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Water Asset Management Plan

2018

Water Asset Management Plan Status

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Water Activity Management Plan

1 Forward

1.1 Introduction

The provision of systems for the sourcing, treatment and distribution of water is a function of the Central Hawke's Bay District Council permitted by the Local Government Act 2002. The Council has chosen to exercise this function to provide water systems in Kairakau, Pourerere, Otane, Porangahau, Te Paerahi Beach, Takapau, Waipawa, and Waipukurau, and owns these systems on behalf of each of the communities serviced.

The Water Asset Management Plan describes the water activity and how it is managed by Council.

1.2 Our Strategic Goals

To provide water infrastructure that:

- Protect public health by providing adequate supplies of potable water at the appropriate pressure;
- Protect property by ensuring adequate supply and pressure of water in the Town zones for fire fighting
- Provide the continuity of service within the reticulated areas
- Minimal interruptions during maintenance and extension works
- Provide the service in a sustainable way.
- Protect the natural environment;
- Meets the Drinking water standards;

Whilst:

- educating the community about the benefits and role of water supplies, treatment and distribution as well as improving their awareness of the efficient water usage;
- encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the District regarding water;
- The water supply network will receive enough funding to continue to allow the efficient distribution of potable water throughout the district on the existing network at all times
- Minimal pipe leakage
- Broken pipes and other assets are replaced
- The water network is planned for, designed, managed, and maintained to meet the service levels agreed with the community and operated within relevant national standards and guidelines.
- Council developed strategies and environmental goals are supported.

1.3 Our Water System

The Council provides water systems in the following areas:

1.3.1 Waipukurau

The source of water for the Waipukurau supply is a group of five bores located at the foot of Pukeora Hill adjacent to the Tuki Tuki River approximately 4 kilometres west of Waipukurau. The bores deliver the water to a wet well in which there are two submersible pumps which deliver water directly to the main reservoir on Pukeora Hill. The chemicals used to treat the water in this supply are added to the raw water at the point of discharge into the reservoir. Chlorine gas is injected into the water for sterilisation, and currently we are constructing a UV plant to help with the treatment of the water.

The reservoir on Pukeora Hill is square and is made of concrete. It was built in about 1927 and has a capacity of 2,700m3. A second reservoir is located at the top of the hill in Hunter Park and supplies the "low pressure" zone, with the Pukeora reservoir providing the "high pressure" zone. There is a small water tank in Mangatarata Road that provides additional storage to feed a small group of houses in that area.

The Hunter Park reservoir is rectangular and is made of concrete with a corrugated steel roof. It was built in the early 1900's and has a capacity of 900 m3.

The reticulation network in Waipukurau comprises of a wide range of pipe material and pipe diameters from 375mm in diameter down to 12mm. The age of the various sections of pipe ranges up to approximately 70 years old. Fire hydrants and valves are located throughout the reticulation. Water meters are provided for extra-ordinary users. 2,173 properties are connected.

2016/17 water usage per year is 1,566,520 m^3

- Water Treatment Stations 1
- Reservoirs 2
- Tanks 2
- Pipes 77.86km
- Valves 342
- Fire Hydrants 322
- Pumping Station 1
- Connection 2173

1.3.2 Waipawa

Water for the combined Waipawa – Otane system is pumped from a shallow bore on Tikokino Road near the Waipawa River, treated with chlorine disinfection, and pumped approximately 4.5 kilometres to two reservoirs on Abbotsford Road. A second bore supply located in Johnson Street is a supplementary supply to boost low water pressure in that area of the network. Water flows by gravity from the Abbotsford Road reservoir to Waipawa township, and through a dedicated water main to reservoirs at Otane and

then to Otane township. There are also water mains from the Waipawa reticulation to the Racecourse Rd / Homewood Rd / White Rd area. 942 properties are connected in Waipawa and 273 in Otane.

One reservoir is rectangular and is made of concrete with a corrugated steel roof. It was built in 1909 and has a capacity of 700m3. The other reservoir is a 400 m^3 circular tank made of concrete, and was built in 1919.

The mains within this network range in size from 225mm in diameter down to 20mm. The earliest pipes were installed around 1907. Fire hydrants and valves are located throughout the reticulation. Water meters are provided for extra-ordinary users.

2016/17 water usage per year is 653,955 m^3 (include water to Otane)

- Water Treatment Stations 2
- Reservoirs 3
- Tanks 2
- Pipes 52.30km
- Valves 115
- Fire Hydrants 190
- Pumping Station 2
- Connection 981

1.3.3 Otane

The Otane water supply system receives treated water from the Waipawa water supply system by way of a 100mm diameter pipeline running along the road reserve of State Highway 2. This pipe delivers water to two 150 cubic metre timber reservoirs located together on the hills to the west of the township.

Water is fed into the reticulation through a 150mm PVC delivery line from the reservoirs and along Higginson Street. A second fed is available through a Pressure Reducing Valve from the incoming main from Waipawa. This valve operates when pressure drops in the township reticulation indicating that additional water is required.

The reticulation network consists mainly of 100mm diameter PVC pipework although some is still the older galvanised iron pipes installed originally as gas mains. Fire hydrants and valves are located throughout the reticulation. Water meters are provided for extra-ordinary users. There are 267 connections to the supply.

- Water Treatment Stations 0
- Reservoirs 0
- Tanks 2
- Pipes 18.49km
- Valves 72
- Fire Hydrants 36
- Pumping Station 1
- Connection 273

Takapau

The Takapau Township draws its water from a 40m deep bore located in Meta Street. An ultrafiltration treatment system was installed in 2003 to remove manganese and iron from the raw water. Treated water is stored in seven tanks from where it is pumped into the reticulation network eventually discharging in to a reservoir located at the junction of SH2 and Sydney Street.

All the reticulation in Takapau is PVC with sizes range from 150mm to 25mm in diameter. Fire hydrants and valves are located throughout the reticulation. Water meters are provided for extra-ordinary users. There are 274 connections to the supply.

2016/17 water usage per year is 133,872 m3

- Water Treatment Stations 1
- Reservoirs 1
- Tanks 12
- Pipes 16.41km
- Valves 44
- Fire Hydrants 51
- Pumping Station 1
- Connection 272

1.3.4 Porangahau

The Porangahau water supply includes the settlements of Te Paerahi Beach and Porangahau Township. The water source is groundwater taken from a shallow bore situated off Beach Road next to the Te Paerahi Golf Club. Treated water is pumped to storage tanks on Old Hill Road.

The majority of the pipework was replaced in 2005. Fire hydrants and valves are located throughout the reticulation.

Only the commercial connections and marae connection are metered. There are 130 properties connected in Porangahau.

2016/17 water usage per year is 41,567 m^3

- Water Treatment Stations 0
- Reservoirs 3
- Tanks 5
- Pipes 10.14km
- Valves 37
- Fire Hydrants 22
- Pumping Station 0
- Connection 110

1.3.5 Te Paerahi

An ultrafiltration treatment system was installed at the treatment plant in 2003. The treated water is stored in eleven 24,000 litre tanks from where it is pumped into the reticulation network for Te Paerahi, and also pumps into the reservoirs at Porangahau.

The pipework is 150mm to 20 mm diameter. Fire hydrants and valves are located throughout the reticulation.

Only the commercial connections are metered. There are 102 properties connected in Te Paerahi.

2016/17 water usage per year is 20,674 m^3

- Water Pumping Stations 1
- Reservoirs 0
- Tanks 15
- Pipes 6.35km
- Valves 46
- Fire Hydrants 17
- Pumping Station 1
- Connection 133

1.3.6 Kairakau

The Kairakau water supply scheme was installed in the mid 1950's, with additions in the 1970's, 1993 and 2007. The scheme serves 83 properties, the public toilets, and the camping ground.

This scheme provides water to on-site storage tanks in each property.

Water is pumped from two sources – a spring and a bore – at the base of the hill behind Kairakau. Water is treated by chlorine disinfection and stored next to the pumping station. It is then pumped to three reservoirs on the hill. Water is gravity fed to the reticulation.

2016/17 water usage per year is 6,265 m^3

- Water Treatment Stations 1
- Reservoirs 5
- Tanks 8
- Pipes 3.32km
- Valves 9
- Fire Hydrants 2
- Pumping Station 3
- Connection 84

1.3.7 Pourerere

The source for the Pourerere water supply scheme is a spring located high in the hills above Gibraltar Road behind the beach. The spring is tapped and the water piped to a pressure break tank from which it is then piped a further 2.5 kilometres to three tanks at the Pourerere Beach Camping Ground. The Pourerere Beach public toilet block is also connected to this supply as are 3 adjacent holiday homes. The water is considered at a non-potable supply.

2016/17 water usage per year is 400 m^3

- Water Pumping Stations 0
- Reservoirs 0
- Tanks 4
- Pipes 6.12km
- Valves 0
- Fire Hydrants 0
- Pumping Station 0
- Connection 5

1.3.8 Responsibilities

The water assets are managed by the Utilities Department of Council. The physical work is preformed thru a Facilities Management Contract. Their responsibility is to ensure all pumping systems, reticulation networks etc. are maintained and operated to Council standards, as well the can carry out minor capital works. Most capital works are carried out by external companies selected via a competitive or selected tender process.

1.4 Why Council has Water Systems

The provision of systems for the collection, transmission and disposal of wastewater is a function of the Central Hawke's Bay District Council permitted by Section 11A of the Local Government Act 2002 states that Council is required to provide core services as outlined below:-

11A Core services to be considered in performing role

In performing its role, a local authority must have particular regard to the contribution that the following core services make to its communities:

(a) network infrastructure:
(b) public transport services:
(c) solid waste collection and disposal:
(d) the avoidance or mitigation of natural hazards:
(e) libraries, museums, reserves, and other recreational facilities and community amenities.

Section 11A: inserted, on 27 November 2010, by section 5 of the Local Government Act 2002 Amendment Act 2010 (2010 No 124).
Section 11A(e): replaced, on 8 August 2014, by section 7 of the Local Government Act 2002 Amendment Act 2014 (2014 No 55).

This requirement implies the need for the Council to have Water Asset Management Plans for core or major infrastructure activities, to define agreed levels of service, the expenditure required to maintain the agreed service levels for the period of the plan and the expenditure required to install new infrastructure. These are essential requirements of the LTP and Council has chosen to exercise this function to provide water systems in Otane, Waipawa, Waipukurau, Takapau, Porangahau, Te Paerahi, Pourerere and Kairakau, owns these systems on behalf of each of the communities serviced.

An Asset Management Plan (AMP) is compiled to:

- Record the asset which is used to provide this activity – an inventory.
- Record Council's objectives for, thought processes about, and processes of implementation for providing the activity.
- Show the community and the auditors that Council is a prudent provider of activities.
- Meet Community expectation for Council to provide water services.
- Over previous generations and in the absence of any other viable options, the communities served by these water systems have called upon Council to provide these systems, and have contributed towards the capital involved in their installation and the on-going costs to maintain them.
- To ensure the community health, well-being and safety in each of these communities by providing for the collection, transmission, and disposal of wastewater.
- To ensure public access to water services.
- To ensure the public is adequately protected from the dangers of flooding in design storm conditions

Financial and accounting guidelines, such as Accounting for Property, Plant and Equipment, the Long Term Financial Planning process, all assume that a prudent Council would have Asset Management Plans.

1.5 Key Issues for the Water Systems

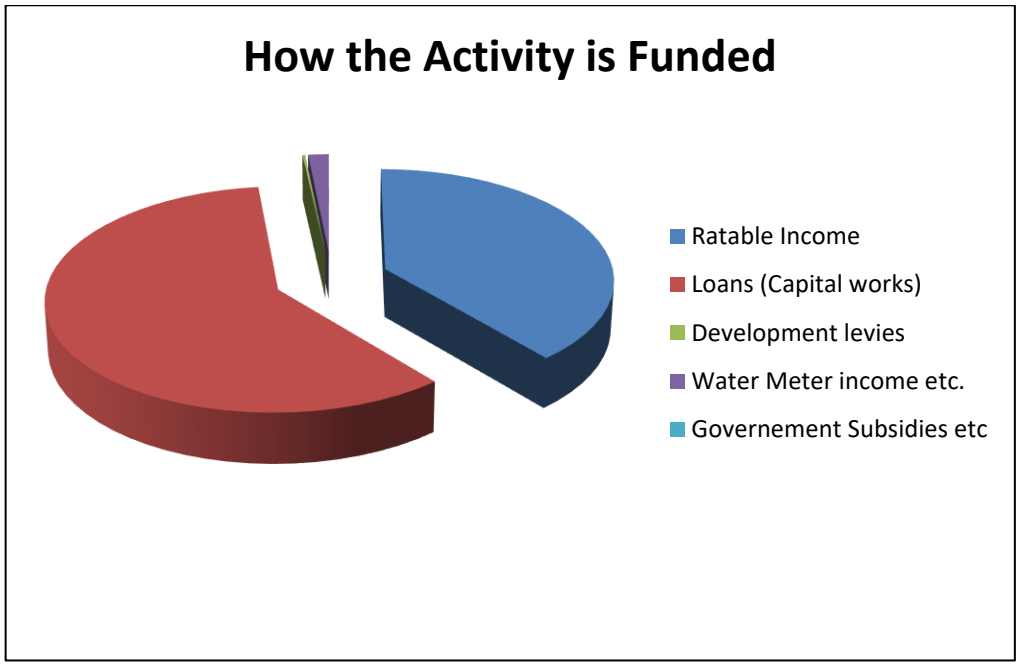
Council is facing a number of key issues over the life of this document and beyond. We are in a time of potentially significant growth with increased demand for housing within the reticulated areas and adjacent.

In short Council is facing a number of key issues when managing and plan improvements of this activity over the next 30 years that will put pressure our ability to provide the expected service and the ability of the community to fund the work. Below is a short list of the issue which are dealt with in more detail further on in this document:-

- Changes in the demographic make of the District and its impact on the provision of this activity.
- Plan Change 6 has increase the minimum flow levels within the Tukituki and Waipawa rivers which may increase the needs for water restrictions during summer periods.
- State Highway 2 Pump Station up grade.
- Second source of supply to Waipukurau to maintain adequate quantities of water to the town.
- The impact of aging infrastructure and its effect on the resilience of the networks.
- The impact of the under size reticulation to meet fire flows in Waipukurau and Waipawa.
- The impacts that global warming will/may have on the provision of water systems.

1.6 How we Fund this Activity

Council funds this activity from a number of budget areas



Operating Cost

- Fixed charges from each separately services site or property (rating Unit)
- Half charges for non-connected properties where services are available

- Direct charges such as water metering

Capital Cost

- Loans for discrete projects
- Development levies pay for capacity for future demand
- Other funding sources such as Government subsidies where available
- Vested infrastructure.

A full summary can be found in the Financial Section which outlines in detail where Council will be spending fund in the next 3 years and in more general term for the next 30 years.

1.7 Key Achievements / Limitations of this AMP

Achievements of this plan include:

- The construction and commissioning of UV treatment at Tikokino Road and new pumping stations at Johnson Street for the Waipawa water supply.
- Meets the LGA requirement and provides a link to the LTP and other Plans.
- Write the Infrastructure Strategy for the next 30years to highlight the difficulty's this Activity faces.
- Includes updated expenditure and 10 year renewal and expenditure forecast.
- Asset valuations have been completed by Council staff, giving more accuracy and certainty at a lower cost.
- Outlines Council's Asset Management practices.
- Ongoing GPS positioning of most Fire hydrants and valve boxes in Waipawa and Waipukurau and many in the other townships has been achieved.
- Rewriting of this AMP has resulted in a simpler, easier to read and use AMP than the previous version.
- Strategies and tactics to manage the water asset with a very limited budget have been better explained than previously.

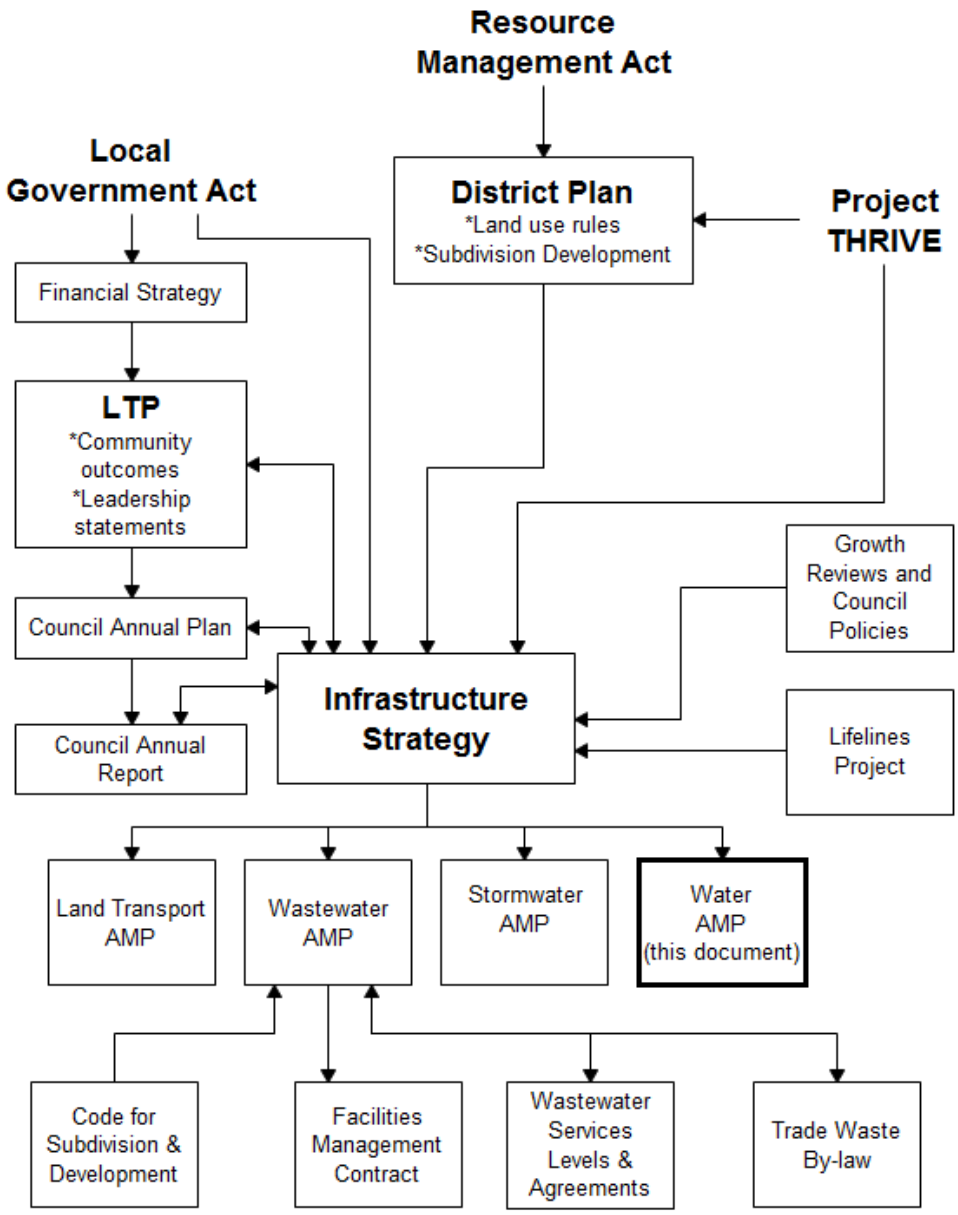
Limitations of this plan include:

- Inspection and condition rating of some of the key assets is still required to form a better overall picture of the water asset on which to base life cycle management decisions.
- A history of condition data needs to accumulate on assets in order to better understand their long term behaviour.

- Ongoing verification of Water Assets to ensure the Asset Register is accurate and maintained to the highest standard Council can provide with limited resources.
- The impact of the globe warming has not been assessed or taken into account as part of this review of the Water AMP.
- No allowances have been included for major changes in levels of Activities within the District such as the development of water storage schemes or land use changes.

1.8 Relationship of Asset Management Plan to other Council Documents

This Water Asset Management Plan is one of many documents compiled by Council to ensure an efficient and structure management of Council assets and ensure correct delivery of water services to our Customers. The following diagram shows between this document and other Plan's and Policy's produced by the Council.



These documents fulfil the following roles:

- Infrastructure Strategy

  This document has been required by the recent amendments of the Local Government Act 2020 and sets out the direction of how the Council will provide this Activity for the next 30 years.

- Long Term Plan (LTP)

  A consultation document that sets out community identified outcomes, long terms plans for each Council activity, and long term financial requirements to undertake activities and meet identified outcomes.

- Water Asset Management Plan (this document)

  The document sets out the means to implement the strategies and outcomes identified in the Infrastructure Strategic Plan at a tactical level.

- Lifelines

  The lifelines report "Facing the Risks" 2001 Hawke's Bay Engineering Lifelines Project considers risks for earthquake, meteorological, flood, volcanic impacts, landslides, tsunami and aquifers and their potential for contamination. (*Within chapter 10 of that report, the impacts for the civil networks for Central Hawke's Bay District (water, sewer and wastewater) are discussed and some further investigations are suggested to obtain data to develop mitigation measures for these risks.)*

- Annual Plan

  Council's annual plan sets out the works to be actioned in the current financial year, the means of funding these and the performance measures to be met within each activity.

- Annual Report

  Council's annual report is produced at the end of each financial year and is a summary of financial and physical works performances as well as performance of each activity against the required performance measures of the relevant Annual Plan.

- Facilities Management Contract

  This contract is for the management, operation and maintenance of all public water systems within the District.

1.9 Relationships with Stakeholders

The key stakeholder organisations and groups that have an interest in the Water Asset are:

- External

  The Central Hawke's Bay community, including citizens, ratepayers and local businesses

  Hawke's Bay Regional Council

  Commercial and Business interest organisations

  Ministry of Health

  Ministry for the Environment

  Local Iwi

  Department of Conservation

  Fish & Game

  Consultants and contractors

  New Zealand Transport Agency

Developers

- Internal

  Councillors
  Chief Executive
  Asset Management staff
  Financial Support staff
  Information Technology staff
  Regulatory staff
  Council Facilities Maintenance Contractor

2 Strategic Environment and Legal Framework

This section looks at the Strategic goals and aims of the Council and how the Water Activity impacts or supports the Council in achieving these goals. It also looks at how the District will change over the next 30 years and what impact this will have on the delivery of water supplies.

2.1 Council's Mission Statement

Council's Mission Statement is:

"The Central Hawke's Bay District Council will be accountable to its citizens for the good management of the public assets of the district and provide open local government at minimum economic cost, with the least possible intervention in the private lives of residents."

2.1.1 Community Outcomes

Council has determined that the water activity contributes to three of the community's desired outcomes.

Community Outcome	Commentary
A lifetime of good health and wellbeing	The provision of adequate water supplies and systems. Risks to public health are identified and appropriately managed, management of water supply systems to provide safe water to the public, through treatment systems and water monitoring
An environment that is appreciated, protected and sustained for future generations	The provision of adequate water management and systems minimises the adverse impacts of water on the environment. Central Hawke's Bay District has an efficient and affordable water infrastructure – by ensuring continuity of supply
A strong, prosperous and thriving economy	The provision of adequate water management and systems meets growth needs to best serve the community. We plan and manage water use to minimize the effect on the environment – through measures to manage water demand
Provide the management and disposal of the water systems in a sustainable way	Council works to provide the water system in the most cost effective and stainable way by using the latest technologies and looking for outside the square opportunities.

2.1.2 Corporate Water Asset Goal

In contributing to the Mission Statement and Community Outcomes, the water activity goal is:

"Reliable, safe, effective and efficient management and distribution of potable water, at least cost, to customers and ensure that the adequate capacity for firefighting is available within designated fire districts

The Strategic Result required to achieve the water activity goal is:

Reliable, safe and cost effective distribution of potable water.

The following Strategic Actions will be completed to achieve this result:

- Ensuring the provision of a cost effective water system that protects public health and the environment, and that is affordable to the community.
- Ensuring the water system is planned for, designed, managed and maintained to meet the service levels agreed with the community,
- The water network is planned for, designed, managed, and maintained to meet the service levels agreed with the community and is operated so as to prevent any undue nuisance, disturbance or damage to property
- To manage the water system to operate within relevant national standards and guidelines within the financial constraints set by Council.
- The water supply network will receive enough funding to continue to allow the efficient distribution of potable water throughout the district on the existing network at all times.
- Drinking water standards are met.
- Minimal pipe leakage.
- Broken pipes and other assets are replaced.
- Pipe pressure is adequate everywhere along the network.
- Minimal interruptions during maintenance and extension works.
- Council developed strategies and environmental goals are supported.
- Maintaining piped reticulation at a level that optimises the economic life and performance of the asset.
- Supporting Council's Development Strategies and Council's environmental Goals.

