



Water

Activity Management Plan 2021

(Version 5)



Water Activity Management Plan

Quality Information

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Copies	



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1. Executive Summary

Community Infrastructure

Community Infrastructure is about providing the 'core' services that are traditionally managed by Council - these include the maintenance and development of roads, stormwater, wastewater, water supply and waste management.

Why we do this activity

The Water service ensures our communities are supplied with clean, safe drinking water to ensure the health and wellbeing of our residents

We aim to ensure our water supplies comply with the NZ Drinking Water Standards.

What we do now

We own and operate seven water supply schemes in the district - in Matamata (which includes Waharoa and Raungaiti), Morrinsville, Te Aroha and four small schemes in Te Poi, Tahuna, Hinuera.

Each area has one or more treatment plants, and the district has a total of 331 km of pipes (excluding service lines).

We provide water 24 hours a day, seven days a week, which means operating and maintaining equipment, machinery and backup facilities, and training staff to respond rapidly in the event of a problem.

We have corrective and preventative maintenance programmes in place to ensure our systems remain in good condition. We also monitor the lifecycles of our assets (such as water mains) and renew them when necessary

Risk assessment and risk management is extremely important for Water, as clean water is essential during emergencies (such as earthquakes). We have prepared a "Business Continuity Plan – Water" to ensure the supply of potable water during and after events such as droughts, prolonged power outages, volcanic activity, pandemics and other emergencies.

Assessment of the Water Services

The Local Government Act 2002 requires us to complete an assessment of our water, wastewater and stormwater services and include a summary of the significant variations to this assessment in the Long Term Plan. An update (2017) has been completed of the 2005 Assessment.

The assessment of the water service and the need to comply with the Drinking Water Standards has been the basis for our current water strategies. Water conservation measures form part of our resource consents and are approved by the Waikato Regional Council.

The Long Term Plan is consistent with the Assessment of Water Services and there are no significant variations.

Section 1: Executive Summary

Looking ahead

Strategic priorities relating to the Water Activity are:

- Water Security and Conservation
 - > Connected Infrastructure. Fit for purpose, affordable, now and in the future.
- Comply with Drinking Water Standards
 - Connected Infrastructure. Quality Infrastructure to support the wellbeing of our community.
- Economic Growth and productivity
 - > Connected Infrastructure. Fit for purpose infrastructure now and in the future.
 - > Economic Opportunities. Business friendly and sustainable growth.

Growth and Demand

The key drivers that influence growth and the demand on water are:

- Population
- Industry
- Legislation
- Community expectations (levels of service)

As a result of the projected population increase there is a need to ensure that the water system can meet the increased demand, particularly within existing growth areas. Currently treatment plants can provide for this growth however an additional water source in Matamata is required and an increase in storage capacity (reservoirs) for Matamata and Waharoa. The increased storage will also help to overcome water pressure problems during summer demand and improve operational performance.

District Plan Change 47 has made provision for the residential, commercial and industrial growth in our urban communities. The Town Strategy was the initial strategic planning of our towns for 30 years, and then Plan Change 47 is the action to incorporate this into the District Plan and follow to the LTP and AMPs. Plan Change 47 accounts for population growth as predicted in the 'Growth Predictions' (refer section 5.1.2).

As part of the assessment of zoning and structure plan options for Plan Change 47 the following structure plan areas have been identified:

Matamata: Eldonwood South and Tower Road.

The original Precinct F growth area has been downsized from 750 lots to 240 lots due to servicing restrictions. This reduced area is identified as Eldonwood South.

Also part of Plan Change 47 are changes to residential infill areas which propose to identify the residential infill areas around the town centres; changes to equine areas, shop frontage areas, principal road landscape areas and changing of identified properties from rural to industrial zoning. Changes are proposed to the New Rural Zone and Future Residential Policy Areas, changes to zoning of some rural-residential properties and changing the zoning of some properties from rural to industrial.



Generally increases in demand can be supplied within our existing water consents, however our ability to provide for industrial growth and consumer expectations is limited by our ability to obtain increased water takes from the Regional Council.

Legislation currently drives this activity in four main ways:

- improve the quality of the water
- reduce the risk of contaminating the water
- ensure the efficient use of the water
- control the allocation of the water.

Our challenges, assumptions and uncertainties

When planning for the future of this activity, we have had to identify the key challenges to success, the assumptions that we have made and the uncertainties we will face. These are outlined below.

Key challenges and issues over the next 30 years:

- The changing Regional Council plan over time:
- Sufficient water to meet our needs is becoming increasingly difficult (Water allocation?):
- Planning for our demand but also including water conservation and reduction in water loss as a key strategy;
- Providing water for existing and new industries;
- Unknown reticulation asset condition, particularly for AC pipe;
- Deferred renewals (backlog);
- The potential gap between the cost of the desired infrastructure and the community ability to pay: and
- The challenge of the changing weather patterns and the impact this has on our infrastructure.

Key assumptions:

- The level of service will not change but gaps will be addressed.
- Council will provide funding for the required and set level of service

Uncertainties

- Increasing competition for water from natural sources
- Ensuring the income from development contributions meets our rate of expenditure on water
- Industry requirements and standards could change
- The national water policy frame work could change
- Replacement costs for our network could change
- Condition of key trunk mains

Resource Consents from Waikato Regional Council

We hold 28 consents for our water treatment plants from the Waikato Regional Council. These consents are important as they give us permission to take water from streams and underground sources and supply it to the community.

They also set the environmental standards that we need to meet when we carry out this activity. Resource consents can be costly – both to obtain and/or renew (applications sometimes involve complex science and consultation requirements) and to upgrade our assets to meet environmental standards.

Levels of Service

The Levels of Service from the 2021-31 LTP are;

- Our water will be safe to drink achievement of Drinking Water Standards (2008).
- Existing water assets are well managed measured by customer satisfaction.
- Number of pipe failures (mains & service lines).
- Percentage of pipe failures responded to & repaired in 8 hours.

The Performance measures are now set by Central Government and became effective from 2015-16 and are as follows:

• Performance measure 1 (safety of drinking water)

The extent to which the local authority's drinking water supply complies with: (a) part 4 of the drinking-water standards (bacteria compliance criteria), and (b) part 5 of the drinking-water standards (protozoal compliance criteria).

• **Performance measure 2 (maintenance of the reticulation network)** The percentage of real water loss from the local authority's networked reticulation system (including a description of the methodology used to calculate this).

• Performance measure 3 (fault response times)

Where the local authority attends a call-out in response to a fault or unplanned interruption to its networked reticulation system, the following median response times measured:

- (a) attendance for urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and
- (b) resolution of urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.
- (c) attendance for non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel reach the site, and
- (d) resolution of non-urgent call-outs: from the time that the local authority receives notification to the time that service personnel confirm resolution of the fault or interruption.

• Performance measure 4 (customer satisfaction)

The total number of complaints received by the local authority about any of the following:

- (a) drinking water clarity
- (b) drinking water taste
- (c) drinking water odour

Section 1: Executive Summary

- (d) drinking water pressure or flow
- (e) continuity of supply, and

(f) the local authority's response to any of these issues

expressed per 1000 connections to the local authority's networked reticulation system.

• Performance measure 5 (demand management)

The average consumption of drinking water per day per resident within the territorial authority district.

Table 1-1: Significant effects

Significant negative effects of this activity							
	Affected Well-beings				How we will mitigate the offecto		
	S C EC EN		EN	How we will initigate the enects			
Poor management of our water	1	*	1	~	Maintain current resource consents for all water treatment plant discharges		
environment	×		v		Complete upgrades of treatment plants to ensure compliance with resource consents		
Poor management of and competition for water could impact on the way we all use					The allocation of water is becoming an issue with competing needs for a finite resource		
water	✓	~	~	~	The amount of water we 'take' to treat is controlled through resource consents. We are developing a Water Use Management Plan (Conservation) which is likely to include water reduction/efficiency strategies, securing future water sources and monitoring demand		

Significant positive effects of this activity

	Aff	ected V	Vell-bei	ngs	How we will maintain the effects		
	S	С	EC	EN			
Supply of safe, clean water for drinking and personal hygiene continues to be the greatest health benefit for our communities	*	*	*		Ensure compliance with New Zealand Drinking Water Standards (2008), and maintain an approved Public Health Risk Management Plan		
Supply of water for commercial and industrial use is cost effective and helps provide employment opportunities	~		~	~	Monitor growth requirements and communicate regularly with our existing commercial and industrial users on their future needs and efficient use of water.		

Sustainability – thinking for the future

Sustainability is about ensuring that all resources are wisely used and managed for a balance of environmental, social, cultural and economic wellbeing. Our existing and future approach to sustainable management and development for water includes:

- Providing systems to supply safe potable water
- Helping protect the environment by maintaining a high level of compliance resource consent conditions
- Efficient management of the water systems to ensure they provide value for money

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Section 1: Executive Summary

• Developing strategies to manage climate change

Risk Management

We have adopted a Risk Management Policy to support and promote risk management as an integral part of the Council's internal controls and Corporate Governance.

We have also appointed a specific Committee to monitor risk.

Projected Financial Costs (no allowance for inflation)

Voar	Retic	Plant	Retic	Plant	Total Capital	Operations &	Asset	Total Oney	Total Cap, Ren
rear	Renewals	Renewals	Capital	Capital	and Renewal	Maintenance	M'ment		and O & M
2022	1,899,021	802,664	525,000	780,000	4,006,686	2,986,602	254,528	3,241,130	7,247,816
2023	1,899,021	802,664	490,000	400,000	3,591,686	3,608,975	254,528	3,863,503	7,455,189
2024	1,899,021	802,664	815,000	4,800,000	8,316,686	2,290,553	264,528	2,555,081	10,871,767
2025	1,899,021	802,664	715,000	5,150,000	8,566,686	2,870,548	289,528	3,160,076	11,726,762
2026	1,899,021	802,664	115,000	1,250,000	4,066,686	3,032,076	319,528	3,351,604	7,418,290
2027	573,752	998,657	115,000	0	1,687,409	3,032,076	319,528	3,351,604	5,039,013
2028	573,752	998,657	115,000	0	1,687,409	3,042,076	319,528	3,361,604	5,049,013
2029	573,752	998,657	115,000	0	1,687,409	3,219,076	319,528	3,538,604	5,226,013
2030	573,752	998,657	115,000	0	1,687,409	3,851,076	319,528	4,170,604	5,858,013
2031	573,752	998,657	115,000	550,000	2,237,409	3,851,076	319,528	4,170,604	6,408,013
2032	317,187	390,081	115,000	790,000	1,612,268	3,851,076	319,528	4,170,604	5,782,872
2033	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2034	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2035	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2036	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2037	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2038	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2039	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2040	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2041	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2042	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2043	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2044	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2045	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2046	1,280,176	856,561	115,000	650,000	2,901,737	3,851,076	319,528	4,170,604	7,072,341
2047	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2048	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2049	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2050	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2051	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128

Table 1-2: Total Projected Renewal, Capital and Operational Costs

2. Introduction

2.1 Purpose of the Plan

Purpose of this Water Activity Management Plan (WAMP) is to: ensure that assets are operated and maintained in a sustainable and costs effective manner, so that they provide the required level of service for present and future customers.

The Water Activity Management Plan supports the purpose by:

- Demonstrating responsible management and operation of water assets which represent a significant, strategic and valuable asset belonging to the Matamata-Piako District
- Justify funding requirements
- Demonstrating regulatory compliance, Section 94(1) of the LGA 2002 which in summary requires the Long Term Plan (LTP) to be supported by:
- Quality information and assumptions underlying forecast information
- Framework for forecast information and performance measures are appropriate to assess meaningful Levels of Service
- Demonstrating clear linkage to community agreed outcomes with stated Levels of Service

The specific purpose of this plan is to:

- Improve understanding of service level standards and options
- Identify minimum lifecycle (long term) costs to an agreed level of service
- Better understand and forecast asset related management options and costs and ability to even out peak funding demands
- Clearly justify 'forward works' programmes
- Manage risk of asset failure
- Improve decision-making by providing appropriate information including costs and benefits for alternative options
- Improve accountability over the use of public resources
- Improve customer satisfaction and organisational image

This WAMP also aims to meet Council's legal obligation under the Local Government Act 2002 to define levels of service and how these will be provided.

2.2 Relationship with other Plans

The WAMP is a key component of the Council planning process, linking with the following plans and documents:

Long Term Plan (LTP): A plan required by the Local Government Act 2002 to cover a period of at least 30 years. This plan contains key information about the Council's activities, assets, level of service and cost of providing service. It sets out the Council's funding and financial policies and also a financial forecast for the years covered by the plan. Levels of service and financial programmes as given in this document will be key information for this plan. The WAMP provides the detail required to support the financial forecast.

Annual Plan: Detailed action plan on Council's projects and finances for each particular year. The works identified in the WAMP form the basis on which annual plans are prepared. With the adoption of the LTP the Annual Plan mainly details the budget and sources of funding for the year.

Water and Sanitary Assessment: It is a long-term assessment of the water and sanitary services provided by a local authority. These services include Water Supply, Wastewater Treatment, Stormwater, Public Toilet Facilities, disposal from Stormwater Systems, Cemeteries and Crematoria and Landfills. The main focus of this assessment is to ensure that public health is maintained. The 2017 Assessment of Water Services is being carried out separately to the Sanitary Assessment.

Contracts: The service levels, strategies and information requirements contained in WAMP's are translated into contract specifications and reporting requirements.

District Plan: The District Plan complies with the requirements of the Resource Management Act. It has implications on the WAMP in terms of land use policies and the control of environmental effects for new developments.

Standards and Policies: These tools for asset creation and subsequent management are needed to support WAMP tactics and delivery of service.

Town Strategies 2013-2033: provide a spatial framework for the development of each town in terms of the preferred location of future land-uses, and the integration of the land-uses with transport and other infrastructure. The town strategies provide a description of the potential urban growth, changes in the demographics of our population, the development opportunities and constraints facing our town, our options, and ultimately a strategy for each town.

Water Safety Plans: Water Safety Plans (WSP) are required under the Health Act 1956 for all public water supplies in the district. These documents identify the risks down to the operation and asset level which are broken down into the components of water sources, treatment distribution system and general elements, and the preventives measures, checking points of the measures and corrective actions to mitigate the risks. The WSPs also include the mitigation programmes which will be aligned with the adopted LTP programmes.

Infrastructure Strategy 2015-25: Section 101B of the Local Government Act 2001 Amendment Act 2014 outlines the requirements of the Infrastructure Strategy. The infrastructure strategy must outline how the local authority intends to manage its infrastructure assets, taking into account the need to renew or replace existing assets; and respond to growth or decline in the demand for services; and allow for planned increases or decreases in levels of service; and maintain or improve public health and environmental outcomes or mitigate adverse effects on them; and provide for the resilience of infrastructure assets.

Growth Strategy: The purpose of the Growth Strategy is to guide the future development of our district in an integrated way, taking advantage of our location and resources. Other Plans and Strategies – Growth Strategy, Town Strategies

Key Regional documents;

Waikato Plan: The Waikato Plan does not over-ride statutory bodies/committees. It is a multi-agency agreement that provides strategic guidance and advocacy and has been prepared within the framework provided by the Local Government Act 2002.

Waikato Means Business: An Economic Development Strategy for the Waikato Region: Sets out the issues, challenges and opportunities that face the Waikato region. It identifies potential strategic priorities and areas of focus to transform the region.

2.3 Key Stakeholders

This plan recognises the following Key Stakeholders:

External Stakeholders	Main Interests
Residents/Ratepayers	Public Health and Safety, Service Reliability, Environment, Cost.
Industrial and Commercial Users	Public Health and Safety, Service Reliability, Environment, Cost.
Govt Agencies (Audit NZ, MoH, MoE, etc)	Public Health & Safety, Service, Reliability, Environment, Cost,
Waikato Regional Council & other TLA's	Environment
Tangata Whenua	Environment and Cultural Heritage.
Suppliers	Procurement, Technical

Internal Stakeholders	Main Interests
Councillors and Sub-committees	Public Health and Safety, Service Reliability, Environment, Cost.
Executive	Public Health and Safety, Service Reliability, Environment, Cost
Planning Services	Public Health and Safety, Service Reliability, Environment, Cost
Customer Services	Public Health and Safety, Service Reliability, Environment
Financial Planning	Financial Accounting of Assets
Information Services	Public Health and Safety, Service Reliability, Environment
Safety & Health	Public, Staff & Contractor Health & Safety
Human Resources	Good Employer

2.4 Plan Format

A top down approach has been taken to develop the Activity Plan, using existing data followed by data improvement. The structure of this plan mirrors the logical process followed for asset management planning as shown below (as shown in Figure 3.1 of the NAMS IIM Manual).

Asset Management Process



Figure 2-1: Asset Management Process

The Water Activity Plan Format

	Description	Content
1	Executive Summary	Provides an overview and lists the key issues
2	Introduction	Provides the background & the framework of the Plan
3	Sustainability	Outlines the approach used for sustainable management
4	Levels of Service	Defines current & proposed levels of service
5	Growth & Demand Management	Details growth forecasts & effect on demand
6	Lifecycle Management	Sets out the strategies & programs to achieve the goals
7	Risk Management	Outlines Council's risk management processes
8	Financials	Identifies the funding requirements needed
9	Improvement Plan	Sets out the strategies & programs to achieve the goals

2.5 Description of Activity

The water activity ensures that water supplies are provided to urban centres in the District and some rural communities. A brief description of the assets is provided below. Matamata-Piako District is located in the Waikato region of New Zealand's North Island. The three main urban centres are:

- Matamata
- Morrinsville
- Te Aroha

The total land area of the Matamata-Piako District covers an area of 175,477 hectares.

We have water systems in the townships in the townships of Matamata (including Waharoa & Raungaiti), Morrinsville (including Rukumoana), Te Aroha (including Te Aroha West), Tahuna, Hinuera and Te Poi.



Figure 2-2: MPDC Water Systems

2.6 Brief Description of Assets

The Water Supply system is made up of the following components:

- Water Lines (Mains)
- Service Lines (Property connections)
- Water Points (valves, hydrants, meters, tobies etc.
- Water Treatment Plants and Reservoirs
- Buildings

Detailed descriptions and a summary of the assets are provide in Section 6 which covers Lifecycle Management.

2.7 Assessment of Water Services 2017

The Local Government Act (LGA) 2002 requires Local Authorities to complete Water and Sanitary Services Assessments with a principle aim of improving public health outcomes for the country.

A review of the 2005 assessment of water services was carried out in 2017. The assessment included serviced and un-serviced communities and private community schemes. Communities without a water supply scheme (i.e. which are supplied by individual on-site supplies) include Mangateparu, Walton and Manawaru.

Private community schemes include Waihou, Waitoa, schools, marae and any other water supply (other than MPDC supplies) supplying more than 25 persons more than 60 days a year. The Government may require vesting of the Waitoa and Waihou schemes in the future.

Council has been approached by Fonterra to take it over the Waitoa scheme with Fonterra supplying the water at a nominal cost. Fonterra have provided a draft supply agreement for discussion. MPDC taking over the supply would require the construction of a completely new reticulation system with firefighting capability as the existing small diameter reticulation does not provide for firefighting. The estimated cost of constructing the new reticulation is \$1m-\$1.5m.

Community Schemes assessed were Matamata, Morrinsville, Te Aroha, Te Aroha West, Waharoa, Hinuera, Tahuna and Te Poi.

The recommended actions and progress made relating to the risks and issues for all communities identified in the 2005 assessment and are detailed below:

Recommended Actions	Progress
Council Water Schemes	2017
Council should take an active role in riparian protection in water supply catchments. The specific nature of this role has not been defined, but is likely to include activities such as funding of riparian fencing and planting	Not believed practical
Treatment plant upgrades to achieve New Zealand Drinking Water Standards (2005)	Nearing completion
NZWDS 2008 now exist and MPDC is achieving compliance with this	

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Water conservation measures (including promotional and educational activities, promotion of rainwater harvesting, better management of unaccounted-for water and possibly metering)	On-going
Review and update the drought management plan	Completed – incorporated in BCP
Review land use proposals with specific reference to impact on water quality	On-going
Improve water quality monitoring to achieve the New Zealand Drinking Water Standards (2005)	Completed
Establish a database of all premises that should have backflow prevention and enforce installation with annual checks	Premises identified and installation in hand
Review and update the power failure contingency plan	Completed – incorporated in Business Continuity Plan
Apply to Waikato Regional Council to secure priority for community supplies	Undertaken as part RC process
Un-serviced & Private Schemes	
MPDC Health inspectors to establish a more complete information database. This will include a further check by MPDC that all private community supplies have been identified, such as kindergartens and Churches	Medical Officer of Health responsibility
MPDC to take on a monitoring role of Waihou and Walton water supply schemes	Medical Officer of Health responsibility
Registration of unregistered supplies where they meet definition of community supplies (Medical Officer of Health to action)	Medical Officer of Health responsibility
Information provision (Medical Officer of Health takes on this role for registered supplies)	Medical Officer of Health responsibility
Provision of better information on management of tank and bore information, such as provision of information when houses are sold. A regional initiative to prepare standard information relevant to the region will be advocated by MPDC	Being investigated

The risks and issues identified in the 2017 Assessment of Water Services are:

Community	Risks and Issues	Proposals
Morrinsville	 Loss of falling main and/or pipe bridges due to floods. Insufficient water in summer peak Potential iron/manganese break- through Unconsented and untreated backwash water discharge from treatment plant Contamination – protozoa. Meeting DWS requirements 	 Prepare contingency plan and stock pipe special replacement parts Investigate and construct new sources and treatment and use demand management and leak detection Frequent flushing/swabbing of mains Iron/manganese removal using green sand Treatment for backwash water Install UV systems

Matamata	 Insufficient water during summer low flows. Source to replace / supplement Waiteariki stream (Tills Rd). Insufficient firefighting capacity in main business area and pressure below service level requirements in some areas. Discolouration of water following rain event Access to Tills Rd plant compromised due to slips after rain events pH correction Supply to rural properties connected to the trunk main when WTP shut down needed. 	 Investigate new source/supplement to Waiteariki and demand management and leak detection Upgrade mains Further investigation required CO₂ dosing Investigate supply from Matamata retic using model
Hinuera Te Aroha	 Intake blockage causing temporary loss of water to town Taste and odour at times from the Waihou and Pohimi source Te Aroha west non-compliance with E-coli and Protozoa limits Insufficient source capacity Contamination by cyanobacteria Contamination by protozoa 	 Regular cleaning after storms and in Autumn. Regular sampling for blue green algae Connection to the TA supply is being investigated. Water conservation measures and leak detection Prepare management plan UV installation
Tahuna	 Contamination of the supply Power failure Treatment failure in between monitoring periods 	 Install UV Install generator Remote monitoring using SCADA
Te Poi	 Power failure E-coli contamination possible Treatment failure in between monitoring periods Contamination by Protozoa 	 Install generator Investigate new ground water source Remote monitoring using SCADA Install UV

2.8 Asset Management Policy

2.8.1 Objective of the Asset Management Policy

The objective of the Asset Management Policy for the Infrastructure Activities is to ensure that Council's service delivery is optimised to deliver agreed community outcomes and levels of service, manage related risks and optimise expenditure over the entire life cycle of the service delivery, using appropriate assets as required.

