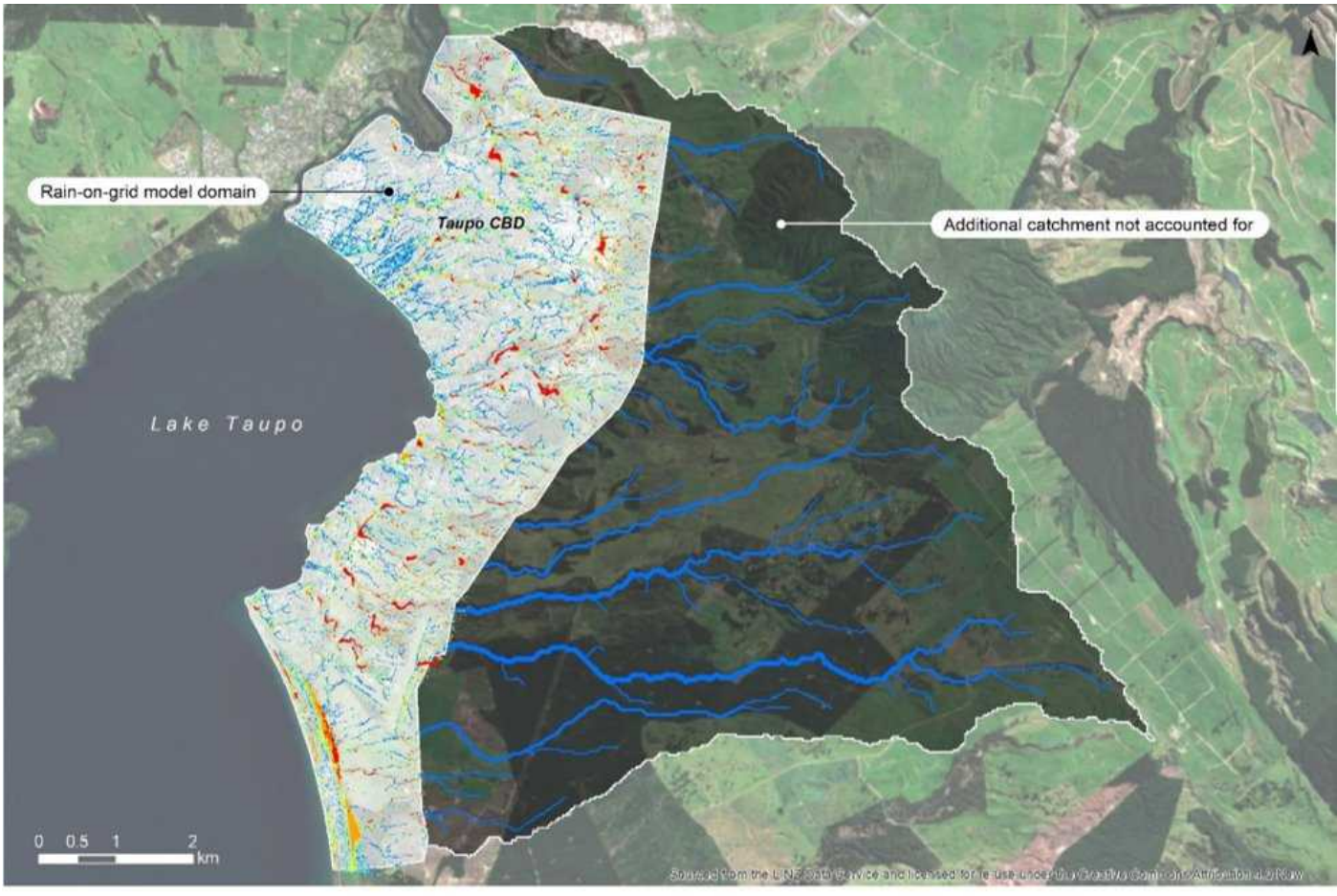
Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Taupo Urban Stormwater Modelling
Description	Council has completed some low-cost, preliminary urban flood modelling over a number of years, annual. The purpose has been to identify potential risk areas to inform stormwater asset management and planning. The mapping work to date has a number of assumptions and has some uncertainty. Due to these limitations and uncertainty on levels of flood risk, Council has not made this information publicly available, and we do not provide detailed information on LIMs. An independent review of the current flood modelling by *Tonkin and Taylor* has identified that there is some uncertainty in the current work due to data limitations. Significant work needs to be completed to have confidence in the spatial extent of likely flooding areas, and the potential depths and speeds of flooding in them, especially if used in a challengeable regulatory context. *"The modelled floodplains describe general patterns of overland flow and accumulation caused by localised rainfall. However, due to the generic model parameterisation and many omitted hydraulic structures, some uncertainty exists in the spatial extent of flooding."* The preliminary mapping identifies that we potentially have some high-risk flood areas, mostly associated with gullies in Taupō. Many gullies are Council owned and controlled and empty of buildings. However, some are private land. In most instances, these areas are obvious risks where building has been prevented and/or has been undesirable to build in. However, there are likely to be some areas where there is potential for significant flooding, which have buildings currently and/or may be desire for future development. There are likely to be a number of areas with potential low or moderate flooding, where it would be sensible to build above likely water levels for new builds and developments to avoid significant property damage. Currently Councils ability to give out accurate information regarding stormwater flood levels is limited which places staff in the position of providing the public information with the proviso that the information is a work in progress, which could leave Council exposed to future criticism.  *Figure 2. Comparison of model domain (white) and remaining catchment (black) for the Taupo urban model.*