2.1.3 Key Performance Measures

The key performance measures for monitoring achievement of the Asset Goal and Strategic Results for the water activity are:

Strategic Action	Key Performance Measures (KPMs)
Achieve defined levels of service.	• the agreed measures are achieved each year when reported in the annual report
Protect the health and safety of the community and of the maintenance and operational personnel.	• No report of ill health due to contaminated water
Manage and maintain services so as to ensure any adverse impacts on the environment and/or on the communities are minimised.	• Resource consent compliance at all times • The water resource is managed in an effective way to minimise loss etc. • Action is taken within 24 hours of end of flood event to mitigate adverse impacts of contaminated water entering any bores, wells and extraction galleries.
Ensure the capacity of all water systems is sufficient to prevent undue nuisance and disturbance or damage to property.	• Current system can supply the appropriate flows as designed. (water capacity modelling) • Downstream capacity allows sufficient quantities of water in a normal event and fire events.
Comply with statutory requirements.	• No negative opinion from audit of this Asset Management Plan
Achieve compliance with appropriate technical standards.	• New works are designed to meet all legislative requirements and future demands.
Implement Council's policies.	• Council Policy is clear and enforced at all times
Promote development within the Central Hawke's Bay District.	• Contribution Fees/Development Levies are applied according to Council's policies.
Achieve defined standards of system management.	• Processes/methods and system requirements are achieved as set out in this Asset Management Plan

2.2 Legislative and Regulatory Requirements

General

The water activity is required to comply with all applicable legislation and regulations. These form the minimum standards of service that the water activity must meet.

Legislation and Planning Documents

Some of the acts and strategic documents that will have some application and relevance to the water activity are:

Legislation or Regulation	Council Responsibilities
The Local Government Act 2002	• Erect, construct, and maintain any public work, which in the opinion of the Council may be necessary or beneficial to the District. • May make bylaws with regard to water services within the District. • Comply with certain financial management practices. • Consult with communities. • Complete assessments of water services within the District.
The Resource	• Sustain the potential of natural and physical resources to meet the

Management Act 1991	reasonable needs of current and future generations. • Comply with the District and Regional Plans. • Avoid, remedy, or mitigate any adverse effect on the environment and structures.
Hazardous Substances and New Organisms (HSNO) Act 1996	• To protect human health and the environment from persistent organic pollutants. • Requiring that decisions are made on the basis of the environmental, health and safety effects of hazardous substances and new organisms.
The Building Act 2004 and amendments.	• Ensure all buildings and facilities constructed for the water activity comply with the Act. • Produce Project Information Memoranda (PIM's) and Building Consents, with all available information relating to an individual property requiring a connection to the reticulated water supply. For water services the relevant information may include details of access, restrictions to reticulation, approvals etc.
The Health and Safety in Employment Act 1999	• Ensure that its employees, contractors, and general public are protected from injury as a result of its activities. • Notify the Occupational Safety and Health Department of serious harm or fatal accidents as a result of its activities within seven days. • Maintain a hazard register.
The Health Act 1956	• MOH can require local authority to provide water works for the benefit of its district where the lack of water control would adversely impact of public health. • Government grants and subsidies may be made available from time to time for water works. • Local Authorities may make bylaws for improving, promoting, or protecting public health, and preventing or abating nuisances, regulating drainage and the control, collection and disposal of wastewater.
The Public Works Act 1981	• Set requirements for the acquisition of land by local authorities for water works as required.
The Local Government (Rating) Act	• Rate for provision of water services.
The Climate Change Response Act 2002	• provide for the implementation, operation, and administration of a greenhouse gas emissions trading scheme in New Zealand that supports and encourages global efforts to reduce the emission of greenhouse gases
The New Zealand Coastal Policy Statement	• To protect the character and qualities of the coastal environment
Employment Relations Act 2000	• The control of water relating to the public systems within the District is an essential service and strike action and lockouts are not permitted in regard to this service provision except in accordance with special conditions of the Act.
The Civil Defence Emergency Act 2002	• Establish and be a member of a Civil Defence Emergency Management Group. • Coordinate, through regional groups, planning, programmes, and activities related to civil defence emergency management across the areas of reduction, readiness, response and recovery, and encourage cooperation and joint action within those regional groups. • Improve and promote the sustainable management of hazards in a way that contributes to the public's well-being and safety and to property protection. • Ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency (Lifeline Plans).

2.3 Future Demand

Council is required under the recent amendments to the Local Government Act 2020 to look at the any future requirements of the water networks. This is a difficult issue predicting what future growth will look like and where it will occur. We are currently reviewing our District Plan which will identify suitable areas for development. Council has commissioned a review of predicted growth pattern and based on this report the following demand is predicted.

> Total household numbers grew by an estimated 160 between 2013 and 2017 and are projected to grow further by 65 during the year to June 2018, based on recent activity levels. Over the 2018-2028 LTP period, total household numbers in the district are projected to increase by a further 535. The number of households in the combined urban area of Waipukurau/Waipawa/Otane is projected to increase by 340 or 10% (Otane 19%), with Waipukurau accounting for 68% of this gain. The combined urban area accounts for 63% of total district household change over 2018-2048. Under the 'halfway Medium to High' projection, the projected number of households in the district increases further by 90 between 2028 and 2048. Under the High or most optimistic projection, the projected increase between the year 2028 'halfway Medium to High' result (6,160 households) and the 'High' projection result for year 2048 (6,700 households) is 540 (i.e. 54 additional households per annum similar to the 2018-2028 figure) or approximately 9%.

Because of the significance of this and the major impact it will have on how and where Council provides the water activity it is discussed in more detail in a separate section of this document.

2.4 Council Policy for Development Levies.

Council has an existing policy of the taking and use of Development Levies as allowed in the Local Government Act 2002. Because of the recent amendment Council will be review and amending the policy as require as part of the LTP 2018 -28. The Policy, which was first adopted on 18 June 2015, is included in the LTP. In summary, the Policy:

- Charges development contributions under the Local Government Act 2002.
- Requires developers to fully fund all changes to the infrastructure caused by their development.
- Describes areas within which the contributions will apply.
- Charges for the effects that developments have on the infrastructure.
- Council also resolved that no water connections to the Council water networks from properties which are outside the approved water areas will be allowed.

- Development levies are only raised for identified improvement projects that are listed in Council's forward works programmes and included in the LTP.

2.5 Bylaws

The main bylaw for this activity is the Central Hawke's Bay District Council No: 7 Water Bylaw 2018.

2.6 Policies

Council has a number of policies for the management of their assets and activities. These policies are maintained and managed in the CHBDC Policy Manual. Policy documents relating to water activities include:

- Levels of Asset Management Plan Preparation Policy. - *clarification of level of AMP*

2.7 Property Information

2.7.1 Resource Consents

Resource consent is required for discretionary activities covered in the Regional Resource Management Plan. If there is any doubt as to whether a consent will be necessary, HB Regional Council Environmental Consents Officers are able to advise.

Any earthworks which may modify or destroy an archaeological site will require separate approval from the Historic Places Trust.

Land use consent is required for any activities, such as earthworks, reclamation, dumping and construction of structures, within the bed of a lake, river or stream, (see Section 13 of the Resource Management Act 1991). Any proposed activity in a lake, river or streambed will require land use consent. In all situations where land use consent is a requisite, no earthworks can proceed until the consent has been obtained from the Regional Council.

Council holds the resource consents listed below.

Water Supply System	Source	Permit Number	Consented Take	Expiry Date
Kairakau	Bore (Kapitit Pl)	WP090153T	1 litres per second 605 m^3 over any 7 day period	31 May 2029
	Well (Mananui Pl)	WP090166T	0.7 litres per second 420 m^3 over any 7 day period	31 May 2029
Pourerere	Spring (Ouepoto Farm)	WP010510T	0.25 litres per second	31 May 2022
Te Paerahi	Bore (Beach Rd)	WP090150T	10.2 litres per second 6,619 m^3 over any 7 day period	31 May 2034
Takapau	Bore (Meta Street)	WP030816T	18.5 litres per second 7900 m^3 over any 7 day period.	31 May 2015
Waipawa	Bore (Johnson St)	WP030817T	35 litres per second 21,168 m^3 over any 7 day period	31 May 2028

	Bore (Tikokino Rd)	WP030818T	55 litres per second 33,264 m^3 over any 7 day period	31 May 2028
Waipukurau	Bore (State Highway 2)	WP030775T	100 litres per second 60,480 m^3 over any 7 day period.	31 May 2028

Summary table of water takes following

Consent Number	System	Site	Consent Water Take					Usage			
			Rate	Units	7 day period cubic m	cu 28 days	year max	Yearly total take 2016/17 yr. m3	Summer Ave flow	Summer Peak flow	Winter Ave flow
WP030775T	Waipukurau	SH2	100	l/sec	60480			1566520	154430	165619	117253
WP030816T	Takapau		19	l/sec		31600	410800	133872	13644	14697	9921
WP030817T	Waipawa	Johnson Street	35	l/sec	21168			653955	10862	13184	6275
WP030818T		Tikokino Road	55	l/sec	33264				57280	62464	51073
WP090150T	Porangahau		10.2	l/sec	6169			62241	3148	3671	2348
WP090166T	Kairakau	Brodie Place	0.7	l/sec	420	Combined		6265	1042	1382	240
WP090153T		Kapiti	1	l/sec	605	Combined					
WP010510T	Pourerere		0.25	l/sec				400	n/a	n/a	n/a

2.7.2 Property Designations

Designations are recorded in the Central Hawke's Bay District Council's District Plan for the following site.

Site	Location	Map number	Designation number
Kairakau water intakes and reservoir	Kapiti Place	29	38
Kairakau proposed water supply	Kapiti Place	170	38
Pourerere water supply source	Ouepoto Farm	171	41
Pourerere water tanks	Camping Ground	77	41
Te Paerahi water reservoirs	Beach Road	71	43
Te Paerahi water pump station	Beach Road	72	19
Porangahau water reservoirs	Old Hill Rd	35	19
Takapau water pump station	Meta St	59	35
Takapau water reservoir	SH2 Takapau	16	12
Waipawa water pump station	Tikokino Rd	20	9
Waipawa water reservoirs	Abbotsford Rd	44	26
Waipawa water pumping station	Johnson St	52	29
Waipukurau water intake/ pump station	SH2 Waipukurau	14	8
Waipukurau water reservoir	Pukeora Scenic Rd	13	8
Waipukurau water reservoir	Hunter Park	37	30

3 General Over view of the Water Networks

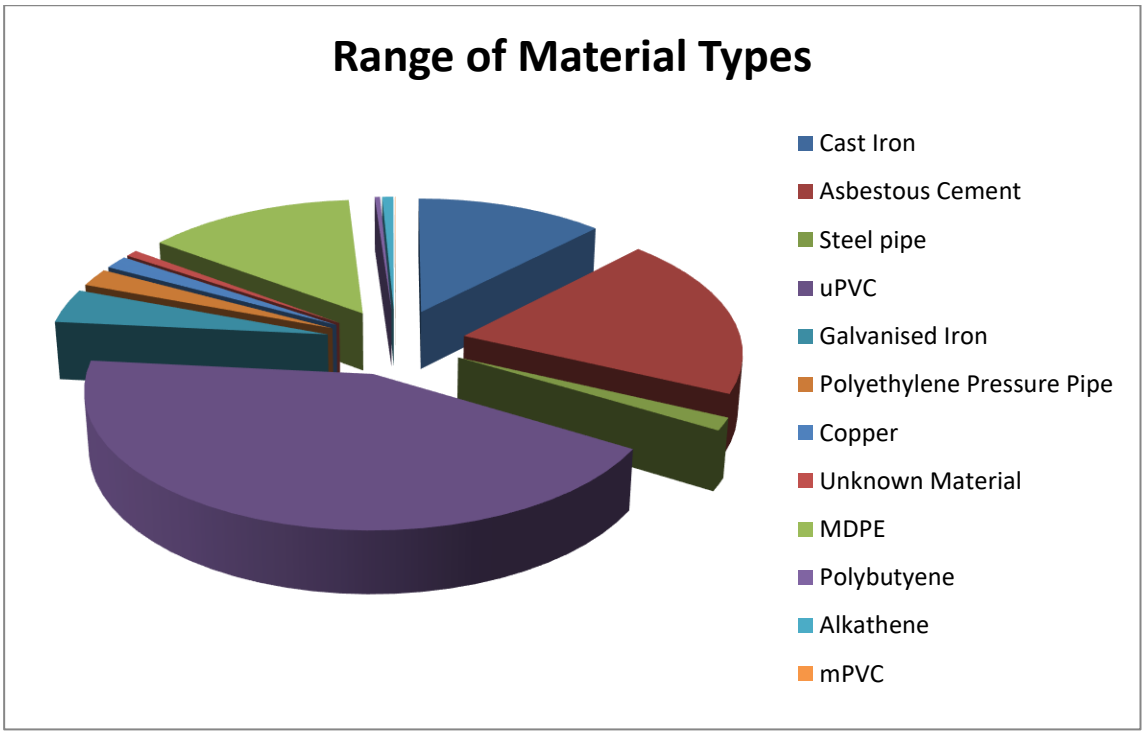
3.1 What does the Activity Involve?

In the Central Hawke's Bay District, there are presently eight public water supply systems at Otane, Waipawa, Waipukurau, Takapau, Porangahau, Te Paerahi, Pourerere and Kairakau. Water is also supplied to the Pourerere Camping Ground and Pourerere toilet block.

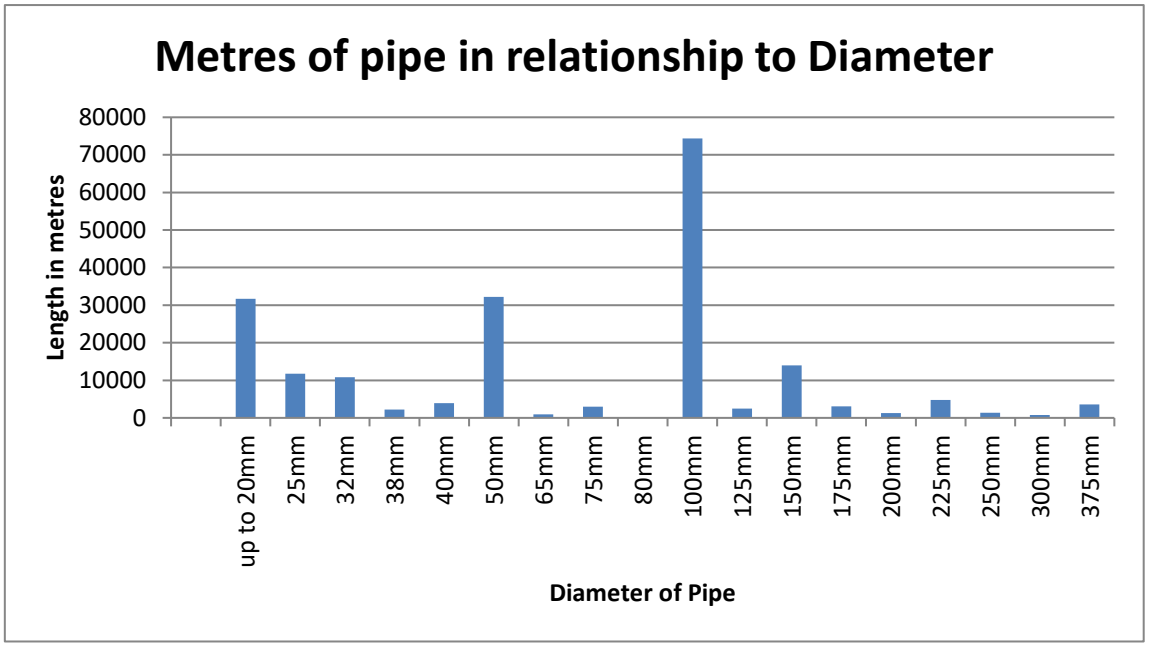
The quality of water supplied in the reticulations fully meets the New Zealand Drinking Water Standards 2005 for bacterial compliance for all supplies. With regards to bacterial and protozoa compliance Council is work towards full compliance by the upgrading of treatment facilities. The main issue at present is hearing into the issue with the Havelock North water supply which has move the goal post and will now require a fresh look at all supplies.

3.2 Overview of the Water systems

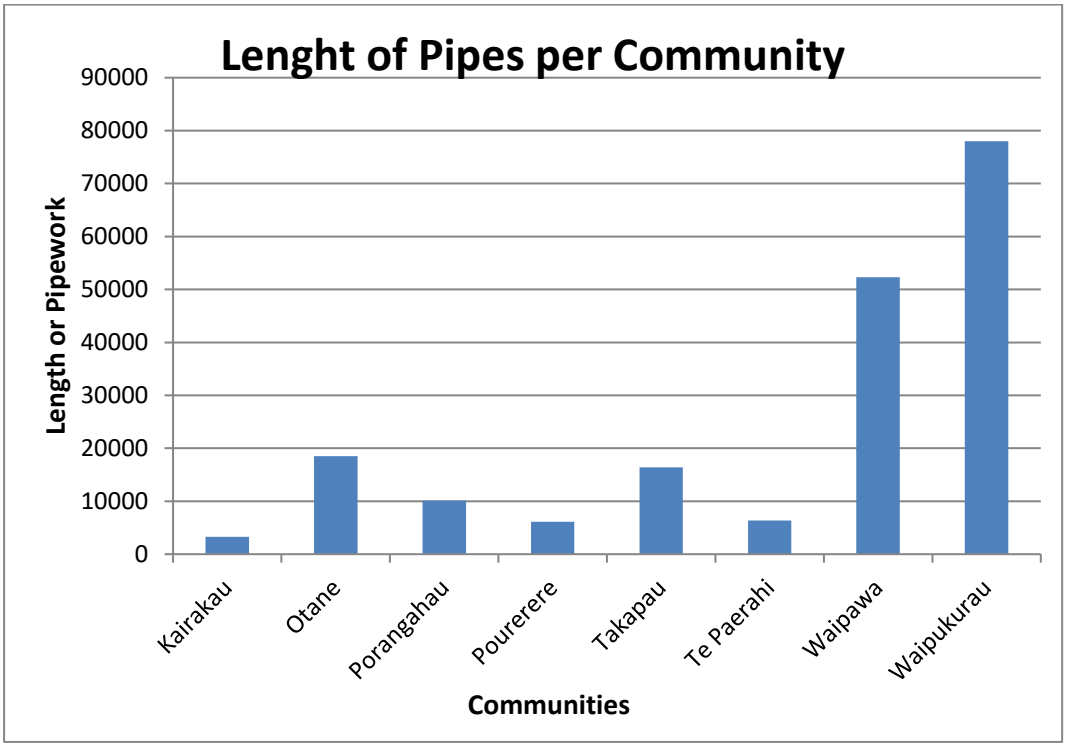
The chart below indicates the type of pipes materials used in the water network when compared to the length of pipe laid.



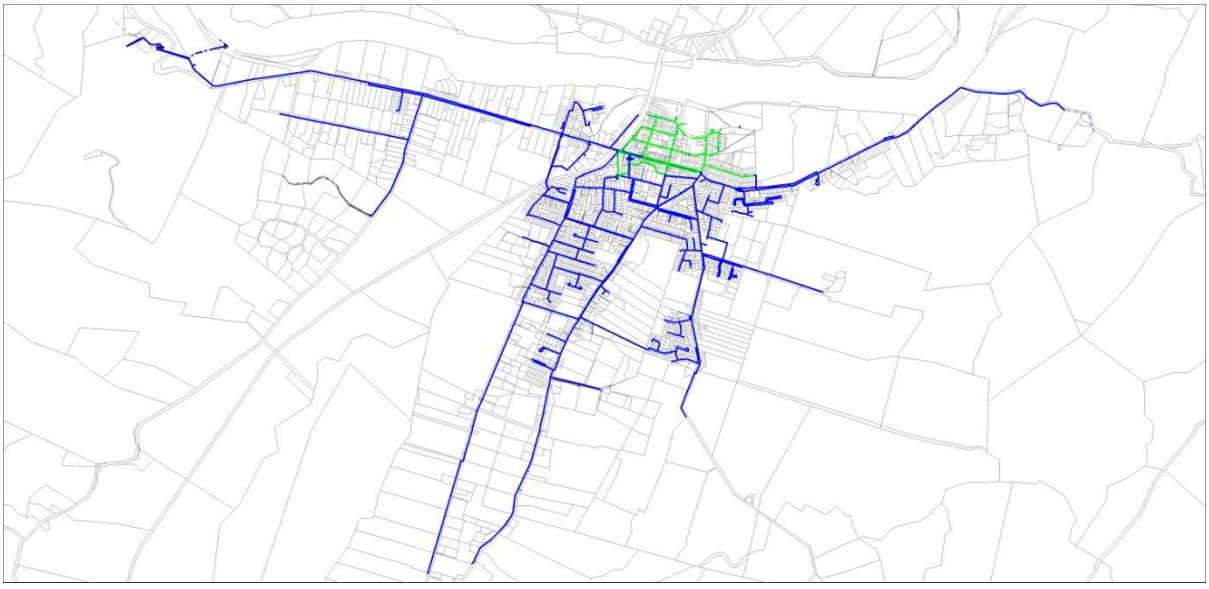
This chart show the number of metres of various diameter of pipe through the District



The diagram below gives an indication of the number of metres of pipework in each Community.



3.3 Waipukurau Water Network



The Waipukurau Water System

The source of water for the Waipukurau supply is currently a group of four bores located under the Pukeora Hill adjacent to the Tuki Tuki River approximately 4km west of Waipukurau. The bores, which are classed as shallow (they collect water from a depth of approximately 3m), draw groundwater from gravel galleries adjacent to the Tuki Tuki River by vacuum siphons which deliver the water to a 1.5m diameter wet well. In the wet well there are two submersible pumps which work singly or together to deliver water directly to the main reservoir on Pukeora Hill. The fourth bore it directly pumps into the raising main from a line shaft pump over the bore. Chlorine gas for sterilisation The chemicals used to treat the water in this supply are added to the raw water at the reservoir. These include and fluoride for dental health purposes.

The reservoir on Pukeora Hill is square and is made of concrete with a concrete roof. It was built in about 1927 and has a capacity of 2,700m^3. The Waipukurau water supply includes a second reservoir located at the top of the hill in Hunter Park. This is at a lower elevation than the Pukeora Hill reservoir meaning that the water supply has two pressure zones, the "low pressure" zone fed from the Hunter Park and the "high pressure" zone fed directly from the Pukeora Hill reservoir. In addition, there is a small water tank in Mangatarata Road that provides additional storage to feed a small group of houses in that area. Also Council supplies water to a small tank above the Pukeora Hill reservoir to service the small group of properties on the reservoir access road

The Hunter Park reservoir is rectangular and is made of concrete with a corrugated steel roof. It was built in the early 1900's and has a capacity of 900 m^3. The reservoir was re-roofed and sealed in 1995.

The reticulation network in Waipukurau comprises of a wide range of pipe material and pipe diameters from 375mm in diameter down to 12mm. The age of the various sections of pipe also ranges from very recent up to approximately 70 years old. The average pressure in the "low pressure" zone is of the order of 400kpa while the average pressure in the "high pressure" zone is 670kPa. Screw-down fire hydrants are located throughout the reticulation though there are also a small number of the old "ball" hydrants as well.

All the "ball" hydrants have been replaced with the standard screw-down type. There are sufficient valves for isolating purposes throughout the network for a coarse control of the system, but more appropriately located isolating valve would make shut downs more manageable and reduce the disruption to the user at times of maintenance shut downs. Meters are provided for extra-ordinary users as per the by-law and all new connections to the network, these meters are read at quarterly intervals, with some major user read monthly. Currently there are 2,173 users connected to the Waipukurau Water supply.

The Waipukurau water supply scheme is monitored by way of a telemetry system, the main computer is located in the Council office, with access available to the Facilities Management Contractor. The system monitors the levels in the reservoirs, pump faults, run hours and other management data. It also monitors water quality monitoring equipment installed in the treatment plant adjacent to the Pukeora Hill Reservoir.

3.3.1 Service Connections

There are currently 2,173 user connected to the network. These range from the large user such as Ovation NZ Ltd a meat processing facility, commercial and industrial users for the ablution requirements, Domestic users and some rural user for stock water.

The service connections physical data is contained within the AssetFinda database. This information is continually updated as service connections are repaired or replaced, and new service connections are added to the network through development.

<u>Asset Capacity / Performance</u>

Service connections and water meters are standard sizes. In general terms the performance is rated as good.

<u>Asset Condition</u>

Based on the perceived condition, utilisation and performance of the existing pipe connections and using appropriate base life for these types of asset Council has rated the newer connections condition as excellent and the older service connections as good unless pacifically advised by the FM Contractor that the lines are in poor condition.

3.3.2 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Waipukurau Network

Diameter in mm	Total Length in metres
12	918.27
15	2361.57
20	10404.9
25	5873.37
32	2107.86
38	886.54
40	3066.26
50	11970.28
75	12.7
80	59.49
100	26376.72
125	1197.39
150	5328.22
175	1403.9
225	284.27
250	1353.72
300	795.91
375	3601.47

Asset Capacity / Performance

Council has just completed modelling of the Waipukurau water network and found that it capacity is okay for existing number of users but there are some short falls when considering growth over the next 30 years. Also the model has indicated there is some issue with performance especially when looking at the flows required by the code of practise for Fire Fighting.

Asset Condition

Approximately 30% of the water pipelines in Waipukurau are greater than 50 years of age. A wide range of materials has been used in the makeup of the reticulation network. Historical and maintenance records indicate the pipelines range in condition from excellent to poor.

Based on the perceived condition, utilisation and performance of the existing pipe systems and using the appropriate base life for each type of pipe making up these systems, the pipe lifetime information has been calculated and is displayed in the graphs which follow.

3.3.3 Pump Station

The water pumping station is located on SH2 below Pukeora Hill.