The Asset Management Policy requires that the management of assets be in a systematic process to guide planning, acquisition, operation and maintenance, renewal and disposal of the required assets.

Delivery of service is required to be sustainable in the long term and deliver on Council's economic, environmental, social and cultural objectives.

2.8.2 Appropriate Activity Management Levels

The International Infrastructure Management Manual (IIMM) is the approved benchmark against which asset management is measured in New Zealand. This manual allows for each Council to state the standard against which it will undertake its asset and activity management.

The standards of the AMP's can be considered on a scale as follows:

- Aware
 - Core often referred to as basic AMP's.
- Intermediate

- transition between Core and Comprehensive/Advanced.

• Comprehensive/Advanced - most thorough AMP , accounting for all lifecycle elements.

In 2015 Waugh Consultants Ltd were employed to establish the appropriate activity management level for the various activities of Council. The methodology used needed to be logical and robust and able to withstand scrutiny.

Their recommendation for utilities was:

Water	- Intermediate
Wastewater	- Intermediate
Stormwater	- Intermediate

Solid Waste - Core

Council subsequently adopted Intermediate as the appropriate level of asset management practice for Council's infrastructure activities.

2.8.3 'Intermediate' Asset Management Practice

Intermediate asset management practice is undertaken at a level between 'Core' and 'Comprehensive' practice. The focus is to build on the basic technical asset management planning of 'Core' practice by introducing improved maintenance management and more

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advanced asset management techniques (as appropriate). Further use is made of risk management, asset lifecycle management, and service standard optimisation techniques.

2.9 Renewal/Replacement Policy

The following sets out renewal/replacement policy for utility assets adopted by the MPDC Executive Team on 19 November 2014:

Introduction

• This policy has come about due to the need to clarify Council's replacement policy with regard to pipes and associated fittings.

Objectives

- To ensure that pipes are not replaced when the base life is reached if they still have significant remaining life.
- To ensure planning for future asset replacement takes into account the need to replace services lines and point assets when a new main is being laid.

Background

- It has become the norm to inspect and/or test pipelines which have reached the end of their base life and to only replace them if justified. However this needs to be clarified as part of Council's depreciation/replacement policy.
- Part of this assessment is based on the number of repairs reported through RLP's.
- In most cases the replacement of pipelines is on a new alignment and it is desirable to lay new laterals at the same time.
- Likewise in most cases new point assets such as hydrants, valves and manholes are required before the pipeline can be commissioned.
- The current capitalisation policy is that the replacement of assets costing under \$2000 is not capitalised and thus comes out of maintenance

2.9.1 Renewal Methodology

Asset renewal methodology is predominantly based on asset usefull life data recorded in AssetFinda. The condition of above ground assets is regularly monitored and below ground assets are checked whenever they are uncovered for repairs or new connections; and also when they are forecast for replacement. If it is considered they still have remaining life, the new life is entered into the AssetFinda. An AC pipe sampling programme is proposed starting in 2018 to allow more accurate assessment of remaining life. The current practice is to smooth the renewal reticulation programme where it is practical to do so. This is done by allowing for the average renewal requirement over 5 years in the budgets. There are some risks associated with this, but Council does not have a large backlog of work and by placing a criticality on assets it allows us to manage and 'smooth' the work out. This allows us to manage resources on an ongoing basis to ensure programmes are delivered on time and on budget.

2.9.2 Deferred Maintenance/Renewals

Deferred maintenance/renewals for the water activity are an outcome of the smoothing out of the projected renewal costs over a number of years. A large amount of AC pipe has the same lifespan maturity date. It is expected that as the AC pipe sampling programme progresses and more accurate lifespans can be determined the level of deferred renewals will decrease.

2.10 Water Bylaw

The intention of this bylaw is to manage the supply of potable water within the Matamata-Piako District to residents and commercial users.

This Bylaw is in addition to controls on water imposed by the Health Act 1956, the Building Act 2004 or other relevant legislation; and by Waikato Regional Council and the Matamata-Piako District Council under the Resource Management Act 1991 or any other Act, Regulation or Bylaw.

2.11 Fluoridation

The Health (Fluoridation of Drinking Water) Amendment Bill was introduced into Parliament on 17 November 2016 and is currently at the Second Reading stage. This bill amends Part 2A of the Health Act 1956 by inserting a power for DHBs to make decisions and give directions about fluoridation of local government drinking water supplies in their areas. MPDC currently have no intention of installing fluoridation systems unless directed to do so by the Waikato DHB.

3. Sustainability

3.1 Definitions

Sustainability – means meeting the needs of today while considering the needs of future generations in a social, environmental, cultural and economic context. Sustainability is also about the need to maintain and enhance the quality of the environment.

Sustainable Development – is a balanced, inclusive approach that seeks to meet the needs of today's generation, without reducing the ability of future generations to meet their own needs.

In other words Council needs to understand the effects of our decisions and actions for the future. This is in order to make sure we create a district that is suitable for the current generation, and can provide for our future generations.

3.2 Objectives

One of the purposes of local government is to promote the social, economic, environmental and cultural well-being of communities, in the present and for the future. Council has a clear responsibility to act, operate and develop in a sustainable way.

The objectives of Council's Sustainability Policy are to:

- identify major sustainability issues for Council and developing actions for responding to these
- promote sustainable management and development within Council
- position Council as a leader and supporter of sustainability within the community
- contribute to the social, environmental, economic and cultural well-being of the community

3.3 Sustainability and Lifecycle

Community infrastructure is maintained on the understanding that the assets are provided in perpetuity, the recent LGA 2002 prevents Councils selling these assets without considerable consultation. The activity approaches the management of the activity in a very sustainable approach; the activities are regularly monitored on performance and expectations through Resource Consents, external audits, Level of Service reviews, Customer satisfaction surveys, legislative compliance and adoption of Asset Management Plans.

3.4 Sustainable Development

The LGA 2002 requires local authorities to take a sustainable development approach while conducting its business. Councils existing and future approach to sustainable management and development for water includes the following:

- Efficient use of energy
- Minimal wastage of water
- Efficient operation of facilities
- Optimisation in the initiation of major capital development and renewal projects

3.5 Efficient Use of Energy with Council's Three Water Facilities

The Three Waters uses a significant proportion of the Council total energy consumption via their extensive range of facilities. Council has instigated energy management measures through the use of the Energy Efficiency and Conservation Authority (EECA) methodologies and subsidies to assist in reducing total energy consumption.

An Energy Management Committee has been established that meets monthly and monitors the use of energy in all Council installations. An Energy Policy has been adopted with the following objectives:

- 1. To utilise energy as efficiently as practicable.
- 2. To buy energy at the most competitive rates.
- 3. To actively monitor energy use.
- 4. To actively seek to identify opportunities to reduce energy usage across all councils existing and proposed operations.
- 5. To adopt new energy efficient technologies where it is cost-effective to do so.
- 6. To promote a culture of energy awareness and energy conservation throughout the organisation.

The policy will be implemented through the following methods:

- 1. Appoint key staff to an Energy Management Team (EMT) whose role will be to monitor energy usage, and provide advice on the most efficient and cost-effective use of energy across all council activities.
- 2. Develop energy management strategies and plans for the entire organisation or for specific assets and functions.
- 3. Introduce systems to provide management information about energy consumption and costs.
- 4. Where appropriate set energy performance levels for council buildings and other appropriate assets.
- 5. Undertake audits of the energy performance of existing council buildings and other appropriate assets, report on inefficient energy use and make recommendations for improvement where identified.
- 6. Undertake energy performance audits on the plans and specifications of proposed council buildings and other proposals involving energy consumption, including alterations and additions to existing buildings, report on potential inefficient energy use where identified and make recommendations for improvement.
- 7. Formulate and submit for approval budgetary provision for an investment programme directed at maintenance and/or capital projects for reducing energy consumption.
- 8. The regular reporting of energy consumption information to senior managers and the Executive Management Team
- 9. Develop policies and procedures for the most cost-effective purchase of all energy.
- 10. Training of all staff to raise and maintain energy awareness and energy savings in all activities across the organisation.

3.6 Significant Effects

Significant negative effects of this activity Affected Well-beings How we will mitigate the effects S С EC EN Maintain current resource consents for all Poor management of our water water treatment plant discharges √ treatment plants could pollute the ✓ √ √ Complete upgrades of treatment plants to environment ensure compliance with resource consents Poor management of and The allocation of water is becoming an competition for water could issue with competing needs for a finite impact on the way we all use \checkmark √ √ √ resource water The amount of water we 'take' to treat is controlled through resource consents.

Significant positive effects of this activity					
	Affected Well-beings			ngs	How we will maintain the effects
	S	С	EC	EN	The we will maintain the effects
Supply of safe, clean water for drinking and personal hygiene continues to be the greatest health benefit for our communities	*	*	*		Ensure compliance with New Zealand Drinking Water Standards (2008), and maintain an approved Water Safety Plan
Supply of water for commercial and industrial use is cost effective and helps provide employment opportunities	~		~	~	Monitor growth requirements and communicate regularly with our existing commercial and industrial users on their future needs and efficient use of water.



4. Levels of Service

4.1 Background

The levels of service for the water activity are defined in this section along with the performance measures adopted by Council by which the service levels will be assessed.

Levels of services are driven by legislative requirements, community consultation and the Council's leadership through plans and strategies.

4.2 LTP Community Outcomes

The LTP sets out five proposed Community Outcomes, all have been formulated to promote social, economic, environmental and cultural wellbeing of the District. All five Community Outcomes indirectly contribute to the Council achieving current and future levels of service for the water activity.

The Community Outcomes that the water activity will directly contribute to are set out in detail below.

Matamata-Piako – The Place of Choice

Enabling				
Connected Infrastructure	Environmenta	Vibrant Cultural		
	Opportunities	Communities	I	Values
			Sustainability	
Infrastructure and services are fit for purpose and affordable, now and in the future.	We are a business friendly Council.	Our community is safe, healthy and connected.	We support environmentally friendly practices and technologies.	We promote and protect our arts, culture, historic, and natural resources.
Quality infrastructure is provided to support community wellbeing.	Our future planning enables sustainable growth in our district	We encourage the use and development of our facilities.	Development occurs in a sustainable and respectful manner considering kawa/protocol	We value and encourage strong relationships with iwi and other cultures, recognising waahi tapu and

Lifestyle. Opportunities. Home.



Strategic priorities relating to the Water Activity are:

- Water Security and Conservation
 Connected Infrastructure. Fit for purpose, affordable, now and in the future.
- Comply with Drinking Water Standards
 - Connected Infrastructure. Quality Infrastructure to support the wellbeing of our community.

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- Economic Growth and productivity
 - > Connected Infrastructure. Fit for purpose infrastructure now and in the future.
 - > Economic Opportunities. Business friendly and sustainable growth.

4.3 Legislative Requirements

The legislative requirements form the minimum level of service; as Council is required to comply. It does not necessarily mean that all level of service is covered within the legislation. The Water Activity is influenced by the following legislative requirements.

Local Government Act 2002 (and remaining sections of the 1974 Act): defines the purpose of local authorities as enabling local decision-making by and on behalf of the community, and allows local authorities the power of general competence.

This Act specifically requires Councils to continue to provide water services if they do so already.

It also includes a requirement to install fire hydrants on all water mains at intervals prescribed by the Fire Authority.

Local Government Act 2002 Section 17A:

A new section 17A has been inserted into the Act. The new section introduces new requirements that councils:

- review the cost effectiveness of current arrangements for providing local infrastructure, services and regulatory functions at regular intervals. Reviews must be undertaken when service levels are significantly changed, before current contracts expire, and in any case not more than 6 years after the last review; and
- ensure that there is a binding contract or agreement where delivery of infrastructure, services or regulatory functions is to be undertaken by a different entity than the entity responsible for the governance of those things. The contract/agreement must cover key matters such as service levels, performance assessment and reporting, risk management and accountability.

A Section 17A Service Delivery Review was carried out in August 2017 and the report can be accessed in RM # 1760495.

Health Act 1956: places an obligation on Council to improve, promote and protect public health within the District. The provision of water treatment and supply helps to promote and improve public health.

The Health (Drinking Water) Amendment Act 2007 amended the Health Act in respect of drinking water supplies and placed a greater duty of care on Councils to ensure the provision of wholesome water.

Resource Management Act 1991: governs all water takes and discharges. Water is extracted from aquifers, streams, lakes and rivers for the purpose of irrigation and water supply. Discharges to waterways and land occur as a by-product of water treatment. Resource consents obtained for water take and discharge activities require parameters such as volume and quality to be monitored as well as taking steps to mitigate any adverse effects that may occur through the activity.

Health and Safety at Work Act 2015: Council must ensure the safety of the public and all workers (including contractors) when carrying out works.

Fire & Emergency New Zealand Act 2017

Worksafe Act 2013

Utilities Access Act 2010

Taumata Arowai – Water Services Bill.

Heritage New Zealand Taonga Act 2014

National Policy Statement for Freshwater Management 2020

Matamata-Piako District Council Water Bylaw 2008: Defines standards and obligations for the use, consumption, protection, access, conditions of supply and infringements.

4.4 Why is Council Involved in this Activity

Council is involved in the activity as it has a statutory obligation under the Local Government Act 2002 to provide water services. Under the Health Act, 1956 an obligation is also placed onto Council to improve, promote and protect public health within the District.

4.5 Strategic Assets

Section 90(2) of the Local Government Act 2002 requires Council to identify 'strategic assets' in its 'Significance Policy'.

Strategic assets are defined as "an asset or group of assets that a local authority needs to retain if they are to maintain the local authority's capacity to achieve or promote any outcome that they determine to be important to the current or future wellbeing of the Community" (see Section 5, Local Government Act 2002 for complete definition).

Council adopted a new Significance and Engagement Policy on August 2017. The Water assets identified as 'strategic assets' in the Significance and Engagement Policy 2017 are outlined in the table below.

Asset	Group	Rationale
Water Reticulation network and treatment plants	Infrastructure assets	The infrastructure assets listed refer to the networks as a whole.

etwork and treatment ants
water Reticulation

4.6 Strategic and Critical Assets

The terms 'strategic assets' and 'critical assets' are easily confused.

As explained above, 'strategic assets' are assets that a local authority has decided it needs to keep to maintain the capacity to achieve or promote any outcome that the local authority has determined to be important to the current or future wellbeing of the Community.

Critical assets however, are assets that have a high consequence of failure (but not necessarily a high probability of failure). To put it simply, the criticality has to do with "how bad it is if the asset breaks or fails".

Critical assets will be discussed further in the Lifecycle and Risk Management Sections of the AMP (See Section 6 and 7).

4.7 Management Structure and Responsibilities

In general terms, the Assets Strategy and Policy (AS&P) Department which falls under the Business Services Group, is responsible for policy, strategy, and asset management planning for the Community Facilities and Buildings activity.

The Service Delivery Group is responsible for development, renewals, and operational maintenance. This is achieved through its business units, Water & Wastewater Services (W & W) and Kaimai Valley Services (KVS).

W & W provides project management and engineering services. KVS provides operational and maintenance services.

The management responsibility for the individual activities within the activity is shown below below.

Asset Area	Business Services Group	Service Delivery Group				
	Assets Strategy & Policy	Water & Wastewater Services	Kaimai Valley Services	Community Facilities Operations		
Water, Wastewater	Policy & Strategy AMPs Asset Database	Project management (capital & renewal) Engineering services	Operations & Maintenance	Operations & Maintenance		

Asset Area	Business Services Group	Service Delivery Group		
	Assets Strategy & Policy	Water & Wastewater Services	Kaimai Valley Services	Community Facilities Operations
and Stormwater				

4.8 Asset Management Structure

MPDC has recently restructured its Asset Management functions to ensure that there is a clear separation between Strategy/Policy and operational functions and service delivery. The following 2 figures shows the new structure and separation



Figure 4-1: Asset Management Structure

4.9 Performance Measures

4.9.1 Background

In 2013 the Secretary for Local Government published the *Non-Financial Performance Measures Rules 2013* pursuant to and in accordance with section 261B of the Local Government Act 2002 and these contains mandatory reporting measures to be adopted by all Councils.

These reporting measures have been applied starting the 2015 - 16 year. The requirement is for Council to each year monitor its performance both against previous years and against the national results.

Processes for collecting and reporting on these measures are incorporated in the QA system.

4.9.2 Performance Criteria

The following table shows the criteria that are used to assess Council's performance against the compulsory measures and the results for 2015/16 (approx. number of full water rates paid is 8342):

Performance Measure	Target
The extent to which Council's drinking water supply complies with:	Compliant
- Part 4 of the drinking-water standards (bacteria compliance criteria), and	
- Part 5 of the drinking- water standards (protozoal compliance criteria).	
The percentage of real water loss from Council's networked reticulation system (using	25% or less
minimum night flow analysis).	
Where we attend a call-out in response to a fault or unplanned interruption to our	
networked reticulation system, we will measure the following median response times;	
Attendance for urgent call- outs: from the time that we receive notification to the time that service personnel reach the site	
Resolution of urgent call-outs: from the time that we receive policiation to the time that	Median: 4 hours or less
service personnel confirm resolution of the fault or interruption	
	Median: 24 hours or less
Where we attend a call-out in response to a fault or unplanned interruption to our	
networked reticulation system, we will measure the following median response times:	
Attendance for non-urgent call-outs: from the time that we receive notification to the time	
that service personnel reach the site.	
Resolution of non-urgent call-outs: from the time that we receive notification to the time	Median: 3 working days or less
that service personnel confirm resolution of the fault or interruption.	
	Median: 5 working days or less
The total number of complaints received by Council about any of the following:	9 complaints per 1 000 connections across all
(expressed per 1 000 connections per year)	categories (total of 72 complaints based on
Drinking water clarity	8 000 connections)
Drinking water taste	0,000 connections)
Drinking water odour	
Drinking water pressure or flow	
Continuity of supply	
Council's response to any of these issues	
Te average consumption of drinking water per day per resident within the district	500 litres or less per urban resident per day

Figure 4-1: Levels of Service Targets (CM 2296057).
Section 4: Levels of Service

The performance measure results for 2016/17 are:

Water		10/14
The extent to which Council's drinking water supply complies with:		
Part 4 of the drinking-water standards (bacteria compliance criteria).	Compliant	Non compliant
Part 5 of the drinking-water standards (protozoal compliance criteria).	Compliant	Non compliant
The percentage of real water loss from Council's networked reticulation system (using minimum night flow analysis).	24.91%	20.6%
Where we attend to a call-out in response to a fault or unplanned interruption to our network reticulation system, we will measure the following median response times:		
Attendance for urgent call-outs: from the time that we receive notification to the time that service personnel reach the site.	Median: 4 hours or less	25 minutes
Resolution of urgent call-outs: from the time that we receive notification to the time that service personnel confirm resolution of the fault or interruption.	Median: 24 hours or less	3 hours and 12 minutes
Where we attend a call-out in response to a fault or unplanned interruption to our networked reticulation system, we will measure the following median response times:		
Attendance for non-urgent call-outs: from the time that we receive notification to the time that service personnel reach the site.	Median: 3 working days or less	2 working days
Resolution of non-urgent call-outs: from the time that we receive notification to the time that service personnel confirm resolution of the fault or interruption.	Median: 5 working days or less	4 working days
The total number of complaints received by Council about any of the following:		
Drinking water clarity After planned shutdowns for water line maintenance/replacement there can be increased pressure, we will continue to advise residents to run their taps after maintenance for water clarity as ongoing water line renewals continue.	1 per 1,000 people connected to water supply (8 total)	17 complaints

Note: An urgent callout is one that leads to a complete loss of supply of drinking water but non-urgent is where there is still a supply of drinking water

4.9.3 Performance Monitoring

Apart from the compulsory performance monitoring, key KPI's are regularly monitored to ensure compliance with NZ Drinking Water Standards and resource consents. KPIs Monitored now:

- Bacterial compliance under section 4 of the DWSNZ 2005/2008;
- Protozoal compliance under section 5 of the DWSNZ 2005/2008
- Cyanotoxin compliance under section 7 of the DWSNZ 2005/2008
- Chemical compliance under section 8 of the DWSNZ 2005/2008
- Radiological compliance under section 9 of the DWSNZ 2005/2008
- Water loss infrastructure leakage index (ILI)

4.10 Customer Research and Expectations

4.10.1 Consultation

The Matamata Piako District Council has undertaken a range of consultation processes over the past few years specifically targeted at gathering information on preferred Levels of Service or the extent of infrastructure that Council will be required to install.

4.10.2 Customer Surveys

Council undertakes an annual customer survey which identifies and measures the perceptions that residents of the Matamata-Piako District (residents) have towards Council and the services Council provides.

The 2016/17 Survey showed:

81% of residents surveyed are connected to town supply water.

Eighty-nine per cent of Te Aroha residents who are water supply users are satisfied with Council's services. Following this, 69% of Matamata residents, and 67% of Morrinsville residents are satisfied. Te Aroha residents are more likely to be very satisfied (52% cf. total, 29%), while Morrinsville residents are more likely to be dissatisfied than other residents (18% cf. total, 8%).



USER SATISFACTION WITH COUNCIL'S WATER SUPPLY

Figure 4-2: User Satisfaction Survey Results

5. Growth and Demand

5.1 Growth Forecast

5.1.1 Background

Rationale Limited was engaged in 2017 to review and develop growth projections for Matamata-Piako District Council.

The main purpose of the review was to provide population, dwelling and rating unit projections out to 2045, for the district and its three ward areas and 13 settlement areas. Further detail is provided on the population structure (age demographics and average household size), dwelling types (occupied, unoccupied and under construction) and for each of Council's six rating unit categories.

The underlying philosophy of Rationale's Model is that people drive the growth in dwellings and rating units. An increase in people living, working or holidaying in the district will also result in an increase in both dwellings and rating units.

However, resident population growth is only one of three factors that can drive an increase in dwellings. The other two factors are declining household size, and holiday home demand (the latter being of lesser relevance in comparison to districts such as Thames-Coromandel, but still of relevance as indicated in recent growth rate trends).

These factors, along with the number of visitors and the employment opportunities they create, all have a flow on effect to the rating unit growth.

The three scenarios included in this review are developed from three baseline resident population growth rates considered appropriate for MPDC – low growth (declining population), medium growth (steady increase in population), high growth (strong population growth).

The medium growth scenario is considered the most appropriate for MPDC's long term planning.

The projected dwelling and rating unit growth rate is higher than for population due to flow-on effects of changes in population structure. The majority of the growth is forecast to occur in the first ten to fifteen years before the rate of growth slows down towards 2051.

Regarding the population structure, the district has a similar age profile to the rest of New Zealand. However in 2013 the proportion of people aged 65+ made up around 18% of the district's total population, which is higher than the nationwide average of 14%.

This aging population trend is projected to continue; with the proportion of people in the district aged 65+ increasing to over 30% by 2048. The number of people aged between 15 and 64 years of age is projected to decrease. This may have a flow-on effect to the make-up of the work force in the district.

Factors such as the aging population contribute to a decline in the average household size, decreasing from around 2.5 residents per household in 2013 to around 2.3 in 2051.



In terms of geographic spread of growth, all three wards are projected to experience population and dwelling growth. The total population and dwelling increase is highest in the Matamata Ward; followed by the Morrinsville Ward and then the Te Aroha Ward.