Business Owner	Brent Aitken	**BC Author**	Brent Aitken / CDM
Project Size	Lite	**Project Complexity**	"Paint by Numbers" – Know What & How
Programme	12-months est.	**Location**	District Urban

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	5	Total of both Scores 10
Secondary	Improved Resilience and Preparedness	5	
Background	This is a level of service project. The overland flow path models show that properties, schools, and businesses within Taupo's overland flow paths have an extremely high risk due to the amount of properties constructed around stormwater flow paths. More detailed modelling and survey is essential to better quantify the level of risk and potential flood mitigation options.		
Business Need	To improve the stormwater modelling in order to provide flood risk maps. Improved confidence in asset data is also required for the stormwater modelling in order to better inform LIM reports and assist building inspectors to make sound decisions on floor levels. This project will provide reliable models to determine levels of flood risk in order to design flood mitigation projects with increased confidence on the cost/benefit ratios.		

Benefits and Wellbeings (see appendix)

Benefit	**How will you quantify and track**	**Benefit Type**	**Wellbeing**
Improved Public Health	Avoid injuries and deaths possible in flood events	Future Flood mitigation	Economic
Improve level of service	Reduction in properties constructed in inappropriate locations	Improve resident's way of life.	Social

Opportunity	To improve the stormwater modelling in order to provide flood risk maps within the updated District Plan. Improved confidence in asset data is also required for the stormwater modelling in order to better inform LIM reports and assist building inspectors make sound decisions on floor levels. This project will provide reliable models to determine levels of flood risk in order to design flood mitigation projects with increased confidence on the cost/benefit ratios.		
Scope	**In**	**Out**	
	• Investigation / Survey • Hydrology • Hydraulic modelling • Model validation • Detailed reporting • Usable GIS interface		
Constraints	Ability to get on to private property to investigate floor levels	**Assumptions**	Access will be granted
Dependencies	Availability of modelling capability		
Stakeholders	Council, WRC, community		
Change Mgmt.	Communication between interested Council Departments (Building, Policy, Stormwater) inclusion of completed data layer in Council GIS or other		
Risk of Doing	Residents may be unhappy with outcomes	**Commentary**	The residents will likely be unhappier if flooded without knowledge of the risks

Risk of Not Doing	Council could face litigation from flooded properties	**Commentary**	Not acceptable to property owners, schools and business owners.

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two: Ultimate Hydraulic Modelling for District Plan Review**	**Option Three: Hydraulic Modelling for Building Team**
Overview	Council will continue to have uncertainty in their flood risk mapping and be at risk of allowing further development in inappropriate locations in the long term.	Mapping 100-year high-risk flood areas, and some moderate risk areas for inclusion in the District Plan to control development in these areas, using the same framework we have used for river flooding. We will focus on the 6 or so major flow paths where we think there is the potential for high-risk, and moderate-risk areas on private land	The building and stormwater teams essentially require further developing urban flood maps for other low – moderate risk areas, so that we can enforce the Building Code and ensure that new buildings are built above expected water levels for 50-year flood events. The new and improved flood maps would also assist consideration of stormwater management options for reducing flooding risks to existing buildings. These maps would be publicly available and referenced in LIMs and PIMs.
Advantages	Limits costs	Maximum Confidence On Flood Risk Zones	Minimum Knowledge Recommended for LIMs & floor levels
Disadvantages	Public safety and property at significant risk during large rainfall events.		
Costs	Unknown Property damage, maintenance, and clean-up costs	Hydrology = $20k Surveying = $80k ICM Modelling = $80k Reporting = $30k	Hydrology = $20k Surveying = $80k ICM Modelling = $80k Reporting = $20k
Achievability		Achievable subject to funding	Achievable subject to funding
Recommendation	Option 3 – critical to budget for hydrology, survey and stormwater modelling improvements as per model audit report recommendations NOTE: (expenditure moved to Opex)		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?

- CDM Consultants has previously developed high-level overland flow stormwater models using InfoWorks ICM software, and is well placed to update the models using new improved information, including survey, WSP hydrology and model improvements as recommended in the Tonkin & Taylor report.
- It is proposed that CDM Consultants Ltd works closely with WSP to obtain and optimise the improved data requirements, and jointly take responsibility to deliver a more robust stormwater model that meets Council needs.