Asset Capacity / Performance and Condition

Main components of the pump station are pumps, tanks, valves and electrical controls. The performance and condition has come to the point where a full upgrade of the site is required. This will involve the replacement of the older siphon system with a new process based on the new bore/pumping system. This will insure the site meets current demands but an new second supply is being investigated to provide capacity for growth and resilience within the network.

3.3.4 Reservoirs

There are two concrete reservoirs in Waipukurau, located at Pukeora Hill and Hunter Park. To future proof the water storage side of the network Council is looking at providing a second separate system to improve quality of supply and resilience of supply.

Asset Capacity / Performance

The reservoirs have a total capacity of 3,600 cubic meters and their performance is moderate.

Asset Condition

The condition of the reservoirs is good.

There are two smaller concrete water tanks in Waipukurau, located at Pukeora Hill and Mangatarata Road.

Asset Capacity / Performance

The reservoirs have a total capacity of approx. 30 cubic meters and their performance is moderate.

Asset Condition

The condition of the reservoirs is good.

3.3.5 Treatment Plant

The treatment plant is located next to the Pukeora Hill reservoir, here chlorine is injected into the water supply before the reservoir. Council is currently working on adding UV treatment to the process; this should be complete by the end of 2017/18 financial year. The fluoride system has been disconnected and mothballed for future use.

Asset Capacity / Performance and Condition

The Capacity, performance and condition assessment of the Treatment plant is ranges from 3 for the older components to 1 for the new item.

3.4 Waipawa Water Network

3.4.1 General Description of Network

The Waipawa Water System

Water for the combined Waipawa – Otane system is pumped from a bore on Tikokino Road near the Waipawa River, treated with chlorine disinfection, and pumped to a reservoir on Abbotsford Road. A second bore supply located in Johnson Street is a supplementary supply to boost low water pressure in that area of the network. Water flows by gravity from the Abbotsford Road reservoir to Waipawa township, and through a dedicated water main to reservoirs at Otane and then to Otane township. There are also water mains from the Waipawa reticulation to the Racecourse Rd / Homewood Rd / White Rd area. 981 properties are connected in Waipawa and 273 in Otane.

The primary bore is a 1.2 metre diameter shallow bore (approximately 3m deep) located on the Tikokino Road approximately 3 kilometres from Waipawa. The bore draws water from the gravels beneath the Waipawa River using a single above ground pump. A second bore and above ground pump has been installed as part of the 2011 upgrade to the site. These pump/bore components act as a duty and stand-by system and delivery the water to the pumped main supply to the reservoir. The chlorine used to sterilise the water in this supply is added to the raw water at this point.

Water is then pumped approximately 4.5 kilometres through a 225mm diameter asbestos cement pipe to two reservoirs located above Waipawa on the hill on Abbotsford Road. There are eight air valves on this rising main. Adjacent to the pipeline there is an old Telecom cable which, in the event of a failure of the telemetry system, has been used in the past to activate the pumps. However, this cable has been damaged and repaired many times over the years and is now believed that this line is no longer intacted only of marginal reliability and unlikely to be able to be used for this back-up function without significant repairs and/or upgrade.

One reservoir is rectangular and is made of concrete with a corrugated steel roof. It was built in 1909 and has a capacity of 700m^3. The reservoir was re-roofed and sealed in 1993. The other reservoir is circular and was built in 1919. It is of concrete construction

and has a capacity of 400 m3. It was re-sealed in 1996 however subsequent inspection recently (2005) has identified some weeping of the external walls, indicating that another reseal or alternative treatment such as installing a liner will be required in the near future.

The second source is located adjacent to the pump station at the end of Johnson Street, Waipawa. This supply consists of a 375mm diameter shallow bore with a surface mounted pump which draws the water up into two 24,000 litre holding tanks adjacent to the well head. The pipe connection into the reservoir is known to leak as a result of the vibration/movement generated by the pump operating. A flexible coupling needs to be installed to remedy this. Chlorine gas is injected into the water as it enters these tanks. A booster pump then draws the water from these holding tanks and injects it into the reticulation network. This bore and pump system was installed in 1988 and is used to supplement the main supply, particularly when high demand causes pressure drops in the reticulation in the eastern part of the township. The maximum delivery available from the booster pump is approximately 14 litres per second at 933Kpa.

There are 981 properties connected to the reticulation network in Waipawa. The mains within this network comprise of a combination of Cast Iron, Asbestos Cement, uPVC and alkathene pipe materials ranging in size from 225mm in diameter down to 25mm. The age of the network ranges from the earliest pipes installed in around 1907 up to very recent installations. Pressures in the Waipawa water supply system are dictated by the elevation of the two main reservoirs above the township, unless the Johnson Street booster pump is in operation. The average pressure in Bibby Street is 900Kpa. There are insufficient valves for isolating purposes throughout the network. Meters are provided for extra-ordinary users, these meters are read at six monthly intervals.

The Waipawa water supply scheme is monitored and controlled by way of a telemetry system, the main part of which is located in the Council. The system monitors the levels in the reservoirs which in turn activate the controls on the water supply pumps in the Tikokino Road pumping station. It also monitors amperage readings of the pump motors, the alarm status of the pumps and is used to control the Johnson Street pumps.

3.4.2 Service Connections

There are 981 connections.

Asset Capacity / Performance

The performance grading for all of the connections is good.

Asset Condition

Based on the perceived condition, utilisation and performance of the existing pipe connections and using appropriate base life for these systems, the connection conditions are consider to range from 1 for the newer installations to 3 for the older connections.

3.4.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Waipawa Network

Diameter in mm	Total Length in metres
12	144.57
15	207.74
20	7612.43
25	1362.89
32	3466.68
40	421.6
50	8603.82
100	19771.43
125	1247.33
150	2057.28
175	1669.41
200	1284.62
225	4471.13

Asset Capacity / Performance

The performance of the pipelines is good.

Asset Condition

Approximately 30% of the water pipelines in Waipawa are greater than 50 years of age. A wide range of materials has been used in the make up of the reticulation network. Historical and maintenance records indicate the pipelines range in condition from excellent for the newer pipe reticulation to poor for the oldest part of the network.

3.4.4 Pump Stations and Treatment Plants

Combined water pumping stations and treatment plants are located at Tikokino Road and Johnson Street.

Asset Capacity / Performance and Condition

The performance and condition assessment of the pump stations is shown below.

Capacity assessments for:

Tikokino Road is excellent.

Johnson Street is Good

Performance assessments for;

Tikokino Road is excellent.

Johnson Street is Good

Condition assessments for:

Tikokino Road is excellent.

Johnson Street is Good

3.4.5 Reservoirs

There are four concrete reservoirs in Waipawa, located in Abbotsford Road (2) and Johnson Street (1). The reservoirs have a total capacity of 1,148 cubic meters

Asset Capacity / Performance

The performance of the Abbotsford Road reservoirs is good.

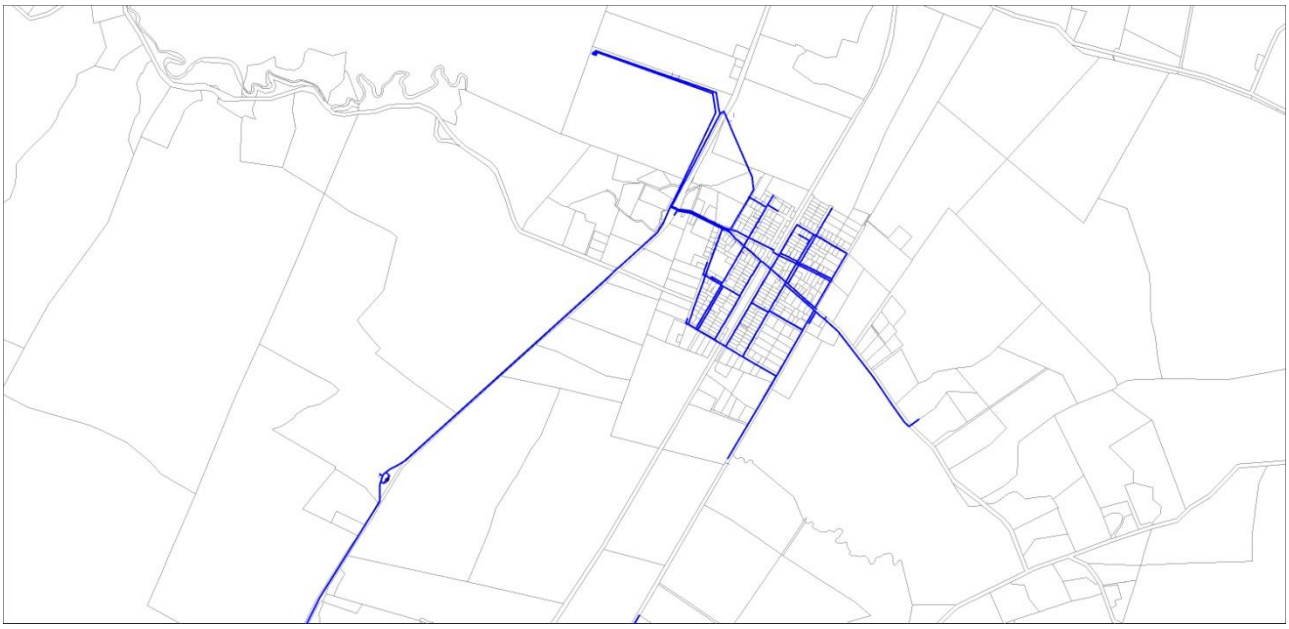
The performance of the Johnson Road reservoirs is good.

Asset Condition

All reservoirs are assessed to be in good condition.

3.5 Otane Water Network

3.5.1 General Description of Network



The Otane Water System

The Otane water supply system receives treated water from the Waipawa water supply system by way of a 100mm diameter AC pipeline running along the road reserve of State Highway 2. Because the water is sourced from the same bores as Waipawa's water there are no specific resource consents for the Otane supply. This pipe delivers water to two 150 cubic metre timber reservoirs located together on the hills to the west of the township. Delivery into the tanks is controlled by way of a ballcock situated in one of the reservoirs. The water supply scheme has been improved in many stages over the years following its original commission in the 1940's using the old gas mains in the township as the reticulation network. Most significant of the upgrading works carried out since the scheme's inception are:

1974	100mm gravity supply from Waipawa and four new 24,000 litre storage tanks on the hill (note: at this time the old deepwell pump in Hickey Street, Otane was decommissioned)
1994	Concrete reservoirs repaired / relined, new 100mm diameter reticulation mains and fire hydrants installed throughout the township
1995	90m^3 timber reservoir installed
1998	New 150mm diameter supply line from the Waipawa reservoir to SH2 was laid overland to join the existing 100mm diameter that runs alongside the State Highway to improve flow. This new main joins the existing

approximately 300m north of the Racecourse Road intersection. A booster pumping station was also installed, with the ability in the future to increase the volume supplied to Otane by 100%

2006 Replacement of old concrete reservoirs (9 off) at Otane with two timber reservoirs. Replacement of a section of the supply main from Waipawa between the SH2/Otane intersection and the new reservoirs, and installation of a new 150mm diameter delivery main from the reservoirs to the intersection and along Higginson Street to the Otane Hall reserve.

2011 A significant number of main within the Otane area have been replaced and increase in size to improve performance and allow for future development. This work include the installation of additional isolation valve to give great control of the network form maintenance etc.

The reticulation network servicing the town is sourced from two locations. The main source is a 150mm PVC delivery line from the reservoirs and along Higginson Street. The second source is through a Bermad Pressure Reducing Valve from the incoming main from Waipawa located at the Higginson Street/SH2 intersection. This valve operates when pressure drops in the township reticulation indicating that additional water is required (ie when large draw off occurs such as during emergencies like fire fighting or for short periods of higher than normal demand), and feeds water directly from the delivery main.

As noted above a large proportion of the network has been replaced in the 2011/2012 finical year. This leaves a few smaller mains to be replaced in the future. Council anticipates that the only work required to the existing network in Otane in the near future is the replacement of a small bore rider main under a relatively new section of upgraded road berm. This will be done on “as required” basis should the pipe cause issues.

3.5.2 Connections

There are 273 water connections.

Asset Capacity / Performance

The performance grading for all of the connections is good.

Asset Condition

Based on the perceived condition, utilisation and performance of the existing pipe connection, Council considers the condition of the connections ranges from excellent for the new connection to average for the older parts of the network.

3.5.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Otane Network

Diameter in mm	Total Length in metres
15	226.2
20	1844.5
25	745.34
32	929.04
38	157.25
40	35.66
50	2217.34
65	74.93
75	19.55
100	10182.92
150	2062.74

Asset Capacity / Performance

The performance of the pipelines is reticulation is good.

Asset Condition

Based on the perceived condition, utilisation and performance of the existing pipe connection, Council considers the condition of the reticulated network ranges from excellent for the new connection to poor for the older parts of the network.

3.5.4 Pump Station

The Otane booster pump station is located on SH2 between Waipawa and Otane. It is presently non-commissioned..

3.5.5 Reservoirs

There are two 150 cubic metre timber water tanks with butyl liners.

Asset Capacity / Performance

The reservoirs' performance is very good.

Asset Condition

The reservoirs' condition is excellent.

3.6 Takapau Water Network

3.6.1 General Description of Network

Takapau Water System

The Takapau township draws its water from a 40m deep 150mm diameter bore located at the bottom (north eastern) end of Meta Street, Takapau. A submersible pump delivers the water from this bore into five 24,000 litre tanks located adjacent to the well head. An ultrafiltration treatment system was installed in 2003 to remove manganese and iron from the raw water. It also ensures full compliance with the New Zealand Drinking water Standards 2005. In 2010 Council upgraded one of the existing filter banks with a new higher capacity filter bank to improve production and water quality. Also the same year an ozone plant was added to the process to help in the removal of manganese.

The treated water is stored in seven 24,000 litre tanks from where it is pumped into the reticulation network by way of a surface mounted centrifugal pump eventually discharging in to a 230 cubic metre reservoir located at the junction of SH2 and Sydney Street. The submersible pump is controlled by way of a float switch located in one of the 24,000 litre raw water tanks at the well head while the centrifugal supply pump is controlled by way of a float switch located in the 230 cubic metre reservoir.

The reservoir alarms and the pump status are monitored by a telemetry system which, in the event of a fault occurring, contacts the service staff by pager with the appropriate fault message.

All the reticulation in Takapau is uPVC and was laid in 1970, main sizes range from 150mm to 50mm in diameter. Screw-down fire hydrants are located throughout the reticulation together with sufficient valves for isolating purposes. Meters are provided for extra-ordinary users, these meters are read at three monthly intervals.

3.6.2 Connections

There are 272 connections.

Asset Capacity / Performance

The performance grading for all of the connections is good.

Asset Condition

All connections in Takapau Water Reticulation System are installed in 1975, and they have an estimated remaining economic life between 30-40 years. All connections are assessed to be in good condition or better.

3.6.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Takapau Network

Diameter in mm	Total Length in metres
12	26.85
15	75.26
20	2371.78
25	1524.85
32	216.95
50	2146.47
75	30.86
100	7081.27
150	2934.04

All pipes are PVC.

Asset Capacity / Performance

The performance grading of the piped reticulation is good.

Asset Condition

Almost all pipes in water network of Takapau were installed between 1972 and 1974. Condition grading for all the pipes in the system is good or better.

3.6.4 Pump Station

The water pump station and treatment plant is in Meta Street.

Asset Capacity / Performance and Condition

The original plant in water network of Takapau was installed between 1972 and 1974. Capacity, Performance and Condition grading is consider good. The plant that has been installed more recently has a Capacity, Performance and Condition grading of excellent.

3.6.5 Reservoirs

There is a 230 cubic metre concrete reservoir at SH2.

There are two concrete reservoirs and 10 PVC reservoirs at the Meta Street pump station. Each reservoir is 24 cubic metres capacity.

Asset Capacity / Performance

The performance of the reservoirs is good.

Asset Condition

The condition of the SH2 reservoir is good.

The condition of the concrete reservoirs at Meta street is fair.

The condition of the PVC reservoirs at Meta street is excellent.

3.7 Porangahau Water Network

3.7.1 General Description of Network

Porangahau Water System

The Porangahau water supply includes the settlements of Te Paerahi Beach and Porangahau Township. Its source is groundwater taken from a shallow bore situated off Beach Road in the Te Paerahi Golf Club. The old bore is approximately 7m deep and was first developed in 1979 when the 100mm AC rising main was laid from the pump shed into Porangahau Township and to the storage tanks on Old Hill Road. The 100mm diameter rising main is laid in the berm of Beach Road on the Northern side. In 1985 the scheme was extended to supply water to the two 24,000 litre tanks on the hill which serve Te Paerahi Beach. At that time the small surface mounted pump supplying water to Te Paerahi Beach from a well in the Golf Club was decommissioned. By 1998 the bore was showing signs of failure and was re-developed essentially as a new bore. In 2003 a new bore was drilled. The water is pumped from this new bore using a multi stage centrifugal pump into four 24,000 litre tanks. An ultrafiltration treatment system was installed in 2003 to remove iron from the raw water. It also ensures full compliance with the New Zealand Drinking Water Standards 2000. The treated water is stored in eleven 24,000 litre tanks from where it is pumped into the reticulation network by way of a surface mounted centrifugal pump to the cluster of tanks on Old Hill Road above the township. From here the water is piped to the town reticulation.

The majority of the pipework in Te Paerahi and Porangahu was replaced in 2006. With the exception of the residential connections on Cooks Tooth Road, only the commercial connections on this supply are metered. All meters are read at six monthly intervals. There are 130 properties connected in Porangahau and 102 in Te Paerahi.

3.7.2 Connections

There are 110 connections in Porangahau.

Asset Capacity / Performance

The performance grading for all of the connections is very good.

Asset Condition

The condition of the connections is excellent.

3.7.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Porangahau Network

Diameter in mm	Total Length in metres
15	12.63
20	881.81
25	477.93
32	2.68
40	44.37

50	417.36
100	8300.79

The majority of the pipes are PVC, with the rising main between Te Paerahi pump station and the Porangahau reservoirs being asbestos cement. Some short lengths of galvanised steel pipe remain.

Asset Capacity / Performance

The capacity and performance of the pipelines is very good.

Asset Condition

The condition of the new pipelines is excellent, the older pipelines fair.

3.7.4 Pump Station and Treatment Plant

The pumping station and treatment plant are at Te Paerahi.

3.7.5 Reservoirs

There is a 230 cubic metre concrete reservoir at SH2.

There are two concrete reservoirs and 10 PVC reservoirs at the Meta Street pump station. Each reservoir is 24 cubic metres capacity. i

Asset Capacity / Performance

The performance of the reservoirs is good.

Asset Condition

The condition of the SH2 reservoir is good.

The condition of the concrete reservoirs at Meta Street is fair.

The condition of the PVC reservoirs at Meta Street is excellent.

3.7.6 Reservoirs

There are five concrete reservoirs in Porangahau with a total capacity of 120 cubic metres.

Asset Capacity / Performance

The performance of the reservoirs is good.

Asset Condition

All reservoirs were built in 1979. Three of them are in good condition and have a remaining economic life of 47 years. The other two are in fair and poor conditions and have a approximate remaining economic life of 30 plus years.

3.8 Te Paerahi Water Network

3.8.1 General Description of Network

Te Paerahi Water System

The Porangahau water supply includes the settlements of Te Paerahi Beach and Porangahau Township. Its source is groundwater taken from a shallow bore situated off Beach Road in the Te Paerahi Golf Club. The old bore is approximately 7m deep and was first developed in 1979 when the 100mm AC rising main was laid from the pump shed into Porangahau Township and to the storage tanks on Old Hill Road. The 100mm diameter rising main is laid in the berm of Beach Road on the Northern side. In 1985 the scheme was extended to supply water to the two 24,000 litre tanks on the hill which serve Te Paerahi Beach. At that time the small surface mounted pump supplying water to Te Paerahi Beach from a well in the Golf Club was decommissioned. By 1998 the bore was showing signs of failure and was re-developed essentially as a new bore. In 2003 a new bore was drilled. The water is pumped from this new bore using a multi stage centrifugal pump into four 24,000 litre tanks. An ultrafiltration treatment system was installed in 2003 to remove iron from the raw water. It also ensures full compliance with the New Zealand Drinking Water Standards 2000. The treated water is stored in eleven 24,000 litre tanks from where it is pumped into the reticulation network by way of a surface mounted centrifugal pump. Because the two small tanks on the hill above Te Paerahi have been abandoned due to movement of the hill the centrifugal pump provides the required system pressure. To ensure a continuous supply Council has alos installed a diesel powered back up pump.

The majority of the pipework in Te Paerahi and Porangahu was replaced in 2006. With the exception of the residential connections on Cooks Tooth Road, only the commercial connections on this supply are metered. All meters are read at six monthly intervals. There are 133 properties connected in Porangahau and 110 in Te Paerahi.

3.8.2 Connections

There are 133 connections.

Asset Capacity / Performance

The performance grading of the connections is very good.

Asset Condition

The condition of the connections is excellent.

3.8.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Te Paerahi Network

Diameter in mm	Total Length in metres
15	19.31
20	726.22
25	6.11
40	39.78
50	1649.02
75	126
100	2164.41
150	1618.39

The majority of the pipes are PVC, with the rising main between Te Paerahi pump station and the Porangahau reservoirs being asbestos cement. Some short lengths of asbestos cement and galvanised steel pipe remain.

Asset Capacity / Performance

The performance of the pipelines is very good.

Asset Condition

The condition of the new pipelines is excellent, the older pipelines fair.

3.8.4 Pump Station and Treatment Plant

The pumping station and treatment plant are on Beach Road next to the golf course.

Asset Capacity / Performance and Condition

The plant was upgraded in 2003 to allow for current and future capacity, therefore the capacity, performance and condition grading is consider good. more recently upgrades are consider to have a Capacity, Performance and Condition grading of excellent.

3.8.5 Reservoirs

There are 15 PVC reservoirs in Porangahau, each with a capacity of 24 cubic metres.

Asset Capacity / Performance

The performance of the reservoirs is very good.

Asset Condition

The condition of the reservoirs is excellent.

3.9 Kairakau Water Network

3.9.1 General Description of Network

The Kairakau water supply scheme was installed in the mid 1950's, upgraded in the 1970's and expanded in 1993 to include the subdivision in Mananui Street, Kapiti Place and Brodie Place. A new subdivision was added in 2007 on John Ross Place. Expansion of the scheme resulted from the pressure for development in the area. The scheme serves 83 properties, the public toilets, and the camping ground.

This scheme was initially intended to provide top up water to on-site storage tanks with a minimum size of 1800 litres and which the property owners were to supply and maintain on each of the properties serviced. However, over the years, many of the consumers did away with their on-site tanks and relied on direct connections into their houses. This caused some conflict in recent years when the supply capacity failed to meet the instantaneous demand. In 2002 a

campaign was mounted to required property owners to install individual on-site water storage, and all properties now have on-site storage.

Water is pumped from two sources – a spring and a bore – at the base of the hill behind Kairakau. Water is treated by chlorine disinfection and stored next to the pumping station. It is then and pumped to three reservoirs on the hill. One reservoir serves the camping ground exclusively, and the other two reservoirs service the general consumers. Water is gravity fed to the reticulation.

3.9.2 Connections

There are 84 connections including a supply to the camping ground.

Asset Capacity / Performance

The performance grading of the connections is good.

Asset Condition

The condition of the connections is good.

3.9.3 Piped Reticulation.

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx pipe diameters and the approximate total length of each size in the Kairakau Network

Diameter in mm	Total Length in metres
12	55.24
20	292.71
25	847.31
32	432.38
40	281.44
50	922.75
100	479.91
150	1618.39

Asset Capacity / Performance

The performance of the pipelines is good.

Asset Condition

The condition of the pipelines is generally good, with some of the galvanised iron being fair to poor.

3.9.4 Pump Stations and Treatment Plant

The pumping stations are of various ages and condition.

Asset Capacity / Performance and Condition

Under normal conditions there is plenty of capacity in the system, but in some year due to extraordinary usage the system has been found wanting. Therefore the general rating for capacity, performance and condition has been assessed as average.

3.9.5 Reservoirs

There are 2 PVC reservoirs each with a capacity of 24 cubic metres.

There are 3 concrete reservoirs, each with a capacity of 24 cubic metres.

Asset Capacity / Performance

The performance of the PVC reservoirs is very good.

The performance of the concrete reservoirs is good.