Nearly 80% of the population growth and 70% of the dwelling growth is forecast to occur in the three urban towns (Matamata, Morrinsville and Te Aroha). The population growth in the rural settlements is noticeably lower than the main towns, and in some areas a slight decline is forecast. However dwellings are projected to increase in all the outlining rural settlement areas.

Population and dwelling growth flows through to rating units. The district rating units are predominately Residential and Lifestyle, with nearly three quarters of total rating units falling under these two categories. Therefore any rating unit growth is heavily dependent on dwelling growth.

However the two business related rating unit categories, Industrial and Commercial, are both projected to increase at a greater growth rate than the population and dwellings. As with the population and dwelling growth, around two-thirds of this business related rating unit growth is located in the three urban towns.

The recommended scenario has been compared to previous scenario adopted for MPDC 2021-31 Long Term Plan. The key differences include:

- The growth in population, dwellings and rating units is similar to the previous forecast, albeit marginally lower;
- At the ward level, the projected growth in both the Matamata Ward and the Te Aroha Ward is slightly lower than the previous forecast. The growth projected in the Morrinsville Ward is slightly higher than the previous forecast;
- Compared to the previous projections, a larger portion of the growth is now projected to occur outside of the three main towns, in the smaller towns and in the rural areas.

5.1.2 Population and Dwelling Profile for towns with water facilities (Estimated 2020)



Town		P	opulation	า		Dwe	llings		
	2018	2021	2031	2041	2051	2018	2031	2041	2051
Matamata ¹	8,100	8,385	8,852	9,106	9,354	3,415	3,682	3,756	3,882
Waharoa ¹	620	620	621	597	527	224	247	243	225
Raungaiti	106	106	85	59	31	36	36	36	36
Morrinsville ¹	7,980	8,281	8,851	9,205	9,420	3,167	3,557	3,714	3,858
Rukumoana	68	68	59	47	34	23	23	23	23
Te Aroha ¹	4,680	4,888	5,261	5,388	5,400	1,961	2,209	2,268	2,302
Tahuna	130	130	130	130	130	72	83	84	84
Hinuera	116	116	126	129	132	47	55	57	60
Te Poi	138	138	150	158	171	59	69	73	81
Total*	21,938	22,733	24,134	24,820	25,198	9,003	9,961	10,254	10,551
¹ Figures from CM 2283973									

Figure 5-1: Projected Population and Dwellings (CM 2283973).

*Total excludes township where details are not available

Note: The population and dwelling projections for Tahuna, Hinuera and Te Poi are based on projections of the meshblocks in the area (as defined by MPDC staff). The meshblocks may not align exactly to the serviced areas.

5.1.3 Effect of Under-estimating Growth

It is considered that the relatively low rate of population growth predicted will not have a significant effect on demand for services. The greater effect on demand will come from industrial growth.

5.1.4 District Plan Change 47

District Plan Change 47 has made provision for the residential, commercial and industrial growth in our urban communities. The Town Strategy was the initial strategic planning of our towns for 30 years, and then Plan Change 47 is the action to incorporate this into the District Plan and follow to the LTP and AMPs. Plan Change 47 accounts for population growth as predicted in the 'Growth Predictions' (refer section 5.1.2 above).

As part of the assessment of zoning and structure plan options for Plan Change 47, Council has examined the capital works that are required to service existing and proposed areas for development.

The structure plan areas identified as part of the assessment are;

Matamata: Eldonwood South and Tower Road.

Morrinsville: Horrell Road

The original Precinct F growth area has been downsized from 750 lots to 240 lots due to servicing restrictions. This reduced area is identified as Eldonwood South.

Also part of Plan Change 47 are changes to residential infill areas which propose to identify the residential infill areas around the town centres; changes to equine areas, shop frontage areas, principal road landscape areas and changing of identified properties from rural to industrial zoning. Changes are proposed to the New Rural Zone and Future Residential Policy Areas, changes to zoning of some rural-residential properties and changing the zoning of some properties from rural to industrial.

The table below shows the estimated capital costs associated with each structure plan area.

Off Site	Eldonwood	Tower Road
Utility	South	
Waste-water	1,870	2,123
Water	660	425
SW	100	400
Roading	1,440	330
Total	4,070	3,278

Data source: RM 1864486

http://www.mpdc.govt.nz/plan-change-47-zoning-and-rule-provisions

Capital works schedules for the each structure plan area are:

Eldonwood :	south
-------------	-------

Wastewater	250mm pressure sewer from existing WWPS to proposed Tower Rd pump station	2022/23	1,200
	New WWPS at Tower Rd		454
	Upgrade existing WWPS pumps and power supply		40
	WWTP capacity upgrade works		176
			1,870
Water	Firth St upgrade from Station Rd to Haig Rd and upgrades of water mains in Beatty and Haig streets	2021/22	360
	Bore, Treatment Plant and Storage		300
			660
SW	Small ponds/wetlands for rural res road only	TBC –	100
		dependent	100
		on	
		development	
		programme	
Roading	Station Road East Upgrade (pavement overlay and	TBC –	716
	parking bays)	dependent	
	Hampton Terrace upgrade (parking bays and	on	129
	pavement overlay)	development	
	Smith St pavement overlay	programme	177

Intersection Upgrades – Firth/Station and	78
Hinuera/Firth	340
Road widening – Link collector road	1,440

Tower Road

Wastewater	Tower Road Pump stations (3 pumps) 300mm Rising falling main WWPS to WWTP WWTP capacity upgrade	2022/23	880 750 493
Water	Upgrade 200mm water main through Bridie Ave to connect to internal reticulation in Tower Rd block. Join internal reticulation to water main in Magnolia Street. (Shift PRV is not required until the balance of the Tower block is developed) (internal reticulation 200mm between Bridie Ave and Magnolia) Bore, Treatment Plant and Storage	2021/22	250 425
SW	Extension to Tawari retention pond (land purchase and excavation)	TBC	400 400
Roading	Parking bays (on Magnolia Drive, Findlater Street west and Ngaio Street Bridie Ave pedestrian facility Intersection signs and markings	TBC	300 25 5 330

5.2 Water Trends

5.2.1 General

There is pressure on water resources in the region and the Waikato Regional Council is promoting the efficient management of water to reduce the takes. The WRC believe many water sources (and particularly surface takes) are over-committed.

On the other hand some residents wish to see sufficient water available to enable the watering of gardens to continue even in times of prolonged drought. There has not been any allowance made for increased demand from industries in the district.

5.2.2 Water Consumption Trends in Matamata Piako District

The following chart and graph shows the water consumption for the past 10 years in cubic metres:

<u>Fin. Year</u>	Matamata	Morrinsville	<u>Te Aroha</u>	<u>Tahuna</u>	<u>Hinuera</u>	<u>Te Poi</u>	District Total
2007-08	1,671,534	1,964,603	1,965,953	14,085	23,634	21,088	5,660,897
2008-09	1,709,892	1,828,229	1,886,003	13,777	20,307	21,214	5,479,422

Table 5-1: Raw Water Takes 2007 to 2020 (CM 2379257).

2009-10	1,687,045	1,939,239	2,205,692	15,457	22,469	18,798	5,888,700
2010-11	1,784,231	1,909,684	1,905,367	14,286	16,712	20,607	5,650,887
2011-12	1,601,896	1,896,436	2,052,878	14,662	18,782	16,660	5,601,314
2012-13	1,700,458	1,821,656	2,360,514	16,977	20,613	18,456	5,938,674
2013-14	1,712,871	1,905,539	2,213,965	19,776	19,099	17,416	5,888,666
2014-15	1,780,155	2,032,847	2,090,083	21,862	17,960	18,465	5,961,372
2015-16	1,785,459	1,966,861	2,164,133	16,926	23,166	19,280	5,975,825
2016-17	1,957,168	1,936,365	2,054,587	18,835	18,318	22,266	6,007,539
2017-18	1,678,095	1,978,365	2,185,053	20,292	19,025	24,176	5,905,006
2018-19	1,544,309	1,998,672	2,254,350	22,840	25,233	15,110	5,860,513
2019-20	1,580,095	1,912,522	2,206,426	26,419	35,557	13,487	5,774,506
Average	1,707,170	1,930,078	2,118,846	18,169	21,606	19,002	5,814,871



Figure 5-2: Water Take Trend since 2007 (CM 2379257).

Total Water Consumption since 2000 in cubic metres

There is an approximate 1,800,000 m³ difference between the average consumption in the years 2000-2004 and 2005-14. Both Open Country and Inghams takes began in 2004-05 but these accounts for about half of the average increase. The difference is believed to be the method used prior to 2005 to obtain total consumption figures.

Overall demand has been reasonably stable. The increase in Te Aroha over the past few years is attributed largely to the fire at Silver Fern Farms and the resulting period that the plant did not operate.

		200	8	201	1	2014	-15	2015	-16	2016-	-17
Customer	Township	m³/yr	ave. m³/day								
Inghams	Te Aroha	436,940	1,197	562,283	1,541	569,130	1,559	659,401	1,802	656,840	1,800
Silver Fern Farms	Te Aroha	256,406	702	330,262	905	344,636	944	354,627	969	381,669	1,046
Open Country Dairy	Waharoa	269,931	740	181,068	496	299,010	819	430,478	1,176	470,705	1,290
Fonterra	Morrinsville	212,785	583	134,983	370	144,465	396	171,162	468	156,931	430
Evonik Industries (Degussa)	Morrinsville	193,713	531	45,796	125	136,184	373	130,365	356	152,157	417
Greenlea	Morrinsville	137,542	377	32,440	89	48,104	132	135,683	371	129,177	354
IXOM										49,984	137
		1,507,317	4130	1,286,832	3526	1,541,529	4,223	1,881,716	5,142	1,997,463	5,474

Table 5-2: Major Industrial Consumption (CM 2379257).

Both Inghams and Silver Fern Farm may seek increased water volumes in the future which will require upgrading of the Te Aroha Water Supply. These industries have not made a commitment at this stage. The additional water can be accommodated within the existing extraction consents.

Open Country Dairy in 2017 installed their own bore supply and treatment plant which has drastically reduced their demand. OCD have indicated that volume of water required from the Council supply will be limited to 800m ³/day. There is also demand within Waharoa for smaller quantities for smaller dairy product producers. The ability to meet this demand is limited by consent restrictions and infrastructure. Preliminary investigations have been undertaken to assess the feasibility of constructing and operating a new treatment plant near Waharoa with the source being the Waihou River.

5.2.3 Climate Change

While there is considerable debate about climate change, this is not whether climate change is occurring but rather around the prediction of the effect in any particular region.

The Ministry of the Environment prediction for this region is that there will be an increase of effective mean temperature of 2.1°C by 2090 and that for every 1°C in temperature there will be a 8% increase in annual mean rainfall. This equates to an increase in rainfall of 16.8%

It also predicts that extreme rainfall events are likely to get heavier and more frequent but there are likely to be longer dry spells and hotter weather.

In respect of water, the longer dry spells and higher temperatures is likely to lead to an increasing demand for water for irrigation and consumption.

The Waikato Regional Council has endorsed the LGNZ 2050 Local Government position statement on climate change and Local Government Leaders climate change declaration. The WRC requirements in relation to climate change align with those of MPDC.

5.2.4 Water Losses/Unaccounted for Water Use

Unaccounted for water has not been quantified but work undertaken as part of the network modelling has identified that water loss is an issue. Water loss could be expected to be as high as 25% of the total water consumption.

This represents the quantity of water lost through leakage from the water supply system and unauthorised water use such as the illegal use of fire hydrants and illegal connections. The national average of 16% is given by the Ministry of Economic Development.

Leakage surveys have been undertaken which have identified a number of point sources of leaks but it does not identify leakage occurring along lengths of pipe.

In 2015/16 Council signed up to a 3 year contract to undertake leakage surveys. Matamata was assessed in 2015/16, Morrinsville in 2016/17 and Te Aroha will be assessed in 2017/18.

To provide direction with regard to water loss management it is proposed that a Water Loss Strategy is developed using a specialist in water loss management such as Richard Taylor (Thomas Consultants Ltd) and the Council Hydraulic Modelling Consultant.

It is believed that the older steel pipes are a likely source of water losses and priority is being given to their replacement. They now amount to less than 1.5 % of the total reticulation.

Water losses are one of the mandatory reporting requirements and as universal metering is not used in the district MPDC will be using the alterative option of minimum night flow (MNF) analysis. An annual water balance is undertaken which compares abstraction and consumption information and allows the calculation of % leakage and infrastructure leakage index (industry standard for leakage).

5.3 Demand Management

5.3.1 Strategies

Demand Management strategies are used as alternatives to the creation of new assets. They are aimed at modifying customer demands to achieve:

- Social, environmental and legislative objectives for Matamata Piako District
- The delivery of cost-effective services
- Defer the need for new assets and optimise the performance/utilisation of the existing assets



MPDC is considering a range of strategies to manage the demand for water and therefore the requirement for additional infrastructure. The table below lists some of the strategies that have been looked at.

Strategy	Objective/Description
Operations	Reduce unaccounted for water by leakage detection and control - investigate the level of water loss (leakage) to determine if a water loss problem exists.
Operations	System Pressure Management is being done throughout the network to enable changes that will reduce operating pressures which impact on reticulation and reduces water losses. This needs to be balanced with levels of service with the consumer on adequate pressure
Regulation	Capped Supply limits - pressure from industrial users for more water can be managed by introducing capped limits. Quantities in excess of this could be considered as development and managed through the development or financial contributions policy.
Water By- Law 2008	The Water by-law has been updated but does not have any direct water conservation requirements other to ensure prudent use and require consumers to comply with any water restrictions publicly advertised during droughts, periods of unusually high demand or emergencies.
Policy	Water Management Strategies need to encapsulate the overall planned management of the water takes, use, and conservation education with an aim to reduce the per capita consumption. This is consistent with Councils resource consents requirements.
Education	Water Conservation Strategy It is intended to run water conservation programmes aimed at increasing community awareness of the benefits of conserving water and reducing water demand. These programmes will include information on ways to conserve water and will be implemented through public signage in key locations and using the print media
Water Charges	Water meters are installed for all industrial and non-urban users. This strategy is seen to help in terms of demand management. Although 15-20% demand reduction has been proven to be achievable in NZ universal metering has not been adopted due to the significant capital and operating costs.
Water Restrictions	Water restrictions are used to manage peak demand. Water restrictions typically include limits on the use of garden hoses

The future demand drivers for reticulated water Schemes in Matamata-Piako District will be driven by:

- Population increases and growth for industrial contributors
- Water loss strategies
- Resource consent renewals

The table below indicates how the above factors are expected to be reflected in changes in domestic and non-domestic water usage.

Drivers	Comment
Population increases & growth for industrial users	No significant impact is anticipated at the water treatment plants for Morrinsville, Tahuna, Hinuera and Te Poi. Industrial growth in Waharoa associated with Plan Change 47 will require expansion of the Matamata plant or construction of a new plant in the Waharoa area. Allowance has not been made to cope with industrial demand in the district. Expansion will depend on industry commitment. The connection of Te Aroha West to the Te Aroha supply is complete.
Water loss strategies	Reduction of water losses is essential to ensure long term sustainability of the water system
Resource Consent renewals	The renewal of resource consents is likely to require conservation measures to be implemented and will place additional drivers to match demand and customer expectations.

5.3.2 Capital Works Associated with Demand

Business cases are required for all projects as part of the corporate project system. Cost/benefit analysis must be undertaken for all significant projects. Net present value is another tool used to assess the different options. The following projects are associated with demand:

Location	Description	Estimated Cost	Time
Matamata South	Install new bore and	550,000	2030/31
	associated pipes		
Morrinsville	Install new bore	4,000,000	2023/25
	pump and WTP at		
	MV North.		
Waharoa (Matamata	Install new bore	800,000	2023/25
network)	pump and WTP at		
	Waharoa Aerodrome		
Matamata	Network upgrades	535,000	2021/23
	associated with Plan		
	Change 47		

5.4 Network Modelling

Reliable calibrated hydraulic models provide a robust decision-making support framework in which numerous future scenarios of demand, population growth, climate change and land use variables can be readily evaluated to assist in the determination of optimal network improvements required to meet future or changing needs.

New subdivisions can be modelled and effect on the network determined. Lack of capacity in the network can be identified and upgrade requirements determined.

Network modelling has been carried out in the three main towns by an experienced consultant on our behalf and is updated as required due to changes resulting from subdivision, improvement works and the like.

The network modelling provides staff with:

- Assistance in developing a targeted Capital Works programme and will improve confidence in the capital works programmes
- Determination of the capacity of the existing network and identify areas not meeting the existing or future Levels of Service
- An operational and management tool to assist in making the right decisions to improve and maintain service levels and reducing costs
- An aid to Council in long-term planning and everyday operations

6. Lifecycle Management Plan

6.1 Description of Water Activity

This section of the plan covers the description of assets covered under this plan.

6.1.1 Matamata- Piako Overview

Matamata-Piako District is located in the Waikato region of New Zealand's North Island. The three main urban centres are:

- Matamata
- Morrinsville
- Te Aroha

The total land area of the Matamata-Piako District covers an area of 175,477 hectares.

6.2 Water Activity

We have water systems in the townships of Matamata (including Waharoa and Raungaiti), Morrinsville (including Rukumoana), Te Aroha (including Te Aroha West), Tahuna, Hinuera and Te Poi. Refer to the map below:



6.2.1 Summary of Assets

This summary of Assets Table was renewed and updated from AssetFinda information in April 2017.

		Pla	ant Asse	ts			Point		Line Assets		
	T/Plants	Supply Bores	Pumping Stations	Reservoirs	Dams	Valves	Fire Hydrants	Tobys (includes manifolds)	Meters	Water mains (kms)	Service lines (kms)
Matamata	3	3	2	3	-	742	542	3167	163	111.3	13.8
Morrinsville	1	1	1	2	1	602	397	2783	136	94.0	15.1
Te Aroha	1	-	3	3	1	564	338	1947	121	96.7	13.1
Waharoa	-	0	2	1	-	73	60	213	19	19.8	0.8
Te Poi	1	-	2	1	-	9	2	38	23	1.66	0.3
Tahuna	1	3	2	1	-	26	9	14	52	2.9	0.4
Hinuera	1	2	-	1	-	30	1	18	13	3.6	0.5
Total	9	9	12	12	2	2,046	1,349	8,180	527	330.0	44.0

Table 6-1: Summary of Water Assets.

6.2.2 Data Confidence and Reliability

The following table provides the confidence framework (NAMS IIMM) used to determine the confidence in the asset data used in this AMP.

Confidence Grade	General Meaning
Highly Reliable	Data based on records, procedure, investigations and analysis, documented properly and recognised as the best method of assessment.
Reliable	Data based on records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example the data is old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation.
Uncertain	Data based on records, procedures, investigations and analysis which is incomplete or unsupported, or extrapolated from a limited sample for which grade highly reliable or reliable data is available.
Very Uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

The table below reflects the confidence in the asset data for the Water assets.

Asset Type	Highly Reliable	Reliable	Uncertain	Very Uncertain	Source
Treatment Plants		1			Asset Finda and AM
Supply Bores		1			~
Pumping Stations		1			~
Reservoirs		1			~
Dams		1			~
Valves		√			~
Fire Hydrants		√			~
Tobys		√			~
Meters		√			~
Water Mains (kms)		1			~
Service Lines (kms)		V			~

Overall Confidence Data

Overall Data Completeness

Asset Type	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Treatment Plants										\checkmark
Supply Bores										\checkmark
Pumping Stations										\checkmark
Reservoirs										\checkmark
Dams										\checkmark
Valves								\checkmark		
Fire Hydrants								\checkmark		
Tobys								\checkmark		
Meters									\checkmark	
Water Mains (kms)								\checkmark		
Service Lines (kms)								\checkmark		

Condition & Performance for Critical and Non Critical Assets

Asset Type	Highly Reliable	Reliable	Uncertain	Very Uncertain
Treatment Plants		\checkmark		
Supply Bores		\checkmark		
Pumping Stations	\checkmark			
Reservoirs		\checkmark		
Dams		\checkmark		
Valves			\checkmark	
Fire Hydrants		\checkmark		
Tobys		\checkmark		
Meters		\checkmark		
Water Mains (kms)			\checkmark	
Service Lines (kms)			\checkmark	

Further information is as follows:

- **Asset Information:** The asset information contained in AssetFinda (and AM for buildings) is based on both existing plans and checking in the field and is updated as errors are noticed, thereby improving accuracy.
- **Condition:** The condition of above ground assets is regularly monitored and below ground assets are checked whenever they are uncovered for repairs or new connections; and also when they are forecast for replacement. If it is considered they still have remaining life, the new life is entered into the AssetFinda. An AC pipe sampling programme is proposed starting in 2018 to allow more accurate assessment of remaining life.



• **Performance:** The performance of assets is regularly monitored via Council's telemetry system, plant operating systems and by reports from its Complaints Register. Performance data is not currently recorded in AssetFinda.

Council is in the process of moving most monitoring records to Infrastructure Data which has been specifically designed for water and wastewater treatment plants.

Summary of Current Condition (based on AssetFinda data)



Water Pipes Condition – Percentage of a pipe type

Water Points Condition – Percentage of a point type





• **Financial Forecasts:** The financial forecasts are based on the life of each asset as recorded in AssetFinda and AM.

The life of all reticulation assets has been reviewed towards the end of the 2012/13 financial year and the proposals peer reviewed by Neville West of Waugh Infrastructure Management Ltd. AssetFinda was updated in 1 July 2014 with the new data.

The life of the buildings in AM was also reviewed towards the end of the 2012/13 financial year as part of the valuation detailed below. AM was updated in December 2017 with the new data.

• Valuation: The valuations of all reticulation assets (except buildings) were revised towards the end of the 2017/18 year and audited by Philip Jones of P J & Associates who is an approved auditor. AssetFinda was updated in April 2017 with the new data.

The building valuations were revised towards the end of last financial year. The valuation of specialised property assets was undertaken by SPM Assets Ltd and the market value of non-specialised property assets was undertaken by Curnow Tizard Ltd. AM was updated on December 2017 with the new data.

6.3 Matamata Water Scheme

6.3.1 Matamata Scheme Overview

Matamata (including Waharoa and Raungaiti) is currently supplied by 3 water sources:

- Tills Rd Treatment Plant draws from the Waiteariki Stream at the base of the Kaimai Ranges.
- Matamata South Treatment Plant is fed from the Matamata South Bore located opposite the racecourse
- Tawari Treatment Plant supplied from 2 bores close to the Treatment Plant.
- Council is currently considering (awaiting commitment from OCD) constructing a new treatment plant to utilise a recently installed replacement bore at the Waharoa Aerodrome (RC 133023, 1500m³/day). This source will require treatment to remove iron and manganese but the concentration is much less than the original bore in Waharoa itself. The supply is necessary to meet the increasing demand from OCD.

Presently water for Waharoa is pumped from the Tawari Treatment Plant usage had increased significantly with the construction of a cheese factory now operated by Open Country Dairy. However sin their demand has dropped considerably but additional industries may set up in Waharoa. and there are two further smaller dairy product suppliers and vegetable processors looking to set up in Waharoa. Council commissioned CHM2 Beca to undertake a preliminary assessment of the feasibility of constructing a new water treatment plant (and Wastewater Treatment Plant) close to Waharoa that sources water from the Waihou River. The assessment outcome is currently being considered by Council. Open Country Dairy is also investigating the option of sourcing water on-site.