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Hydrology	WSP Hydrologist to determine rural catchment inflow hydrographs above urban areas
Floor level Survey	Floor levels to be surveyed for all Properties identified to be at flood risk
Asset Data Survey	Manhole surveys to be completed for all Properties identified to be at flood risk

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
	Moderate	Moderate	Medium
	Moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	External	1	160Hrs
Engineer	ICM Hydraulic Modelling / Investigations	External	1	160Hrs
Project Manager	General project and Contract management	Internal	1	60Hrs
Peer review	Review all assumptions and calc's	External	1	30 Hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Hydrology	$20,000	Opex
Survey At-Risk Floor Levels & Improve Asset data	$80,000	Opex
Hydraulic Modelling / reporting / peer review	$100,000	Opex
Total Estimated Capital Cost	$200,000	
Total Estimated Operational Cost/year		
Total Estimated cost	$ 200,000	**Opex**
How accurate are your estimates? Costs fairly accurate (+/-30%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)	Hydrology / Survey / Modelling	Hydrology / Survey / Modelling								
Cost of phase and year spent	$100,000	$100,000								

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 7 to 10 years

Project Name	Tui Street stormwater quality Improvement Device		
Description	Place a stormwater quality improvement device above the stormwater outlet adjacent to Tui street		
Business Owner	Brent Aitken	**BC Author**	**Brent Aitken**
Project Size	Lite	**Project Complexity**	Paint by Numbers
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Adjacent to Tui street on the Taupo lake front

Strategic Objective *(see appendix below to select primary and secondary)*			
		Score	**Project Score Total**
Primary	Public health and safety	2	Total of Both Scores 5
Secondary	Protecting our Environment	3	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake) the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district		
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district		
Option/s	Place a quality improvement device into the network		
Benefits and Wellbeings	Legislative compliance - Environmental Improved Public Health – Social Protecting our waterways – Economic Improved level of service – social		

Scope	**In**	**Out**	**Maybe**
	• Investigation • Design Installation / Construction	Infrastructure upgrade	Access Rd realignment
Potential Issues with preferred option	Location of device		
Risk of Doing Nothing	Contaminate discharge levels will not change		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)						Design	Installation / Construction			
Cost of phase and year spent						$10,000	$250K			

Approval *This is the initial approval of the Business Case. It may be further prioritised against other projects*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
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5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