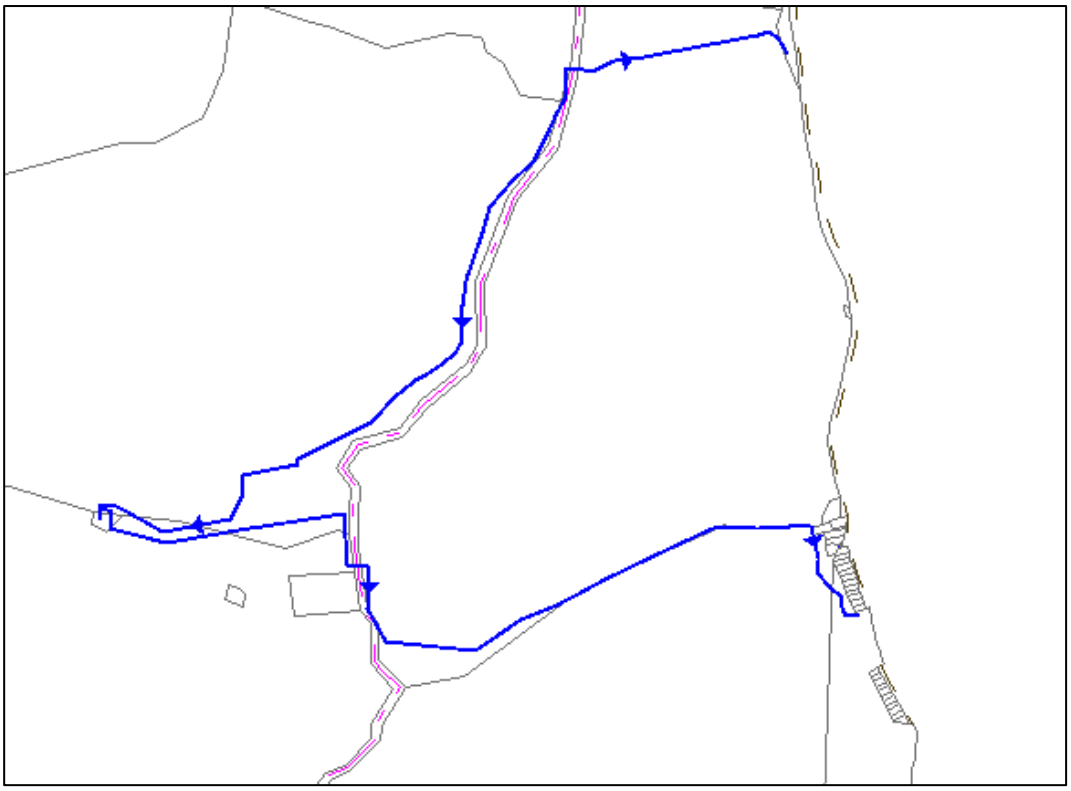
Asset Condition

The condition of the PVC reservoirs is excellent.

The condition of the concrete reservoirs is good.

3.10 Pourerere Water Network

3.10.1 General Description of Network



Pourerere Water System

The source for the Pourerere water supply scheme is a spring located high in the hills above Gibraltar Road behind the beach. The spring is tapped and the water piped to a 24,000 litre pressure break tank from which it is then piped a further (approximately) 2.5 kilometres to two 24,000 litre tanks joined together at the Pourerere Beach Camping Ground. The Pourerere Beach public toilet block is also connected to this supply as are 3 adjacent holiday homes.

The spring is located on Ouepoto Station and the pipeline traverses Ouepoto Station and Pourerere Station land. The Council has easements covering the route of the pipeline. The pipeline is a 20mm diameter alkathene or 50mm diameter uPVC lines. The water at the camping ground is treated with chlorine tablets, which are introduced to the inflow.

3.10.2 Connections

There are 5 connections.

<u>Asset Capacity / Performance</u>

The performance grading of the connections is good.

<u>Asset Condition</u>

The condition of the connections is poor.

3.10.3 Piped Reticulation

This included the valve, hydrants and other items that make up the reticulated system. Below is a table showing the approx. pipe diameters and the approximate total length of each size in the Pourerere Network

Diameter in mm	Total Length in metres
20	3545.98

Asset Capacity / Performance

The performance of the pipelines is good.

Asset Condition

The condition of the pipelines is good.

3.10.4 Pump Stations and Treatment Plant

There are no pump stations in the Pourerere water network.

3.10.5 Reservoirs

There are 3 concrete reservoirs, each with a capacity of 24 cubic metres.

Asset Capacity / Performance

The performance of the reservoirs is good.

Asset Condition

Two of the reservoirs were built in 1960, have remaining estimated lives of 34 years, and are assessed to be in fair condition. The third reservoir was built in 1978, has a remaining estimated life of 47 years, and is assessed to be in good condition.

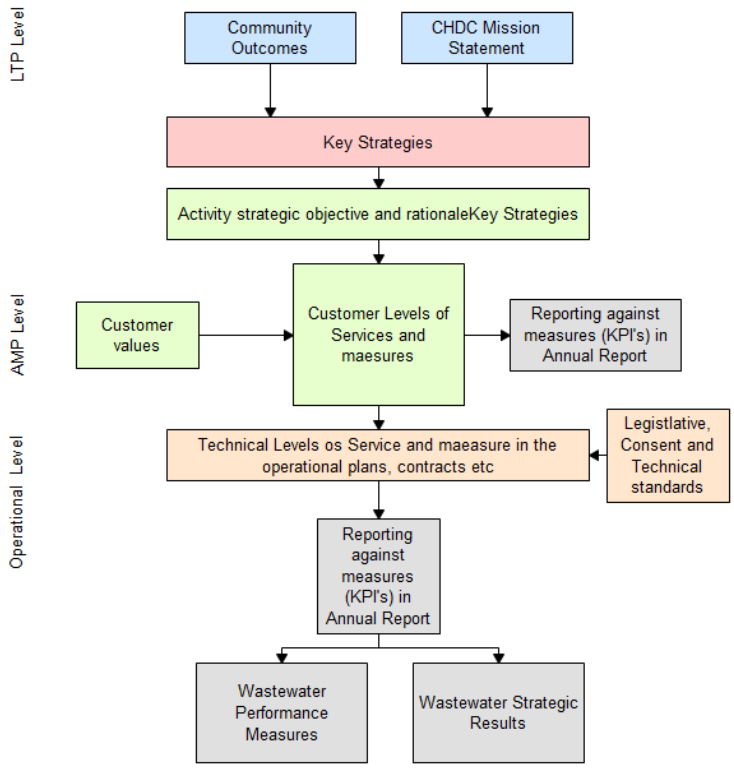
4 Levels of Service

4.1 Introduction – Levels of Services

Levels of Service are developed around community outcomes of public health, Health and safety, services that support community's, legislative requirements and the environment. It is accepted that in some cases these links are not clear or the measures are not fully understood by the greater community but it is Council duty to report on the way it which it manages the water system within CHBDC. This section attempts to set out how the levels of service are derived, what they include, and how measured and How the managers of the system report back to Council and thus the community how the Levels of Services have been meet or achieved. In short these LOS are a measure on the effectiveness the management and delivery of water system with the District of CHB achieved.

4.2 Framework for Establishing Levels of Service

The framework for establishing levels of service is illustrated in the figure below.



4.3 Council's Customers

Council's customers can be categorised into the two groups Internal and External Customers. Below is a list of the Customers grouped into the relevant category:

Internal

- Council's Land Transport Department
- Council's Facilities Management Contractor
- Council Properties

External

- Private Property Owners
- Commercial or Industrial Property Owners

4.4 Community Outcomes

Under the Local Government Act 2002 Council is required to consult with their community to identify the community's desired outcomes. The link must then be established, between Council's activities and these 'Community Outcomes', to justify continuance of the activities. Council has determined that the water activity contributes to three of the community's desired outcomes.

Wellbeing	**Community Outcome**
***Social and Cultural* – A health, safe place to live**	Risks to public health are identified and appropriately managed – management of water supply systems to provide safe water to the public, through treatment systems and water monitoring
***Economic* – A place with a thriving economy**	Central Hawke's Bay District has an efficient and affordable water infrastructure – by ensuring continuity of supply
***Environmental* – A place that is environmentally responsible**	We plan and manage water use to minimize the effect on the environment – through measures to manage water demand

4.5 Strategic Result for Water Management

The Strategic Result required to achieve the water activity goal is:

Reliable, safe and cost effective distribution of potable water.

The following Strategic Actions will be completed to achieve this result:

- The water supply network will receive enough funding to continue to allow the efficient distribution of potable water throughout the district on the existing network at all times.
- Drinking water standards are met.
- Minimal pipe leakage.
- Broken pipes and other assets are replaced.
- The water network is planned for, designed, managed, and maintained to meet the service levels agreed with the community and operated within relevant national standards and guidelines.
- Pipe pressure is adequate everywhere along the network.
- Minimal interruptions during maintenance and extension works.
- Council developed strategies and environmental goals are supported.

4.6 Key Performance Measures

The key performance measures for monitoring achievement of the Asset Goal and Strategic Results for the water activity are:

Strategic Action	Key Performance Measures (KPMs)
Achieve defined levels of service.	• The agreed measures are achieved each year when reported in the annual report
Protect the health and safety of the community and of the maintenance and operational personnel.	• No report of ill health due to water contamination • Operational staff apply appropriate health protection procedures at all times
Manage and maintain services so as to ensure any adverse impacts on the environment and/or on the communities are minimised.	• Resource consent compliance at all times • Water use is managed effectively
Comply with statutory requirements.	• No negative opinion from audit of this Asset Management Plan
Achieve compliance with appropriate technical standards.	• New works are designed and constructed to the appropriate technical standards
Implement Council's policies.	• Council Policy is clear and enforced at all times
Promote development within the Central Hawke's Bay District.	• Contribution Fees/Development Levies are applied according to rules set out
Achieve defined standards of system management.	• Processes/methods and system requirements are achieved as set out in this Asset Management Plan

4.7 Setting Levels of Service

Levels of Services are formal adopted by Council as part of the consultation process with the LTP as outline in Part A of this document. Once set it is the responsibility of the Asset Manager to implement the services level and ensure the FM contract provide the requires service

Levels of service generally fall into two categories;

a. The level of service achieved by Council, including council staff and contractors and consultants employed by Council (the service provision team). This level of service covers all areas of work that go into providing the service including administration, maintenance, operation and capital works. **Technical Levels of Service**

b. The level of service received by the customer. This is the result of the work carried out, the outcome of all the inputs in a. above. **Community Levels of Services**

Council has to ensure that appropriate levels of service are set for both categories, so that the performance of the service provision team can be measured to ensure work is being done at the right level, and so that the customers' expectations of the service and their experience of the service can coincide as frequently as possible.

4.7.1 Council's Direction

Council will maintain the existing Water systems and carry our improvements that will reduce flooding and erosion issues from Water flows.

4.7.2 Request for Service

The "Request for Service" (RFS) database is used to log calls from all customers, both those that contact the FM Contractor directly and others who contact the Council. Once in the RFS database Council staff can interrogate the information and report back to the Council Management Team and Councillor. Through the monthly reports, Annual reports etc. It is also the responsibility of the appropriate staff to report back to the originating person i.e. the Customer what action has been taken and if necessary give an explanation.

4.7.3 Incoming Communications

The "Mail Tracker" database records written requests, compliments and complaints, the actions taken by Council in response, and the reply made to the enquirer. All requests are tagged with the response time and all actions are tracked. This information assists in identifying customers' level of expectation but is not a definitive measure of the expectations of the wider community.

4.7.4 Operational Levels of Service

The operation and maintenance roles for the water activity are completed under the 'Facilities Management Contract' (currently Contract No. 455). The Contractor is Higgins Contractors HB. The final expiry date of the contract is 31 November 2018.

In the Facilities Management Contract, Central Hawke's Bay District Council has adopted a set of 'Outcomes' for its services which includes the water activity.

The specific outcomes stated in the FM Contract are that:

> *Council will ensure a cost effective and sustainable public reticulation system is provided that:*

1. *Provides a sufficient and reliable supply of water regardless of time and location within the network.*
2. *Provides sufficient water and pressure for the maintenance of public health and the protection of people and property from fire.*
3. *Provides water quality that meets relevant national standards and guidelines.*
4. *Offers minimal interruption to the service for maintenance and extensions.*
5. *Provides water that tastes, looks and smells good at all times.*

These Outcomes have then been translated in the contract document into outputs from which output measures have been constructed. The output measures are used to assess the effectiveness of provision of the Outcomes under this contract.

In addition to the 'Outcomes Specification' in the Facilities Management Contract, there are also performance standards and tasks required of the Contractor and these have been specified under 6 categories as follows:

(i) Customer Service & Public Consultation

(ii) Responsiveness

(iii) Maintenance and continuity of Service

(iv) Quality Control

(v) Reporting

(vi) Outcomes

Provision is made under the Contract for auditing of the Contractor's performance against these categories, and this auditing does take place.

The operation and maintenance roles for the Water activity are completed under the 'Facilities Management Contract' (Contract No. 455). The Contractor is Higgins Contractors HB. The final expiry date of the contract is 31 November 2018.

In the Facilities Management Contract, Central Hawke's Bay District Council has adopted a set of 'Outcomes' for its services which includes the Water activity.

The specific outcomes stated in the FM Contract are that:

Council will develop and maintain cost effective stormwater and drainage systems within urban areas that:

1. *Provide adequate capacity to dispose of stormwater to prevent undue nuisance and disturbance or damage to property.*
2. *Does not shift the incidence of a flood from one area to another.*
3. *Where open drains are used they will be maintained at a level that maximises safety and ensures their appearance is acceptable.*

These Outcomes have then been translated in the contract document into outputs from which output measures have been constructed. The output measures are used to assess the effectiveness of provision of the Outcomes under this contract.

In addition to the 'Outcomes Specification' in the Facilities Management Contract, there are also performance standards and tasks required of the Contractor and these have been specified under 6 categories as follows:

(vii) Customer Service & Public Consultation

(viii) Responsiveness

(ix) Maintenance and continuity of Service

(x) Quality Control

(xi) Reporting

(xii) Outcomes

Provision is made under the Contract for auditing of the Contractor's performance against these categories, and this auditing does take place.

4.7.5 Levels of Service in Practice

From the high level set of Levels of services outlined in Part A and the LTP this activity has redefined them in operational LoS. The table below list the services levels and how they are reported but to the Council as a whole.

4.8 Water Levels of Service from LTP

Below is a table to show the agreed levels of service set by council for the Annual Report. These forms are filled out on a monthly bases by the council officer responsible for the water. At the end of the financial year the monthly reports are collated and the summary form the final report which is included in the Annual Report to Council.

To support the report below the Contractor provided month feedback information which is consolidation of the daily logs from pump station, request for services, meter reading etc. as required by the contract.

Water Supply								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
A continuous supply of water is provided at the right quantity, quality and pressure so that residents and industry can do what they need to do (for example, irrigation, showering and recreation)	Safety	The extent to which the local authorities drinking water supply complies with Part 4 of the drinking water standards (bacteria compliance criteria)	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	Yearly reporting to DHB
		The extent to which the local authorities drinking water supply complies with Part 5 of the drinking water standards (protozoal compliance criteria)	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	All potable supplies 100%	Yearly reporting to DHB
	Quality	Percentage of real water loss from the local authority's networked reticulation system	New	≤ 30%	≤ 30%	≤ 30%	≤ 30%	
	Responsiveness	Attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the	0.15 hours	≤ 2 hours	≤ 2 hours	≤ 2 hours	≤ 2 hours	Request for Service System

		site						
		Resolution of urgent call outs: from the time that the Local Authority receives notification to the time the service personnel confirm resolution of the fault or interruption	7.12 hours	≤ 12 hours	≤ 12 hours	≤ 12 hours	≤ 12 hours	Request for Service System
		Attendance for non-urgent call outs: from the time that the Local Authority receives notification to the time the service personnel reaches the site	0.33 hours	≤ 6 hours	≤ 6 hours	≤ 6 hours	≤ 6 hours	Request for Service System
		Resolution of non-urgent call outs: from the time that the Local Authority receives notification to the time the service personnel confirm resolution of the fault or interruption	15.36 hours	≤ 72 hours	≤ 72 hours	≤ 72 hours	≤ 72 hours	Request for Service System
	Customer Service	Number of complaints relating to drinking water received (per annum per 1000 connections to the local authority's networked	0	≤ 5	≤ 5	≤ 5	≤ 5	Request for Service System

		reticulation system) Drinking water clarity, Drinking water taste, Drinking water odour, Drinking water pressure or flow, Continuity of supply, The local authority's response to any of these issues.						
	Demand	The average consumption of drinking water per day per water connection	1.64m^3	≤1.80m^3	≤1.80m^3	≤1.80m^3	≤1.80m^3	
	Quality	The percentage of users satisfied with the water supply service provided	90%	90%	90%	90%	90%	Independent Community Views Survey

4.8.1 Judgement

Water system users judge the standard of the network and facilities by the reliability of the collection system (reticulation) and the impact of the treatment process and post treatment discharge (quality). Quality is expressed in terms of compliance with resource consent conditions, while reliability is expressed in terms of reduction in complaints about blockages and overflows.

4.8.2 Setting Levels of Service in Practice

In practice the processes described above for setting levels of service is not followed to the letter. Council understands that funding for this activity is limited, this dictates what Levels of Services can be delivered. The level of funding is decided by how much Council decides the rating income will be set. Except in exceptional circumstances such as legislative directives requiring work to be done that exceeds Council's decided rating income, the operation, maintenance, renewal and capital works funding requirements are set by Council, and the plan of work is constructed to match that level of funding.

The levels of service for this activity are set by the following process:

1. The amount of funding available in the current year for operations and maintenance is increased by the rate of inflation for the next year's budget.
2. The extent of renewal works to be considered is limited to the amount of depreciation raised for the year.
3. The projects (capital improvements) that staff recommends should be carried out are listed.
4. These funding requests (operations and maintenance, renewals and capital works) are included in the total LTP funding, and the resulting increase in rating requirement is determined. Since this amount exceeds Council's expectations for the rating increase, capital works projects are then reduced to nil for the next 3 years (which means only works necessitated by legislative directive are included in the LTP).
5. Levels of service for customers are then written to match the results that can be expected from the amount of funding available to carry out the activity.
6. These Levels of Services are explained to the community through simple consultation processes and regular surveys are conducted to check if Council is meet the customer's expectations.

Below is a table to show how the agreed high level LOS are related to the day to day operation work carried out by the Council staff and the FM Contractor.

WATER OPERATIONAL FRAMEWORK FOR LEVELS OF SERVICES 2012 -2022

		Out come	Level of Service	Performance Measure	Supporting Practices	Reporting Method
Community Level	Community Wellbeing	Community Health and Protection	Collection and control of WS to an acceptable standard.	Uninterrupted supply of water is available to Customers at all times.		Monthly Reports
			Protect Public Health			Monthly Reports
			Compliance with Drinking Water Standards (DWS			Monthly Reports, Reports to DHB (as req'd)
			Meet customer requests in a timely and efficient manner	Customer request are processed in Timely fashion	FM Contract	Resolution times as per FM contract
Technical Levels	Community Infrastructure	Infrastructure Stewardship	Maintain water systems to design levels	WS network maintained in a timely fashion	FM contract	Monthly Reports
			Ensure compliance with HBRC consents	Breaks are fixed within times set in FM Contract. Nos. of failures and location are recorded.	Number of breaches reported by HBRC	Annual Consent Report
				No breaches of the Water Takes		
			Manage the water take in periods of low flow in the Rivers	As set out in the Water Management and Conservation Strategy approved by HBRC	Water Management and Conservation Strategy	Annual Consent Report
	Future District Planning	Sustainable Development	Future water systems are designed to appropriate levels	In Fill or New Development is constructed to appropriate standards	Resource Consent	Annual Reports
					Council Contracts	
	Financial Planning and Management	Customer Satisfaction	Fair Price	Annual Charges	Financial Management	LTP and Annual Plan consultation
				O & M expenditure	Competitive tendering	
					Contract Management	
			Continuous Services	Unplanned disruptions		
				Minimal leaks	Less than 5 complaints per year	RFS reports on monthly reports
			Improved management of water usage	Overall trending downward of water taker per user	Council staff	Annual Reports
			Custom Satisfaction	Satisfaction Reports/surveys	LTP/annual Plan Public consultation	LTP and Annual Plan consultation

4.9 Summary of Water Asset Performance

Overall, the performance of the water activity is satisfactory.

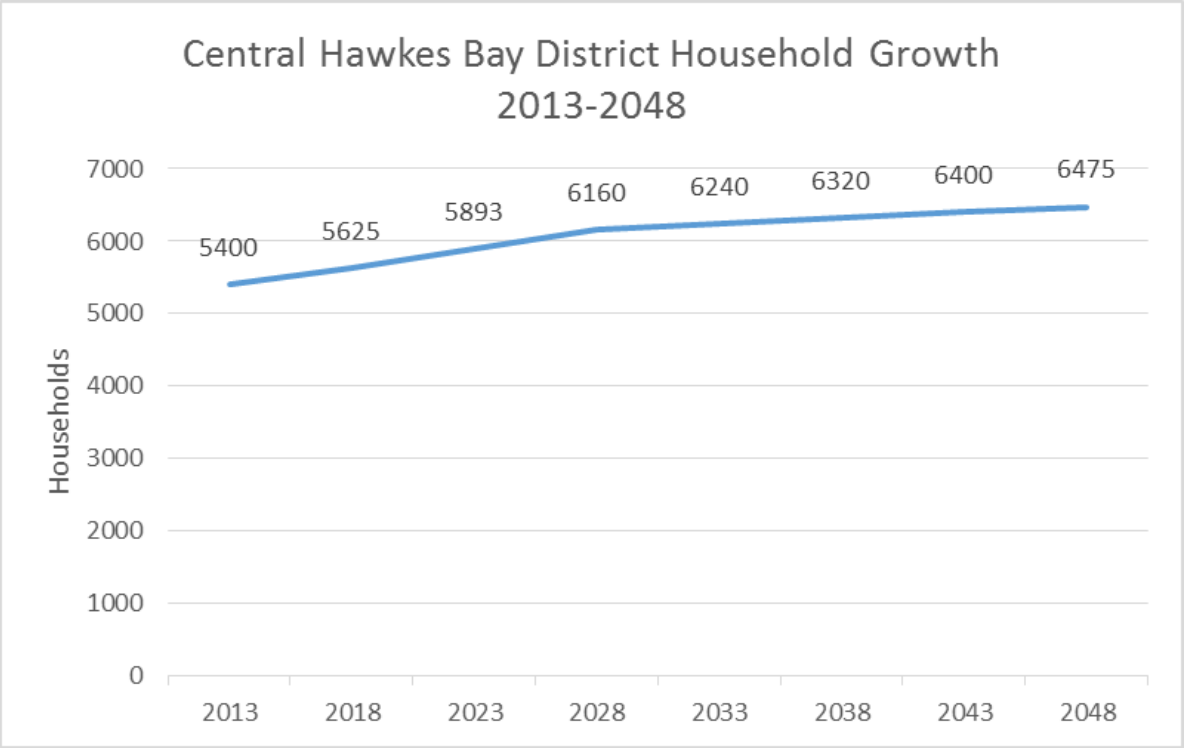
Meeting the demand for volumes of water has to be managed, and includes the use of water restrictions and water metering where deemed appropriate.

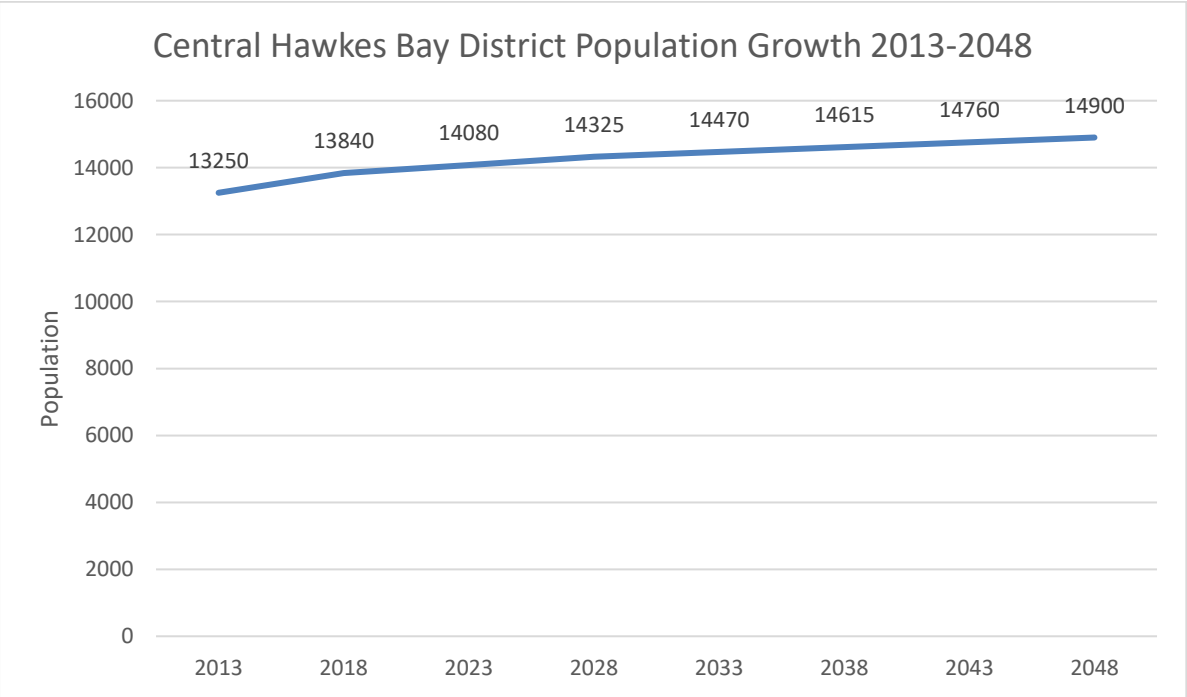
There are good controls for levels of service in the current Facilities Management Contract and new procedures to more formally audit performance of this contract will improve compliance with level of service standards

5 Demand Management

5.1 Demand

The Central Hawkes Bay District Long-Term Planning document by Sean Bevan outlines the Demographic and Economic growth direction 2018 to 2048 estimated growth of the district for the next 30 years. This report indicates a household growth for the reticulated areas in the order of 790 properties, and an overall growth in population of over 1000, as shown on the graphs below.