Water Sources	(Consent volumes)
Tills Road - Waiteariki Stream	4,400 m³/day¹
Matamata South - Underground water (bore)	1,500 m³/day
Tawari - Underground water (2 bores)	2,500 m³/day
Waharoa Airfield bore (not currently in use)	1,500 m³/day
Combined Total	9,900 m³/day
Water Treatment Plants	
Matamata (Tills Rd)	- 3 Sand Filters
	- Lime pH correction
	- PACL Coagulation
	- Chlorine Disinfection
	- UV Disinfection
Matamata South	- Chlorine Disinfection
	- pH Correction using NaOH
Tawari St	- Chlorine Disinfection
	- pH Correction using NaOH
Waharoa Airfield	ТВА
Water Storage	
Matamata (Tills Road), Treated	454 m ³

6.3.2 Matamata Scheme Information

1 RC 119917

Matamata South, Raw	6000 m ³
Matamata South, Treated	
Tawari, Raw	4500 m ³
Tawari, Treated	
Waharoa, Treated	
Waharoa Airfield	?
Water mains (including Waharoa & Raungaiti)	133.0 km
Service Lines	14.5 km
Hydrants	602
Valves	815
Tobies (includes manifolds)	3380
Meters?	

The following shows the layout of the system:



The following schematic taken from the SCADA system shows the general configuration of the system:



Figure 6-1: Matamata Network SCADA Layout.

6.3.3 Matamata Treatment Plants

There are three treatment plants supplying the Matamata/Waharoa/Raungaiti area as follows:

Tills Road

Raw water is treated by coagulation, flocculation, then direct filtration. At the plant inlet, poly aluminium chloride (PACI) is dosed before the mixing chamber to coagulate solids in the raw water. The mixing chamber tank has a number of baffles to increase the contact time. Polyelectrolyte (poly) is dosed using a flash mixer before direct filtration to improve the floc media. At the weir prior to the clearwater tank (retention time 30 minutes) the water is pH corrected using lime, and disinfected by the addition of chlorine.

Treated water is then stored in a 400 m³ reservoir before gravitating to Matamata. The replacement of this reservoir with a 2000 to 2500 m³ reservoir is being considered alongside other options for managing the increasing demand in Matamata.

The falling main into Matamata has a pressure reducing valve controlling the flow into the reticulation.



Figure 6-2: Tills Road WTP SCADA Layout.

• Tawari

Ground water is pumped from two bores near to the treatment plant and the raw water is stored in a reservoir comprising a large bladder contained in an earth bund. As required the water is treated with chlorine and pumped into the reticulation via two pressure pumps.

As required the water is treated with chlorine and pumped into the reticulation via two pressure pumps.



Figure 6-3: Tawari St WTP SCADA Layout.

Matamata South

Ground water is pumped from a bore adjoining the railway and opposite the racecourse and pumped and the raw water is pumped to a reservoir alongside the treatment plant in Burwood Road. The reservoir comprising a large bladder contained in an earth bund.

As required the water is treated with chlorine and pumped into the reticulation via two pressure pumps.





The various pumps are controlled by PLC's at each site and also via the telemetry system.

Drinking Water Standards (DWS) Compliance

Tawari Bore 1, Matamata, Tawari Bore 2, Matamata and Matamata South Bore – three groundwater sources for the Matamata drinking-water supply no-longer have 'secure status' (as defined in the DWS). UV reactors have been installed at these two WTP's in recent years to give further protection, in particular from Protozoa contamination. A budget of \$250k per year has also been allocated in the 2021-31 LTP for DWS related projects over all the district drinking water supplies.

6.3.4 Matamata Reticulation

The earliest pipes were either spiral riveted or welded steel, then came asbestos cement and more recently various types of plastics.

The makeup of all the pipes including service lines and miscellaneous is:

Diameter	Alkathene	Asbestos Cement	Cast Iron	Concrete Lined Steel	Copper	Galvanised Iron	HDPE	MDPE	mPVC	PVC	Steel	Unknown	uPVC	Grand Total
20	654		388		213	1,198	476	5,167		1,439	93	6,709	353	16,688
25						156		1,139		1,418		2		2,715
32	547					314		273					2	1,136
40						198								198
50		1,979				2,348	16	1,127		5,211	1,402	1,864	1,625	15,570
63							225	19,707						19,932
100		19,695	685	15		277	272	1,533	1,739	4,270	604	217	4,021	33,327
125								966						966
150		7,651	1,068				982	1,335	4,302	1,971	86		4,857	22,253
200							483	646	1,731	2,701			1,682	7,243
250		3,177						9			4,919	3,135	1,255	12,495
300							130				12			142
Grand Total	1,201	32,501	2,141	15	213	4,491	2,583	31,901	7,773	17,009	7,116	11,926	13,796	132,665

Table 6-2: Lengths of Pipe Materials within Matamata Reticulation (CM2389346)

6.3.5 Waharoa/Raungaiti Reticulation

The makeup of all the pipes including service lines and miscellaneous is:

Table 6-3: Lengths of Pipe Materials within Waharoa Reticulation (CM2389346)

Diameter	Alkathene	Asbestos Cement	Galvanised Iron	HDPE	MDPE	mPVC	PVC	Unknown	uPVC	Grand Total
20	16		4	3	117		546	92		778
25					1					1
32									447	447
40			120	1,101			275		385	1,881
50					35					35
63					954					954
100		4,925			483	10				5,418
125				2,239	247					2,486
150		341				1,297			5,655	7,292
180				24	1,326					1,350
225				35						35
Grand Total	16	5,267	125	3,402	3,164	1,306	821	92	6,486	20,678

It is currently supplied water by a pump line from the Tawari WTP in Matamata. This is stored in a reservoir and pumped into the reticulation through a variable speed pump which maintains a constant pressure in the reticulation. A booster pump provides additional flow for fire fighting purposes.

The reticulation has recently been extended to Raungaiti to the north of Waharoa.

Preliminary investigations are underway to assess the feasibility of constructing and operating a new treatment plant near Waharoa with the source being the Waihou River.

6.3.6 Matamata Resource Consents

Table 6-4: Matamata Resource Consent List.

No	Consent Details	Expires
104409	Construct well at Matamata South	17/11/2035
119179	Take up to 2500 m ³ / day or 600,000 m ³ /year, of groundwater for Tawari WTP.	01/12/2031
119917	Take up to 4000 m ³ /day or 1,200,000 m ³ /year from the Waiteariki Stream	01/03/2047
119918	Discharge up to 50 m³/day treated backwash water into Waiteariki Stream	01/03/2047
119919	Use & maintain intake structure on bed of Waiteariki Stream	01/03/2047
119920	Use & maintain discharge structure on bed of Waiteariki Stream	01/03/2047
121950	Take up to 1500 m 3 /day or 300,000 m 3 / year, of groundwater for Matamata South WTP	01/12/2031



121951	Ground water use Matamata South WTP	01/12/2031
123349	Ground water use Tawari WTP	01/12/2031
133023	Waharoa Airfield take up to 1,500 m³/day, 450,000m³/yr	31/12/2031

6.4 Water

6.5 Morrinsville Water Scheme

6.5.1 Morrinsville Scheme Overview

The water treatment plant and water source is some 16 km away on the Waterworks Road.

The water catchment area consists of 1900 ha in the Waipa District near Te Miro. Surface runoff (mainly from farmland) forms the Topehaehae Stream which feeds a 360,000 m³ dam.

Raw water is abstracted from the impoundment lake through a central tower that has a pivot arm intake. A 375 mm pipeline takes the raw water to the Water Treatment Plant.

After treatment the water is stored in an on-site reservoir and then conveyed to Morrinsville via a 15.5 km pipeline. It can then be directed straight into the town reticulation or into the reservoir on Mt Misery.

6.5.2 Morrinsville Scheme Information

Water Sources	(Consent volumes)
Waterworks Road	10,000 m3/day
Scotts Road	Up to 1,000m3/day (90,000m3 ann.)
Water Treatment Plant	
Waterworks Road	- 5 Sand Filters
	- Lime pH correction
	- Alum Coagulation
	- Chlorine Disinfection
	- UV Disinfection (proposed 2024/25)
Water Storage	
Treatment Plant	3,300 m ³
Mt Misery (new 2017)	8,000 m ³
Water mains	101.0 km
Service Lines	14.8 km
Hydrants	417
Valves	726
Tobies	2783





Figure 6-5: Morrinsville Reticulation Layout.

6.5.3 Morrinsville Treatment Plant



Figure 6-6: Morrinsville WTP and Network SCADA Layout.

Raw water is stored in an impounding lake and conveyed by a pipeline to the treatment plant

An upgrade in 1964 constructed a Patterson Candy treatment plant, and this forms the basis of the current plant. In 1985 and 1990 further upgrades added a fourth sand filter and fourth clarifier/fifth sand filter respectively. Total treatment consists of coagulation, sedimentation, and filtration. Most of the water movement is accomplished by gravity flows.

Alum and polymer are dosed prior to the flash mixer and four up flow hopper bottomed clarifiers. Lime is added to assist with coagulation.

Treated water is gravity fed into the clear water reservoir, which provides adequate chlorine contact time prior to the site storage reservoir. The water is then piped 15.5 km to Morrinsville. Flow can be directed to and from the Mt Misery Reservoir which is used to balance demand fluctuations within the Reticulation.

The following schematic shows the treatment process:



Figure 6-7: Morrinsville WTP Process Diagram.

Drinking Water Standards (DWS) Compliance

A budget of \$750,000 has been allocated during 2024/25 to install UV treatment providing another barrier to contamination.

6.5.4 Morrinsville Reticulation

The earliest pipes were either spiral riveted or welded steel, then came asbestos cement and more recently various types of plastics.

The makeup of all the pipes including service lines and miscellaneous is:

 Table 6-5: Lengths of Pipe Materials in the Morrinsville Reticulation.



Diameter	Alkathene	Asbestos Cement	Cast Iron	Concrete Lined Steel	Copper	Ductile Iron	Galvanised Iron	HDPE	MDPE	mPVC	PVC	Stainless Steel	Steel	Unknown	uPVC	Grand Total
20	582				631		15	2,727	4,391		1,829			6,967	146	17,288
25	18							71	446		726			88		1,349
32							63		221		635					919
40							42				661			74		776
50	340	442					261	481	916		6,657			319	744	10,159
63	993							1,954	9,868					16		12,831
100		15,004	1,157	1,162		4		26	2,359	893	5,348		45	901	1,582	28,481
125								23	373							396
150		9,242	536	366		21		2,215	1,508	1,192	1,799		13	99	2,059	19,049
180								1,274	634							1,909
200		817				800				207	343		8		143	2,318
250		2,550									6					2,556
300		1,932						87	139			41			25	2,225
375		15,325														15,325
400								618								618
Grand Total	1,933	45,312	1,693	1,528	631	825	380	9,476	20,855	2,292	18,005	41	66	8,462	4,699	116,199

6.5.5 Morrinsville Resource Consents

120718	Water Permit – Dam.	25/07/2053
	To dam and occupy the bed of the Topehahae Stream and to use and maintain the dam for water supply reservoir purposes.	
120720	Water Permit – Surface Water Take.	25/07/2053
	To take water from the Topehahae Stream. 10,000m3/day, 140L/sec with minimum residual stream flow conditions.	
120722	Land Use – Bed – Structure.	25/07/2053
	To occupy, use and maintain intake and discharge structures on the bed of the Topehahae Stream.	
120724	Discharge Permit – Water – Other.	25/07/2053
	To discharge treated backwash water to the Topehahae Stream.	
126657	Water permit – Ground water take	30/04/2033
	To take groundwater for municipal supply. Scott Road groundwater take 1 Nov to 30 May for up to 1000 m ³ /day & total of 90,000 m ³ .	

The Scott Road consent requires we review the Water Management Plan for Morrinsville in 2018, 2023 and 2028 and that this review includes specific matters noted in the consent.

6.6 Te Aroha Water Scheme

6.6.1 Te Aroha Scheme Overview

Te Aroha is serviced by 4 water sources:

- Pohomihi Stream and Reservoir
- Tutumangao Stream
- Tunakohoia Stream
- Waihou River

The Waihou River intake is used when the stream flow reduces mainly during the summer

Raw water is treated in the Te Aroha Water Treatment Plant (WTP) and fed to the Te Aroha reticulation network which also supplies Silver Fern Farms Meat Works, Inghams Poultry Producing Plant and the Te Aroha West township which are sited some distance out of the town.

Raw water from the Pohomihi Reservoir also feeds some properties adjacent to its route.

6.6.2 Te Aroha Scheme Information

Water Sources	(Consent volumes)
Tunakohoia Stream	3,500 m ³ per day
Tutumangao Stream	3,500 m ³ per day
Pohomihi Stream	4,500 m ³ per day
Waihou River	10,000 m³ per day
	Total of all extractions not to exceed 10,000 m ³ per day)
Water Treatment Plants	
Te Aroha WTP	- 2 Hopper Bottom Clarifiers with Lamella Tube Settlers
	- 4 Sand Filters
	- Lime pH correction
	- Alum& Poly Coagulation
	- Chlorine Disinfection
	- UV disinfection (2024/25)
Treated Water Storage (Reservoir)	
Water Treatment Plant (1966)	2,273 m ³
Water Treatment Plant (2006)	5,000 m ³
Tui Road	190 m ³
Water mains	98.3 km
Service Lines	13.1 km
Hydrants	338
Valves	564
Tobies	1947





The following shows the layout of the system:

Figure 6-8: Te Aroha Reticulation Layout.

The following schematic taken from the SCADA system shows the general configuration of the system:



Figure 6-9: Te Aroha WTP SCADA Layout.

6.6.3 Te Aroha Treatment Plant

Te Aroha WTP is a Paterson Candy type plant. The plant is constant flow and any excess to demand is wasted through an overflow pipe from the balance tank. The Pohomihi Reservoir, and Tutumangao and Tunakohoia Streams are the raw water sources, and these can be supplemented by the Waihou River pump. The Pohomihi reservoir is supplied by the Pohomihi Stream and tributary.

Raw water flows through a Bermad Flow Control Valve, balance tank and mixing chamber upstream of the flash mixer. Aluminium sulphate is added to the raw water as it enters the inlet chamber.

Water is then equally divided between two hopper bottomed settling tanks where coagulation and settlement takes place. The clarifiers have tube settlers added to improve sedimentation and polyelectrolyte is added to assist coagulation.

The clarified water is removed from the top of the tank by a series of decanting troughs and then flows to the filters. The filtered water is gas chlorinated, lime is added for pH correction and the treated water is stored in onsite reservoirs to balance consumer demand.





Figure 6-10: Te Aroha WTP Process Diagram.

Drinking Water Standards (DWS) Compliance

A budget of \$750,000 has been allocated during 2024/25 to install UV treatment providing another barrier to contamination.

6.6.4 Te Aroha Reticulation

The earliest pipes were various types of steel, then came asbestos cement and more recently various types of plastics. The makeup of all the pipes including service lines and miscellaneous is:

Diameter	Alkathene	Asbestos Cement	Cast Iron	Concrete Lined Steel	Copper	Ductile Iron	Galvanised Iron	HDPE	MDPE	mPVC	PVC	Steel	Unknown	uPVC	Grand Total
20	2,423				6		199	1,387	4,679		208		5,522	25	14,448
25	2,695						103	41	705		2		143	24	3,714
32	3,193							77	911		594			38	4,812
50	296	136	33				759	207	2,533		2,102		2	215	6,283
63								827	9,509						10,335
75		33	1,529				235								1,797
80			152												152
100	133	7,260	2,303	343				1,377	1,911	261	6,389	14		2,957	22,948
125				75				367	1,769						2,211
150		8,859	371					902	2,294	325	485			2,590	15,826
175				182											182
180								3,299	3,170						6,469

 Table 6-6: Length of pipe materials in hte Te Aroha Reticulation.
Section 5: Growth and Demand

200		761		122											883
225		4,538						491							5,029
250		703							1,757		9,329	3		1,085	12,877
300						967		520	62		2,780	17		1,242	5,588
Grand Total	8,740	22,290	4,389	721	6	967	1,296	9,495	29,300	586	21,887	34	5,668	8,175	113,555



6.6.5 Te Aroha West Supply

The Te Aroha West township draw is now supplied fully treated water from the Te Aroha reticulation. Some properties on the eastern side of the river are still supplied with untreated water from the supply line into Te Aroha from the Pohomihi Intake via a 225 mm diameter, 6 km long pipeline. These properties are on a permanent Boil Water Notice.

Reticulation asset data is included with Te Aroha assets.

Number	Consent Details	Details
104578	To take water from the Tunakohoia Stream tributary	20/04/2026
104580	To take water from the Lipsey (Tutumangao) Stream	20/04/2026
107395	To occupy the bed of the Lipsey (Tutumangao) Stream for an intake structure	20/04/2041
107398	To occupy the bed of the Lipsey (Tutumangao) Stream for a discharge structure	20/04/2041
104581	To take water from the Pohomihi Stream and two tributaries of the Pohomihi Stream	20/04/2026
104583	To discharge up to 500 m ³ of water per day to the Lipsy (Tutumangao) Stream from a water treatment operation	20/04/2026
107391	To discharge water to the Pohomihi Stream from a water reservoir	20/04/2026
109740	Take up to 10,000 m3/day of water from the Waihou River	20/04/2026

6.6.6 Te Aroha Resource Consents

The renewal of the water take and discharge consents is not expected to be a problem. It is anticipated that the current consent conditions will carry over, however this is not assured until the consent renewal application has been processed by the Waikato Regional Council. Work on preparing the consent applications will commence approximately 12 months prior to the consent expiry date.

6.7 Tahuna Water Scheme

6.7.1 Tahuna Scheme Overview

Water is pumped from the three bores into the two concrete storage tanks located at the bore site. Water entering the storage tanks is dosed with sodium hypochlorite and corrected for pH using caustic.

Treated water is then pumped to the clear water storage tank located at the Tahuna Domain and then into the reticulation through a variable speed pump which maintains a constant pressure in the reticulation. A booster pump provides additional flow for firefighting purposes.

Work is underway to install two 50m³ treated water tanks at the WTP and de-commision the Timber Tank and adjacent equipment at the domain site.

6.7.2 Tahuna Scheme	Information
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Water Sources	(Consent volumes)
Bores	105 m³/day
Water Treatment Plant	Caustic pH correction
	Chlorine Disinfection
	UV disinfection (Installed 2017/18)
Water Storage	
Tahuna Domain	50 m ³
Water mains	3.3 km
Service Lines	0.4km
Hydrants	9
Valves	26
Tobies	14

Section 5: Growth and Demand



Figure 6-11: Tahuna Reticluation Layout.



Figure 6-12: Tahuna WTP SCADA Layout.

Section 5: Growth and Demand

6.7.3 Tahuna Treatment Plant

Raw water from three bores (one within the treatment Plant building and two outside) is pH treated with caustic and chlorinated with hypochlorite for disinfection.

The treated water is held in two tanks before being pumped to the main reservoir in the Domain.

Originally it was then pumped into an elevated gravity tank before being distributed by a piped reticulation system. This was replaced with a pressure pump some years ago and with a second pump to provide fire-fighting flows

Drinking Water Standards (DWS) Compliance

Three bores supply Tahuna and the WTP now has UV disinfection treatment to provide another barrier to contamination. The old Timber Tank treated water reservoir at the domain is currently being replaced by two 50m3 concrete tanks at the WTP site.

6.7.4 Tahuna Reticulation

Much of the material type is unknown. The mains are fitted with fire hydrants.

······································	The makeup of all th	e pipes including	service lines and	d miscellaneous is:
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. ..

Diameter	Alkathene	HDPE	MDPE	mPVC	PVC	Unknown	uPVC	Grand Total
20	227		15.67		1,628		258	2,130
32		28						28
50					67	321		388
63			688					688
100				137	353	11		501
Grand Total	227	28	703	137	2,049	332	258	3,734

There is a mistake with the quantity of 20mm pipe, at least 1000m of this is likely to be 100mm PVC, this will be corrected when time allows.

6.7.5 Tahuna Resource Consent

Number	Consent Details	Details
111998	Water Permit – Ground Water Take.	28/02/2020
	Take up to 105 cubic metres per day of groundwater at a rate of up to 1.25 litres per second from two bores for municipal supply purposes	

The renewal of the water take consent is underway and not expected to be a problem. It is anticipated that the current consent conditions will carry over, however this is not assured until the consent renewal application has been processed by the Waikato Regional Council.



6.8 Hinuera Water Scheme

6.8.1 Hinuera Scheme Overview

The water is sourced from 2 bores adjacent to the treatment plant which is elevated above the Hinuera community.

Caustic soda dosing is provided for pH correction to improve the chlorine disinfection prior to entering the reservoir which provides some storage and balancing to match demand.

The supply was originally installed to provide water for a dairy factory and its houses and after the factory closed was taken over by the then Matamata County Council.

6.8.2 Hinuera Scheme Information

Water Sources (Consent volumes)			
Bores (2)	120 m³/day		
Water Treatment Plant	UV disinfection (2017/18)		
	Caustic pH correction		
	Chlorine Disinfection		
Water Storage	24 m ³		
Water mains	3.6 km		
Service Lines	0.5 km		
Hydrants	1 (Flow well below FS Specs)		
Valves	30		
Tobies	18		



Section 5: Growth and Demand



Figure 6-13: Hinuera Reticulation Layout



Figure 6-14: Hinuera WTP SCADA Layout.

6.8.3 Hinuera Treatment Plant

Raw water from two bores (one within the treatment Plant building and one outside) flows through a UV reactor, is pH treated with caustic and chlorinated with hypochlorite for disinfection.

It is then retained in a 30m3 reservoir before gravitating to the township

Drinking Water Standards (DWS) Compliance

Two bores supply Hinuera and the WTP now has UV disinfection treatment to provide another barrier to contamination.



Section 5: Growth and Demand

6.8.4 Hinuera Reticulation

There is a wide variety of materials within the reticulation.

The head is insufficient to provide for fire-fighting flows even though there is one hydrant on the State Highway. The makeup of all the pipes including service lines and miscellaneous is:

Diameter	Alkathene	Cast Iron	Galvanised Iron	HDPE	MDPE	PVC	Steel	Unknown	uPVC	Grand Total
20	244		310	34	625	47	81	19		1,359
25	346				317		41			704
32					20		327			347
40									167	167
50	294		264	153			160		83	953
63									104	104
75		212								212
100					284					284
Grand Total	883	212	573	187	1,246	47	609	19	354	4,130

The pipework that was inherited with the Hinuera reticulation is a bit of a mess. As part of our renewals work we're in the process of tidying some of this up which should result in less pipework in the ground, less leakage and a higher level of service.

6.8.5 Hinuera Resource Consent

Num	nber	Consent Detail	Expirers
114	673	Water Permit – Ground Water Take. Take up to 120 m ³ /day of groundwater at a rate of up to 2.5 litres per second for municipal water supply purposes	31/08/2021

We are currently in the process of applying for a new resource consent, the renewal of which is not expected to be a problem. It is anticipated that the current consent conditions will carry over, however this is not assured until the consent renewal application has been processed by the Waikato Regional Council.