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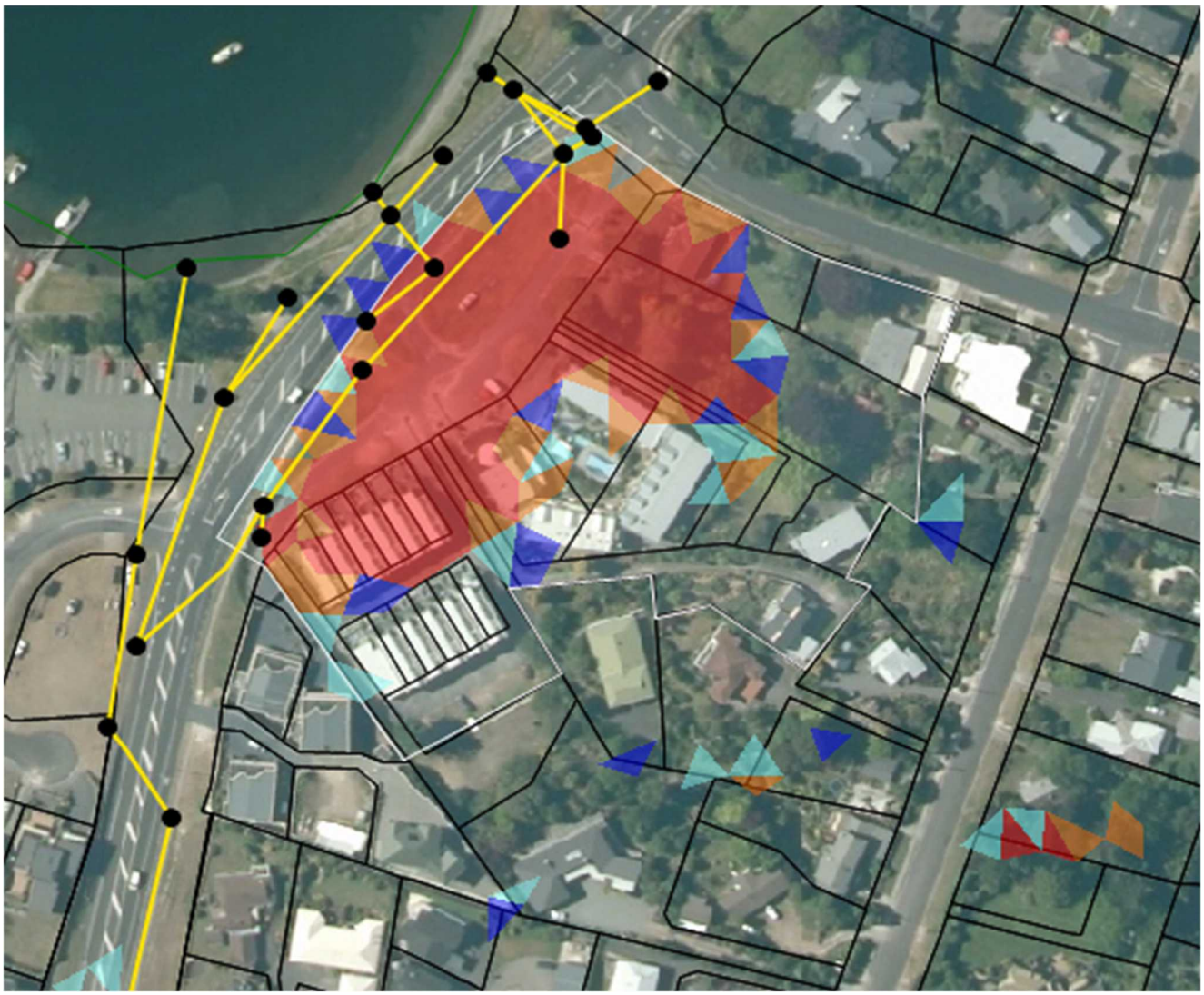
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Two Mile Bay Gully Flood Mitigation
Description	This is a Level of Service project. The 100-Year overland flowpath model shows that the properties on the lake front on the corner of Matuku Street and Lake Terrace are at significant flood risk. There is room on the terrace in front of the properties to convey storm water into the lake through new 1.2m culverts with new outfall structures. Public safety and private property are at high risk within this flow path The number of properties flooding within a 100-Year Rain event in Taupo South with 56 flood depths >250mm and 21 properties with flood depths >1m. This project is two fold with the first part of the project lowering the area in front of the properties to create a lower ponding area and short term storage. This project is included within the transportation asset as this would also create car parking and would ultimately raise the lids on the sewer pump station. This project in itself will not cater for the larger events and so this project would be implemented if the ponding option was not feasible. The second option is for a larger culvert to go under the road to enable enough capacity to avoid the properties flooding.  **Figure 1: 100-Year Flood Map – Existing Situation**