5.2 Implications of Uncertainty

Council is face the most uncertain times in its history, with the prospects of reducing population, amalgamation on the one hand and the prospects of a game changing irrigation scheme which would increase the population by some 23% over the next 30years plus. This make decision making very difficult and is compounded by recent events in the Far North where Council has made decision on expected growth only to find economic climate has changes the playing field and the predicted growth has not eventuated.

In Engineering terms we are looking at an uncertain future and when coupled with the ageing infrastructure the long term planning not only becomes difficult but critical to the success of the community.

The information to date on what the future hold is based on Census Area units. These are a geographical region used by Statistic New Zealand to divide up the country in large zones. They are formed by an aggregation of meshblocks. Because of the size of these Census Unit it makes detail infrastructure plan difficult e.g. the Elsthorpe CA unit cover the area from the coast to the out skirts of Waipawa and Waipukurau. To helpin more detailed analysis of the data from the Sean Bevan report Council has ask him to look at the high level data that has been used to predict the population growth in each scenario and try and evaluated in the smaller meshblock level so it can be used at the detailed future planning level. Until this is done the project put forward in the AMP are based on the high prediction of growth.

In the CHB District Long-Term growth Environment and Outlook document Council has explored two possible scenarios based on the status quo where the future looks like a time of declining population. In this scenario we as Council Engineers are faced with the options of reduce requirements for Council services such as water wastewater etc. To make the scenario of issues of declining population more complex, is the impact of changing weather patterns resulting in less user to pay for a more expensive stormwater management system.

5.3 Factors Influencing Demand

The factors influencing demand can be broken into two categories:

- Activity factors.
- Asset factors.

"Activity factors" are factors relating to use of the asset and demand from users for the asset.

"Asset factors" are factors relating to the physical parameters of components of the network, such as capacity, age and design standards.

The combination of these asset and activity factors needs to be considered to understand the full impact of demand.

The following activity based factors influence demand on water supply and reticulation:

- Population increase/decrease
- Demographics of communities

- Economy and Socio-economic factors
- Subdivision development
- Land use changes
- Recreational development
- Industry and Commercial development
- Tourism development
- Cultural development

The following asset factors influence how activity factors (demand for service) might impact on the water network:

- Design capacity for water facilities/structures
- Design capacity for reticulation
- Water take quality (future requirement)
- Treatment design standards (future requirement)
- Environmental design standards

These asset factors can be considered as critical failure points if the activity demand on a section of the network increases to a point that exceeds the asset's ability to meet that demand.

5.3.1 Projected Change in Customer Expectations

Historical trends in customer expectations for water services are that little changes over the years. At this stage Council has not received any request from our Customers to change the current level of services, therefore this plan is written on the assumption the there are no changes to the current level of service.

The exception to this position Council has received one enquiry to services water outside the existing reticulation boundaries. At the time of writing this plan Council has looked at the implication of providing additional water supply to the lifestyle blocks around the town fringes. But this has highlighted the limitations of the reticulation and the current extraction limits at the bores. Therefore we have not explored the extension of the water boundaries in this AMP.

5.3.2 Projected Impact of Changes in Technology

Current and future changes in technology have the potential to impact on the water activity primarily in the options available for treatment of water and the improved methods of directional drilling for the installation of new water mains.

In addition to this, information technology changes will impact on the way Council does business particularly in terms of data collection and analysis practices. It is reasonably expected that both data collection and data analysis will become more advanced, more detailed and more accurate. This will give rise to increased confidence in predictive modelling for asset failures, changes in demand and impacts on infrastructure and financial forecasting and the timing of these impacts

5.3.3 Projected Change in Demand on Service

In general there is a small to medium population growth in the District as a whole. However, in some parts of the District high levels of population growth has occurred. In addition to this, new housing is occurring and likely to continue in some areas in the District.

This will have an impact on infrastructure even though the permanent residential population may not increase. An example of this type of impact is the increase in holiday homes in Porangahau and Te Paerahi which will most likely translate to increased run-off rates from developed sections and an increased expectation of Council to mitigate any flooding issues that arise over time within these developed/developing areas.

In summary, the most significant projected increases and decreases of demand on the water services are expected to be:

- Increased number of connections which will require extensions or upgrades of the reticulation, particularly in:
  - Porangahau Road, Waipukurau
  - Racecourse Road, Waipukurau
  - Mt Herbert Road, Waipukurau
  - Te Paerahi
- Increased demand to monitor and report on environmental performance.

5.4 Design Standards for Demand Management

Design standards and guidelines are used to:

- manage water treatment and reticulation.
- assess the need for improvements in water services.
- ensure the most appropriate solutions are installed.

The standards and guidelines include:

- Council Policy Documents.
- Engineering Code of Practice documentation.
- Facilities Management Contract specifications.
- Construction contracts specifications.

Other solutions available are:

- Education and communication programmes.
- Setting water restrictions/controls for commercial and industrial sites.
- The use of development impact fees.
- Development controls through land use zoning.
- Subdivisional controls through Engineering Codes of Practice requirements.

5.5 Demand Management Plan

5.5.1 Overview of Council Strategic Direction

The key strategic direction for Council in regard to meeting demand for the water activity can be summarised as follows:

- The demand for water activity will increase not reduce.
- Water infrastructure for subdivisions and developments will be paid for by the developers and vested in Council.
- The water asset will continue to be adequately maintained without increasing funding (other than allowing for inflation, the addition of new infrastructure vested in or installed by Council, and subject to Council financial constraints).

Council believes it has severe funding constraints that mean that only the essential improvement works necessitated by legislative requirements will be undertaken. This means that only water treatment improvements required to meet the resource consents will be funded and carried out.

5.5.2 Demand Management

Currently demand management for water services is implemented through:

- Council Policy and By-law documents.
- Subdivision controls and consent conditions.
- Land development controls such as land use zoning.
- Consultation on capital works projects through the LTP process.
- Providing feedback to customers on operation and maintenance costs through the Annual Report process.
- Feedback to customers on achievements against performance measures and levels of service through the Annual Report process and future LTP consultation.

6 Risk Management

6.1 Introduction

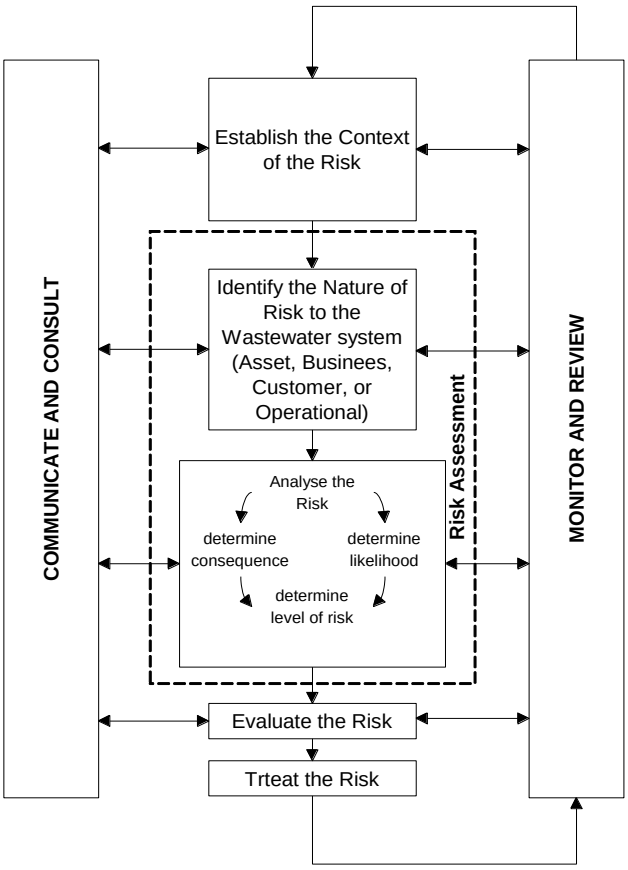
Risk management involves looking at all the activities carried out in this activity and assessing what might go wrong and how often this might occur. The information gained from this can be used to eliminate the risk, reduce its effect, or allow a contingency plan to be prepared to deal with the risk if it occurs. It also involves looking more widely for events that would not normally be expected to happen but have the possibility of happening and affecting this activity.

6.2 Risk Management Procedure

Risk procedure is based on the Guidelines in AS/NZS 4360:2004 - Risk Management. The definition of risk management, as presented in Standards New Zealand Handbook – 'Risk Management for Local Government' (SNZ HB 4360:2000) is:

"The systematic applications of management policies, procedures and practices to the task of identifying, analysing, evaluating, treating and monitoring those risks that could prevent a Local Authority from achieving its strategic or operational objectives or plans or from complying with its legal obligations".

The risk management process is illustrated below.



6.3 Risk Assessment Context

Risk management is applied and developed in both the strategic and organisational contexts.

The identification, analysis and treatment/management of risk will impact at all levels in the management of the Asset, from Community Outcomes through to strategic goals, Asset goals, service level delivery and operational delivery.

Risk should be considered relative to Strategic Objectives, Organisational Performance and Event Management.

6.3.1 Strategic Context

This Asset Management Plan describes Council's Strategic Objectives relative to the Water Activity and details the relationship between Strategic and Community Outcomes and Water Asset Goals. The plan also sets out the various relationships between other plans, legal requirements, financial strategies, regulatory consents and policy documents for the water activity.

The strategic risk assessment must consider Councils' ability to achieve its strategic goals and comply with all relevant legal obligations within the context of all these relationships, statements and requirements.

6.3.2 Organisational Context

The organisational context for risk management relates to assessment of Council's ability to manage the water activity to achieve the required outcomes.

In particular the focus for this context is risk associated with organisation issues such as staffing (resources, skills and training etc), work areas, location, IT and financial systems, database and data recording, analysis and tracking systems, policies and procedures, relationships with elected representatives etc.

6.3.3 Event Management Context

The Event Management context relates to both the management and operation of the activity. It includes assessment of risk relating to particular events that may occur. The range of types of events assessed should include contract management activities, operational activities, asset failure events as well as general, accidental, environmental and deliberate harm events.

6.3.4 Assessment Process

The assessment process is set out in further detail in the following paragraphs that describe the criteria in terms of Risk Management Activities, Likelihood Scale, and Consequence Scale. The process includes for development of a Risk Assessment Matrix, Risk Register and analysis and format of a Risk Treatment Plan for the risks and events identified.

6.4 Risk Management Activities

Activities associated with water services can be categorised by function into four broad areas. Under each area or function heading is a list of processes that might occur within the water activity. Each process can have a number of risks. This method of categorisation of risks is used to methodically develop a risk register.

ACTIVITY CATEGORIES FOR RISK REGISTER				
Activity Area	**Asset Management Risks**	**Business Risks**	**Customer Services Risks**	**Operational Risks**
Processes	Forward Planning	Funding Provision	Public Request Management	Routine Operation & Maintenance
	Asset Renewals Programme	Governance	Managing Response Times	Planned Maintenance
	Information Systems & Management	Legislative Compliance	Managing Customer Expectations	Routine Inspections (Contractor/Council)
	Standards and Guidelines	Policy Development	Level of Service changes	Facilities Management
	Demand Change	Procurement	Customer Expectation change	Data capture, analysis and forward forecasts
	Data Storage	Employment	Customer not understanding service levels	Contract Administration (reporting, programmes, quality management, service delivery)
	Data Analysis	Financial Management & Reporting	Recording Data	Capital and Renewal Physical Works Projects (QA, Management, Timeliness)
	Resources	Political	Analysing Data	Budget Constraints
	Contract Administration	Staff (Council)	Customer Consultation	
	Performance Tracking (Contracts and Consents)		Customer expectations research	

6.5 Risk Evaluation Process

The probability (likelihood) and consequence of a risk occurring are assessed to arrive at Risk Rating Category for the risk. The process from AS/NZS 4360:2004 is used.

6.5.1 Likelihood Scale

The Likelihood Scale is based on frequency or return period rather than an absolute probability.

LIKELIHOOD SCALE				
Level	**Descriptor**	**Description**	**Indicative Frequency**	**Probability of at least one occurrence in 10 yrs**
A	**Probable**	The threat is expected to occur frequently	> 1 year	>99.9
B	**Common**	The threat will occur commonly	1 to 5 years	90% to 99.9%
C	**Possible**	The threat occurs occasionally	5 to 10 years	65% to 90%
D	**Unlikely**	The threat could occur infrequently	10 to 50 years	20% to 64.9%
E	**Rare**	The threat may occur in exceptional circumstances	>50	<20%

Percentage values for the 'probability of occurrence in 10 years' column above are indicative only and have been rounded to avoid giving a greater impression of accuracy than is justified by the qualitative analysis.

6.5.2 Consequence Scale

The scale of consequences for the categories of health and safety, image/reputation and environment are described below.

CONSEQUENCE SCALE								
Level	**Descriptor**	**Consequence Types**						
		Health and Safety	**Image / Reputation**	**Environment**	**Annual Cost**	**Obligations**	**Network Condition**	**Serviceability**
V	Severe	Fatality	Sustained national media cover	Permanent widespread ecological damage	>$100,000	Government Commission of Inquiry	Net reduction to asset value > $1,000,000	Prolonged disruption to large area or significant industry/facility
IV	Major	Serious injury	Regional media cover or short term national cover	Heavy ecological damage	$50,000 to $100,000	RMA prosecution, Audit tags	Net reduction to asset value $500,000 to $1,000,000	Temporary disruption to large area or prolonged disruption to smaller area
III	Moderate	Moderate injury	Local media cover	Significant, but recoverable, ecological damage	$10,000 to $50,000	Abatement Notice, Minor claims.	Net reduction to asset value $100,000 to $500,000	Significant localised flooding and/or disruption of normal business in localised area; moderate nuisance
II	Minor	Minor Injury	Brief local media cover	Limited, medium term, ecological damage	$1,000 to $10,000	Excessive or widespread rate payer complaints	Net reduction to asset value $50,000 to $100,000	Moderate localised flooding; minor nuisance
I	Negligible	Potential Injury	Local complaints	Short term damage	< $1,000	Local complaints	Net reduction to asset value < $50,000	Minor localised flooding; negligible nuisance

The category of "Annual Cost" provides for the whole cost of negative events to be taken into account in the risk assessment, without considering any potential subsidies from Central Government for reducing the risk or dealing with the potential consequences.

The category for "Obligations" relates to issues of sound governance and includes consideration of Council's ability to achieve identified community outcomes as they are stated in the LTCCP, in relation to the LGA 2002 and the criteria for the four well-beings contained therein.

The "Network Condition" category allows for consideration of risk in the context of maintaining the value of the network and the "Serviceability" category reflects the asset management context relative to the assessment of risk.

6.6 Risk Rating Matrix

The result of consideration of the likelihood and consequences of a risk is entered on the Risk Rating Matrix to determine its Risk Rating Category.

Likelihood		**Consequence**				
		I	**II**	**III**	**IV**	**V**
		Negligible	**Minor**	**Moderate**	**Major**	**Severe**
A	**Probable**	**Medium**	**High**	**High**	**Very High**	**Very High**
B	**Common**	**Medium**	**Medium**	**High**	**High**	**Very High**
C	**Possible**	Low	**Medium**	**Medium**	**High**	**High**
D	**Unlikely**	Low	Low	**Medium**	**Medium**	**High**
E	**Rare**	Low	Low	Low	**Medium**	**Medium**

6.7 Risk Rating Categories

Four risk ratings describe the outcome of the risk assessment for each event in the risk.

Rating	Description	Recommended Level Of Action
Very High	Intolerable. Urgent action required	Risks in the very high category are considered intolerable and immediate action is required to reduce the likelihood or consequence to reduce the risk to a lower category. Risk treatment options may be required that are not justifiable on strictly economic grounds. Safety, legal and social responsibility requirements may override financial considerations.
High	Take actions to reduce risk to as low as reasonable possible. Mitigation plan required for each risk.	High risks are undesirable, but may be accepted if they cannot be reduced or avoided. All reasonable measures should be undertaken to reduce these risks to as low a level as possible, regardless of cost, inconvenience or other factors. As a minimum there should be a specific risk treatment plan for each entry in the "high risk" category.
Medium	Tolerable. Consider mitigation measures on case by case basis. Measures to reduce risk if justified.	Items in the medium risk category should be evaluated on a case by case basis. Action to reduce these risks will be undertaken only when the potential benefits of the risk treatment outweigh the expected costs. Normal project evaluation criteria can be used to asses potential risk treatment measures for medium risks.
Low	Business as usual.	No action required for low risks, other that monitoring to ensure they do not progress into higher risks.

6.8 Risk Register

Council has set up a Risk Assessment for each Water Network similar to the assessment used in the Lifelines Risk analysis. Each network or system has been analysed as an individual system. Under each network the system has been broken down to the general component level Because of the nature and size of each network has only been broken down to the types of component level. E.g. Manholes, mains sub mains etc.

Using this break down the impact of the tangible (physical components) and the Non-tangible (non physical attributes) have been assessed against expected hazards thus crating a risk profile for each water system. A full copy of these tables are included at the end of this section. Below is a summary of all the network risks and we can see that the risks range from low to high.

Summary of Risk across the Networks									
COMPONENT/ SEGMENT		**Waipukurau**	**Waipawa**	**Otane**	**Takapau**	**Kairakau**	**Pourerere**	**Porangahau**	**Te Paerahi**
Tangible	Private Retic	Low	Low	Low	Low	Low	Low	Low	Low
	Connection/laterals	Low	Low	Low	Low	Low	Low	Low	Low
	Valves, Hydrants etc	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Mains	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Sub Mains	Low	Low	Low	Low	Low	Low	Low	Low
	Rail crossings	Medium	Medium	Medium	Medium	N/A	N/A	N/A	N/A
	Location/Access	Low	Low	Low	Low	Medium	Medium	Medium	Medium
	Item								
Non - Tangible	Known Age/Condition of system	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Lack of Information	Low	Low	Low	Low	Low	Low	Low	Low
	Unknown Assets	Low	Low	Low	Low	Low	Low	Low	Low
	Capacity	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Personnel Skill - Council	High	High	High	High	High	High	High	High
	Personnel Skill - Contractor	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Legislation changes	Low	Low	Low	Low	Low	Low	Low	Low
	Lack of Forward Planning	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
	Water Take Consents	Low	Low	Low	Low	Low	Low	Low	Low
	Poor Maintenance	Low	Low	Low	Low	Low	Low	Low	Low
	Stall/Resouces	Low	Low	Low	Low	Low	Low	Low	Low

6.9 Risk Management Relationships to AMP Document

Risk applies across all processes in the management of the asset and the activity. The relationship between risk management activities and the sections within the Water Asset Management Plan document are indicated below.

Risk Management Activity	**Relevant AMP Document Sections**
Asset Management Risks	**Levels of Service**
	Lifecycle Management
	Asset Management Practice
Operational Risks	**Lifecycle Management**
	Asset Management Practice
Customer Services Risk	**Levels of Service**
	Lifecycle Management
Business Risks	**Levels of Service**
	Financial Summary
	Asset Management Practice

The risk register holds the details of the risk event and documents which water activity or activities it impacts on.

6.10 Risk Treatment

A risk treatment plan should be focussed on risks rated high or very high in the first instance. Action plans should be written to document how the risk treatment options will be implemented.

Risk treatment options generally fall into the following categories:

- Avoid the risk by deciding not to start/continue with activity that gives rise to the risk.
- Reduce the likelihood of the negative outcomes.
- Reduce the consequences.
- Sharing or transferring the risk with other organisations.
- Retaining the risk, after all reasonable treatment measures have been considered.

Some risks may be rated high initially due to uncertainty in the likelihood or effects and the risk treatment plan may consist of further investigations or assessments to better define the level of risk. Other risk treatment options may consist of financial controls (e.g., insurance), operational improvements, contingency planning or physical works to reduce risks.

Risk treatment activities should be carried out by the party who is in the best position to deal with that issue; which may be Council staff, the Contractor, or others.

After identifying the risks and entering them in the risk register and assessment to rate them, Council will need to determine which parties are in the best position to carry out risk treatment planning for each of the high and very high risks, so that the appropriate actions may be taken.

Any significant additions or changes to the risk register will be noted as they occur through regular reporting procedures. It is recommended that the risk register have a comprehensive update every 12 months and be included in the Facilities Management Contract documentation.

HAZARDS Site Inspection form

Site:_____ Inspection Date: _____ Inspected by: _____

	Hazards Identified	Repairs/ Maint. Yes/No	Location	Action required
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Other Observations/Notes			

6.11 Lifelines

The "Engineering Life Lines Project" involves all utility service providers for Hawke's Bay, as well as many other agencies. The project identifies some of the risks to maintaining services and addresses what needs to be done to reduce the risk. Key findings for the Hawke's Bay region are:

- Hawke's Bay is one of the most earthquake prone regions in New Zealand, with 22 known active faults and folds that are capable of producing very strong earthquakes:

- Large subduction thrust earthquakes on the interface between the Australian and Pacific tectonic plates occur regularly. They are capable of producing high levels of shaking over a large part of the region and could cause ground level drops of up to 600 millimetres.
- The tectonic plate margin close to the East Coast of the North Island is capable of generating earthquakes and submarine landslides that could cause devastating tsunami, despite there being few recorded tsunami in recent times.

- Flooding has caused significant community disruption and economic loss in the past. Most urban areas in Hawke's Bay are protected by flood prevention schemes. The flood prevention schemes are designed to cope with a 100-year return period. Stopbank breeches are possible during bigger floods.
- Ash from volcanic eruptions in the central North Island could affect all parts of Hawke's Bay, depending on the wind direction at the time. However Hawke's Bay's engineering lifelines will be much less affected than lifelines near the source of the eruption.

The project's risk assessments have resulted in the following major findings:

- The seismic hazard poses the greatest potential risk to transportation networks, especially structures such as bridges and wharves. Landslips and flooding are potentially the next most serious hazards.
- Civil services are generally underground. At junctions there is a risk they will fracture, especially where they are made of brittle materials and in areas with a high liquefaction potential.
- The installation of automatic seismic shut off valves to reservoirs should be considered to help protect community water supplies during a major earthquake.
- The supply of electric power to Central Hawke's Bay is limited by the capacity of the single line from Onga Onga Substation. If this supply were to be lost, other sources would not be capable of maintaining full economic production in the region.
- Hawke's Bay needs a well-designed and constructed regional civil defence emergency operating centre. This facility should be built to the highest structural design category for buildings where loss of function would have a severe impact on society. It would need backup supplies of power and water and stormwater discharge capacity to cover an extended period of a civil defence emergency.

Additional key findings of risk assessments carried out on the transportation, civil services, energy and communications networks as part of the project, are summarised below. It is important to consider all risks as although many of these assets are not controlled under the CHBDC Water Asset, their performance in an event can impact significantly, for example loss of power to pumps or road access to sites.

- Civil Services
    - Pipes that are attached to bridges or other structures are at risk from seismic activity.

- Some pumping stations and control equipment are at risk from ground shaking, flooding or tsunami.
- Prolonged power failure will have a serious effect on civil services in the region.

- Energy
  - Seismic activity poses the greatest potential risk to continued electricity supply.
  - Some sites are vulnerable to flooding that could cause electrical equipment to fail.
  - Transmission lines can be at risk from earthquakes, landslip, snow, severe wind and ashfall.
  - Gas networks are most vulnerable to seismic damage where they are supported above ground by bridges and other structures.
  - Remaining cast iron pipes in local gas distribution lines are at risk from fracture during a major earthquake. This could lead to an outbreak of fire.
- Communications
  - Any major emergency is likely to cause overloading of telephone networks.
  - People rely on local radio and television stations for information during an emergency and loss of these services could have serious effects.
  - Earthquakes pose the biggest threat to broadcasting studios, equipment and transmitter sites. Access to transmitter sites may be difficult after an earthquake or major storm.
  - Back-up power supplies to run Emergency Operation Centres during an emergency would be dependent on the availability of diesel deliveries.
- Transportation
  - Bridges and roads are at risk from the effects of earthquakes, including ground-shaking, liquefaction and fault displacement. These could result in structural damage, the raising or lowering of bridges or roads and chasms opening in roads.
  - Many roads and bridges in the region cross low-lying areas, which are difficult to protect from the effects of major flooding or tsunami.
  - The availability and maintenance of alternative routes is important to ensure access after a natural disaster.
  - In the south of the Hawke's Bay region seismic activity could damage rail lines. In the north the rail network is more at risk from flooding and landslip.
    - At the low-lying Hawke's Bay Airport, earthquakes could cause runways to move or crack and a subduction thrust event may lead to an influx of underground seawater. The airport is also at risk from flooding and tsunami inundation.
    - Seismic activity could cause major disruption to cargo handling at the Port of Napier. Tsunami also present a major risk to port operations.

6.12 Identified Risks

Health and Safety

Council has a comprehensive Health and Safety Programme for its operations. Internally there is no risk in the implementation of this Programme.

The Facilities Management contractor has a Health and Safety Programme in operation. Reports are received from the contractor about any incidents relating to health and safety. Council's risk is that no inspection of work sites is undertaken by Council staff to ensure that the requirements of Council's and the contractor's Health and Safety Programmes are being carried out on site.