6.9 Te Poi Water Scheme

6.9.1 Te Poi Scheme Overview

Raw water from the Waiomou Stream is pumped 900 metres at a rate of about 10 m³/hr to the Water Treatment Plant in the old dairy factory grounds. The raw water can have high turbidity, as the stream is sourced predominantly from farm runoff and treated effluent

After treatment, the water is stored in an adjacent 160m³ reservoir before being pumped into the reticulation.

The supply was originally installed to provide water for a dairy factory and its houses and after the factory closed the reticulation was upgraded and the plant and reticulation then taken over by the Council.

6.9.2 Te Poi Scheme Information

Water Sources	(Consent volumes)
Waiomou Stream	120 m³/day
Water Treatment Plant	1 roughing filter
	2 pressure filters
	PACL Coagulation
	Soda Ash pH treatment
	Chlorine disinfectant
	UV disinfection (2017/18)
Water Storage	160 m ³
Water mains	2.6 km
Service Lines	0.3 km
Hydrants	2
Valves	9
Tobies	38





Figure 6-15: Te Poi reticulation layout.





6.9.3 Te Poi Treatment Plant

Raw water is filtered through one of the old Patterson Candy sand filters and then filtered through 2 parallel Connect filters. After filtration and before storage, pH is corrected by adding Soda Ash and water is disinfected by UV and then Sodium Hypochlorite.

Water then flows to the rectangular 160 m³ storage tank. Variable speed pumps maintain constant pressure in the town. A booster pump operates during periods of high demand e.g. mains flushing or firefighting.

The plant occupies part of the old Waikato Valley Dairy Company site.

Drinking Water Standards (DWS) Compliance

Te Poi is supplied by surface water from the Waiomou Stream and the WTP now has UV disinfection treatment to provide another barrier to contamination.

6.9.4 Te Poi Reticulation

The makeup of all the pipes including service lines and miscellaneous is:

Diameter	MDPE	PVC	Steel	Unknown	uPVC	Grand Total
20	10	2		28	250	290
25					48	48
40					394	394
50					743	743
63					38	38
100			2		520	523
200			905			905
Grand Total	10	2	907	28	1,993	2,940

6.9.5 Te Poi Resource Consent

Number	Consent Details	Expires
118256	Take water from the Waiomou Stream at Tapapa-Te Poi South Rd - Te Poi at max. of 120 m³/day	01/07/2027

6.10 Lifecycle Management - An Overview

The Lifecycle Management programmes cover the four key categories of work necessary to achieve the required outcomes from the Water Activity. These programmes are:

Management Programme:

- Management functions required to support the other Programmes
- Developed and Implemented by MPDC

Operations and Maintenance Programme:

- To ensure efficient operation and serviceability of the assets so that they achieve their service potential over their useful lives
- Developed and Managed by MPDC -Implemented by MPDC and external service providers

Renewal Programme:

- To provide for the progressive replacement of individual assets that have reached the end of their useful lives
- Developed and Managed by MPDC -Implemented by external service providers

Development Programme:

- To improve parts of the system currently performing below target service standards and to allow development to meet future demand requirements
- Developed and Managed by Matamata-Piako District Council - Implemented by external service providers

Maintaining the service potential of the assets and ensuring that the assets achieve that potential

Closing service gaps.

Meeting future demand

The Operations & Maintenance and Renewal Programmes are focused on maintaining the current service potential of assets, and are primarily driven by the condition of assets although asset performance is often an indicator of asset condition.

The Development Programme is focused on closing service gaps by increasing the service potential of the Water system and is primarily driven by the performance of assets.

6.11 Management Programme

6.11.1 Introduction

- Management and monitoring strategies set out the activities required to support the maintenance, operations cyclic renewal and asset development programmes. These activities include:
- Strategic planning
- Data management and evaluation
- Business processes
- Monitoring
- Financial management.

The relationship between these activities is indicated in the following diagram.



Strategic planning and a focus on meeting the needs of Water Activity consumers drives the design of management processes which in turn are reflected in the level of performance that is achieved. Collection of data necessary to manage the Water Activity effectively and processes for the analysis and interpretation of this data support all management activities.

6.11.2 Management Strategies

The Water strategy is set out below for the following categories:

- Strategic Planning
- Data Management and Utilisation
- Business Processes
- Monitoring Financial Management



Strategy	Objective/ Description			
Strategic Planning				
Human Resources	Develop the professional skills of the staff through adequate training and experience			
	Personal Development Plans will be agreed with staff each year and a register maintained to record training history. Staff are encouraged to belong to appropriate professional bodies and to attend appropriate conferences, seminars and training courses			
Strategic Alignment	This Activity Plan will support the achievement of relevant Community Outcomes for Matamata-Piako District			
	Community Outcomes for Matamata-Piako District are set out in the Long Term Council Community Plan. The intended contribution of the Matamata- Piako District Council water to the achievement of Community Outcomes is shown in this Activity Plan			
Service Levels	A clear statement of water services provided and standards to be achieved that directly link to and support the stated community outcomes are shown within this AP			
	Service standards will be incorporated into contracts as part of a internal performance management framework for the water activity and will be used for performance and monitoring purposes			
	With the introduction of community outcomes and the clear need to demonstrate how the activity supports those outcomes and how that will be measured circumvents previous customer and technical levels of service. These have been integrated into the service levels and allow the annual performance measures and the three yearly community outcome measures to be one and the same. It also provides a clear path for consultation with the community			
Sustainable Management	Ensure all planning for the management, operation, maintenance, renewal and development of the water activity is compatible with sustainable management principles			
	Matamata-Piako District Council will pursue ways of limiting the use of natural resources including energy, valued landscapes (and other natural heritage) and adverse effects on waterways. This will involve auditing the systems and materials used, and developing ways to incorporate sustainable operation and development principles into its activities. For example, auditing power usage in pump stations, and using non-asset based solutions where possible			
Data Management and Utilisation				

Strategy	Objective/ Description
Network Modelling	Instigate the development of computer-based hydraulic models of the water system. Computer models of the water reticulation are required to enable Matamata-Piako District Council to:
	 Determine accurately the existing capacity of the system Identify inadequate sections of the system Operate the system in the most efficient manner Determine the impact of further development on the system Identify system upgrading requirements Compare options for upgrading the wastewater system
Data Collection	Data collection programmes (condition, performance, asset registers) closely aligned with business needs will be implemented in accordance with documented quality processes
	Data collection, maintenance and analysis are expensive and it is important that programmes and techniques are cost effective and consistent with business needs. The processes will be reviewed for the collection and upgrading of essential data based on asset criticality including:
	 Asset attribute information Asset performance data Asset condition data
GIS Data	GIS data will continue to be the subject of defined quality assurance processes
	Matamata-Piako District Council has quality processes to ensure that all data entered to the GIS system meets defined quality standards and supports AM through connectivity with the asset register and AM data storage
	Support the progressive and systematic review of existing data on the GIS system
Business Pro	pcesses
Activity Plan Updates	This Activity Plan remains a strategic 'living' document and will be updated as required and reviewed at three yearly intervals or more frequently as necessary to incorporate significant improvements to asset management practices (as proposed in the improvement plan)
	The scope of the review will be influenced by changes in Community Outcomes for Matamata-Piako District, service standards, improved knowledge of assets, introduction of Asset Management improvements and corporate strategy/ policy and process
Risk Management	Risk Management is an essential part of Asset Management. Water activity risks will be managed by implementing a Risk Management Plan for the water activity and the implementation of risk mitigation measures to maintain risk exposure at agreed levels

Strategy	Objective/ Description
	Risk mitigation measures will include maintaining appropriate insurance cover, emergency response planning, condition monitoring of critical assets, preventative maintenance, use of telemetry, and operations manuals, review of standards and physical works programmes
Infrastructure Asset Valuation	Perform valuations in a manner that is consistent with national guidelines and Matamata-Piako District Council corporate policy for valuation cycles which currently are yearly aligned with LTP requirements
	Asset valuations are the basis for several key asset management processes including asset renewal modelling and financial risk assessments. Valuations of the water system will be carried out based on data from the AMS system to ensure auditability and alignment with other processes
Statutory Compliance	Implement quality plans that identify legal obligations and processes adopted to achieve statutory compliance (e.g Water Safety Plans and Resource Consent conditions)
Quality Assurance	Quality processes will cover activities such as reporting, data collection and management, contract monitoring, risk management, economic analysis, performance monitoring, strategic planning, customer contact, asset valuation, asset operation, work specification, etc
Monitoring	
Level of Service Standards	Establish monitoring procedures to ensure wastewater activity is contributing to the community outcomes as stated and that internal controls are also monitored and managed
Management Standards	Establish Management Standards to provide an additional level of performance measurement that can be used by Matamata-Piako District Council on an "as required" basis as part of a performance framework for the water activity and monitor achievement of these standards
Asset Performance	Matamata-Piako District Council will establish a framework to enable the performance of the water assets to be monitored as an input to asset renewal and asset development programmes. The Monitoring includes:
	 Customer service requests Asset failure records Asset Maintenance records Compliance with Resource Consents Critical asset audits Legislative compliance
Financial Ma	nagement
Budgeting	Prepare all expenditure programmes for the water activity in accordance with Council funding and budget preparation policies and procedures for at a 30 year projection

Objective/ Description		
Use the AM Plans to provide sufficient detail to demonstrate the decision making process for those 30 year projections		
The different categories of expenditure within the financial programmes will be identified to enable the funding to be allocated in accordance with the Council's policies		
Manage the water activity budget in accordance with statutes and corporate policy		
This will involve:		
 Economic appraisal of all capital expenditure Annual review of Asset Management Plan financial programmes Recording of significant deferred maintenance and asset renewals Continuous monitoring of expenditure against budget 		
Ensure the water activity is managed in a financially sustainable manner over the long term.		
The financial requirements for the provision of the water activity sustainably and to acceptable standards over the long term will be identified and provided for in draft budgets. These requirements include:		
 Management of the water activity Operation and maintenance of the water systems Asset replacement Asset development to ensure that the ability of the water activity to deliver an acceptable level of service is not significantly degraded by growth in 		

While we do not have a asset register recording all aspects of asset management, we do not consider this a disadvantage as we have a CRM system handling customer complaints and failures, linked to the GIS system, and plant and reticulation monitoring via telemetry.

Reticulation asset failure and maintenance is recorded against individual assets – excluding costs which are captured against asset groups.

Council also operates an Infrastructure Data system that consolidates existing systems and makes them more assessable.

A Water Activity Group (WAG) was set up some years ago to bring together key operational, engineering and asset management staff to undertake co-ordination of the water activity. In particular it assesses renewal and capital projects for optimal timing, sensitivity and accuracy of data used, project justification and condition of assets etc.

6.11.3 Management Standards

The Matamata-Piako District Council Water Activity is managed in accordance with the following standards:

- Generally accepted accounting Practice NZ IAS 16
- The International Asset Management Manual
- Resource Consent Conditions for the Matamata-Piako District Water Activity
- The Matamata-Piako District Council Health and Safety Plan

6.12 Operations and Maintenance Plan

6.12.1 Introduction

Operations and Maintenance strategies set out how the Water activity will be operated and maintained on a day-to-day basis to consistently achieve the optimum use of assets. Operations and Maintenance activities fall into the following categories, each having distinct objectives and triggering mechanisms:

Operations - Activities designed to ensure efficient utilisation of the assets, and therefore that the assets achieve their service potential. Operational strategies cover activities such as energy usage, control of mechanical and electrical plant, inspections and service management.

Maintenance - Maintenance strategies are designed to enable existing assets to operate to their service potential over their useful life. This is necessary to meet service standards, achieve target standards and prevent premature asset failure or deterioration. There are three types of maintenance:

- **Programmed Maintenance** A base level of maintenance carried out to a predetermined schedule. Its objective is to maintain the service potential of the wastewater system
- **Condition Maintenance** Maintenance actioned as a result of condition or performance evaluations of components of the Wastewater system. Its objective is to avoid primary system failure
- **Reactive Maintenance** Maintenance carried out in response to reported problems or system defects. Its objective is to maintain day-to-day levels of service

6.12.2 Method of Delivery

The operation and maintenance of the MPDC Water Activity is carried out using a combination of Matamata-Piako District Council staff, Council owned Business Units and external contractors consisting of:

- Group Manager Service Delivery responsible for the internal Business Units.
- Asset Manager Strategy & Policy responsible for overall compliance including resource consents and annual reporting.
- Water & Wastewater Services provide internal design, project and contract management and Treatment Plant operations (Council Business Unit).
- Kaimai Valley Services for reticulation maintenance (Council Business Unit).

- External contractors for specialist activities such as laboratory testing and major overhauls of mechanical equipment are commissioned by Water & Wastewater and Kaimai Valley Services
- Major Capital Construction and Renewal Work is normal formally tendered by Water & Wastewater

6.12.3 Maintenance Data on Asset Register

Maintenance works carried out are actioned through the CRM system generally and after the work has been completed KVS staff complete a Repair Location Plan (RLP) with this data then being entered into AssetFinda.

The maintenance data on AssetFinda can then be exported to XLSX and used for reporting. A change is proposed from the paper based RLP format to using a mobile tablet which will improve data quality.

A screen shot of the AssetFinda data is presented below.



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6.12.4 Strategy & Policy Structure

Refer section 4.8

6.12.5 Service Delivery Structure



6.12.6 Operations and Maintenance Strategies

The following sets out the operations and maintenance strategies:

Operations	
Operations	Operational activities will be undertaken in-house (via Water and
	wastewater Services) unless specialised advice is required. Staff will be responsible for the determination and optimisation of planned

Operations	
	and unplanned works, work methods and maintenance scheduling to achieve the target service standards
Physical Works Monitoring	Audits of work will be carried out to verify compliance with standards
Operation of Utilities	Pumping stations will be operated in terms of defined parameters and standards
	The operating parameters for water utilities will be set out in operating manuals for each system
Incident management	Effectively respond to and manage incidents to ensure system availability and service continuity, and mitigate adverse effects
	Maintenance staff and contractors are expected to effectively manage minor incidents. Matamata-Piako District Council Water Services management staff will become involved in serious incidents

Maintenance	
Routine Maintenance	Routine Maintenance will be carried out in terms of defined routine maintenance items and triggers for these activities to be carried out (See Method of Delivery)
Corrective Maintenance	Remedial maintenance will be undertaken as quickly as practically possible to restore an asset to a satisfactory condition after a failure other unsatisfactory condition has been detected
Repairs	The detection and repair of faults causing failure will be undertaken as quickly as practically possible. The fault will be isolated and components repaired or replaced as appropriated and then if warranted the item will be tested to ensure that it meets the relevant standard
Redesign and Modification	Redesign may be necessary if an asset or system does not meet its operational objective. Similarly, modifications may be necessary to improve the operating characteristics. Redesign and modifications will be undertaken in a methodical manner to ensure alternative options are considered and optimum decisions made

Issues and Deficiencies

The Water and Wastewater Services department was set-up to better address the risks and issues raised in the Havelock North contamination enquiry. Issues identified are:

- Dispersed management and accountability in the current structures;
- Sub-optimal use of resources and technology;

- Relationships between the Regional Council, District Health Board Drinking Water Assessors and MPDC staff are under developed;
- Inadequate skill sets or skills training within the teams;
- Historically an inadequate record of equipment maintenance and replacement;
- Lack of follow through on delegated tasks and responsibilities;
- Routine rather than inquisitorial follow up of contamination events or transgressions;
- Limited reporting and Governance oversight regarding quality control and compliance;
- Health and Safety issued need to be consistently applied across both functions;
- Application of professional knowledge and cross team utilisation to improve performance;

6.12.7 Operations and Maintenance Standards

The following standards are applicable to the operation and maintenance of water services:

- The Matamata-Piako District Council Development Manual
- The Matamata-Piako District Council Infrastructure Code of Practice which provides standards for materials and construction of piped Stormwater systems
- Relevant Resource Consents and the Resource Management Act 1991
- NZTA Guidelines 'Working on the Road'
- Health and Safety Plans
- Electrical Regulations
- Matamata-Piako District Council quality assurance processes, including contract management procedures
- Matamata-Piako District Council Customer Service Standards (including standards for notification of works)
- COPTTM/TCD Utilities Access to the transport corridor

6.13 Renewal/Replacement Plan

6.13.1 Introduction

Cyclic renewal strategies are intended to provide for the progressive replacement of individual assets that have reached the end of their useful life.

The rate of asset renewal is intended to maintain the overall condition of the asset system at a standard, which reflects its age profile, and ensures that the Community's investment in the District's Water infrastructure is maintained.

The level of expenditure on cyclic asset replacement varies from year to year, reflecting:

- The age profile of the system
- The condition profile of the system
- The ongoing maintenance demand

- Customer service issues, and
- The differing economic lives of individual assets comprising the overall asset system.

However in practise the costs are smoothed out over a period of time as this helps to smooth out the rates movements predicted in our Financial Strategy and Log Term Plan. This provides more consistency for ratepayers and time to plan budgets.

Full details of the proposed renewal program are included in Section 8.

Cyclic renewal works fall into two categories:

- **Rehabilitation:** Involves the major repair or refurbishment of an existing asset. An example is the relining of an existing pipeline. Rehabilitation produces an extension in the life of an asset. It does not provide for a planned increase in the operating capacity or design loading
- **Renewal:** Does not provide for a planned increase to the operating capacity or design loading. Some minor increase in capacity may result from the process of renewal, but a substantial improvement is needed before system development is considered to have occurred

For the purpose of developing asset renewal programmes the water assets have been separated into "below ground" and "above ground" assets.

"**Below ground**" assets are assets such as buried pipelines which are part of an extensive network, are generally below ground and which cannot readily be inspected (other than by techniques such as excavation and CCTV).

"**Above ground**" assets are assets such as pump stations, which are separately identifiable, generally above ground and which can readily be inspected.

6.14 Data Systems

The current data systems used within the three waters activities are:



6.14.1 AssetFinda

The AssetFinda Asset Management system was purchased and implemented by MPDC in 2002, prior to this we had used an access database and spreadsheets.

AssetFinda was selected for the following reasons:

- Ease of use
- Simple functionality
- Low initial fee structure
- Low on-going fee structure

AssetFinda is an Advanced Asset Management tool with many objectives, chief of which is to help reduce whole-of-life costs and improve service delivery.

The system is developed upon Microsoft SQL-Server, with a Web front end, a very strong GIS focus, and a Mobile iPad App for field use. Its tools make viewing, analysing, identifying errors and updating & maintaining our data very easy. It produces a variety of reports that assist in the preparing of our LTP's and AMP's.

The processes are documented in our QA system (Promapp) and auditing is undertaken as part of this process.

These processes require field validation to be entered into the asset register and also the data is regularly updated when errors are noticed in the field.

The building assets associated with the wastewater activity are held in Council's Property Asset Management System (AM) which records their depreciation and replacement life.

The aggregation or disaggregation of data/information can be readily achieved through utilising the 'Query' function in Asset finda; selecting the asset type (water line, plant or point) and exporting the asset data to a XLSX file and then using pivot tables to aggregate or disaggregate data.

6.14.2 GIS – MapInfo

We had previously implemented Geomedia as the Councils GIS system but AssetFinda relies on MapInfo therefore the Utilities group (Water, Wastewater and Stormwater) operate a separate GIS system to that of Council only for the purposes for Asset Management.

Plans for reticulation and facilities for the three utilities are entered onto MapInfo as they are received. Where information is received from contractors (Kaimai Valley Services) on the utilities services then MapInfo is updated. Council has a robust system of ensuring that all subdivision plans are of the required standard prior to importing into MapInfo.

The majority of asset quantity, location and pipe size data are held in the GIS system. There are a number of quality assurance processes that are used to ensure the reliability of the data recorded.

6.14.3 GIS – Geomedia (Integraph)

We have implemented Integraph Software with Geomedia as its desktop GIS system. All staff have access to WebMap, a web based system with 52 different maps available that interfaces to Civica's AUTHORITY.

The information relating to utilities within MapInfo is updated into Geomedia on a regular basis.

6.14.4 Network Modelling

Network Modelling of the water system is undertaken by Jeff Booth Consulting.

6.14.5 CIVICA

Council's corporate software system is CIVICA Authority. Authority's Asset Management module (AM) currently holds asset information on Council-owned reserves, buildings (including water buildings), play grounds including skate parks, rubbish bins, and some of the districts protected trees. Authority also has a Strategic Asset Management module, a Capital Value Register, a Property Lease Register, a Work Order module and a Maintenance Scheduling module. These modules and registers all provide a complete asset management system within the corporate system.

Authority's Asset Management module (AM) is the asset register. It contains the asset general data, quantity, base life, remaining life, supplier, unit rates, actual costs, valuation information and condition of the assets. This module links to the following modules, Property, the Capital Value register (CVR), Work Orders, Strategic Asset Management (SAM), Maintenance Scheduling, the Street Register, the Property Lease Register (PLR) and the predefined 'roles' for SAM. Work orders that are linked to assets can be seen against those assets for financial tracking. This module is designed to enable better management of Council's assets with information on assets easy to obtain for staff. TRIM documents can also be linked to assets. Inspections of assets can also be setup through this module linked to the relevant assets.

6.14.6 Infrastructure Data

Council is in the process of implementing the Infrastructure Data system to help better manage council's water and wastewater activities. Two different systems (Outlook and Infrastructure data) sheets plus paper based reporting are currently being used.

6.15 Plant Assets

6.15.1 General

Plant Assets consist of treatment plants, reservoirs, pump stations and resource consents.

6.15.2 Treatment Plants

We currently own eight water treatment plants ranging from basic chlorination sites, to plants featuring coagulation, clarification and filtration. A list of the treatment plants and their respective water sources is set out below.

SCHEME	TE AROHA	MORRINSVILLE	ΜΑΤΑΜΑΤΑ	TE POI	HINUERA	TAHUNA
Treatment Plant Location (s)	Miro St Te Aroha West	Waterworks Rd,	Tills Rd Burwood Rd Tawari Rd	Tapapa-Te Poi Rd	Hinuera Rd	Huia St
Source(s)	Pohomihi Stream	Topehaehae Stream	Waiteariki Stm	Waiomou Stream	Bores (2)	Bores (3)
	Tunakohoia Steam	Scott Rd Bore	MM South Bore			
	Tutumangao Stream	Fonterra Emergency Bore	Tawari Bore (2)			
	Waihou River					
Intake	Galleries	Dam	Pipe	Gallery	Bore (2)	Bore (3)
	Chamber	Bore (2)	Bore (2)			

6.15.3 Condition of Treatment Plants

The majority of treatment plants in the District have been upgraded to meet the requirements of the Drinking Water Standards and are in sound condition.

The treatment plants generally have capacity to meet future demand through to 2045 and beyond. However demand from industry is an unknown aspect and one that Council wishes to provide for. However there are difficulties in obtaining additional consents for extra demand from industry which will need to be addressed on a case by case basis.

There are currently no problems with supplying the needs of industry in Morrinsville but the capacity of the treatment plant and of the supply line to town limits any significant increase.