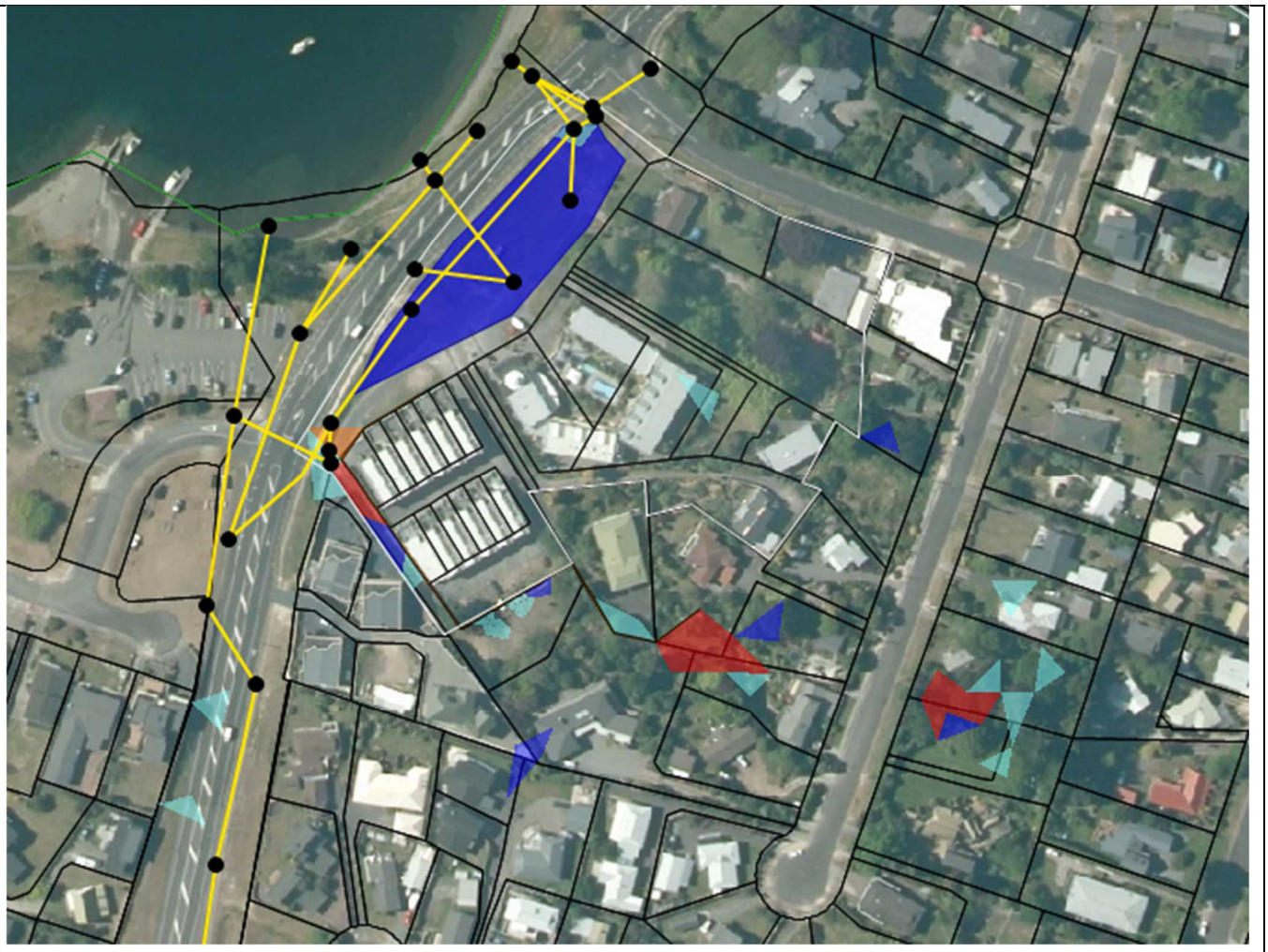


Figure 2: 100Year Flood Mitigation with improved / increased conveyance capacity

Business Owner	Brent Aitken	**BC Author**	Brent Aitken / CDM
Project Size	Lite	**Project Complexity**	"Paint by Numbers" – Know What & How
Programme	Mitigate the flooding of properties	**Location**	Cnr Matuku Street and Lake Terrace Road

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Public Health and Safety	3	Total of both Scores 7
Secondary	Maintaining Levels of Service	4	
Background	This is a level of service project. The 100-Year overland flow path model shows that the properties on the lake front Cnr Matuku street and Lake terrace will be impacted by flooding due to their position within the flowpath.		
Business Need	Mitigation of Flooding properties and businesses.		

Benefits and Wellbeings (see appendix)

Benefit	**How will you quantify and track**	**Benefit Type**	**Wellbeing**
Improved Public Safety	Mitigating Stormwater flooding	Flood mitigation	Economic
Improve level of service	Residents and Business owner's appreciation of protecting and looking after their wellbeing.	Improve resident's safety & wellbeing	Social

Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved Public Safety	Economic

Opportunity	Reduce flood risk to buildings and community satisfaction		
Scope	**In**	**Out**	
	• Investigation / Survey • consultation • Hydraulic Modelling • Design • Construction • Pipe installation		
Constraints	Limited space available for flood detention storage	**Assumptions**	Iwi will consent to increased discharge to the lake via upsized existing outfall/s or adding new outfall to lake.
Dependencies	Dependant on landowner approvals & consents as may be required		
Stakeholders	Council, Tuwharetoa Trust Board, WRC		
Change Mgmt.	N/A		
Risk of Doing	Construction risk	**Commentary**	Unknowns of underlying soil conditions; it is thought to be pumice but could contain rock which would impact the construction process.
Risk of Not Doing	Flood Risk to property and businesses will remain	**Commentary**	Not acceptable to property and business owners.

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two: Detention Pond (Stage 1)**	**Option Three: Stormwater Conveyance (Stage 2)**
Overview	There is a large upstream catchment that has insufficient outlet capacity and therefore ponds upstream of Lake Terrace, which effectively dams the flow.	Building two shallow detention ponds within terraces to contain stormwater and using existing piped outfalls to lake. With this option the existing pump station that is located on the terrace will need to lifted not to be submerged under the stormwater ponding level. This will also incorporate additional car parking to service the impact of the Two mile sailing centre	Adding additional conveyance through a 1200dia pipe under Lake terrace to increase the stormwater discharge and a 525dia link between the two terraces under road entrance to properties.
Advantages	Costs are limited to ongoing flood damage and maintenance	Less construction cost with land available for storage.	Increasing capacity for current and future rainfall events diverting stormwater and protecting properties and businesses.
Disadvantages	Ongoing flood risk and disruption to properties and businesses	Flood risk to road and properties remains	Iwi consent requirements to increased discharge / outfalls.
Costs	Flood damage and maintenance. Risk of litigation	Capital Estimate $ 120.000 To be funded from the transportation business case	Capital $ 220,000
Achievability	Not advisable	Community in agreement of building detention pond on	Community in agreement with adding a culvert under main

		terrace and increasing level of pump station.	road for access to lake and stormwater conveyance.
Recommendation	Option 3: If the transportation business case fails then this is the backup solution which will cater for the largest events. And will be the provision of larger capacity pipe under the road.		