Asset Risk Plan / Business Continuity / Lifelines

No Risk Assessment Plan has been prepared for this activity. However some work has commenced with the development of an initial risk register. The Hawke's Bay Region has carried out a Lifelines Study. Recommendations from that study will be included in the Risk Assessment.

A Business Continuity Plan covering actions to be taken to continue provision of essential water services during an adverse event, or prompt reinstatement of services immediately following such an event, needs to be documented and approved as part of Council's emergency planning.

Water assets are insured through the Local Authority Protection Programme (LAPP) for underground assets and through an insurance broker for above ground assets.

Construction and Maintenance Work

Council has adopted, with their agreement, the Hastings District Council's Engineering Code of Practice. Council also uses NZS4404: Code of Practice for Urban Land Subdivision. The specific requirements for each application are assessed on a case by case basis and the requirements of these standard codes modified by the approving officer as appropriate. The requirement to comply with these standards is included in all new water work including subdivisional work. The risk is that Council does not have enough staff resources to fully assess the requirements for and monitor the implementation of the standards by constructors.

As built plans are received from all constructors of water work, and are entered into Council's graphical water asset plan. However resource limitations could result in delays in this process.

The Facilities Management Contract includes a Quality Plan for the procedures the contractor uses in that maintenance. The risk is that the procedures are not followed, and there is uncertainty because Council does not have enough staff resources to fully monitor the implementation of the contract requirements by the contractor.

New construction is carried out by a number of contractors and may be supervised by consultants or Council staff. There is a risk that the work may be monitored by observation rather than supervision due to lack of staff resources to fully supervise the work.

The Facilities Management Contract ensures that repairs and connections can be carried out speedily. However, some connections relating to subdivisions and developments can be completed by other contractors under the overview of the Building Inspector. There is a risk that due to resource limitations and work pressures not all connections will receive adequate overview.

Financial Issues

A concerted effort has been made to identify properties connected to the water networks. The risk is that there are still unidentified connected properties that are not being charged.

Expenditure is controlled by staff by:

a. ordering work only if finance is available and approved.

b. reviewing expenditure monthly.

c. reporting exceptions.

Council might not collect development contributions that it could collect because identified improvements are not listed in the LTCCP.

The financial provisions shown in this Plan should be sufficient to provide the operational and maintenance service required from this Activity. There is a risk that all programmed works, particularly the supervision of works, cannot be carried out fully due to limitations on the number of Council staff employed or on funding available to employ consultants to do that work on Council's behalf.

Climate Change Response Act 2002

The predictions for changing weather patterns will impact significantly on this activity. Increased frequency of high intensity storms will cause a change in the design requirements for stormwater systems. Council has revised its design policy to require design for 1 in 50 year storm events (based on historical recording of storm events) instead of for 1 in 20 year storm events. This will need to be reviewed as new recordings change the size of storm events.

Natural hazards and Climate Change

Our district is subject to a number of natural hazards such as earthquakes, coastal inundation and erosion, tsunami and landslides and these can result in disruption to services and damage to our infrastructure. This can lead to unforeseen and often high costs to repair infrastructure and restore services.

These hazards impact on our networks in different ways. For example, where our infrastructure networks are near the coast they may be subject to coastal erosion, coastal inundation, tsunami and landslips. Our urban infrastructure networks are more likely to be impacted by earthquakes and flooding.

Climate change is likely to have an impact on the Central Hawkes Bay over the coming years, with changes to wind and weather patterns, sea level rises, increased flood risk and frequency of extreme weather events predicted. Climate change is not expected to create new natural hazards in our District but it may change the intensity and frequency of natural hazards. In Central Hawkes Bay, increasing levels and intensity of rainfall may cause localised flooding issues, placing pressure on our stormwater drainage systems and wastewater systems (for example, if stormwater infiltrates our wastewater network). This could impact negatively on our natural environment, our water quality and increase public health risks. Sea level raise could be a major issue for our coastal settlements and roading network that runs along the foreshore. Council has a statutory requirement to consider sea level raise under the RMA and new District Plan where rule and process will be set after consultation with the public and other governing bodies.

Changing Environmental Standards and Legal Obligations

The hearing over the Havelock North water crisis council has experienced more attention from the regional council and the district health board on how we manage and run our drinking water supplies. This has not only impacted on capital works projects such as new UV water treatment but has added cost on the operational side of council water supply systems. In the short term council is envisaging further operation cost increases as the legal process over the water issue progress.

Changing Demographics

There are no issues identified as significantly affecting this activity from the foreseeable predictions for changes in population demographics. It is expected that over the next 20 years there will be an increase in the number of elderly persons within District communities and an increase in the overall percentage of the population that will be over 65 years.

The predicted reduction in household occupancy rates will not affect water volumes per household.

Planning

"Area of Benefit" plans have been prepared that identify areas that can be connected to existing stormwater systems. Political directives to amend these plans may result in considerable extra work, both by staff and in the requirement for capital works, to implement those directives.

Council's graphical stormwater asset plan in AssetFinda is being kept up to date with the addition of all new information that comes to hand about the asset. While the information is being continually upgraded, further information gathering improves the depth and accuracy of information in the plan.

Some stormwater discharge points/facilities/structures will require new or renewed resource consents, and Council will review its programme of works when decisions regarding these are determined.

The appropriateness and sufficiency of the proposed methods of dealing with stormwater are addressed when applications for subdivision, development, and for building consent are processed. There is a risk that due to resource limitations and work pressures some applications may not be reviewed in as much depth as desirable and approval of inappropriate connections or methods of stormwater disposal may occur.

Renewals and rehabilitations are programmed by Council staff through their knowledge of the assets, analysis of the database, and application of their previous experience. However the extents of the works are limited to the amount of depreciation monies raised each year. This means that some work that should be carried out may not be carried out.

No capital works are included in the LTCCP even though capital works have been identified by staff. This means that places where identified improvement works that would reduce or eliminate flooding problems cannot be funded and therefore will not be built.

General Issues

Council staff practitioners, from their experience, training and courses attended, believe that all legislative requirements that impact on this activity are being complied with.

Every practical effort is being made to ensure all resource consent conditions are being complied with, within the resources presently available.

Staff purchasing authorities have been delegated to the appropriate staff. Duties relating to this Asset have been included in particular staff member's job descriptions as appropriate. No other delegations relating to this activity have been made.

Council's policies are held in the Policy Manual. The risk is that the Policy Manual is not kept up to date.

Warrants have been created for all staff required to have a warrant.

Council has sufficient and appropriate procedures in place to ensure that it will be able to properly report the progress that is being made towards the achievement of Community Outcomes and against the agreed level of service relating to this activity.

6.12.1 The Most Critical Risks

The most critical risks are:

- Incomplete management and supervision of this Activity due to limited staff resources.
- Limited design people which will result in the inability to design future project and assemble contract documents.
- Limited contracting forces available to do the work result in higher cost and/or unlet contracts
- Identified improvement works that would reduce or eliminate flooding problems cannot be funded and therefore will not be built.
- The requirements of the Regional Council in future resource consents for water takes may result in additional restrictions on flow when river levels are low.
- The limited application of risk assessment could lead to avoidable risks occurring and requiring more funding than the avoidance cost.

- Detailed planning of District water requirements for the future and the related capital contribution regime has not been done. This could mean that future requirements are not meet in the time they are needed.
- The changing legislative environment.
-

6.13 Key Assumptions and Uncertainties affecting Risk

Significant assumptions and uncertainties in the preparation of this Water Asset Management Plan are:

- There will be an ongoing requirement for the provision of this activity.
- The demand for this activity will increase, and not reduce.
- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's Utility Unit, Technical Services Unit, and Corporate Services Department staff, and staff of the Facilities Management Contractor - Higgins Contractors HB.
- The operational and maintenance requirements for this activity will remain similar for the next ten years.
- Funding will be available to provide the operational and maintenance requirements of this activity.
- Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works.
- Funding for capital improvements will be limited by political decisions as to the level of funding available.
- The dollar values shown in this Plan are June 2017 dollars, adjusted where appropriate by "BERL" estimated rates of inflation.
- Some capital and renewal costs are rough order of cost estimates that will need to be further researched and refined.
- Incomplete management and supervision of this Activity due to limited staff resources
-

6.13.1 Significant Negative Effects

There are many positive effects from provision of water services within the District not the least of which is enhancement of health and well-being and economy of Central Hawke's Bay communities. However, awareness must also be given to any significant real or potential negative effects from the provision of water services and these are outlined as follows.

The significant effects of **not providing** water services are:

- Moderate risk of health problems particularly and variable risk of harm to individuals during storm events plus high risk of property damage.
- Reduced commercial and industrial activity could result from lack of access to reticulated water systems and this would impact on the social and economic wellbeing of the community.

The significant negative effects of **providing** water services are:

- Potential adverse effects on environmental well-being particularly erosion damage at discharge points and contamination of waterways. This is monitored and mitigated by existing and probable future resource consent conditions and compliance programmes.
- Cost impact of operation, maintenance, renewal and capital costs of reticulated systems and potential future water treatment units/structures/facilities within urban areas with small populations. This will impact on social and economic well-being of these communities and of the wider District.

Water Network

Brief Description
Main town reticulated system with two reservoirs and single pump station. Network is divided into 2 pressure zones.

WAIPUKURAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Natural: Flood	Natural: Land-slide	Natural: Tsunami	Natural: Volc Ash	Human: Damage/Infill	Human: Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	1	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	0	4	3	3	4	4	4	4	2	3	3	4	High	
Bores	2	3	0	0	0	1	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability					Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%					50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3					2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2					2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1					5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2					1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3					3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3					2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3					2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3					3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3					2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3					1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3					2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3					2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Second town reticulated system with group of reservoirs on hill above town and main pump station at Tikokino road with supplementrey pumping station at Johnson Street. This system also supplies Otane

WAIPAWA

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Natural: Flood	Natural: Land-slide	Natural: Tsunami	Natural: Volc Ash	Human: Damage/Infill	Human: Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	1	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	0	4	3	3	4	4	4	4	2	3	3	4	High	
Bores	2	3	0	0	0	1	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability					Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%					50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3					2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2					2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1					5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2					1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3					3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3					2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3					2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3					3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3					2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3					1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3					2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3					2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Simple town reticulated system with two reservoirson hill across SH2. Supplementary feed is provided via Bermad valve at SH 2 turn off to town. Water is supplied from Waipawa network.

OTANE

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
Tangible																	
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	1	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	0	4	3	3	4	4	4	4	2	3	3	4	High	
Bores	2	3	0	0	0	1	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Item	Hazards: Failure	LOS	Affordability	Likelihood	Consequence	Criticality	Comments
Non - Tangible							
weighting	10%	50%	100%				
Known Age/Condition of system	3	3	3	3	3	Medium	
Lack of Information	2	2	2	2	2	Low	
Lack of Isolation valves	0	5	1	3	3	Medium	
Unknown Assets	1	1	2	2	2	Low	
Capacity	2	3	3	3	3	Medium	
Personnel Skill - Council	3	3	3	3	3	Medium	
Personnel Skill - Contractor	3	3	3	3	3	Medium	
Legislation changes	0	3	3	3	2	Medium	
Lack of Forward Planning	3	3	3	3	3	Medium	
Water Take Consents	4	2	3	3	3	Medium	
Poor maintenance	3	3	3	3	3	Medium	
Staff/Resources	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Impact: Customers	Operational	Business	Environmental	Legal	H & S
weighting 50%	40%	50%	20%	40%	50%
2	3	3	2	1	3
2	2	2	1	1	1
5	5	3	1	0	0
1	3	2	1	1	1
3	2	4	3	1	2
2	3	3	2	1	2
2	3	3	2	1	2
3	1	3	2	2	0
2	2	4	2	1	1
1	4	4	4	3	0
2	3	4	3	1	2
2	3	3	3	3	3

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Simple town reticulated system with reservoirs on hill at SH 2. The filtered/treated water supply is pumped from a bore in Meta Street thru the town retic to the reservoir.

TAKAPAU

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
Tangible																	
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	1	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	0	4	3	3	4	4	4	4	2	3	3	4	High	
Bores	2	3	0	0	0	1	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Item	Hazards: Failure	LOS	Affordability	Likelihood	Consequence	Criticality	Comments
Non - Tangible							
weighting	10%	50%	100%				
Known Age/Condition of system	3	3	3	3	3	Medium	
Lack of Information	2	2	2	2	2	Low	
Lack of Isolation valves	0	5	1	3	3	Medium	
Unknown Assets	1	1	2	2	2	Low	
Capacity	2	3	3	3	3	Medium	
Personnel Skill - Council	3	3	3	3	3	Medium	
Personnel Skill - Contractor	3	3	3	3	3	Medium	
Legislation changes	0	3	3	3	2	Medium	
Lack of Forward Planning	3	3	3	3	3	Medium	
Water Take Consents	4	2	3	3	3	Medium	
Poor maintenance	3	3	3	3	3	Medium	
Staff/Resources	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Impact: Customers	Operational	Business	Environmental	Legal	H & S
weighting 50%	40%	50%	20%	40%	50%
2	3	3	2	1	3
2	2	2	1	1	1
5	5	3	1	0	0
1	3	2	1	1	1
3	2	4	3	1	2
2	3	3	2	1	2
2	3	3	2	1	2
3	1	3	2	2	0
2	2	4	2	1	1
1	4	4	4	3	0
2	3	4	3	1	2
2	3	3	3	3	3

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Simple town reticulated system with reservoirs on hill above town. Supply water is pumped via rising main from the Pump station/Treatement Plant at Te Paerahi.

PORANGAHAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Bridge crossings	3	1	1	2	1	1	1	3	3	3	3	2	3	2	3	Medium	
Reservoirs	2	1	3	0	4	3	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%	50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3	2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2	2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1	5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2	1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3	3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3	2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3	2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3	3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3	2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3	1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3	2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3	2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Simple town reticulated system withno reservoirs. Pressure is supplied by pressure pump with backup diesel pump. Supply water is treatred and pumped to town and Porangahau Town via rising main.

TE PAERAHI

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Sub Mains	3	1	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Pump Stations	2	3	1	3	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	2	4	3	3	4	4	4	4	2	3	3	4	High	
Bores	2	3	0	2	0	1	3	4	4	4	4	2	3	3	4	High	
Telemetry	0	1	1	0	1	3	0	1	4	4	3	1	1	1	3	Low	main issues are lost of control/monitoring, record of water takes etc
Location/Access	1	1	0	3	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	3	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%	50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3	2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2	2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1	5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2	1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3	3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3	2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3	2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3	3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3	2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3	1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3	2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3	2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Simple reticulated system which pumps water from a spring and a bore to tanks on the hill. Additional tanks are located by the spring to nprivded additional storage for summer peak loads.

KAIRAKAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	1	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	1	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	1	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	1	1	3	3	3	3	3	3	1	3	3	3	Medium	
Pump Stations	2	3	1	3	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	3	0	4	3	3	4	4	4	4	2	3	3	4	High	
Springs	2	3	0	3	0	1	3	4	4	4	4	2	3	3	4	High	
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%	50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3	2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2	2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1	5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2	1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3	3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3	2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3	2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3	3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3	2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3	1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3	2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3	2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Consequence: Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

Water Network

Brief Description
Water is piped from a spring in the Hills on Opepoto Farm. Water is gravity fgeed from the tank by the spring to watger tanks by the camp ground where it is treated. Additional untreated supplies are feed to 3 private houses and Public Toilets.

POURERERE

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	1	1	0	1	2	2	1	1	1	1	1	1	2	1	Low	While not a Council asset it is noted because we receive the queries about issues with private retic.
Connection/laterals	3	3	1	0	1	2	2	3	2	1	1	1	1	3	2	Medium	
Valves/Hydrants/Meters	1	3	1	0	1	1	3	2	2	2	2	1	3	2	3	Medium	
Mains	3	1	1	0	1	3	3	3	3	3	3	1	3	3	3	Medium	
Bridge crossings	3	1	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	4	3	2	4	4	4	4	3	3	3	4	High	
Reservoirs	2	1	2	3	4	3	3	4	4	4	4	2	3	3	4	High	
Springs	2	3	3	0	0	1	3	4	4	4	4	2	3	3	4	High	
Location/Access	1	1	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

Item	Hazards: Failure	LOS	Affordability	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	10%	50%	100%	50%	40%	50%	20%	40%	50%				
Known Age/Condition of system	3	3	3	2	3	3	2	1	3	3	3	Medium	
Lack of Information	2	2	2	2	2	2	1	1	1	2	2	Low	
Lack of Isolation valves	0	5	1	5	5	3	1	0	0	3	3	Medium	
Unknown Assets	1	1	2	1	3	2	1	1	1	2	2	Low	
Capacity	2	3	3	3	2	4	3	1	2	3	3	Medium	
Personnel Skill - Council	3	3	3	2	3	3	2	1	2	3	3	Medium	
Personnel Skill - Contractor	3	3	3	2	3	3	2	1	2	3	3	Medium	
Legislation changes	0	3	3	3	1	3	2	2	0	3	2	Medium	
Lack of Forward Planning	3	3	3	2	2	4	2	1	1	3	3	Medium	
Water Take Consents	4	2	3	1	4	4	4	3	0	3	3	Medium	
Poor maintenance	3	3	3	2	3	4	3	1	2	3	3	Medium	
Staff/Resources	3	3	3	2	3	3	3	3	3	3	3	Medium	Impact of the number of staff to do the work

Key

Likelihood			Consequence: Negligible 1	Minor 2	Moderate 3	Major 4	Serve 5
Rare	E	1	Low	Low	Low	Medium	Medium
Unlikely	D	2	Low	Low	Medium	Medium	High
Possible	C	3	Low	Medium	Medium	High	High
Common	B	4	Medium	Medium	High	High	Very High
Probable	A	5	Medium	High	High	Very High	Very High

Weighting	
Negligible	up to 20%
Minor	20 to 40%
Moderate	20 to 60%
Major	60 to 80%
Serve	80 to 100%

General Comments

7 Life Cycle Management

Introduction – Lifecycle Management

Lifecycle management looks at what is planned to keep the assets managed and operating at the agreed levels of service while optimising lifecycle costs.

The overall objective of the Life Cycle Management Plan is

To manage the water Asset to ensure that current strategies provide the required level of service in an efficient and cost effective manner that does not consume the water assets.

7.1 Routine Maintenance Plan

7.1.1 Scope of Maintenance Plan

The major issues that need to be addressed in the Maintenance Operations Plan are:

- Ensuring maintenance of water systems is carried out regularly to meet required Outcomes with the funding parameter set by Council.
- Ensuring asset condition information is reported to the asset managers for consideration and entry in the asset database.
-

7.1.2 Service Procurement (Method of Contracting)

The routine management, maintenance and operations for the water activity are included in Contract No. 240 - Facilities Management Contract (FMC). The Contractor is Higgins Contracting Limited. The final expiry date of the contract is 31 November 2018, but it includes an extension clause allowing the contract to be extended until 31 November 2018. The services covered by this contract for the water activity are:

(i) Routine operations, maintenance (including preventative maintenance) and management associated with water activities.

(ii) Ready response work (reactive maintenance) including emergency response and maintenance services as required and authorised.

(iii) Planned maintenance and improvement capital works when and as directed by Council.

(iv) Customer services call centre and call out service.

(v) The supply and maintenance of asset information to Council including the asset condition, works carried out on them and future requirements to maintain and if necessary enhance the assets.

(vi) Routine inspection service.

(vii) Reporting to Council.

(viii) Management and professional advice services.

The Facilities Management Contract puts emphasis on a partnering style relationship between Contractor and Council, where there is a mutual commitment to achieving the contract

objectives and outcomes by maximising the effectiveness of co-operation. The nature of the work under the FMC, with elements requiring flexibility and co-operation (emergency response, variability of natural cycles, etc.) means the contract is a partnership. The Contractor works alongside and with Council to provide the outcomes expected by its customers within the resources that are available.

7.1.3 Maintenance Needs, Standards and Timing

The work output levels required to maintain the water assets have been determined through the preparation of the Facilities Management Contract. The Outcomes Specification and Technical Specification contained within the FMC form the basis of the Routine Maintenance Operations Plan for the water activity.

7.1.4 Routine Maintenance Operations Costs

The funding levels for maintenance of the water activity are based on the maintenance costs estimate for 2018 - 28, and inflation adjusted for each subsequent year. The inflation figures are provided by BERL.

The current practise is to provide a bulk sum for the maintenance of the all networks in a District wide budget line. At the end of the financial year the relevant officers of Council meet to review the project and prioritise the maintenance project across the networks for the coming year.

7.1.5 Council Confidence

Council believes that historical results show that the operations and maintenance funding levels provided will ensure that the water asset will continue to be adequately maintained without needing to increase funding to a higher “theoretical” level.

While it is highly desirable to undertake improvements to address existing and new issues, Council believes it has severe funding constraints that make this desired work unaffordable.

8 Financial Summaries

8.1 Revenue and Financing Policy

The Revenue and Financing policy is required under Section 103 of the Local Government Act 2002. The policy must be included in full in the LTP and changed only as an amendment to the LTP. Section 103(2) allows the following funding mechanisms to be used when funding operating and capital expenditure:

- General rates
- Targeted rates
- Grants and Subsidies
- Interest and Dividend from Investments
- Fees and Charges
- Borrowing
- Proceeds from Assets Sales
- Development or Financial Contributions
- Any other source

This policy summarises the funding sources to be used by Council and their intended use. Sources are identified for each Council activity, including those that may be used to fund operating and capital expenditure.

Council must consider the following elements in deciding on appropriate funding mechanisms for each activity:

- *Community Outcomes* – the community outcomes an activity will primarily contribute to.
- *Distributions of benefits* – the distribution of benefits between the community as a whole, any identifiable parts of the community and individuals.
- *Timeframes of benefits* – the period in and over which those benefits are expected to occur. For example, the benefits may occur on an ongoing basis, but may also benefit future generations.
- *Contributors to need for activity* – the extent to which actions or inactions of particular individuals or groups contribute to the need to undertake the activity.
- *Costs and Benefits of distinct funding* – the cost and benefits, including for transparency and accountability, of funding the activity distinctly from other activities.

8.2 Fees and Charges

Fees and charges are set annual by Council passing a Fees and Charges Bylaw in June. Fees and charges as at 1 July 2018 and a full list can be found on Council website.

Water Supply	**excl GST**	**GST**	**incl GST**
Charges for Water			
Notes: ▪ Extraordinary users may be charged by private arrangement with Council. ▪ Quarterly water billing will apply for metered water users. ▪ Extra charges will be applicable for development levies. These will be assessed on a case by case basis. Please contact Council for exact costs.			
Tankered water (taken from standpipes) per m³	$3.17	$0.48	$3.65
Note: *- for information only as this charge is a rate and is set as a rate*			
Water to metered properties per m³	$2.12	$0.32	$2.44
Common Charges			
Note: ▪ Water Connections from the Council main, to and including the toby and/or meter manifold must be installed by a contractor approved by Council for the installation of water connections, at the applicant's expense.			
Application fee	$111.30	$16.70	$128.00
Inspection fee	$111.30	$16.70	$128.00
Debt Recovery – hourly rate	$111.30	$16.70	$128.00
Restrictor Fee	$111.30	$16.70	$128.00
	Plus actual costs		
Installation of testable Backflow Preventer	Contractors cost		
Maintenance and Annual Testing Fees	Contractors cost		
Disconnections and Reconnections	Contractors cost		
Reconnection following Council imposed disconnection	Contractors cost		
New Connections	Contractors cost		

8.3 Development Contributions

Council requires development contributions from developers under the Local Government Act 2002. Council's policy set out how the levies are calculated based on the list of capital project included in the LTP 2018-48. This policy indicates how the levy will be charged and the dollar value per domestic connection for all new connections to each water system.

8.4 Asset Valuation

The last valuation for the water assets was completed by Council staff for 30 June 2017. Opus International Consultants Ltd reviewed and verified the valuation. A summary of the valuation is shown in the following table.