The demand in the Matamata supply is at Waharoa where the Open Country Dairy factory take is quite significant, and there is currently increasing demand from one or two smaller milk and vegetable processors. Council is in the preliminary stages of investigating the feasibility of constructing another treatment plant sited close to Waharoa and sourcing water from the Waihou River. Open Country Dairy is also investigating the option of sourcing water on-site.

We can supply known demand in the next few years from the major consumers in the Te Aroha area within our current resource consent but are limited by the capacity of the treatment plant. An upgrade is planned to increase capacity to the total of our resource consents in the near future. Timing for the upgrade will depend on industries confirming their commitment.

Summer demand remains a performance issue with available water storage at peak demand being generally less than 1 day's storage should problems occur at the treatment plants.

Water Plant Group Condition – Percentage of group type





6.15.4 Reservoirs

Reservoirs provide two main purposes:

- At treatment plants they allow the plants to even out the flows without the loss of water to the consumer in the event that problems occur at the treatment plant and when demand requires an increase in flow can buffer the additional requirements for water allowing the plant to increase production without compromising quality.
- In the supply system they are used to balance demand from the consumer and provide sufficient storage to meet NZ Fire Service requirements for fighting fires as per their Fire Fighting Code of Practice. Water is either pumped from the reservoir or water flows from the reservoir under gravity, this being dependant on the available elevation around the town to ensure adequate pressure and flow.

Council has reservoirs as follows:

<u>Matamata</u>

- Tills Road (concrete 1986)
- Tawari (lined earth 1975)
- 400 m³ - 4500 m³ (un-chlorinated)

• •	Matamata South (lined earth - 2001) Waharoa (concrete - 1982) Raungaiti (timber - 2013)	- 6000 m ³ (un-chlorinated) - 450 m ³ - 80 m ³
<u>Мс</u> • •	o <u>rrinsville</u> Impoundment Lake (earth dam - 1987) Treatment Plant (concrete - 1987) Mt Misery (concrete - 2017)	- 335,000 m³ (untreated) - 3300 m³ - 8,000 m³
<u>Te</u> • •	<u>Aroha</u> Treatment Plant (concrete - 1966) Treatment Plant (concrete - 2006)	- 2273 m³ - 5000 m³
<u>⊺a</u> ∙ ∙	<u>huna</u> Raw Water (concrete - 1968) Treated Water (timber - 2001)	- 2 @ 20 m³ - 45 m³
<u>Hir</u> ●	<u>nuera</u> Treated Water (concrete - 1958)	- 30 m ³
<u>Te</u> • •	<u>Poi</u> Raw Water (Concrete - 1978) Treated Water (concrete - 1978)	- 140 m³ - 160 m³

A seismic and structural assessment has been undertaken on the older Te Aroha reservoir only at this stage (2016/17).

6.15.5 Pump Stations

Pump Stations are used to abstract water from watercourses, boost pressures from reservoirs, and to overcome height issues.

All bores have integral pumps to extract the water but these are not separately included in the following schedule.

Abstraction from Water Courses

Rolleston St (Waihou River)	Pumps to treatment plant	Te Aroha
Whitaker St (Pohomihi raw line)	Boosts flow to reservoir	Te Aroha
Waiomou Stream	Pumps to treatment plant	Te Poi

Booster Pump Stations - treated water

Tui Road	Lifts to small reservoir at higher level	Te Aroha
Waharoa Reservoir	Pumps into reticulation	Waharoa
Matamata South Reservoir	Pumps into reticulation	Matamata
Tawari Reservoir	Pumps into reticulation	Matamata
Te Poi Reservoir to	Pumps into reticulation	Te Poi
Tahuna Treatment Plant	Pumps to reservoir	Tahuna
Tahuna Reservoir	Pumps into reticulation	Tahuna

6.15.6 Pressure Control Stations

These are used to control the pressure downstream to protect the pipes and to reduce leakage

Tower Road	Reduces pressure in supply line	Matamata
Tower Road	Reduces pressure into Matamata	Matamata
Kenrick Street (by sewer p/s)	Reduces pressure in reticulation	Te Aroha
Stanley Ave (by old railway line)	Pumps into reticulation	Te Aroha
Stanley Rd South	Reduces pressure in older pipe to SFF	Te Aroha

6.15.7 Resource Consents

Only some of the resource consents associated with the water activity have been capitalised as when the older ones were obtained it was not the policy to capitalise these. The capitalised resource consents are those associated with the abstraction of water at Te Poi; and with the abstraction of water at Matamata South, Tawari and Tills Rd. Thus provision for their renewal is included in the renewal tables and graphs.

However the remaining consents (as detailed under each supply) have not been capitalised and these will be added at the next revaluation.

The consent for the extraction from the Topehaehae Stream for Morrinsville (and for the dam itself) has expired but because an application was made for renewal prior to their expiry, the old consents remains in force until the new one are issued.

6.15.8 Plant Asset Replacement Costs (as at December 2020)

(Note – we have a high degree of confidence in the replacement cost of our plant assets and these are reviewed regularly).

Each component is valued separately and allocated a base life and the renewal year can be determined. The total renewal cost for plant assets in any one year is shown below (Source: RM1958460):

	Total
Maan	Replacement
Year	Cost
2018	1,397,156
2019	858,373
2020	1,630,848
2021	449,016
2022	496,953
2023	423,482
2024	712,681
2025	367,883
2026	525,578
2027	335,982
2028	511,640
2029	1,024,829
2030	420,090
2031	459,531
2032	110,821
2033	210,941
2034	437,623
2035	873,482
2036	565,607
2037	644,356
2038	778,059
2039	763,625
2040	428,445
2041	622,637
2042	211,664
2043	2,370,282
2044	549,964
2045	349,717

2046	2,132,682
2047	529,077
2048	345,798
2049	811,370
2050	907,097
2051	632,532
2052	920,733
2053	254,925
2054	1,170,727
2055	973,351
2056	760,583
2057	359,451
2058	584,583
2059	821,827
2060	188,451
2061	559,407
2062	274,302
2063	247,424
2064	585,308
2065	1,282,040
2066	806,974
2067	1,576,333
2068	441,532
2069	1,304,596
2070	545,691
2071	398,034
2072	295,186
2073	442,870
2074	584,609
2075	452,816
2076	683,400
2077	236,817



The total replacement value of water plant assets as at December 2017 is \$20,042,747. (Source: RM1960591)

The above graph shows the actual replacement schedule from our database with the smoothing of the work based on the 10 year average which will allow renewals to be managed in a sustainable manner over time.

6.16 Water Reticulation

6.16.1 General

The total length of the combined reticulation (water mains and property connections) is 379 km. The main purpose of the reticulation system is to supply water from service reservoirs or treatment plants to the customer's point of supply while maintaining the quality of the water.

The reticulation system also provides the capacity for firefighting supply except for Hinuera. The supply network for Matamata, Morrinsville and Te Aroha has been computer modelled.



Water Plant Projected Renewal Lifecycle Replacement Cost 2018 Onwards

It is proposed to develop a prioritised list of watermain renewals, utilising the hydraulic model ,that identifies mains that need to be upgraded to provide minimum Firefighting Code of Practice flows.

6.16.2 Water Pipe Materials

The total water reticulation comprises a range of materials with many earlier mains being different forms of steel followed by the use of asbestos cement and more recently by plastics in a variety of forms.

Although the material is unknown for 6.% of the reticulation, this is not considered to be a significant risk as the life of "unknown" pipes are the same as the lowest rated pipe.

i

Material	Length (m), 2015 AMP	Length (m), 2018 AMP	Length (m), Current	% of Total, Current
Alkathene	14,214	14,185	13,000	3.3%
Asbestos Cement	118,865	115,422	105,370	26.8%
Cast Iron	12,350	10,465	8,435	2.1%
Concrete Lined Steel	2,660	2,649	2,264	0.6%
Copper	794	927	850	0.2%
Ductile Iron	1,882	1,885	1,792	0.5%
Galvanised Iron	10,258	9,177	6,864	1.7%
HDPE	11,153	13,271	25,170	6.4%
MDPE	67,425	74,539	87,179	22.1%
mPVC	7,626	8,648	12,093	3.1%
PVC	55,685	56,511	59,821	15.2%
Stainless Steel	41	41	41	0.0%
Steel	4,891	4,084	8,732	2.2%
Unknown	36,755	33,799	26,527	6.7%
uPVC	32,369	33,347	35,762	9.1%
Grand Total	376,968	378,951	393,901	100.0%

Table 6-7: Lengths of Pipe Materials within District (CM2389346)





Figure 6-17: Pipe Material Lengths (CM2389346)

6.16.3 Water Pipe Remaining Life

The water pipe assets range from new to 90 years of age. While the age of some pipes is unknown it is considered that the asset age adopted for these pipes is conservative and their condition will be confirmed prior to replacement.

Laterals and valves etc are now replaced when the main pipes are due for replacement unless they have failed earlier.

We recently reviewed the base life of water pipes and our assessment was peer reviewed by Waugh Consultants. The assessment carried out was a desktop assessment, however ultimately the physical life of assets should be supported with some material testing of pipe from the reticulated network. Reliable information on pipe failures is not currently available from the Council Asset Management System and there is a heavy reliance on staff knowledge.

An AC pipe sampling programme is proposed to start in 2018 and continue on a yearly basis to more accurately enable the assessment of the remaining life of AC pipes which makes up approximately 30% of the water reticulation networks.

Council has not undertaken an Asset Criticality Assessment of its pipe network at this stage and have agreed that non-critical assets will be allowed to run to failure. It is normal practice to replace high critical assets prior to possible failure due to impact on the level of service; this will have the effect of reducing the life of some assets.

As a result of the base life assessment the following was adopted:

Material	Previous Life	Current Life
Alkathene	60	40
Asbestos Cement <100 Ø	60	50
Asbestos Cement <1962	60	60
Asbestos Cement >1961	60	75
Boss Pipe (Wastewater & SW)	100	100
Cast Iron	80	80
Concrete	80	80
Copper	80	30
Ductile Iron	80	40
Galvanised Iron	60	40
Galvanised Steel	60	40
HDPE	100	88
MDPE	100	88
mPVC	80	80
PVC	80	80
uPVC	80	80
Resin Lined Pipes	50	80
Ribloc Lined Pipes (W/water & SW)	50	50
Steel - Concrete Lined	80	60
Steel - Spiral Welded	80	60
Steel - Spiral Riveted	80	60
Unknown (Mains)	60	60
Unknown (Service)	60	50

This resulted in the following remaining life as at Dec 2020 in the water reticulation:

Remaining	
Life	Length
2018	5,145
2019	62,003
2020	1,398
2021	4,569
2022	7,911
2023	1,690
2024	631
2025	3,956
2026	631
2027	3,956
2028	1,082
2029	3,668
2030	4,193
2031	287
2032	981
2033	545
2034	720

2035	372
2036	1,311
2037	639
2038	733
2039	1,292
2040	4,084
2041	1,339
2042	25,130
2043	3,484
2044	3,466
2045	11,145
2046	1,575
2047	3,172
2048	2,105
2049	2,189
2050	448
2051	2,344
2052	3,364

2053	2,660
2054	3,374
2055	2,452
2056	2,940
2057	942
2058	2,216
2059	10,941
2060	1,952
2061	3,268
2062	1,433
2063	677
2064	1,925
2065	1,412
2066	1,879
2067	3,168
2068	141
2069	4,133
2070	1,775
Section 6: Lifecycle Management Plan

2071	2,762
2072	4,268
2073	592
2074	6,100
2075	3,457
2076	1,155
2077	2,691
2078	2,477
2079	901

2080	1,057
2081	1,823
2082	1,135
2083	7,555
2084	4,524
2085	5,260
2086	2,212
2087	12,303
2088	3,520

2089	4,247
2090	5,923
2091	3,911
2092	4,342
2093	2,105
2094	3,250
2095	4,734
2096	5,563
2097	10,684
2097	10,684





The above graph shows the number of metres of pipe with the end of their useful life ending on a particular year.

Remaining Life of Asbestos Pipe

Asbestos pipe (AC) makes up 30.5% of the water reticulation network. Below is a plot of the remaining life of AC pipe versus length.

Renewal Year	Length
2018	442
2019	31,401
2020	688
2021	918
2022	6,467
2023	261
2024	203
2026	43
2028	136
2031	78

2062	181
2033	53
2036	98
2038	3,260
2039	351
2040	25,072
2041	1,968
2042	2,319
2043	8,196
2044	990
2045	158
2046	1,998

2047	2,060
2048	408
2049	2,021
2050	2,665
2051	1,850
2052	3,095
2053	1,783
2054	2,145
2056	1,207
2057	5,318
2058	611
2059	716

Section 6: Lifecycle Management Plan

2060	891	2063	271
2061	61	2066	110
2062	92	2067	3,813

2070	216
2072	146
2074	903



Remaining Life AC Pipe vs Length of pipe

6.16.4 Water Pipe Replacement Cost as at December 2017

The estimated replacement costs of the water pipes as provided by the asset management database are as follows (Source: RM1958382):

Note the replacement cost includes service lines and point items as these are replaced at the same time as the mains.

(Note – we have a high degree of confidence in the replacement cost of our pipes and associated assets and these are reviewed regularly).

Section 6: Lifecycle Management Plan

Replacement Cost lines and points 2036 139,352 2057 2037 695,885 2058 2038 403,405 2059 2039 9,906,796 2060 2040 748,010 2061 2041 533,395 2062 2043 331,335 2064 2043 331,335 2064 2043 331,335 2064 2043 331,335 2064 2043 331,335 2064 2043 331,335 2064 2045 599,532 2066 2045 599,532 2066 2047 119,057 2068 2048 483,952 2069 2050 432,538 2071 2049 597,287 2070 2051 703,482 2072 2052 434,733 2073 2053 574,700 2074 2054 232,388 2075 2055 419,338		
Cost lines and points2037695,88520583,749,64820399,906,79620600407,9732040748,010206105,537,2332041533,39520621,670,39620423,276,63920632243,5762043331,3352064370,0082044892,71120654243,6432045599,53220665973,4812047119,057206871,267,7222048483,9522069332,2462050432,53820710104,6172051703,4822072145,8292052434,73320742117,9812053574,70020743150,6662054232,3882075462,7442055419,338207651,081,57220561,747,5302077		Replacement
and points 2038 403,405 2059 3 3,749,648 2039 9,906,796 2060 0 407,973 2040 748,010 2061 0 5,537,233 2041 533,395 2062 1,670,396 2042 3,276,639 2063 2 243,576 2043 331,335 2064 3 70,008 2044 892,711 2065 2 243,643 2045 599,532 2066 2 243,643 2047 119,057 2068 2 1,267,722 2046 469,201 2067 2 2047 119,057 2068 2069 3 32,246 2049 597,287 2070 2 2051 703,482 2072 2074 2 145,829 2052 434,733 2073 2074 2 117,981 2053 574,700 2074 2074 2075 4	_	Cost lines
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1,267,722 2048 483,952 2069 3 32,246 2049 597,287 2070 2 275,035 2050 432,538 2071 2 104,617 2051 703,482 2073 2 145,829 2052 434,733 2073 2 117,981 2053 574,700 2074 3 150,666 2054 232,388 2075 4 62,744 2055 419,338 2076 5 1,081,572 2056 1,747,530 2077)26	973,481
3 32,246 2049 597,287 2070 2 275,035 2050 432,538 2071 2 104,617 2051 703,482 2072 2 145,829 2052 434,733 2073 2 117,981 2053 574,700 2074 3 150,666 2054 232,388 2075 4 62,744 2055 419,338 2076 5 1,081,572 2056 1,747,530 2077)27	1,267,722
275,035 2010 2010 2011 2050 432,538 2071 2051 703,482 2072 2052 434,733 2073 2053 574,700 2074 2054 232,388 2075 2055 419,338 2076 2056 1,747,530 2077	28	32,246
104,617 2050 104,530 2072 145,829 2052 434,733 2073 117,981 2053 574,700 2074 150,666 2054 232,388 2075 62,744 2055 419,338 2076 1,081,572 2056 1,747,530 2077)29	275,035
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62,744 2051 2073 5 1,081,572 2056 1,747,530 2077)33	150,666
<u>5 1,081,572</u> 2056 1.747,530 2077	034	62,744
)35	1,081,572

The total replacement cost (2017) of pipe assets is \$74,056,318 (Source: RM1960591)



Pipe System Replacement Costs against Remaining Life (in years)

Table 6-8: Retic Assets Renewal Dates and Values.

Table.

6.16.5 Condition of Reticulation

Water loss (unaccounted for water) has been identified as a potential issue and we have been undertaking a leak detection programme to identify the cause. Indications are that a major source of losses is from old steel pipes and in particular spiral riveted steel. The replacement of these is being treated as a priority.

There was originally concern about the extent of asbestos cement pipes becoming due for renewal but further investigations have shown that the life of these pipes can be extended and the above data incorporates that revision.

At the same time (2013) the life of all classes of pipes was reviewed and this resulted in a reduced life for some other classes of pipe. However as AC comprises about 30% of all pipes, the overall effect was to spread the replacement over a longer period of time.



Another concern was that some asbestos pipes were operating above their design pressures but these results from a misunderstanding of the pressure rating of asbestos pipes manufactured in New Zealand.

Asbestos pipes manufactured in New Zealand were stated to be manufactured in compliance with NZS 3202:1977 but Hardies who manufactured these pipes proof tested their pipes of up to 600 mm diameter to 50% above the minimum test pressure in NZS 3202 and suggest that the ISO Recommendation R160-1971 "Asbestos Cement Pressure Pipes" should be adopted.

This states that the relationship to the bursting pressure and the working pressure should be 4 times for pipes of 80 to 100 mm; 3.5 times for pipes of 125 to 200 mm and 3 times for pipes from 250 to 1000 mm.

Hardies published the following table which confirms that all pipes in our reticulation fall within the maximum ISO recommended working head. In the case of the Morrinsville falling main, the 375 mm Class C pipes have a recommended working pressure of 127 meters head and not 92 metres as believed by some.

Nominal Diameter of Pipe (mm)	Class ¹	Nominal Working Head (m)	ISO-R160 Max. Rec. Working Head (m)	Min. Burst (m) ⁴ P _M	Min. Crush (kWm) ⁺ W _M
$\begin{array}{r} 80\\ 80\\ 80\\ 100\\ 100\\ 150\\ 150\\ 150\\ 150\\ 200\\ 200\\ 200\\ 200\\ 200\\ 200\\ 200\\ 2$	BDFBDFBCDWFABCDABCDABCDABCABCABCABC	61 122 183 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 123 612 125 125 125 125 125 125 125 125 125 1	$\begin{array}{c} 92\\ 143\\ 92\\ 148\\ 92\\ 148\\ 92\\ 148\\ 92\\ 135\\ 194\\ 927\\ 156\\ 924\\ 062\\ 176\\ 826\\ 826\\ 826\\ 826\\ 826\\ 146\\ 826\\ 826\\ 826\\ 826\\ 826\\ 826\\ 146\\ 826\\ 826\\ 826\\ 146\\ 826\\ 826\\ 826\\ 826\\ 826\\ 826\\ 826\\ 82$	$\begin{array}{c} 522\\ 5724\\ 461\\ 550\\ 3459\\ 5759\\ 4535\\ 575\\ 62619\\ 45247\\ 3400\\ 22386\\ 5182\\ 2366\\ 3002\\ 2386\\ 5182\\ 366\\ 5182\\ 366\\ 5123\\ 2386\\ 1268\\ 12$	$\begin{array}{c} 54.0\\ 64.1\\ 107.7\\ 54.2\\ 775.9\\ 41.2\\ 78.2\\ 104.6\\ 121.4\\ 162.4\\ 50.4\\ 121.4\\ 162.4\\ 50.5\\ 89.0\\ 131.5\\ 59.0\\ 133.6\\ 89.0\\ 133.6\\ 51.2\\ 154.0\\ 108.5\\ 108.5\\ 108.6\\ 132.0\\ 34.7\\ 496.1\\ 183.5\\ 965.3\\ 34.6\\ 155.9\\ 34.4\\ 158.7\\ 34.5\\ 155.9\\ 34.5\\ 155.9\\ 34.5\\ 155.9\\ 34.5\\ 155.9\\$

Another significant aspect is that concerns about the effect of soil types are generally overstated. pH is the key component to aggressiveness to AC pipes but all our treated water is pH corrected, thus there should be no deterioration of the interior of the pipes.

Likewise it is generally accepted that there is no problem externally provided there is no movement of water along the pipe and in general our pipes are laid above ground water level.

6.16.6 Performance of Reticulation

The maximum reticulation pressure for Matamata is 500 kPa (50 m head), for Te Aroha is 750 kPa and for Morrinsville the normal operating pressure is 725 kPa. The Morrinsville Trunk main operates in the range of 950-1100 kPa.

Recent analysis carried out by Jeff Both Consulting determined that the majority of Matamata, Morrinsville, and Te Aroha receive pressure of more than 40 m. However, the north-east of Te Aroha was noted to receive less than 25 m of pressure during average demand. In addition analysis of the reticulation firefighting capacity determined that the majority of hydrants in Matamata, Morrinsville, and Te Aroha can provide the required firefighting capacity. However, there were a number of hydrants in each reticulation that were unable of to provide the required capacity. The modelling report is included in Appendix 1 (or RM 1918298 and 1918293).

6.16.7 Water Service Lines (Laterals) and Water Points (Valves, Hydrants etc)

MPDC is responsible for the service connection between the water main and the property boundary. This includes the Toby and any water meter for billing purposes.

Water Points are made up of Valves, Hydrants, Manifolds, Backflow Prevention Devices, Water Meters and Toby's (Tap on Boundary).

The renewal of service lines and point assets (Hydrants, Valves) are generally replaced when the water main are renewed. These point assets unless critical are allowed to go to failure so that they may be replaced with the water mains.

6.17 Pumping Locations

There are a number of locations in the water systems where pumps either extract raw water or pump the treated water into the reticulation (this schedule excludes the pumps which circulate water within treatment plants).

Matamata

- Matamata South Bore
- Matamata South Treatment Plant
- Tawari Bore Pumps
- Tawari Treatment Plant
- 1 submersible bore pump
- 2 reticulation pumps
- 2 submersible bore pumps
- 2 reticulation pumps

Morrinsville

- Tills Rd Bore
- Fonterra Emergency Bore

Te Aroha

- Rolleston St River Intake
- Rolleston St Raw Water P/S
- Tui Street Booster Pump

<u>Tahuna</u>

- Tahuna Bores
- Treatment Plant
- Treated Water P/S

<u>Hinuera</u>

Hinuera Bores

Te Poi

- River Intake
- Treatment Plant

- 1 submersible bore pump
- 1 reticulation pump
- 3 pumps
- 1 in line pump
- 1 pump pumping to small reservoir
- 3 submersible bore pumps
- 2 in line pumps
- 2 reticulation pumps
- 2 submersible bore pumps
- 2 in-line pumps
- 2 reticulation pumps

6.18 Pressure Control Stations

Pressure Control Stations contain Pressure Reducing Valves (PRV's) to manage system pressures to ensure that the reticulation is not over pressurised leading to burst pipes. There are 6 pressure control Stations, recorded in the asset register as PRV.