RECOMMENDED OPTION

Delivery Approach – How will this initiative be delivered?
• Consultation with local community is key, especially Tuwharetoa Trust board • The procurement strategy will be to invite at least three local experienced contractors. • Contract management arrangements are that contract management is undertaken inhouse, or using panel • Preferable to undertake project over summer months to avoid peak tourists, dust and erosion as far as possible • Timeframes - construction expected to be over a 1 month period - weather permitting

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and Design / Consultation	Determine flooded floor and retic levels to determine final pipe size
Contract document and procurement	Selection of experienced contractor
Installation of pipe	Thrust or drill a new outlet

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	Moderate	Moderate	Medium
Bad weather delaying works	Moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
Surveyor	Surveying properties, flow paths and existing stormwater pipe levels for better modelling outcomes	External	1	16Hrs
Engineer	ICM Hydraulic Modelling / Investigations / Design	External	1	50hrs
Project Manager	General project and Contract management	Internal	1	15hrs

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
Investigation / Survey / Geotech / Consenting / Design consultation	$20,000	Capital
Construction	$190,000	Capital
Total Estimated Capital Cost	$ 220,000	Capital
Total Estimated Operational Cost/year		

Total Estimated cost	$ 220,000	**Including 25% contingency**
How accurate are your estimates Costs fairly accuracy for construction (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)				Consultation Design Consenting	Construction					
Cost of phase and year spent				$20,000	$ 190,000					

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

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Looking after Public Health and Safety

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5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

Economic Development

Score	Criteria	Example Project/s
1	This project will contribute to economic development however the scale is unknown or has not been quantified	Mangakino Sports Changing Facilities
2	This project will contribute to minor economic development or enable another minor economic development project to realise its benefits	
3	This project will contribute to moderate economic development or enable another moderate economic development project to realise its benefits	
4	This project will contribute to significant economic development or enable another significant economic development project to realise its benefits	Great Lake Walkway
5	This project will contribute to ongoing major economic development such as the creation of new jobs, town spend to a value >$1m/year	Ironman, Cycle Challenge

Placemaking

Score	Criteria	Example Project/s
1	Doing this project will enhance the attractiveness of an existing area	Neighbourhood playground renewal
2	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of the town or community	CBD/Intersection Upgrades
3	Doing this project will provide a positive outcome that enhances the vibrancy and connectedness of a District	
4	Doing this project will create a positive nationwide reputation and leave a lasting legacy for our people	
5	Doing this project will create a positive worldwide reputation and leave a lasting legacy for our people	Otumuheke Hot Pools

Risk Matrix

Likelihood	Consequences				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium	Medium	High	Extreme	Extreme
Likely 4	Low	Medium	High	High	Extreme
Moderate 3	Low	Medium	Medium	High	High
Unlikely 2	Insignificant	Low	Medium	Medium	Medium
Rare 1	Insignificant	Insignificant	Low	Low	Medium

LTP Business Case 1 to 3 years

Project Name	Waikato Street Stormwater Improvement Device		
Description	The project is to place a Hynds Downstream defender into the stormwater network above the Waikato Street Stormwater Outlet  This catchment is light industrial in nature and so has the potential to have a higher contamination load than some of the more residential catchments Approval to locate the device will be required from the landowner Mercury NZ		
Business Owner	Brent Aitken	**BC Author**	**Bent Aitken**
Project Size	Lite	**Project Complexity**	Pint by numbers, some risk around ground water levels may influence end pricing
Programme	Storm water quality Improvement program required by Comprehensive consent	**Location**	Most likely to be placed in the open space next to the manhole on Mercury land as shown on the photo

Strategic Objectives *(see appendix below to help score Strategic Objectives)*			
		Score	**Project Score Total**
Primary	Protecting our environment	3	Total of both Scores 5
Secondary	Public Health and Safety	2	
Background	Currently there are a number of stormwater outlets that discharge directly into the receiving environments that have limited quality improvement, (what goes down the grate ends up in the Lake)		

	the Hynds Downstream Defenders provides this quality improvement, with this device being one of a program of devices planned for the district
Business Need	To improve the quality of stormwater discharged into the receiving environments in the district. Councils Comprehensive stormwater consent requires council to have a discharge quality improvement and the program of devices meets this requirement

Benefits and Wellbeings (see appendix)

Benefit	How will you quantify and track	Benefit Type	Wellbeing
Improved Public Health	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Social
Protecting our waterways	Stormwater monitoring program	Removal of contaminates from stormwater discharges into Lake	Environmental
Legislative Compliance	Council is required to have a stormwater improvement program under the comprehensive Consent	Improved discharge quality	Environmental
Improve level of service	Measure contaminates removed when device is cleaned	Removal of contaminates from stormwater discharges into Lake	social