Water Asset Valuation at 30 June 2017

Community	Asset Class	Total Replacement Cost	Depreciated Replacement Cost	Total Annual Depreciation
Kairakau	Water Mains	$505,950.41	$351,122.31	$5,522.06
	Water Valves, FH etc.	$79,970.22	$28,616.02	$1,561.78
	Water Plant Items	$352,382.91	$223,578.82	$6,911.10
	Connections	$58,775.00	$34,619.62	$645.81
	Reticulation Total	$644,695.63	$414,357.95	$7,729.65
	Plant Total	$352,382.91	$223,578.82	$6,911.10
	Total	**$997,078.54**	**$637,936.77**	**$14,640.75**
Otane	Water Mains	$3,767,607.50	$3,045,375.96	$35,932.39
	Water Valves, FH etc.	$507,324.67	$335,173.18	$15,345.88
	Water Plant Items	$128,756.21	$104,016.70	$2,668.35
	Connections	$16,457.00	$12,964.03	$196.65
	Reticulation Total	$4,291,389.17	$3,393,513.17	$51,474.92
	Plant Total	$128,756.21	$104,016.70	$2,668.35
	Total	**$4,420,145.38**	**$3,497,529.87**	**$54,143.27**
Porangahau	Water Mains	$1,905,500.59	$1,171,461.34	$22,950.68
	Water Valves, FH etc.	$220,254.17	$146,948.82	$6,384.87
	Water Plant Items	$2,299,896.72	$2,243,869.18	$29,231.75
	Connections	$7,053.00	$11,294.19	$172.56
	Reticulation Total	$2,132,807.76	$3,426,624.71	$52,354.99
	Plant Total	$2,299,896.72	$146,948.82	$6,384.87
	Total	**$4,432,704.48**	**$3,573,573.53**	**$58,739.86**
Pourerere	Water Mains	$911,755.98	$565,276.85	$9,117.55
	Water Plant Items	$67,653.12	$54,534.04	$912.43
	Connections	$11,755.00	$7,195.18	$116.05
	Reticulation Total	$923,510.98	$572,472.03	$9,233.60
	Plant Total	$67,653.12	$54,534.04	$912.43
	Total	**$991,164.10**	**$627,006.07**	**$10,146.03**
Takapau	Water Mains	$3,271,204.40	$2,056,531.94	$29,386.40
	Water Valves, FH etc.	$425,313.19	$188,793.48	$12,396.33
	Water Plant Items	$1,426,219.20	$756,221.31	$29,457.24
	Connections	$77,583.00	$46,156.45	$858.91
	Reticulation Total	$3,774,100.59	$2,291,481.87	$42,641.64
	Plant Total	$1,426,219.20	$756,221.31	$29,457.24
	Total	**$5,200,319.79**	**$3,047,703.18**	**$72,098.88**
Te Paerahi	Water Mains	$1,228,885.10	$973,397.44	$12,998.34
	Water Valves, FH etc.	$252,918.20	$167,727.18	$7,302.30
	Water Plant Items	$824,241.51	$568,938.70	$21,566.32
	Connections	$25,861.00	$19,573.74	$348.22
	Reticulation Total	$1,507,664.30	$1,160,698.36	$20,648.86
	Plant Total	$824,241.51	$568,938.70	$21,566.32
	Total	**$2,331,905.81**	**$1,729,637.06**	**$42,215.18**
Waipawa	Water Mains	$12,514,564.14	$5,431,109.20	$114,316.82
	Water Valves, FH etc.	$1,544,392.97	$707,305.60	$37,610.45
	Water Plant Items	$2,442,312.72	$1,311,203.04	$43,852.63
	Connections	$199,835.00	$86,029.03	$2,129.24
	Reticulation Total	$14,258,792.11	$6,224,443.83	$154,056.51
	Plant Total	$2,442,312.72	$1,311,203.04	$43,852.63
	Total	**$16,701,104.83**	**$7,535,646.87**	**$197,909.14**
Waipukurau	Water Mains	$15,508,535.30	$7,166,322.54	$171,480.09
	Water Valves, FH etc.	$3,411,268.83	$1,358,918.84	$65,964.35
	Water Plant Items	$3,702,415.46	$1,024,890.82	$45,857.33
	Connections	$345,835.00	$153,035.51	$4,262.33
	Reticulation Total	$19,265,639.13	$8,678,276.89	$241,706.77
	Plant Total	$3,702,415.46	$1,024,890.82	$45,857.33
	Total	**$22,968,054.59**	**$9,703,167.71**	**$287,564.10**
District Totals	Reticulation Total	$49,098,496.39	$26,308,817.63	$586,231.82
	Plant Total	$8,943,981.13	$4,043,383.43	$151,225.40
	Total	**$58,042,477.52**	**$30,352,201.06**	**$737,457.22**

8.5 Valuation Methodology

The basic value of an asset reduces in accordance with the wear and tear and deterioration undergone over its life. This reduced value is called the optimised depreciated replacement cost and has been calculated as the depreciable component of the replacement cost proportioned by the ratio of remaining useful life to economic life on a straight line basis. This method provides an accurate reflection of the future service potential of the assets.

The NZIAMM procedure has been followed for all of the utility assets. The NZIAMM procedure involves optimising the remaining life of the asset by taking into account the asset age, the utilisation of the asset and the asset condition and performance.

The next valuation needs to be done within three years. However the AssetFinda database includes a module to automatically calculate updated valuations, and this can be applied at any time.

8.6 Financial Summary – Water

The following table's sets out the expenditure and funding forecast required for the Central Hawke's Bay District Council over the next 10 years to managed and maintain the asset. Also following is the forecasted expenditure for the next 20years.

10 Year LTP Expenditure

Account	The Plan 2018/19	The Plan 2019/20	The Plan 2020/21	The Plan 2021/22	The Plan 2022/23	The Plan 2023/24	The Plan 2024/25	The Plan 2025/26	The Plan 2026/27	The Plan 2027/28
Grand Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Income	**-2,776,422**	**-3,081,771**	**-3,245,372**	**-3,319,365**	**-3,592,812**	**-3,894,732**	**-4,103,463**	**-4,052,130**	**-4,112,051**	**-4,211,070**
Expense	**1,869,848**	**2,152,728**	**2,627,611**	**2,698,255**	**2,777,622**	**2,851,707**	**2,921,901**	**2,986,957**	**3,056,259**	**3,119,944**
Capex	**4,592,293**	**7,123,485**	**1,087,933**	**1,746,014**	**1,450,928**	**1,314,173**	**1,348,250**	**1,044,647**	**1,446,401**	**743,952**
Capital	3,989,700	6,506,408	455,894	1,098,437	787,360	634,106	650,592	333,754	716,691	0
4021729. DIST WATER SUPPLY CAP IMPTS	0	0	0	0	0	0	0	0	373,926	0
4121729. OTANE WATER CAPITAL IMPVTS	1,023,000	1,677,720	0	0	0	0	0	0	0	0
4223729. TKP WATER-CAPITAL	767,250	0	0	0	0	0	0	0	0	0
4324729. WAIPUK WATER/S CAPITAL PROJECT	2,199,450	3,958,371	294,990	302,070	309,320	317,053	325,296	0	0	0
4425729. WAIPAWA WATER/S CAP PROJECTS	0	52,429	160,904	247,148	309,320	317,053	325,296	333,754	342,765	0
4526729. KAIRAKAU WATER/S CAP PROJECTS	0	0	0	549,218	0	0	0	0	0	0
4527729. P/HAU WATER /S CAPITAL PROJECT	0	817,889	0	0	0	0	0	0	0	0
4528729. POURERERE WATER CAP. PROJECTS	0	0	0	0	168,720	0	0	0	0	0
Renewal	602,593	617,077	632,039	647,577	663,568	680,067	697,657	710,893	729,710	743,952
4021429C. DIST WATER CAPITAL RNWL	449,143	328,719	176,145	98,359	44,928	45,962	47,065	377,139	386,945	743,952
4324429C. WPK WATER/S CAPITAL RNWL	153,450	288,358	294,990	302,070	309,320	317,053	325,296	0	0	0
4425429C. WAIPAWA WATER/S CAPITAL RNWL	0	0	160,904	247,148	309,320	317,053	325,296	333,754	342,765	0
Loans	**-3,835,718**	**-6,319,442**	**-220,173**	**-849,904**	**-535,738**	**-371,149**	**-366,687**	**-29,474**	**-390,608**	**347,174**
Reserves	**150,000**	**125,000**	**-250,000**	**-275,000**	**-100,000**	**100,000**	**200,000**	**50,000**	**0**	**0**

Forecasted Expenditure the for years 2028 to 2038

Account	The Plan 2028/29	The Plan 2029/30	The Plan 2030/31	The Plan 2031/32	The Plan 2032/33	The Plan 2033/34	The Plan 2034/35	The Plan 2035/36	The Plan 2036/37	The Plan 2037/38
Grand Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Income	**-4,278,194**	**-4,350,369**	**-4,422,244**	**-4,534,194**	**-4,677,659**	**-4,779,742**	**-4,884,785**	**-4,976,052**	**-5,085,733**	**-5,303,396**
Expense	**3,155,032**	**3,207,636**	**3,262,424**	**3,354,418**	**3,448,828**	**3,507,759**	**3,567,830**	**3,628,243**	**3,694,766**	**3,853,656**
Capex	**1,287,660**	**780,090**	**1,352,366**	**2,237,848**	**1,420,328**	**857,718**	**1,491,711**	**899,383**	**1,738,961**	**4,610,364**
Capital	525,853	0	553,553	1,419,864	582,712	0	613,407	0	807,149	3,643,791
4021729. DIST WATER SUPPLY CAP IMPTS	525,853	0	553,553	0	582,712	0	613,407	0	484,289	0
4121729. OTANE WATER CAPITAL IMPVTS	0	0	0	0	0	0	0	0	0	0
4223729. TKP WATER-CAPITAL	0	0	0	0	0	0	0	0	0	0
4324729. WAIPUK WATER/S CAPITAL PROJECT	0	0	0	1,419,864	0	0	0	0	322,859	3,643,791
4425729. WAIPAWA WATER/S CAP PROJECTS	0	0	0	0	0	0	0	0	0	0
4526729. KAIRAKAU WATER/S CAP PROJECTS	0	0	0	0	0	0	0	0	0	0
4527729. P/HAU WATER /S CAPITAL PROJECT	0	0	0	0	0	0	0	0	0	0
4528729. POURERERE WATER CAP. PROJECTS	0	0	0	0	0	0	0	0	0	0
Renewal	761,807	780,090	798,813	817,984	837,616	857,718	878,304	899,383	931,813	966,572
4021429C. DIST WATER CAPITAL RNWL	761,807	780,090	798,813	817,984	837,616	857,718	878,304	899,383	608,953	304,065
4324429C. WPK WATER/S CAPITAL RNWL	0	0	0	0	0	0	0	0	322,859	662,507
4425429C. WAIPAWA WATER/S CAPITAL RNWL	0	0	0	0	0	0	0	0	0	0
Loans	**-164,499**	**362,642**	**-192,545**	**-1,058,071**	**-191,497**	**414,264**	**-174,756**	**448,427**	**-347,994**	**-3,160,624**
Reserves	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Forecasted Expenditure the for years 2038 to 2048

Account	The Plan 2038/39	The Plan 2039/40	The Plan 2040/41	The Plan 2041/42	The Plan 2042/43	The Plan 2043/44	The Plan 2044/45	The Plan 2045/46	The Plan 2046/47	The Plan 2047/48
Grand Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Income	**-5,478,045**	**-5,590,791**	**-5,712,152**	**-5,835,902**	**-5,957,497**	**-6,081,597**	**-6,191,011**	**-6,303,051**	**-6,417,780**	**-6,532,630**
Expense	**4,005,605**	**4,067,015**	**4,133,937**	**4,201,143**	**4,264,833**	**4,328,779**	**4,378,822**	**4,429,200**	**4,479,879**	**4,536,736**
Capex	**1,475,505**	**988,882**	**1,728,154**	**1,036,918**	**1,626,727**	**1,087,287**	**1,113,382**	**1,140,103**	**1,167,466**	**1,195,485**
Capital	509,800	0	715,538	0	564,922	0	0	0	0	0
4021729. DIST WATER SUPPLY CAP IMPTS	509,800	0	715,538	0	564,922	0	0	0	0	0
4121729. OTANE WATER CAPITAL IMPVTS	0	0	0	0	0	0	0	0	0	0
4223729. TKP WATER-CAPITAL	0	0	0	0	0	0	0	0	0	0
4324729. WAIPUK WATER/S CAPITAL PROJECT	0	0	0	0	0	0	0	0	0	0
4425729. WAIPAWA WATER/S CAP PROJECTS	0	0	0	0	0	0	0	0	0	0
4526729. KAIRAKAU WATER/S CAP PROJECTS	0	0	0	0	0	0	0	0	0	0
4527729. P/HAU WATER /S CAPITAL PROJECT	0	0	0	0	0	0	0	0	0	0
4528729. POURERERE WATER CAP. PROJECTS	0	0	0	0	0	0	0	0	0	0
Renewal	965,705	988,882	1,012,615	1,036,918	1,061,804	1,087,287	1,113,382	1,140,103	1,167,466	1,195,485
4021429C. DIST WATER CAPITAL RNWL	965,705	988,882	1,012,615	1,036,918	1,061,804	1,087,287	1,113,382	1,140,103	1,167,466	1,195,485
4324429C. WPK WATER/S CAPITAL RNWL	0	0	0	0	0	0	0	0	0	0
4425429C. WAIPAWA WATER/S CAPITAL RNWL	0	0	0	0	0	0	0	0	0	0
Loans	**-3,064**	**534,894**	**-149,938**	**597,841**	**65,938**	**665,531**	**698,807**	**733,748**	**770,435**	**800,409**
Reserves	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

9 Asset Management Plan Assumptions

This section describes some of the assumption or limitation made when developing and reviewing the Water Asset Management Plan. It is hope this will give the user some insight in the discussion made in the plan and how they should be interrupted.

9.1 Key Assumptions

The following are the key assumptions have been when preparing this Plan.

- There will be an ongoing requirement for the provision of this activity
- Funding will be available to provide the operational and maintenance requirements of this activity for the next 10 years.
- Depreciation will be raised and used to fund replacement of deficient infrastructure.
- Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works.
- Forecasts of areas where new demand is planned for will be correct and funding from development contributions will pay towards these improvements.
- The demand for this activity will increase, and not reduce.
- Funding for capital improvements will be limited by political decisions as to the level of funding available.
- The dollar values shown in this Plan are June 2015 dollars and no adjustment for the rate of inflation has been applied.
- All capital and renewal costs are rough order of cost estimates that will need to be further researched and refined.
- The forecasts are based on the best available knowledge of asset condition and performance, and on the levels of service that are being delivered. More detailed evaluation of asset renewal requirements will be undertaken.
- Demand levels are based on the report by Sean Bevan entitled "*Long-Term Growth Environment and Outlook*".
- Population Data is based on the current data available at the time of writing the report by Sean Bevan.
- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's Technical Services Department staff and Financial Services Department staff, and staff of the Facilities Management Contractor.

- The forecasts are based on the best available knowledge of asset condition and performance, and on the levels of service that are being delivered. More detailed evaluation of asset renewal requirements will be undertaken by the use of predictive deterioration modelling during the periodic review of this Asset Management Plan. Some increases in the expenditure, and some decreases, may flow from these reviews
- The asset register and asset data is suitable for the development of the Asset Management Plan.
- The processes set out have been followed.

9.2 Limitations of this plan include:

- Inspection and condition rating of some of the key assets is still required to form a better overall picture of the water asset on which to base life cycle management decisions.
- A history of condition data needs to accumulate on assets in order to better understand their long term behaviour.
- The impact of the globe warming has not been assessed or taken into account as part of this review of the Water AMP

10 Asset Management Practices

10.1 Introduction

This section outlines the combination of data and information systems applied to provide the essential management of the water asset. When looking at these processes it must be remembered that Council has made the conscious decision to development the AMP to a core level for the water asset.

The Asset Management Data		
Data or Process	**Current Practice**	**Desired Practice**
Asset Register	Council has adopted the use of a program called AssetFinda to store all lines, points and plant data in a graphical electronic database.	Not change at this point in time
Asset Hierarchy of Water Asset	Currently council has developed a hierarchy of the asset according to their location within the networks and the risk implication of failure	It would be beneficial to improve the current coarse analysis of the networks based on risk level to a higher level. This work improve the decision make process of where best to apply limited funds
Asset Identification	Current practise is to use the automatic asset identification system from our asset management program.	This gives a consistent and logical asset ID system but as the asset gets replaced the old Id is removed and a new id is attached to the new asset. This makes tracking from old plans/maps difficult. It would be help to contactors and other users of the maps to find a way to retain a consistent name for key elements like manholes.
Spatial Location Data	Current practise is to locate the asset spatially based on best intel at the time of loading.	It would be desirable to locate assets are located geospatially using a GPS coordinate give both X, Y and Z attributes
Physical attribute fields for all asset types are well defined.	Our asset management program has a range of defined fields to be filled in. These are filled in based on the information supplied by "As Built" records. For unknown data such as date a default date of 1/11950 is used – but a note will be entered in the notes area to indicate this as well as the accuracy marked down.	
Condition, Performance, Criticality and Accuracy settings	The program has 4 slide bars to set these function. The use of these is covered under the AssetFinda note Council user notes.	It would be useful to use the combination of Performance and criticality to provide a risk assessment of the asset.
Asset lives	Currently we are using the NAMM's manual to set the base lives with some adjustment based on local knowledge of the assets condition. This is covered in detail in the Valuation Document.	Improve knowledge of the asset condition by physical inspection or CCTV

Strategic Planning		
Data or Process	**Current Practice**	**Desired Practice**
Water flows	Council has done hydraulic modelling of the Waipawa and Waipukurau systems.	To look at the model and compare current flow rates at similar points to those used to calibrate the model to measure the effectiveness of our renewals program. To look at doing the models within a 3-5 years' time frame.
Risk management	Current our risk analysis is based on a table top exercise at high level.	Review the risk register and drill down to a lower level to assess specific asset risks and use the data for a basis for initiating capital expenditure, operational improvements or renewal of assets. E.g. estimating firefighting flows.
Service level reviews	Current Levels of Services are meeting the needs of the users	
Renewal work	Current practise is to set the amount of renewal work to the level of funding.	It would be desirable to increase the level of funding to a rating the meets the actual need of replacement and not capped at the amount Council can afford.
Capital Works	Current practise to do the essential works and cap the work at value that can be funded via loans etc.	To increase capital works that level that is need to meet demand and allow growth of the District.
Long term financial planning	Renewals/Capital planning is based on year to year prediction of issues	Improve the long term renewals and capital works program to meet the possible impact of growth.
Emergency planning	Emergency plans and business continuity plans are in place.	
Asset Management Plan	Work on a 3 yearly review of the plans to meet the need of the Council	Tune the plans to become a more user friendly document that helps the council role of managing the assets

10.2 Accounting Financial Systems

Financial Management processes are carried out through Council's Financial Management system. Costs are recorded against specific general ledger funding categories as they are

incurred. The accounting system is an accrual accounting system, which backdates the expenditure to the financial year in which it is occurs. For asset management purposes, and accounting purposes, expenditure is divided into four categories:

Category	Description
Operational	Activities which have a no effect on asset condition but are necessary to keep the asset utilised appropriately (e.g. power costs, overhead cost, etc.).
Maintenance	The on-going day-to-day work required to keep assets operating at required service levels, i.e. repairs and minor maintenance.
Renewal	Significant work that restores an existing asset to its original size, condition or capacity.
Capital Work. (also called development, new works)	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 expectation, or anticipated future need.
Disposal	Any cost associated with the disposal of a decommissioned asset. (Most times the asset is destroyed as part of the renewal work and therefore included in the renewal costs).

10.2.1 Core versus Advanced Management Plans

The 'Core' approach for Asset Management Plans can be typified as 'top down' with decisions made using simple analysis processes using data relating to a low level of asset component breakdown.

The core approach covers all elements of asset management planning but at a relatively simple level such as:

- Risk management includes identification of critical assets.
- Asset registers have low level of component breakdown.
- Optimised Decision Making based on simple benefit-cost processes for major decisions rather than more detailed multi-criteria analysis.
- Levels of service generally defined on historical performance.
- Financial forecasts based on broad assumptions.

Council has reviewed the level of AMP best fits the Water Activity and with the help of Ross Waugh from Waugh and Associates in July 2010. Based on this recommendation Council adopted a "Core-plus" level of asset management planning in February 2010.

10.3 Asset Register

The physical description of the water reticulation is contained within the AssetFinda database. AssetFinda uses a Microsoft SQL Express database and either a MapInfo or Web Browser GIS front end. This information is continually updated as water assets are constructed or replaced. AssetFinda uses the table shown below to holds the inventory data.

Table Name	**Properties**
Water - line	Holds the line data such as the pipe, open drains data. General information held is ID, Location, dimension, type, material, diameter, install year, condition and performance.
Water – services (part of lines table)	This holds service connections data. General attribute data held is ID, Location, dimension, type, material, diameter, install year, condition and performance.
Water - point	This includes manhole, lamp hole and dummy nodes. General attribute data is ID, Location, dimension, type, material, diameter, install year, condition and performance.
Water – plant	This includes pump stations etc. At this point in time Council has no Water Plant Assets.

AssetFinda also has available the following suite of tools to help manage the water network:

- Accounting - Advises which assets need to be replaced, when these should be replaced and how much it will cost. Tracks additions, disposals, sales, residual values, (installation) costs. Calculations include age, remaining life, current value, replacement value, depreciation values. Performs valuations.
- Contract management – uses contract information to generate works orders or purchase orders. Tracks progress payments and progress of work; allows monitoring of contractor / consultant performance; tracks maintenance history; closes work orders on completion.
- Predictive analysis – Advises which assets need to be replaced, when these should be replaced and how much it will cost. Monitors condition and predicts failure. What if scenarios.

At present only the accounting tools are used.

10.3.1 Performance Forecasting

The asset is rated in two ways, for performance and condition. The performance and condition assessment are applied in terms of the New Zealand Infrastructure Asset Grading Guidelines.

Condition Grading

An assessment of the condition of each of the assets has been made in terms of the asset grading system set out below. The table below has been tailored from the IIAMM system for use with the AssetFinda program.

Grade	Label	Description	Work required
1	**Excellent** condition – only normal maintenance required	Asset has been inspected or brand new or asset is less than 2 years old - No work required.	± 1-2%
2	**Good** - Minor defects only. -- Minor maintenance required	Acceptable physical condition; minimal short-term failure risk but potential for deterioration in long-term (10 years plus). Only minor work required (if any).	± 5%
3	**Average** - Maintenance required to return to acceptable level of services. - Significant maintenance required	Significant deterioration evident; failure unlikely within next 2 years but further deterioration likely and major replacement likely within next 10 years. Minor components or isolated sections of the asset need replacement or repair now but asset still functions safely at adequate level of service. Work required but asset is still serviceable	± 10 -20%
4	**Poor** - Renewal Required. - Significant renewal/upgrade required.	No immediate risk to health or safety but works required within 2 years to ensure asset remains safe Substantial work required in short-term, asset barely serviceable.	± 20 - 40%
5	**Very Poor** - Asset Unserviceable. – Over 50% of asset requires replacement.	Failed or failure imminent. Immediate need to replace most or all of asset. Health and safety hazards exist which present a possible risk to public safety or asset cannot be serviced/operated without risk to personnel. Major work or replacement required urgently	± 50% plus
Default setting:- 3			

Performance Grading

The performance capability grading of each of the assets has been made in terms of the asset performance grading systems set out below. The table below has been tailored from the IIAMM system for use with the AssetFinda program.

Grade	% of Base Life	Label	Description
1	5% or less	Excellent Asset functioning as new	New or near new asset. Designed to acceptable standards and meeting all levels of service.
2	10 – 20%	Good Operating as required with minor maintenance.	Minor maintenance required to maintain level of service, but issues are not impacting on hydraulic capacity or affecting performance.
3	20 -50%	Average Asset still performing well with regular maintenance.	Asset at midlife and functioning without problems. With sliming and deposition requiring occasional cleaning or minor backfalls causing a reduction in pipe capacity or inadequate design capacity and surcharging of the at times of high flows, although no surface flooding. E.g. Some infiltration occurring in wastewater pipework..
4	50-80%	Poor Asset need more than regular maintenance to function	Asset at nearing end of life and in need or replacement soon. Significant sliming and deposition requiring regular cleaning or backfalls causing a marked reduction in pipe capacity, risk of blockages or inadequate design capacity causing frequent flooding to gardens and highways or occasional flooding to properties or restricted toilet use, Major leakage from valves etc
5	80% Plus	Very Poor Asset at end of life and failing.	Asset at end of life and in need or replacement ASAP. High levels of sliming and deposition requiring a high frequency of cleaning or maintenance or backfalls causing a serious reduction in pipe capacity or serious inadequate design capacity, risk of blockages or hydraulic restrictions causing regular flooding to gardens and highways or frequent flooding to properties or restricted toilet use, valve unable to be operated etc
Default Setting 3			

10.3.2 Data Accuracy

As part of the asset valuation process data confidence and accuracy levels have been established.

Grading of the data is based on the following grading system as provided by the IIAMM. The table below has been tailored from the IIAMM system for use with the AssetFinda program.

Grade	Label	Definition	Accuracy	Description
1	Excellent Accurate	Site inspected or GPS located or detailed As built has been provided.	± 5%	Spatial location of the asset has been collected along with detailed information on the asset such as material, pipe size, depth of manhole, construction, age, condition, quantity, type of item, plant item duty (including manufacture details or schematic), etc. and where possible photos of the asset are provided. If practical the asset has been physical inspected/installed within 2 years.
2	Good Minor inaccuracies	Discussed with supervisor/based on some supporting documentation	± 15%	Spatial location is known from visual inspection or asset records etc. but some information is missing such as depth and size, type, etc. known but aged and condition. In terms of pumps the exact duty may not be known.
3	Average Significant data estimated	Based on local knowledge and reference to adjacent assets.	± 30%	Data based on verbal reports and/or cursory inspection and analysis or information is derived from plant records or reports. Location, depth and size, type, aged and condition etc. assumed from historical records of hearsay information, exact location has yet to be GPS located. e.g. asset may have been sealed over or covered.
4	Poor All data estimated	Data based on best guess of experienced person	± 40%	Data based on unconfirmed verbal reports and/or cursory inspection and analysis. Exact details of location, depth and size aged and condition etc. unknown but Council records show there is an asset in the approximately area. E.g. buried service connections
5	Very Poor Educated guess.	Council knows there are asset here but location etc. completely unknown	± 70%	Data based on unconfirmed verbal reports and/or cursory inspection and analysis. No details (location, depth and size aged and condition etc.) have been found but general system knowledge indicates there is an asset in this location. i.e. the property must be connected to the services. Flagged for site inspection and investigation.
Default setting				**3**

10.4 Communication

Council manages the operation and maintenance tasks for this Activity through the Facilities Management Contract being directly supervised by Council staff. Lines of communication are therefore from Council to Contractor to Council Officer in charge of the relevant area in the contract, with overview from the Utilities Manager as Engineers Representative. As required by NZS 3910:2003 the Technical Services Manager is designated as the Engineer to the Contractor 240. All reporting is also through the contract direct to Council staff.