Matamata	Tower Rd South (near Matipo St)	Pressure Control Valves, Meter and Telemetry
Matamata	Tower Road North	Pressure Control Valve (Tills Rd supply main to town)
Te Aroha	Kenrick Street	Pressure Reducing Valve
Te Aroha	Stanley Ave (by old railway line)	Pressure Reducing Valve
Te Aroha	Stanley Road South (by SFF	Pressure Reducing Valve
Morrinsville	Scott Road	Two Pressure Control Valves

6.19 Water Buildings

The building assets are held in Council's Property Asset Management System which records their depreciation and replacement life.

A brief summary of the water buildings and optimised replacement cost as at January 2018 as valued by SPN Asset Systems is:

Water Buildings	Optimised Replacement Cost
Hinuera Water Treatment Plant - Freezer Panel Shed	\$26,400
Kereone Road Building - Plant Room	\$13,000
Matamata South Water Treatment Plant	\$48,100

Matamata Water Treatment Plant – freezer panel shed	\$16,900
Matamata Water Treatment Plant – main building	\$234,000
Matamata Water Treatment Plant – Reservoir shed	\$4,400
Morrinsville Water Treatment Plant - Carbon dosing Shed	\$14,300
Morrinsville Water Treatment Plant - Compressor Shed	\$19,500
Morrinsville Water Treatment Plant - Lean to for Generator	\$5,200
Morrinsville Water Treatment Plant - Main Building	\$364,000
Raungaiti Pump Station - Raungaiti Operations Building	\$27,750
Rolleston St Pump Station (Abstraction) - Elevated Hut plus stairs & landing	\$17,189
Scott Road Station - CCB Shed	\$26,000
Tahuna Reservoir - Tahuna (Treated) - Plantroom	\$11,700
Tahuna Water Treatment Plant - Operations Building	\$51,739
Tawari Water Treatment Plant - Bore House	\$2,250
Tawari Water Treatment Plant - Control Room Chemical Room & Pump Room	\$37,439
Tawari Water Treatment Plant - Operations Building	\$61,878
Tawari Water Treatment Plant - Pump - Equipment Shed	\$24,439
Te Aroha Water Treatment Plant - Chlorine Room	\$13,650
Te Aroha Water Treatment Plant - Main Building - office chem room pump room	\$195,000
Te Aroha West UV Plant - Galv Steed Shed on Concrete Base	\$6,600
Te Poi Water Treatment Plant - Chemical Building (rebuilt circa 2009)	\$84,500
Te Poi Water Treatment Plant - Treatment Plant Building	\$78,000
Waharoa Pump Station - Main Building	\$78,000
Waioumu Stream Pump Station - Pump House	\$22,100
Total	\$1,484,034

6.20 Water General

6.20.1 Environmental Monitoring and Reporting

Monitoring requirements associated with our water consents is carried out and provided to Waikato Regional Council as required.

We also monitor for compliance with the Drinking Water Standards and this data is fed in the Water Information NZ database (WINZ).

MPDC have contracted Eurofins NZ Laboratory Services Ltd to undertake sampling activities on behalf of the Council.

This will help to ensure consistent sampling as required for the consent conditions and DWS and will enable the Council to identify trends associated with the results.

6.20.2 Consent Compliance

We hold a significant number of resource consents to operate our water systems and the details of these are included in the sections on the individual schemes later in this document.

The conditions of these resource consents require us to provide the Waikato Regional Council with detailed information on various aspects of our takes and these are forwarded monthly in digital form.

Annual reports are also required and can be audited by WRC. We have not received any audit reports for our water takes for some years.

The individual consents are listed under the details of each reticulation further on in this section.

7. Risk Management and Resilience

Infrastructure risk management is the process of identifying risks that may affect the ongoing delivery of services from infrastructure.

7.1 Council's Risk Management Policy

Purpose

The purpose of this policy is to support and promote risk management as an integral part of the Council's internal controls and Corporate Governance

Risk Management Standard and Framework

This policy is based on ISO 31000:2009 and is supported by the Risk Management Standard and Framework as applied to Local Government.

Principles

The following principles provide the foundation for Risk Management

Risk Management:

- creates and adds value
- is an integrated part of all organisational processes
- helps good decision making
- explicitly addresses uncertainty
- is systematic ,structured and timely
- based on the best available information
- tailored to the MPDC context
- considers human and cultural factors
- is dynamic, iterative and responsive to change
- Supports and contributes to continuous improvement

Roles and Responsibilities

This policy addresses the need to appropriately manage risk at all levels, including the implementation and maintenance processes and ensuring adequacy, effectiveness and efficiency of controls.

Elected Members and Council

Governance is the system of accountability to stakeholders whereby Elected Representatives ensure the principles and policies of the Local Authority are carried out and performance against these is measured. In accordance with this system Council has a significant role to play in ensuring the integrity and transparency of Risk Management and risk auditing at the highest level.

Risk Committee

A Risk Management Committee would provide a Strategic Monitoring role within the Local Authority. The Committee may be freestanding or be combined to form a Risk Management, Internal Audit and Health and Safety Committee.

For the Risk Management functions it would consider:

- Approval of Risk Management policies and programmes as a rolling programme over a period of years.
- Review of Risk Management programme
- Receiving Risk Management reports on the outcomes of the activities and comparison to the Risk Management programme
- Ensuring that
 - Internal review
 - Risk management strategies
 - Risk Management policies are established, in place and current.

The Chief Executive and Executive Management Team

The Executive Management team:

- review the risk register at quarterly intervals and ensure compliance
- Understand and support Risk Management and risk ownership as it affects their areas of responsibility.
- Ensure compliance with Risk assessment procedures including reviewing of registers, development of risk activities and providing feedback for internal audit processes.
- Annual review the policy for continued relevance and appropriateness.

Management

All managers and team leaders across MPDC are required to understand and apply the risk management framework to their areas of operational responsibility, to ensure that MPDC's objectives are achieved.

Each unit Manager is responsible for:

- Ensuring Risk Management is applied in their environment and maintaining their sections of the risk register accordingly.
- Promoting risk management to their staff
- Appointing risk owners
- Taking the required action to identify and disclose new risks and uncertainties.
- Working with Risk Management Coordinator to monitor, identify and report on risk through the appropriate mechanisms.

Staff

Every staff member has a responsibility to participate in the identification, mitigation and management of risks. All staff are required to understand and apply the risk management framework to their areas of responsibility, to ensure Council's objectives are achieved.

Each staff member is responsible for

- Participating in Risk management through Health & Safety, Asset Management, Civil Defence, Emergency Management and Business Continuity procedures
- Taking prudent action to identify, evaluate, mitigate and manage Risks as appropriate.

Staff will be appointed as Risk Owners for specific risks within their area of responsibility. They will be responsible for ensuring that:

- Risk Information is kept up to date and relevant
- Ensuring mitigating action is carried out
- Reviewing risk and updating the risk registers.

Risk Management Coordinator (If Appointed)

This position could be created to support the delivery of Risk Management Services to MPDC from within the Council structure.

The Risk Management Coordinator will:

- Provide a knowledge base for risk management and identify good practice standards and guidelines.
- Manage the MPDC risk registers and report regularly to Council on the state of the Risk Management processes
- Coordinate the communications, training, education and initiatives for Risk Management across Council
- Facilitate Risk Management in terms of LTP, Annual Plan, Business Plans and programmes of work

It is not the responsibility of the Risk Management Coordinator to identify risks, or to manage mitigation of identified risks but to coordinate the work of those responsible.

Monitoring Risk

Each risk owner is responsible for ensuring that the risks that have been identified and allocated to them are regularly monitored to ensure that they are being managed effectively and adequately. Monitoring of risk will form part of each Managers daily business responsibilities. In addition there will be requirements for Internal Audits and facilitated reviews of Risk associated with the work of the groups.

Reporting on Risk

A report on the overall Risk Profile for MPDC will be provided to the e-team on a quarterly basis and form the base of the report to Council. Other reports on Risk Management will be produced as required.

Link to Other Quality Assurance Programmes

The role of Risk Management falls within a wider model which when applied in an integrated way provides Total Quality Assurance to the e-team and Council. Examples of specific activities that combine aspects of quality assurance and risk management are:

Activity and Asset Management Planning allows for the review of external and internal risks, as incorporated into the Activity Plans.

Internal Audit is responsible for the annual review of the effectiveness of Council's internal control systems. Internal Audit can identify gaps or performance improvement opportunities related to risk mitigation controls and strategies.

Business Continuity is the process whereby systems and procedures are put in place to ensure that if any risk eventuates the Council is able to respond to, and recover in the shortest time possible with minimal disruption to Council services.

Risk Hierarchy Levels



Risk Assessment Matrix



Likelihood	Minor (1)	Moderate (2)	Significant (3)	Major (4)	Catastrophic (5)
Almost Certain (5)	Significant	Significant	Major	Catastrophic	Catastrophic
Likely (4)	Moderate	Significant	Major	Major	Catastrophic
Moderate (3)	Moderate	Significant	Significant	Major	Catastrophic
Unlikely (2)	Minor	Moderate	Significant	Significant	Major
Rare (1)	Minor	Minor	Moderate	Moderate	Significant

Comparative Levels of Risk

Catastrophic Risk	Risk treatment Strategies to be implemented by the E-team and actions taken, reported to the Risk Coordinator and to Council for their Confirmation
Major Risk	Risk treatment Strategies to be implemented by the E-team and actions taken, reported to the Risk Coordinator and to Council for their Confirmation
Significant Risk	Risk Treatment Strategies to be implemented by the Activity Managers and Departmental Heads and actions reported to the Risk Management team
Moderate Risk	Risks generally acceptable to be managed under the normal risk Identification and Control procedures
Minor Risk	Risks generally acceptable to be managed under the normal risk Identification and Control procedures Examine where un-needed action can be reduced

7.2 Risk Management Update

The Audit and Risk Committee reviewed the state of Risk Management in the organisation in December 2016. Conclusions reached were

- There is considerable activity in risk management occurring in the organisation.
- There are numerous gaps and opportunities for improvement
- Risk management across the organisation or at an enterprise level, is not operating to the level and standard we desire.

The December review introduced the concept of an Enterprise Risk Management Framework which allows an organisation to consider the potential impact of all types of risks on all processes, activities, stakeholders, products and services.

Under this framework risks are categorised as Strategic, Operational and Tactical.

The current risk activities of the Council that fit into these categories are the corporate risk register, the Promapp and Vault registers and Projects register fits into the Tactical category. It is intended to modify the Policy and Risk Management Plan to incorporate improvements identified in the December review.

As an outcome of the review it is also intended to prepare a risk action plan, refine the risk assessment process and develop the organisation understanding.

7.3 Critical Assets

Critical assets are regarded as those assets which have the highest consequences should they fail. Failure of these assets would likely result in a significant disruption in service and financial, environment and social cost in terms of impact on organisational objectives. A simple approach has been taken in this plan applying broad assumptions about the implications of failure using a number of criteria to make an overall assessment of high, medium or low criticality.

The criteria used for assessing criticality for the Water Activity are as follows:

- Number of people adversely affected;
- Significant business activity interrupted;
- Consequential cost of failure; and
- Critical lifeline/disaster recovery asset e.g. water supply to schools and hospitals.

Critical assets are considered those assets in which failure would result in a major disruption to the supply of water or levels of service. Critical water activity assets and provisions for resilience are presented below:

Asset	Description	Criticality	Resilience Provision – 30 year horizon
Matamata			
Tills Road	Tills Rd Treatment Plant/Reservoir	High	Investigations into building a larger reservoir at this site concluded that this was uneconomic so the existing 400m ³ reservoir will remain.
Tawari	Treatment Plant/Pumping Station/Reservoir	High	The resource consent (119179) is due for renewal in 2031. Any upgrading of the facilities will be carried out in association with this.
Trunk Main	Tills Rd to Matamata 250 – 300mm Diameter	High	A condition assessment of the main has not been carried out in recent years. A section of the AC main replaced as part of a repair showed no visual sign of deterioration, however the condition assessment of this bulk main will be included with the other critical pipes for assessment. The pipeline is largely steel pipe with asbestos cement pipe used after the pressure reducing valve in Tower Road North The functioning of the pressure release valve is monitored through the SCADA system.
			Hydraulic modelling is planned to investigate the potential for water from the Matamata reticulation to be used to supply farms currently connected bulk main. The long-term future of the plant will also be under consideration should a new water treatment plant be constructed supply Waharoa.

Matamata South	Treatment Plant/Pumping Station/Reservoir	High	A new bore is to be installed and associated pumping main (programmed in 2020-21) to provide increased capacity for future growth.
Tills Rd pipe bridge	No 1 bridge Waiterariki Stream	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Tills Rd pipe bridge	No 2 bridge tributary Waiteariki Stream off Tills Road – Northing 5818134, Easting 1852398 RM 1040094, 1860361	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Tills Rd pipe bridge	No 3 Bridge Waihou River near Tills Road – Northing 5817483, Easting 1850939	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Pipe bridge	Old Te Aroha Rd No 1 (RM 1040095)	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Pipe bridge	Old Te Aroha Rd No 2 Waihou River (RM 1040096)	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Rail Crossing	Broadway, 250mm PE	Med	Pipe installed 2011 according to AssetFinda
Rail Crossing	Broadway, 150mm PE	Med	Pipe installed 2011 according to AssetFinda
Rail Crossing	Farmers Rd, 300mm PE	Med	Pipe installed 2002 according to AssetFinda
Rail Crossing	Station Rd,250mm PE	Med	Pipe installed 2017 according to AssetFinda
Morrinsville			
Waterworks Rd	Dam/Treatment Plant/Reservoir	High	Renewal of the water take consent is currently being negotiated. Depending on the outcome the capacity of the plant maybe reduced and a new supplementary water source closer to town is going to be investigated. The investigation is programmed for 2025-26 but this will be brought forward if necessary. The new water source and associated treatment, will
			also provide for increasing demand. A potential bore site location has been identified at Tauhoro Rd.
Mt Misery	Reservoir (new 2017)	High	The new reservoir has been constructed to replace the existing reservoir which did not meet current earthquake standards. Storage capacity has increased from 3,400m ³ to 8,000m ³ to allow for future growth.

Trunk Main	Waterworks Road to Mt Misery 200 – 375 Diameter	High	A condition assessment has been undertaken in 2014. It is recommended that a further assessment be undertaken in 2022 and provisionally replacement is forecast for 2038. The assessment is likely to include consideration of alternative underground water sources nearer Morrinsville.
Pipe bridge N 5825050 E 1823252	Topehaehae Stream near Kuranui Road, between Scott Rd and Morrinsville-Walton Rd (RM 186024).	High	Pipe bridges are inspected on 2-yearly intervals as part of the road structures inspection programme (RM 1859764).
Pipe bridge	Tahuroa Rd (pipe span on RC pipe piers) RM 1039784 and 1243264	High	Inspected annually by Council staff
Pipe bridge	Chepmell Rd (pipe span on RC pipe piers) RM 1039780 and 1243264	High	Inspected annually by Council staff
Pipe bridge	Waterworks Rd No 2 (pipe span on RC pipe piers) RM 1039776 and 1243264	High	Inspected annually by Council staff
Pipe bridge	Waterworks Rd No 5 (pipe span on RC pipe piers) RM 1039779 and 1243264	High	Inspected annually by Council staff
Railway Crossing	Avenue Road South , 250mm AC trunk main	Medium	
Te Aroha			
Miro Street	Treatment Plant/Reservoirs	High	A condition and seismic assessment of the Te Aroha treated water reservoir was carried out in 2017. The new water reservoir was commissioned in 2006.
River Intake - Rolleston	Pump Station/Rising Main	High	The 300mm uPVC rising main was installed in 2004 so will provide for the 30 year period. The pump station was upgraded in 2004 also with new pumps and associated electrical installation. A platform has been constructed to allow for use of a diesel pump when power supply is not available.
Trunk Main	Pohomihi Intake to Miro St 225 – 300 Diameter	High	The bulk main is a combination of 225mmAC (1961) and 250mm uPVC (2001). Renewal of the 225mm AC pipe is programmed for 2021 based on remaining life, however renewal may be brought forward after condition assessment.

Critical assets as above are identified with a high level of confidence and criticality of all assets is used in the selection of renewal projects

Assessment of all water reticulation assets is currently underway, plant assets will then be done. When this has been carried out results can be shown in the Asset Register (Assetfinda) for individual assets and data on these assets can be aggregated or dis-aggregated in the same way as other data. The screen print below shows a section of the asset register with the criticality column highlighted.



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	10041	1777	None	Gravity Main	uPVC	150	150	Te Aroha	38.03	1/07/1987	\$191.71	80	Good	Excellent	Excellent	Very High	0.00	0.00	10038	10039	
	10042	1778	None	Gravity Main	uPVC	150	150	Te Aroha	113.43	1/07/1987	\$191.71	80	Good	Excellent	Excellent	Very High	0.00	0.00	10036	10039	
	10043	1779	None	Gravity Main	uPVC	150	150	Te Aroha	70.21	1/07/1987	\$191.71	80	Good	Excellent	Excellent	Very High	0.00	0.00	10039	10035	
	<u>10044</u>	1780	None	Gravity Main	uPVC	150	150	Te Aroha	90.22	1/07/1987	\$191.71	80	Good	Excellent	Excellent	Very High	0.00	0.00	10034	10035	
	10150	1781	None	Gravity Main	Asbestos Cement	100	100	Te Aroha	70.60	1/07/1971	\$167.21	60	Average	Excellent	Excellent	Very High	0.00	0.00	60148	10147	
	10151	1782	None	Gravity Main	Asbestos Cement	150	150	Te Aroha	176.04	1/07/1971	\$191.71	60	Average	Excellent	Excellent	Very High	0.00	0.00	10147	10146	
	10154	1783	None	Gravity Main	Asbestos Cement	150	150	Te Aroha	75.26	1/07/1971	\$191.71	60	Average	Excellent	Excellent	Very High	0.00	0.00	10146	10152	
	10158	1784	None	Gravity Main	Asbestos Cement	150	150	Te Aroha	99.97	1/07/1971	\$191.71	60	Average	Excellent	Excellent	Very High	0.00	0.00	10152	10155	
	10159	1785	None	Gravity Main	Unknown	100	100	Te Aroha	45.35	1/07/1959	\$167.21	60	Very Poor	Excellent	Excellent	Very High	0.00	0.00	60146	10140	
	<u>10161</u>	1786	None	Gravity Main	Unknown	100	100	Te Aroha	26.09	1/07/1959	\$167.21	60	Very Poor	Excellent	Excellent	Very High	0.00	0.00	60145	10140	
	10163	1787	None	Gravity Main	Unknown	150	150	Te Aroha	67.88	1/07/1959	\$191.71	60	Very Poor	Excellent	Excellent	Very High	0.00	0.00	10140	10143	
	10164	1788	None	Gravity Main	Unknown	150	150	Te Aroha	23.90	1/07/1959	\$191.71	60	Very Poor	Excellent	Excellent	Very High	0.00	0.00	10143	10144	
	10165	1789	None	Gravity Main	Earthenware	150	150	Te Aroha	67.30	1/07/1959	\$191.71	80	Average	Excellent	Excellent	Very High	0.00	0.00	10144	10145	
	10166	1790	None	Gravity Main	Earthenware	150	150	Te Aroha	73.69	1/07/1965	\$191.71	80	Average	Excellent	Excellent	Very High	0.00	0.00	10155	10156	
	10167	1791	None	Gravity Main	Earthenware	150	150	Te Aroha	114.68	1/07/1965	\$191.71	80	Average	Excellent	Excellent	Very High	0.00	0.00	10156	10157	
	10168	1792	None	Gravity Main	Asbestos Cement	150	150	Te Aroha	51.41	1/07/1975	\$191.71	60	Average	Excellent	Excellent	Very High	0.00	0.00	10128	10129	

7.4 Insurance

7.4.1 Overview

Corporate insurance is currently the responsibility of the Water & Wastewater Manager.

Council currently holds the following types of insurance policy:

- Public liability
- Employer liability
- Business interruption
- Material damage

• Vehicles

MPDC joined the Waikato Local Authority Shared Services (LASS) which engaged the broker services of AON Insurance. AON purchases insurance on behalf of the Waikato LASS. This arrangement has resulted in significant cost savings on premiums.

7.4.2 Legislative Requirements in Relation to Insurance

Clause 31A of Schedule 10 to the Local Government Act 2002 now requires that the Annual Report must state the following, as at the end of the financial year:

(a) the total value of all assets of the local authority that are covered by insurance contracts, and the maximum amount to which they are insured

- (b) the total value of all assets of the local authority that are covered by financial risk sharing arrangements, and the maximum amount available to the local authority under those arrangements
- (c) the total value of all assets of the local authority that are self-insured, and the value of any fund maintained by the local authority for that purpose.

The asset database (AM) and valuation data hold information on the assets. Section 6.3 explains the asset database and management systems in more detail.

7.4.3 The Effect of Insurance Arrangements on the Activity

The first \$10,000 of any claim is now paid out of the operating budget. Council is therefore essentially self-insured to the value of \$10,000. The LASS is investigating the potential for individual councils to reduce the excess for specified items/activities by paying special premiums.

Buildings and facilities are insured through AON. Riskpool currently insures below ground services.

As from 1 July 2017 Riskpool (which is a mutual fund) will cease to exist. AON (brokers) are currently pursuing market options on behalf of the Waikato LASS for below ground services.

Indications are that as far as earthquake-prone buildings are concerned, insurers will only pay out up to 33%, not total replacement cost. This may have implications for a number of potentially earthquake-prone buildings.

Total value of assets covered by insurance contracts, financial risk sharing arrangements, self-insurance arrangments is presented in the table below.

The following relates to Council as at 30 June 2016

June 2015	June 2016
\$000	\$000

187,300	The total value of all Council assets covered by insurance contracts	144,814
125,000	- Fire	125,000
150,000	- Other natural disasters	150,000
187,300	The total value of all assets covered by financial risk sharing arrangements	211,309
30,000	Maximum amount available to the Council under financial risk sharing arrangements	30,000

In the event of natural disaster, central government may contribute up to 60% towards the restoration of water, stormwater and wastewater assets, and provide a subsidy towards restoration of roads.

7.5 Water Safety Plans

Water Safety Plans (WSP) are required under the Health Act 1956 for all public water supplies in the district. These documents identify the risks down to the operation and asset level which are broken down into the components of water sources, treatment distribution system and general elements, and incorporate Critical Control Points (CCP) and process control summaries to mitigate the risks.

A Critical Control Point (CCP) is a point, step or procedure at which controls can be applied and a drinking water safety hazard can be prevented, eliminated or reduced to acceptable (critical) levels. The most common CCP is disinfection, where critical limits can be designated. The WSPs also include the mitigation programmes which will be aligned with the adopted LTP programmes.

WSPs have been developed for all the main water supplies and include all identified activity risks. In relation to the smaller supplies (Te Poi, Hinuera, Tahuna and possibly Te Aroha West) an alternative to Water Safety Plans is being considered; specifically that evidence is provided to show that these smaller plants are treating water to the requirements of the NZ Drinking Water Standards (NZDWS) and that the level of monitoring is also in accordance with the NZDWS.

7.6 Risk Register

The Council's Risk Register is currently being set up to cover Corporate, Strategic and Operations Risks.