Opportunity	Relationship with Iwi, Tourists have clean lake, community satisfaction	
Scope	**In**	**Out**
	• Investigation • Design • Construction Place into the network a new manhole with a surcharge weir Place next to the manhole a Hynds Downstream defender Earth works / base of cut could see ground water Access ramp to get truck to site off Hawai street	• Upgrade of existing infrastructure

Constraints	As this device will require cutting into the existing stormwater infrastructure, we will need a window of clear weather to allow for construction, wet days will cause delay Underlaying soil may be rock or worse requiring additional works around foundation of the device Approval from landowner to place the device on their land	**Assumptions**	The current pipe levels allow for a device to sit within the current infrastructure. Underlying soil thought to be pumice / have allowed additional funds to allow for foundation support
Dependencies	Time it takes to fabricate the device can be up to 3 months Approval given from Landowner Mercury NZ		

Stakeholders	Council, Tuwharetoa Trust Board, WRC, community, Mercury NZ, Three waters contractors for ongoing maintenance		
Change Mgmt.	none		
Risk of Doing	Construction risk	**Commentary**	The installation of the device will require at 5m deep hole to be dug which could be in ground water. Also, we do not know the exact underlying soil conditions, it is thought to be pumice but could contain rock or worse which would impact the build process
Risk of Not Doing	Stormwater will continue to be discharged into the River without any quality improvement	**Commentary**	Stormwater network discharges directly into the Waikato river from a light commercial catchment, with no quality improvement

Options Analysis *(add more options if applicable)*			
	Option One: Change Nothing	**Option Two <List Option>**	**Option Three <List Option>**
Overview	There is a light commercial upstream catchment that drains into the river without treatment, this discharge will continue	Locate the device on Mercury land at the last manhole before the outlet (see photo)	Locate the device in the road reserve
Advantages	No capital spend	Less construction cost, due to reserve being grass	Would not require Mercury approval for siting the device
Disadvantages	There is a large upstream catchment that drains into the river without treatment, this discharge will continue	Will miss collecting a small portion of the network on Hawai street	Increase in cost due to the road renewal Would not capture the whole catchment
Costs	Environmental and health cost hard to measure, possible tourist backlash re contaminants	Capital = $238K Operational 3yr = $2,700.	Capital = $250K Operational 3yr = $2,700.
Achievability	None	Not being able to use the reserve as the other locations will increase the price due to no real room to fit the device in	Due to the size of the device and the associated pipe work it will be difficult to install this device anywhere except the reserve
Recommendation	Preferred option is to install a Hynds Downstream Defender upstream from the river outlet		

RECOMMENDED OPTION

Delivery Approach – Option 2. Locate the device Mercury land at the last manhole (see photo)

<Describe the following at a high level:>

- Negotiations with landowners
- The procurement strategy, will be to invite four local experienced contractors
- Contract management arrangements are that contract, and project management is undertaken inhouse
- Timeframes, installation will be over a three-week period weather permitting
- Successful contractor will order the device ad program installation reflecting the delivery date

Project Outputs – the things the project is going to deliver	
Output	**Output Quality Details**
Investigation and design	Determine levels and sizing of defender Unit and foundation requirements Negotiate with Mercury re device on their land

Contract document and procurement	Selection of experienced contractor
DDU installed	On site construction Maintenance programmed

Key Risks – things that provide uncertainty in the project, focus on High risks if possible (see risk matrix in the appendix)			
Risk	**Likelihood**	**Impact**	**Score**
Underlying ground conditions not as expected	moderate	Moderate	Medium
Bad weather delaying works	moderate	Moderate	Medium

Project Resource Requirements				
Role	**Primary Responsibilities**	**Internal or External**	**FTE Estimate**	**Duration Estimate**
<Identify Role>	<what will they be responsible for>	<internal or External>	<% of FTE>	<how long will they be required>
Project Manager	General project and Contract management	Internal	15%	1 month
Investigate and design	Construction drawings	External	25%	1 month
Contractor	Construction	External	1	1 month

Cost Estimate Summary – for recommended option		
Item	**Estimated Cost**	**Capital or Operational**
design	$8000.00	Capex
Installation of device	$ 230,000.	Capex
Maintenance of device (removal of contaminants)	$2700.00 annually	Opex
Total Estimated Capital Cost	$238,000.00	
Total Estimated Operational Cost/year	$2700.00	
Total Estimated cost	$ 238,000.00	
How accurate are your estimates Costs fairly accurate (+/-20%)		
This project will be loan funded under the Stormwater cost centre		

Timescale/Cost – give a summary of how the project phases will be delivered.										
LTP 2021-2031	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**	**Y7**	**Y8**	**Y9**	**Y10**
Phase (Initiate, Plan, Execute)	Design Installation									
Cost of phase and year spent	$8000 $230,000									