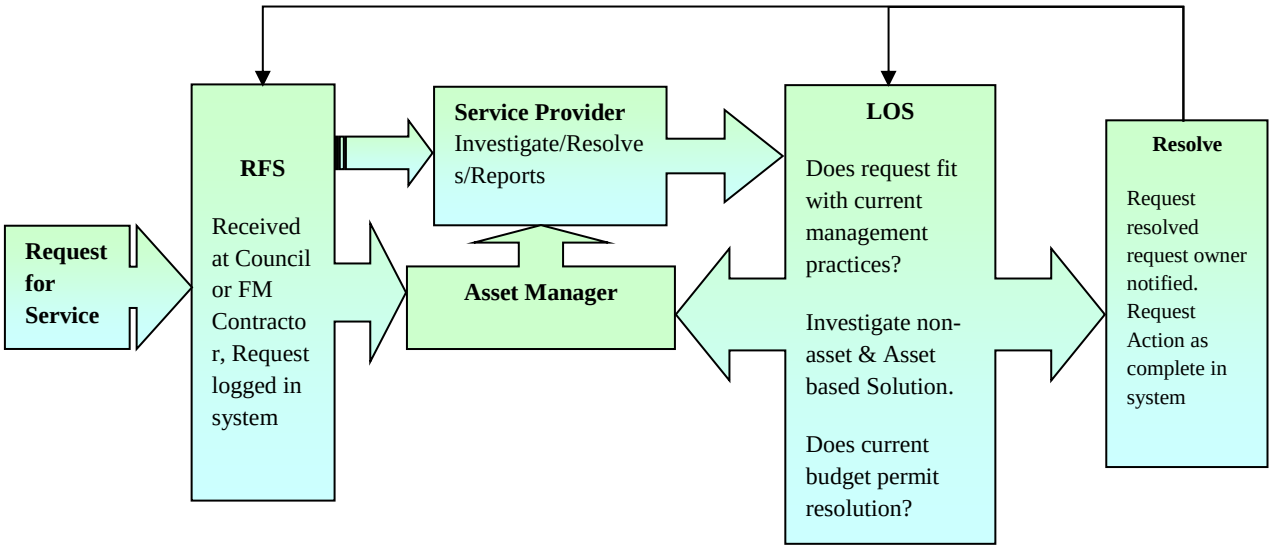
Renewal and capital tasks are managed by Council's Technical Services Unit. Work is carried out by either by an agreed variation to the Facilities Management Contract or through the letting of a tender for the work.

10.4.1 Service Request

Council maintains a customer request database, the "Request for Service" system. This database is used to log calls from the customers. Council logs requests and passes water related issues onto the facilities maintenance contractor for action and monitoring. Once the issue has been actioned and completed Council are informed. Council reply to the customer on the outcome of their request.

As a part of this process Council's current facilities maintenance contractor maintains a database of service requests from both public and Council.

The above information is used in understanding the public perception and expectation of public on the water asset. This information is used to help assess performance relevant to the Levels of Service



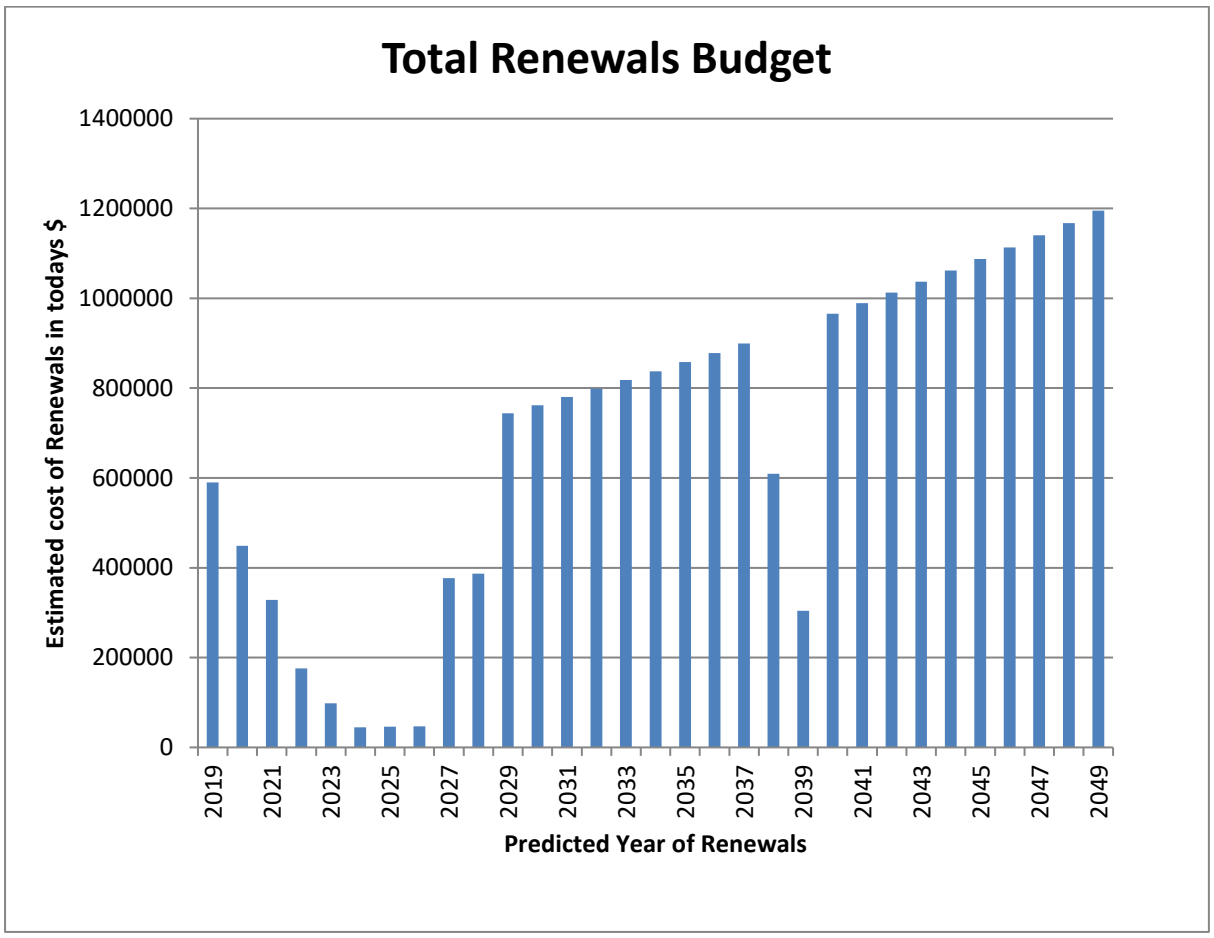
10.4.2 Incoming Communications

Council has an in-house "Mail Tracker" computer programme to ensure that written requests, compliments and complaints are recorded and the appropriate action is taken and/or response made to the enquirer. All requests are tagged with the response time and all actions are tracked. This form of data capture assists in identifying stake holder's level of expectation but will not be a definitive measure of expectations of the wider community.

11 Improvement Plan

11.1 Renewals Works Program

Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works in following years. Under current estimations based on theoretical lives of assets the current funds allocated for renewals will not meet the projected replacement work load.



The current funding philosophy limits the amount of renewal work that can be carried out in any one year to the level that matches the Council income for this type of work, which currently stands at $590,336 per annum on 2017 prices. Therefore work is assessed on the following bases

- Assets will be renewed on a priority basis, with the most necessary renewals being carried out first (this may result in young asset being replace before older asset because of their condition).
- Renewal work that comes to the attention of Council or contractors (through routine inspection or incidentally) will be carried out immediately, funding permitting.

11.1.1 Minor Works

In addition there are some minor works that need to be carried out. Where possible, with the absence of any allocated funding for these works, they will be funded from the maintenance budget.

Council believes it has severe funding constraints that mean that only the essential improvement works necessitated by legislative requirements will be undertaken. This means that only water treatment improvements required to meet the resource consents will be funded and carried out.

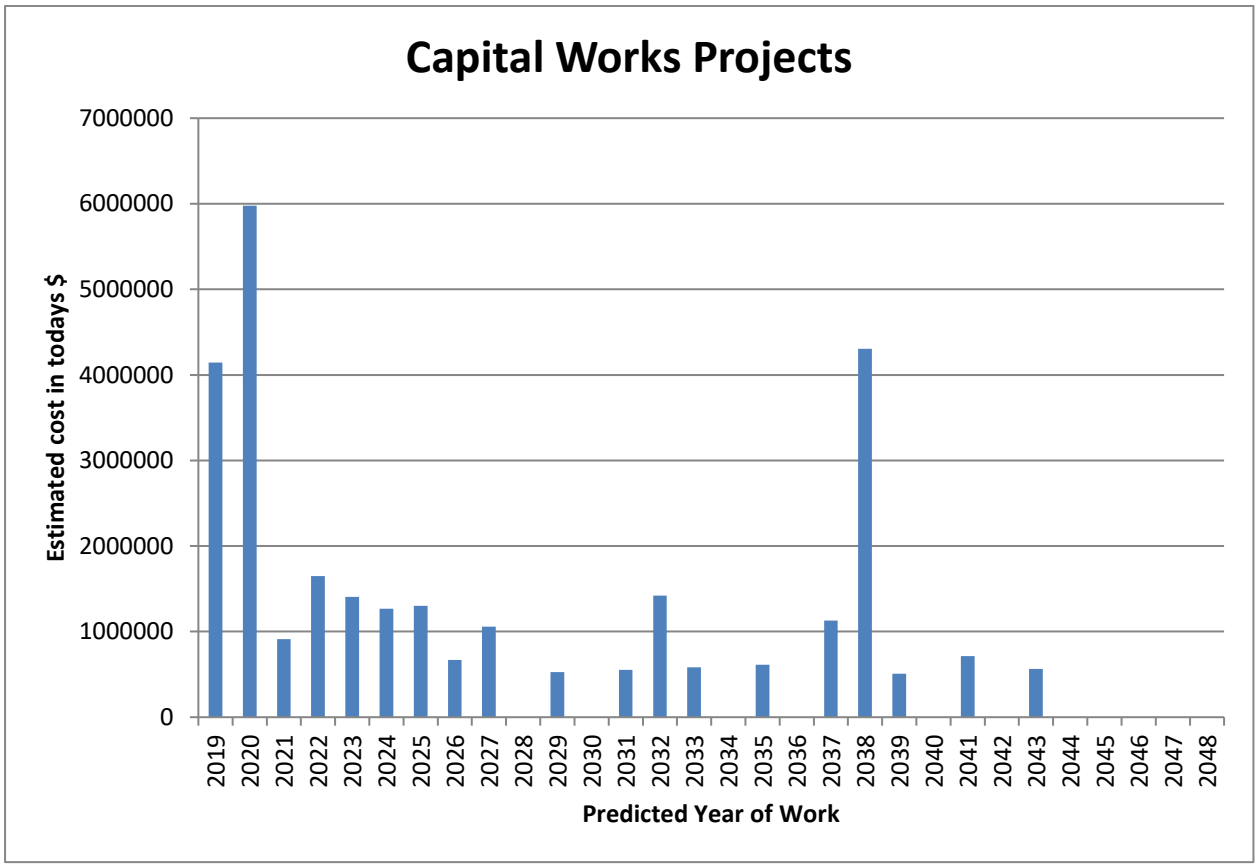
11.1.2 Replacement Works.

Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works. The extent of the annual renewals programme will be limited to the amount of funding available in the water depreciation account. Within the Council's water assets, some of the oldest components of the water systems were installed around the 1900's. With a theoretical life of 100 years we are getting to the end of their theoretically therefore the Asset Renewal Plan is:

- Assets will be assessed for renewal annually.
- Assets will be renewed on a priority basis, with the most necessary renewals being carried out first (this may result in young asset being replace before older asset because of there condition).
- Renewal work that comes to the attention of Council or contractors (through routine inspection or incidentally) will be carried out immediately, funding permitting.

11.2 Capital Works Program

In order to achieve an acceptable rating level for ratepayers, only the essential improvement works necessitated by legislative requirements will be undertaken. This means that only water treatment improvements required to meet resource consent requirements or critical works will be funded and carried out. Significant capital works projects recommended for consideration in the LTP 2018 -48 are:



Water Project	Description	Timing	Estimated Cost (Inflated)
Waipukurau Water Supply: Second Supply			
Most Likely Scenario	A project to construction a second supply to Waipukurau including new pump station, treatment plant and reservoir to provided security of supply and increased demand.	2019/20	$5.7 million
Water Supply: Alternative supply to Otane			
Most Likely Scenario	Project for larger trunk main for an alternative supply for Otane to improve security.	2019/20	$2.7 million
Waipukurau Water Supply: Increase/Improve reticulation			
Most Likely	Project to provide additional flows around Waipukurau to meet demand and firefighting	2019 to	$2.2 million over seven

Water Project	Description	Timing	Estimated Cost (Inflated)
Scenario	demands.	2025	year period
Takapau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Takapau to meet demand from NZDWS.	2019	$0.77 million
Porangahau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Porangahau to meet demand from NZDWS.	2020	$0.82million
Kairakau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Kairakau to meet demand from NZDWS.	2022	$0.55 million
Pourerere Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Pourerere to meet NZDWS.	2022	$0.17 million
District Water Supply: Increase/Improve reticulation			
Most Likely Scenario	Project to provide additional flows around Other water supply systems to meet demand and firefighting demands.	2019 to 2032	$4.4 million
Waipukurau Water Supply: New main			
Most Likely Scenario	A project to provide new main from the existing reservoir into town. Project to enable the resilience of Waipukurau network.	2037 and 2038	$4.9 million
Waipukurau Water Supply: Takapau Road Industrial area Reticulation			
Most Likely Scenario	A project to provide reticulation to service water supply to the Waipukurau industrial area that may be developed in the future.	2032	$1.4 million

Water Project	Description	Timing	Estimated Cost (Inflated)
Waipukurau Water Supply: Second Supply			
Most Likely Scenario	A project to construction a second supply to Waipukurau including new pump station, treatment plant and reservoir to provided security of supply and increased demand.	2019/20	$5.7 million
Water Supply: Alternative supply to Otane			
Most Likely Scenario	Project for larger trunk main for an alternative supply for Otane to improve security.	2019/20	$2.7 million

Water Project	Description	Timing	Estimated Cost (Inflated)
Waipukurau Water Supply: Increase/Improve reticulation			
Most Likely Scenario	Project to provide additional flows around Waipukurau to meet demand and firefighting demands.	2019 to 2025	$2.2 million over seven year period
Takapau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Takapau to meet demand from NZDWS.	2019	$0.77 million
Porangahau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Porangahau to meet demand from NZDWS.	2020	$0.82million
Kairakau Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Kairakau to meet demand from NZDWS.	2022	$0.55 million
Pourerere Water Supply: Treatment Upgrade and improvements			
Most Likely Scenario	A project to upgrade improves to the treatment plant at Pourerere to meet NZDWS.	2022	$0.17 million
District Water Supply: Increase/Improve reticulation			
Most Likely Scenario	Project to provide additional flows around Other water supply systems to meet demand and firefighting demands.	2019 to 2032	$4.4 million
Waipukurau Water Supply: New main			
Most Likely Scenario	A project to provide new main from the existing reservoir into town. Project to enable the resilience of Waipukurau network.	2037 and 2038	$4.9 million
Waipukurau Water Supply: Takapau Road Industrial area Reticulation			
Most Likely Scenario	A project to provide reticulation to service water supply to the Waipukurau industrial area that may be developed in the future.	2032	$1.4 million

11.3 Strategic Works Program

Modelling

Computer based models of the Waipukurau, Waipawa and Otane water have been created. These models will help Council understand the water systems, identify significant shortcomings in the systems, and allow various improvement scenarios to be trialled to optimise improvements and costs. As the models are now becoming dated and significant work has been done to update data, adding new pipe work, updating existing parts of the reticulation both in size and location etc. Council will need to re – model the main networks in the next 3 years. This is especially important for the Waipukurau model where fire flows need to be checked and updated and the other network when considering the implications of capital growth of the district due to the construction of the dam..

11.4 Summary of Council Strategy for Future Demand

Development contributions will be taken to fund improvements to the water systems. This funding will not be sufficient to carry out significant capital works because the requested contributions are less than the calculated contributions actually required for the work.

Upgrading of water treatment plants will take into account future demand requirements. A number of capital works projects that could be constructed to cater for future demand are excluded from the LTP 2015 - 25 because Council believes it has severe funding constraints that make this desired work unaffordable.

11.5 Risk Management

Risk management involves looking at all the activities carried out in this activity and assessing what might go wrong and how often this might occur. The information gained from this can be used to eliminate the risk, reduce its effect, or allow a contingency plan to be prepared to deal with the risk if it occurs. It also involves looking more widely for events that would not normally be expected to happen but have the possibility of happening and affecting this activity.

12 Glossary of Terms

The following terms and acronyms or abbreviations may be used in this Asset Management Plan.

Terminology	Abbreviation	Description
Activity		An activity is the work undertaken on an asset or group of assets to achieve a desired outcome.
Annual Plan		The Annual Plan is a one year "slice" of Council's Long Term Plan (LTP).
Asset		A physical component utilised within the Activity, which has value, enables services to be provided and has an economic life of greater than 12 months.
Asset Disposal Plan	ADP	Guidelines for decision-making on asset disposal issues.
Advanced Asset Management	AAM	Asset management processes which employ predictive modeling, risk management and optimised renewal decision-making techniques to establish asset lifecycle treatment, options and related long term cash flow predictions.
Asset Management	AM	The combination of management, financial economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most effective manner.
Asset Management Plan	AMP	A plan developed for the management of one or more Council Activities. It combines multi-disciplinary management techniques (including technical and financial) over the lifecycle of the assets involved in the activity, and for management of all non-asset processes, in the most cost effective manner to provide a specified level of service.
Asset Management System		A system (usually computerised) for collecting, analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets.
Asset Register		A record of asset information considered worthy of separate identification including inventory, historical, financial, condition, construction, technical and financial information about each.
Base Life		A theoretical estimate of the anticipated useful life of an asset or component. A generic value for all assets of a particular type and generally does not take into account individual site or particular in-service conditions.
Capital Expenditure	CAPEX	Expenditure used to create new assets or to increase the capacity of assets beyond their original design capacity or service potential. CAPEX increases the value of an asset.
Capital Renewals		Capital Renewal projects are hybrids between a capital construction request i.e. the upgrade of existing infrastructure for future demand and pure renewal of the existing asset with a similar type, size or model.
Cash Flow		The stream of costs and/or benefits over time resulting from a project investment or ownership of an asset.
Council	CHBDC	Central Hawke's Bay District Council
Components		Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk of criticality.

Terminology	Abbreviation	Description
Condition		Continuous or periodic inspection, assessment, measurement and grading of the physical status of an asset.
Creation Augmentation Plan	CAP	Creation/Augmentation/Acquisition Plan. Provides guidance on decision-making processes for new asset installations and upgrade works and includes predictions of tasks for the forward work programme
Critical Assets		Assets for which the financial, business or service levels consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non-critical assets.
Deferred Maintenance		The shortfall in rehabilitation work required to maintain the service potential of an asset.
Demand Management		The active intervention to influence demand for services and assets with forecast consequences, usually to avoid or defer CAPEX expenditure.
Demand Management Plan	DMP	Guidelines for management of pressure for supply of services within the limitations of the existing system and proposals to address expected future situations relating to service provision.
Depreciated Replacement Cost	DRC	The replacement cost of an existing asset after deducting an allowance for wear or consumption to reflect the remaining economic life of the existing asset.
Depreciation		The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes. It is accounted for by the allocation of the historical cost (or revalued amount) of the asset less its residual value over its useful life.
Economic Life		The period from the acquisition of the asset to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service. The economic life is at the maximum when equal to the physical life, however obsolescence on the basis of either condition or performance levels will often result in the economic life being less than the physical life.
Facility		A complex comprising many assets (e.g. a wastewater pump station, rain gauge site, flow structure, treatment facility etc) which represents a single management unit for financial, operational, maintenance or other purposes.
Forward Works Programme	FWP	Predicted future physical works programme.
Geographic Information System	GIS	Software that provides a means of spatially viewing, searching, manipulating, and analysing an electronic database.
Hawke's Bay Regional Council	HBRC	The Regional Council
International Infrastructure Management Manual	IIMM	Guideline manual produced by NAMS for asset management techniques and preparation of Asset Management Plans.
Life Cycle Management Plan	LCMP	Plan documenting the guidelines and decision-making processes for management of the four core activities: Routine Maintenance Plan (RMP); Renewal Replacement Plan (RRP); Capital Augmentation Plan (CAP) and Asset Disposal Plan (ADP).

Terminology	Abbreviation	Description
Level of Service	LOS	The expected standard of delivery of the activity. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.
Local Government Act.	LGA	Key legislation governing activities of Territorial Local Authorities.
Life Cycle		1. The cycle of activities that an asset (or facility) goes through i.e.: from planning and design to decommissioning or disposal. or 2. The period of time between a selected date and the last year over which the criteria (e.g. costs) relating to a decision or alternative under study will be addressed.
Long Term Plan (Community Plan)	LTP	Essential document required by legislation that specifies the communities desired outcomes for Council activities and provides the overall direction and guidance for this Activity within the District.
Maintenance		All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal.
Maintenance Standards		Preventative maintenance schedules, operation and maintenance manuals, technical specifications within the Facilities Management Contract.
Maintenance - Planned		Maintenance works that can be scheduled and are not reactive (i.e. all works other than those to attend to an immediate unforeseen failure). Planned maintenance activities fall into 3 categories: periodic, predictive and preventative maintenance.
Maintenance - Periodic		Activities necessary to ensure the reliability or sustain the design life of an asset (e.g. cleaning, calibration, mowing, lubrication).
Maintenance - Predictive		Condition-monitoring activities used to predict the failure (e.g. non-destructive inspection and testing, including visual inspection surveys, heat and vibration monitoring, recording operating hours, analysis of failures).
Maintenance - Preventative		Maintenance that can be initiated without routine or continuous checking (e.g. using information contained in maintenance manuals or manufacturer's recommendations, such as repainting, checking and adjusting tolerances) and is not condition-based.
Routine Maintenance Plan	RMP	Collated information, policies and procedures for the optimum maintenance of an asset, or group of assets.
Monitoring		Interpretation of resulting data, to indicate the condition of a specific component so as to determine the need for some preventative or remedial action.
NAMS	NAMS	New Zealand National Asset Management Steering Group. NAMS is a committee of INGENIUM which produces manuals to guide practitioners in the field of asset management.
New Work		Works which create new assets or increase the capacity of existing assets beyond their original design capacity or service potential. New Work increases the value of the asset.
Objective		An objective is a general statement of intention relating to a specific output or activity. They are generally longer-term aims.
Operation		The active process of utilising an asset that will consume resources such as manpower, energy, chemicals and materials. Operation costs are part of the life cycle costs of an asset and are contained within the Routine Maintenance Plan.

Terminology	Abbreviation	Description
Optimised Depreciated Replacement Cost	ODRC	The optimised replacement cost after deducting an allowance for wear or consumption to reflect the remaining economic or service life of an existing asset.
Redundant		1. Designed backup systems. or 2. Services or assets no longer required.
Redundancy – Back up Systems		An asset or component which, if it fails, does not result in a complete loss of service, e.g. if two pipes follow the same route, failure in one leaves the service operational (albeit at a reduced capacity). Redundancy is planned for and is very beneficial in critical systems such as trunk mains and pump stations to ensure that the required level of service can be maintained through a variety of adverse conditions.
Redundancy - Obsolescence		An asset or system that is no longer required and should it fail, would not be replaced. Redundant assets of this type are not included in the calculations for depreciation and are planned for abandonment or removal to waste at the end of their useful / economic life, rather than replacement or upgrade.
Renewal		Works to upgrade, refurbish, rehabilitate or replace existing facilities with facilities of equivalent capacity or performance capability.
Repair		Action to restore an item to its previous condition after failure or damage.
Replacement		The complete replacement of an asset that has reached the end of its life, so as to provide a similar or agreed alternative level of service.
Risk Management		The application of a formal process when considering risk which results in a range of outcomes and their probability of occurrence.
Routine Maintenance Plan	RMP	Guidelines for management of routine operation and maintenance activities for assets throughout the District.
Renewal Rehabilitation Plan	RRP	Guidelines for management of renewal and rehabilitation activities for assets which produces a forecast of works of this type for the forward work programme.
Strategic Plan		Plan for the long term goals and strategies of an organisation.
Upgrading		The replacement of an asset that materially improves the original service potential of the asset.
Valuation		Estimated asset value, which may depend on the purpose for which the valuation is required, i.e. replacement value for determining maintenance levels or market value for life cycle costing.