Approval *If there's been a significant change in scope or change in cost/benefit*	
Approvers Name	<insert name of person approving as well as hyperlink to their approval>
Date	<Date of Approval>

APPENDIX

Project Complexity

Benefits and Wellbeings

Social	Economic	Environmental	Cultural
Improved Public Safety	Cost Reduction	Legislative Compliance	Legislative Compliance
Improved Public Health	Revenue Growth	Reduction in Water Usage	Treaty Settlement Acknowledgement
Legislative Compliance	Revenue Protection	Waste Reduction	Improved Cultural Understanding
Customer Satisfaction	Cost Avoidance	Emissions Reduction	Improve Community Engagement
Empowering People	Process Efficiency	Protecting our Waterways	
Improving Relationships	Brand Awareness	Reduced Emission/Carbon Zero Initiative	
Improve Community Interaction	Legislative Compliance	Improve or Promoting District Sustainability	
Increasing Educational Opportunities	Improve Process Efficiency	Reduced Congestion	
Improve Level of Service	Improve Community affordability		
Increase Community Offerings	Enabling Sustainable Growth		
Improve Community Engagement			
Improve Community Affordability			
Increased Accessibility			
Improved Resilience and Preparedness			
Reduced Congestion			

Strategic Objectives Scoring

Looking after Public Health and Safety

Score	Criteria	Example Project/s
1	Failure to do this project could have a minor impact on the public's health and safety and affect a small number of people	Surface repairs on the velodrome track
2	Failure to do this project could have a moderate impact on the public's health and safety and affect a small number of people	
3	Failure to do this project could have a moderate impact on the public's health and safety and affect a large number of people	
4	Failure to do this project could have a severe impact on the public's health and safety and affect a small number of people	
5	Failure to do this project could have a severe impact on the public's health and safety and affect a large number of people	Water treatment plant upgrade in one of our three main centres

Maintaining Levels of Service

Score	Criteria	Example Project/s
1	This project ensures we can continue to deliver services which are used by a small group of people	Reseal of a club car park, or neighbourhood playground renewal
2	This project ensures we can continue to deliver services which are used by a suburb or neighbourhood	
3	This project ensures we can continue to deliver services which are used by the town or a community	
4	This project ensures we can continue to deliver services which are used by the District	Online LIMS or other online services
5	This project ensures we can continue to deliver services which are Critical for the town/District to Operate	Taupo Water Treatment Plant membrane filtration upgrade

Being Resilient and Prepared

Score	Criteria	Example Project/s
1	Doing this project enables us to respond quickly to a loss of services for a few people	Development of a business continuity plan for a small community or group of people
2	Doing this project reduces the chances of losing services which effects a few people	
3	Doing this project enables us to respond quickly to a loss of services for a small group of people	
4	Doing this project reduces the chances of losing services which affect a small group of people	
5	Doing this project reduces the chances of losing services which are critical for the town/district to operate	Capacity Upgrade of Town Water Treatment Plant, Larger community reservoir construction and burst control valves. Certain Online Services

Being Legislatively Compliant

Score	Criteria	Example Project/s
1	Doing this is best practice	Stormwater improvement devices - downstream defender
2	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have minor impact and is unlikely to result in prosecution	
3	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a moderate impact and may result in prosecution	Fixing Data related to 3 Waters consent conditions
4	We have a legislative or regulatory responsibility to undertake this project, however not doing it will have a major impact and is likely to result in prosecution	Upgrading water schemes to be compliant with NZDWS
5	Doing this **now** is absolutely mandatory and prosecution is certain	LTP, Annual Plan

Internal Innovation

Score	Criteria	Example Project/s
1	This project leads to minor internal operational efficiencies (such as time and cost savings) through innovative ways of doing things or contributes to an improved employee experience for some employees	Rostering software for a team
2	This project leads to moderate internal operational efficiencies through innovative ways of doing things	Implementation of Smart Trak or Priava booking software
3	This project leads to moderate internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of online booking forms for Customers
4	This project leads to significant internal operational efficiencies through innovative ways of doing things or contributes to an improved employee experience for all employees	RFID implementation at the library
5	This project leads to significant internal operational efficiencies through innovative ways of doing things that improve our external customer experience	Implementation of Online Property Files and LIMS

Protecting our Environment

Score	Criteria	Example Project/s
1	This project increases our reputation as an environmentally responsible organisation	Enviropods or Roof water recycling tanks for any new buildings
2	This project promotes environmental sustainability or provides a mitigation or adaption to climate change	
3	This project will ensure we are compliant with environmental conditions and/or new environmental standards	Stormwater improvement devices - downstream defender
4	Failure to do this project may lead to prosecution or negative publicity due to environmental damage which will damage our reputation	
5	Failure to do this project will lead to major environmental damage with long lasting effects	Wastewater rising-main (pressure pipe) renewals beside the lake. Those that have failed so now need to be renewed

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