The top ten risks for the water activity have been identified as:

- 1. Lack of Skilled Staff Resources
- 2. Failure to deliver on projects and programs
- 3. Non-compliance with legislation and legal requirements
- 4. Ineffective strategic planning (internal)
- 5. Failure to supply drought or inability to source
- 6. Contamination causing sickness or serious harm introduced by backflow
- 7. Inadequate contract management (network maintenance and operations)
- 8. Inappropriate treatment of water and operator skills
- 9. Failure to supply adequately treated water due to poor raw water quality

10. Moderate Natural Hazards – (minor earthquake/landslips/ major storm event) Inability to minimize effects

7.7 Activity Risk Management

7.7.1 Approach for the Activity

Risk assessments at the activity level focus on risks associated with management of the activity and the enabling infrastructure. Activity risk assessment considers risks identified at both the corporate and the operational level.

Risk management planning has been used to identify the potential and actual business risks associated with the provision and management of the Council's water assets and services. The process has been applied to prioritise mitigation programmes.

The following are the general risks associated with Corporate, Strategic and Operational aspects of the utility operations:

Risk Descriptor	Risk Type	Gros	s R	isk	Current Practices/Strategies			et Ri	sk	Management Options	
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
 Lack of Skilled Staff Resources Caused by: Inability to attract key staff Inability to retain skilled staff Consequences: Operational loss Financial costs Poor (or no) decision making 	Operational Financial / Economic Reputation / Image	5	4	Catastrophic	 Proximity of Hamilton, subsidised transport District promotion (Work- life balance) Dedicated HR staff and policies e.g. Personal Development Programmes, Benchmarking) Benchmarked salary levels (low compared to oher councils) Annual staff surveys to highlight issues 	Poor	3	5	Major	 Implementation of training and sharing Further Incorporation of Operations staff into major projects More focus on succession planning 	
 Loss of knowledge (information) Caused by: Inability to retain knowledge Insufficient/inappropriate systems in place to manage data/information, especially regarding asset performance and condition, and consent compliance Loss of institutional knowledge (staff turnover) Loss of knowledge of where to find information Consequences: Operational loss Financial costs 	Financial / Economic Operational Reputation/ Image Legislative	3	5	Significant	 Asset changes/updates (AssetFinda) – Information currently provided by KVS, contractors, W & W, consultants and developers Asset database (AssetFinda) in place (off site) with backups Condition surveys undertaken and some programmed IT practices (backup, virus, security etc.) Plans scanned and microfilmed, filed electronically, but issues with searchability Processes for updating vested assets and new capital works into Asset database in conjunction with KC, consultant via MPDC Regulatory Manager is responsible for debrief of staff (exit process) 	Fair	2	2	Moderate	 Improvements to asset information processes, more details requied Improvements in data entry process Improvements in reporting and accessing of scanned historic data (searchability, format, quality Spread of knowledge in how to use AssetFinda Some duplication of comuter systems required (WTPs and WWTPs) Develop exit process to capture departing staff knowledge 	

Risk Descriptor	Risk Type	Gross Risk Curr		isk	Current Practices/Strateg	ent Practices/Strategies		et Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
 Failure to deliver on projects and programs Caused By: Lack of training or qualified staff Lack of project planning or systems Projects inadequately scoped, budgeted, managed, documented, and reviewed Insufficient input to LTP (financial) Lack of ownership, change of leadership Consequences: Time & cost blowouts Lack of quality outcomes Loss of service level Over/under spending of budgets 	Operational Reputation /Image Financial / Economic Health and Safety Environment al Legislative	5	5	Catastrophic	 External consulant manages consenting process at planning stage. Staff experienced in project managment Asset Management/Annual Plan/LTP Process defined Corporate processes and systems in place Key / strategic projects are reported to E-Team via Asset manager reports, but not formalised Use of experienced and skilled staff Use of trained external resources / specialists Appropriate resources (e.g. software/information systems) Monitor consultants quality of work, reporting requirements written into some contracts 	Fair to Good	4	3	Major	 Implement Project Management Training for key staff Review and improve Corporate processes and systems in place Communication Planning – stakeholder and media management Post project de- briefs, Post implementation reviews Processes to clearly identify project timeline and timing Reporting procedures for measuring performance External reviews and audits e.g. peer reviews
Inadequate contract management (network maintenance and operations) <i>Caused by:</i> Inadequate documents Inadequate documents Inadequate management of contractors <i>Consequences:</i> Poor contractor performance and outputs Interruption to services Failure to meet legislative requirements Additional costs Excessive deterioration of assets	Operational Financial / Economic Reputation/ Image Health and Safety	5	4	Catastrophic	 Service Level agreemet (SLA) in place Contract Procedures Manual Procurement manual W & W manage SLA SLA conditions (KPI's, penalties) in place but not fully applied Contractor training and certification Public notification,public feedback (CRM) Financial reporting by Asset Manager and through to E-Team, who provides monthly reporting to Council Procedures for KVS to complete asset update requirements via KC Standard operating procedures and codes of practice 	Good	1	3	Significant	 Monitor customer feedback and trends Review and improve SLA Review and improve auditing procedures Improved KPIs / performance measures Training staff in SLA management, and subcontract management

Risk Descriptor	Risk Type	Gros	ss R	lisk	Current Practices/Strate	gies	Ne	t Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Inadequate contract management (capital works) Caused by: Inadequate documents Inadequate selection, availability of contractor Inadequate selection, availability of contractor Inadequate management of contractors Consequences: Poor quality assets constructed and/or vested Increased operational expenditure costs Interruption to services Failure to meet legislative requirements Additional costs and time overruns Reduced lifespan (early deterioration) of assets	Operational Financial / Economic Reputation/ Image Health and Safety	4	4	Major	 Contract procurement process and manuals (MPDC) - Contractors selected by attributes Contracts managed by MPDC staff and external consultants Contract conditions (KPI's) in documentation Relevant contractor training and certification, built into contract Some staff training in contract management Financial reporting to Council – quarterly (after first 6 months) Asset Manager to CEO monthly Liaison with other utilities (power, telecommunications) B4U Dig Project Management System being introduced 	Fair to Good	4	3	Significant	 Training staff handling CRM Monitor customer feedback and trends Review and improve Contracts Review and improve auditing procedures Improved KPIs / performance measures Training staff in Contract management
Inadequate asset management – not up to date, or insufficient quality of process and output. <i>Caused by:</i> • Lack of AM knowledge and practice • Lack of staff knowledge and training • Lack of resources • Inadequate communication of issues and strategic planning <i>Consequences:</i> • Loss of service level - decline in integrity and service capacity of assets • Suboptimal lifecycle cost • Insufficient depreciation funding • Inability to cater for growth • Failure to meet LTP commitments and service levels	Operational Legislative Financial / Economic	4	4	Major	 Asset Management processes and practices Asset Information Systems (AssetFinda / GIS) – managed by Records Officer LTP, Annual Plan processes Asset Management Plan – driven by Utilities Manager Ongoing external review Ongoing budget provision Ongoing input from internal and external consultants 	Good	3	3	Significant	Implement actions from Asset Management Appropriate Practice Plan

Risk Descriptor	Risk Type	Gros	ss R	lisk	Current Practices/Strate	gies	Ne	et Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
 Non-compliance with legislation and legal requirements Caused By: Lack of awareness e.g. changes in legislation not identified Lack of funding Legislative changes increases statutory obligations Disputes with regulatory authorities Consequences: Compromised health, safety and environment Legal action and resulting costs and consequences Poor public image 	Legislative Financial / Economic Reputation / Image Environment al Public Health	5	5	Catastrophic	 Council policies and procedures in place New Zealand drinking water standards Water Safety Plans (WSPs) Compliance monitoring Staff training and development (some certification) Use of external advice/resources Standard templates and written Council procedures Management of resource consents Waste management and minimisation plan soon to be adopted 	Fair to Good	3	4	Major	 Further identification of relevant legislation Implementation of legislative and policy requirements PHRMP improvement actions Further awareness and training in requirements
Natural Hazards –Inability to minimize effects Caused By: • Strategic information is inadequately protected • Internal and external risks not adequately identified • Inadequate understanding of staff of disaster recover procedures • Inadequate documentation to support recovery process Consequences: • Inability to respond to, or effectively manage and recover from disaster or emergency • Compromised ability to operate business under normal conditions • Damage to infrastructural assets, loss of service	Environment al Public Health Operational Financial / Economic	4	4	Major	 Dedicated Council Emergency Management Manager Council Emergency Response Procedures in place Contingency Plans in Utilities procedures manual Civil Defence organisation in place. Civil Defence, actively involved in Lifelines IT procedures for backup, storage (i.e. water supply customer base) Customer (CRM) feedback SLA / Incident management plans i.e. stock requirements Critical assets identified for networks, maintenance regime based around these. 	Fair	4	4	Major	 Further involvement of Utilities with Civil Defence and the Lifelines process, Review and update Contingency Plans in procedures manual Investigate communication options Check that critical assets identified for networks, maintenance regime based around these. Utilities and front counter staff training in disaster recovery

Risk Descriptor	Risk Type	Gros	ss R	isk	Current Practices/Strategies		Net Risk			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
 Lack of Political Alignment, or inability of elected members to fulfil roles and responsibilities or disregard for community/staff views. Caused by: Lack of communication with elected members Lack of understanding from elected members Lack of understanding from elected members Undue influence from lobby groups / national politics Politicians with private agenda Consequences: Essential services under-resourced Decisions made on political grounds ahead of defensible decision making 	Operational Reputation/ Image	4	3	Major	 Councillors roles well defined and implemented Legislative requirements/ LTP process Reporting to Council and Community boards Councillor induction/ handbook Councillor briefings / workshops CEO giving advice to Councillors Councillors and community board members on 'Working Parties' 	Good	2	3	Significant	Continue to manage process through CEO / workshops
 External Economic Influences Caused by: Cost Escalations (e.g. due to oil price increases, economic failures). Uncontrollable movements in economy e.g. exchange rates, prices of local products Local loss of economy (e.g. Silver Fern Farms) Consequences: Financial impact cost of services Inability to provide services, maintain service levels or achieve community outcomes 	Financial / Economic		5	Significant	 Local government networking. Track national and global trends. Monitor key economic developments and liaise with central government Stockpiling / bulk purchasing 	Poor	2	5	Significant	 Investigate economic viability of metering Demand reduction measures / Managing LoS expectations Optimise efficiencies Smart procurement practices events Use of materials from local sources Investigating alternative construction / maintenance options

Risk Descriptor	Risk Type	Gros	ss R	lisk	Current Practices/Strategies		Net Risk			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Inability to utilise funding options Caused by: • Lack of staff training / resources • Lack of awareness of funding sources • Slow decision making • Organisational or process deficiencies Consequences: • Funding not realised • Loss of service levels	Operational Financial / Economic Reputation/ Image	4	4	Major	 Asset management process, depreciation funding Prioritising projects/ LTP and Annual Plan process Experienced staff managing development contributions, projecting costs, submitting any available external applications and reporting internally to Council. Local industry contributions 	Good	2	2	Moderate	 Forecast likely scenarios regarding effects of budget changes including deferments Waste management funding opportunities to be developed
 Diminishing Funding Allocation Caused by: Decreased rates, charges, development contribution charges Insufficient external funding secured Consequences: Projects unable to proceed Inability to provide services, maintain service levels or achieve community outcomes 	Operational Financial / Economic	4	4	Major	 Development contributions policy and enforcement Asset management process, depreciation funding Prioritising projects/ LTP process and Annual Plan process. Current practices and strategies for rates funding though LTP process (funding policy) Experienced staff managing development contributions, projecting costs, submitting any available external applications and reporting internally to Council. Staff Knowledge and awareness 	Good	3	5	Major	 Forecast likely scenarios regarding effects of budget changes including deferments Quantifying Levels of Service in LTP Escalate issues to higher levels e.g. Lobbying Central Government
 Ineffective strategic planning (internal) <i>Caused by:</i> Lack of integration between the different arms of Council pursuing objectives that are at odds with each other. <i>Consequences:</i> Eventual loss of service levels Funding loss 	Operational Financial / Economic Reputation / Image	5	5	Catastrophic	 Some communication between Corporate Planning and Utilities. Consultation within organisation on long term planning (improved from previous) Early and ongoing consultation with prospective developers LTP process AMP process and updating Community Boards and Councillors Current organisation wide input to district plan review 	Fair	4	3	Major	 More inclusive involvement in District Plan changes Improved working relationship with Strategic Planners

Risk Descriptor	Risk Type	Gross Risk		lisk	Current Practices/Strategies			et Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Service Level Agreements not met or non-existent – between Utilities and other parties internal or external. <i>Caused by:</i> • lack of monitoring requirements • lack of SLA <i>Consequences:</i> • Affects timing and quality of delivery of services	Operational Financial / Economic	2	2	Moderate	 Interim SLAs with KVS, W & W, Planner Intermittent meetings with other Council departments, relationship based (no perceived need for SLA) 	Good	2	2	Moderate	 Finalise SLAs and improve methods to monitor and manage SLA Better definition of roles and responsibilities within SLAs Review if additional SLA's are required
Inadequate Communications and PR Management Caused by: Poor communication e Inadequate strategic planning Ineffective consultation Historic perception of expectations Consequences: Increased costs Poor relations between council and community Negative publicity and reputation	Reputation/ Image Operational Financial / Economic	ß	2	Significant	 Established customer driven culture across council Communications plan being developed for key projects Timely communication to affected customers (public/ratepayers, councillors, staff, contractors) Customer service interface (CRM) 	Good	2	2	Moderate	Ensure good number of people trained to present at public meetings

7.7.2 Specific Operational Risks to the Water Activity

The following are specific operational risks and mitigation measures associated with our water activity:

Risk Descriptor	Risk Type	Gross Risk		isk	Current Practices/Strate	gies	Net Risk			Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
 Inability to fight fire - Inability to meet NZ Fire code requirements Caused by: Lack of water Lack of water pressure Operations issues e.g. Zone valve left closed accidentally Failure of reticulation components Consequences: Inability to minimise damage to property Avoidable spread of fire Injury or loss of life 	Operational Public Health Reputation / Image	4	4	Mator	 Hydrant testing carried out on a programmed basis by Fire brigade overseen by KVS. Procedure in place LTP states objectives for hydrant testing Network model established, calibrated, used for assessment of firefighting capability (flow and pressure maps) Telemetry and automated alarms/ call outs/ response for reservoir levels.) Levels of service established for water supply pressure Maintenance staff with response times as per SLA kpis (and LTP) Monitoring complaints, CRM and feedback Reactive replacement of hydrants Fire tanker stationed in each town 	Good	4	1	Moderate	 Identified improvement actions in the WSMP's (for adequacy of supply) Implement Water shutdown procedures, checksheet for each job. Training required
Insufficient water pressure – for everyday use Caused by: • Inadequate network capability • Peak demand e.g. milking Consequences: • Increased complaints • Loss of service level	Operational Reputation/ Image	2	5	Significant	 Network model, pressure testing if required Subdivision development process and MPDC Code of Development Monitoring complaints, CRM and feedback Specified LOS Customer surveys 	Good	1	5	Significant	 Ongoing pressure and flow management Continue network improvements (resulting from leak detection survey) Renewal programme Develop LoS options v costs

Risk Descriptor	Risk Type	Gros	ss Ri	isk	Current Practices/Strateg	jies	Ne	t Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Unreliable supply – fluctuations / outages in pressure and supply Caused by: • Power failure • Insufficient storage • Reticulation operations e.g. zone valve left closed accidentally • Erratic industrial usage / network not designed for industrial use Consequences: • Interrupted daily usage • Increased complaints • Loss of service level • Public health incident	Operational Reputation/ Image Public Health	3	5	Maior	 Telemetry and automated pressure sensor alarms/ call outs/ response for reservoir levels Maintenance staff with response times as per SLA kpis Monitoring complaints, CRM and feedback Network model Treatment plants have connections for a generator All larger plants have generator, hire transportable generator available for others Renewal programme Planning of treatment plant upgrades 	Good	1	5	Significant	 Continue network improvements Consider need for additional telemetry and automated alarms Identified improvement actions in the WSWMP affecting reliability of supply Implement Water shutdown procedures, check-sheet for each job. Training required
 Failure to supply – increased demand Caused by: High public demand Unplanned for growth / increased usage Inadequate planning for maintenance and construction (treatment and delivery) Seasonal demand from industry Consequences: Interrupted daily usage Increased complaints Loss of service level Public health incident 	Reputation/ Image Public Health			Maior	 Dealcated inflastitutile planning / Growth Model. Responsibility of Asset Manager Asset management / Annual Plan / LTP processes Subdivision development process and MPDC Code of Development Regional Fresh Water Plan (Variation 6) Demand management plans in water take resource consents Monitoring complaints, CRM and feedback Network model Renewal programme 	Fair			Maior	 Network improvements Continue to identify areas/seasons of high demand Develop a process and monitoring permits/consents for events potentially affecting demand Identified improvement actions in the WSMP's Implement development contributions Improve communication between major users and Utilities about seasonal start-ups

Risk Descriptor	Risk Type	Gros	s R	isk	Current Practices/Strategies Net Risk Management Option
		Consequence	Likelihood	Factor	Effectiveness Consequence Likelihood Factor
 Failure to supply – drought or inability to source Caused by: Drought Inability to source within consent conditions Consequences: Interrupted daily usage Increased complaints Loss of service level Public health incident 	Operational Reputation/ Image Public Health	5	5	Catastronhic	 Identify areas/seasons of high demand and instigate water restriction programme when required Drought and demand management plans in water take resource consents Communication system/protocols to public (advertising process – brochures, newspaper, billboards, web, Facebook etc.) Monitor stream flows and rainfall in real-time (also requirement of Consent, minimum flows requirement of Variation 6) Civil Defence and Emergency Response
 Failure to supply – breakage or restriction in network Caused by: Closed Valve by contractors Leakage Old materials Vandalism Landslip Breakage by contractors Consequences: Interrupted daily usage Increased complaints Loss of service level Public health incident 	Operational Reputation/ Image Public Health	3	3	Significant	 Adding to tailed water Telemetry and automated alarms/ call outs/ response for reservoir levels Maintenance staff with response times Water shutdown procedures and checksheet not currently used Monitoring complaints, CRM and feedback Renewal programme Corridor Access Request (CAR) process Identified critical assets, graded in Asset database Asset management Trained and experienced staff and external resources in, door knocking) Register of critical sites, dialysis, hospitals, rest homes, schools Good availability of spares

Risk Descriptor	Risk Type	Gros	ss R	isk	Current Practices/Strateg	jies	Ne	t Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
Inappropriate Treatment of water Caused by: Inadequacy of treatment plant Inadequate operation of treatment plant Consequences: Interrupted supply Increased complaints Loss of service level Public health incident	Operational Reputation/ Image Public Health	4	5	Catastronhic	 Water quality testing (WINZ DB) Continuous monitoring and real-time recording at major plants Maintenance / operations staff with response times as per service levels Agreed LOS and drinking water standards Some Inbuilt redundancy and spares Trained and experienced staff/ technicians – certificate programme for WTP operators. Some diplomas Telemetry and automated alarms/ call outs/ response Automated plant shutdown on bigger plants Communication system/protocols to public Emergency response plan Asset Management 	Good	2	2	Moderate	 Upgrade operating processes and procedures for water treatment Improve monitoring at smaller plants Aspire comply with NZDWS as per Health Act Identified improvement actions in the WSMP' Improvements to treatment equipment to meet latest standards Increase redundancy and spares
 Failure to supply adequately treated water due to poor raw water quality Caused by: Pesticides in catchment areas/source Faecal/biological matter in catchment areas/source Fuel/chemical spill in catchment areas/source Sediment or fire ash in catchment areas/source Consequences: Interrupted daily usage Increased complaints Loss of service level Public health incident 	Operational Reputation/ Image Public Health	4	5	Catastrophic	 Some industry upstream of some supplies Some procedures and processes for operation and monitoring at major treatment plant Incidents notified by public, external agencies, emergency services and treatment plant operators Automatic shutdown for major plants Telemetry and alarms Communication system/protocols to public Raw water detention ponds on some supplies 	Good	2	2	Moderate	Identified improvement actions in the WSMP's

Risk Descriptor	Risk Type	Gros	s R	isk	Current Practices/Strategies		gies Net R		sk	Management Options	
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
Contamination of Treated Water causing sickness or serious harm (excluding reticulation backflow event) Caused by: • Contaminant introduced externally at or after treatment plant, reservoir and reticulation • Breakage • Maintenance or repair works • Inadequate entry hatches or security • Vandalism Consequences: • Public health incident • Negative Council image	Public Health Operational Reputation/ Image	3	5	Major	 Maintenance staff training re cross contamination and awareness of location of services (GIS sytem) Security and procedures (e.g. fences/hatches at reservoirs, treatment plants) Inspected annually Approved chemical handlers, HAZNO Operating processes and procedures for water treatment Water quality testing (WINZ DB), residual chlorine, pH, FACE and turbidity downstream Continuous monitoring and real-time recording (from reservoirs and some other sites for Chlorine) CRM system for notification of incidents, laboratory required to report. Maintenance / operations staff with response times as per service levels Agreed LOS and drinking water standards Trained and experienced staff/ technicians – certificate programme for WTP operators. Some diplomas Telemetry and automated alarms/ call outs/ response Communication system/protocols to public Emergency response plan / Register of dialysis patients 	Good		2	Moderate	 Identified improvement actions in the WSMP's Continual improvement of GIS data 	

Risk Descriptor	Risk Type	Gros	ross Risk		Current Practices/Strategies		Net Risk		sk	Management Options	
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor		
Contamination causing sickness or serious harm (Internal Network) – biofilms and pathogens Caused by: • Reservoirs • Old pipes • New materials • Stagnant / low flows • Pressure fluctuations Consequences: • Public health incident • Negative Council image	Public Health Operational Reputation/ Image	2	4	Significant	 MPDC Code of Practice for Infrastructure (allowable materials and fittings, disinfection standards, acceptance of new works) Regular swabbing programme trunk main Reactive flushing Asset management, Renewal and upgrade programme Maintenance staff training re cross contamination and awareness of location of services Operating processes and procedures for water treatment Water quality testing (WINZ DB), residual chlorine, pH, FACE and turbidity downstream CRM system for notification of incidents / pressure fluctuations Maintenance / operations staff with response times as per service levels Agreed LOS and drinking water standards Communication system/protocols to public Emergency response plan Reservoir cleaning programme, code of practice for reservoirs including cleaning Network model in place for major catchments 	Fair	1	3	Moderate	 Develop network model for other catchments Identified improvement actions in the WSMP's 	

Risk Descriptor	Risk Type	Gross Risk		isk	Current Practices/Strategies			t Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	LIIECUVEIIESS	Consequence	Likelihood	Factor	
Contamination causing sickness or serious harm introduced via backflow Caused by: • Lack of backflow device • Failure of backflow device • Fire hydrant • Illegal connection Consequences: • Public health incident • Negative Council image	Public Health Operational Reputation/ Image	4	5	Catastronbic	 Consent process and annual building WOF (MPDC Building Control – enforcement of boundary protection issues by Customer Services) Backflow policy in place, but not actively enforced Non-domestic connections are being assessed by independent assessor, resulting in installation of backflow devices Maintenance / operations staff with response times as per service levels Sampling/ Monitoring process (WINZ) Council maintained backflow devices checked annually CRM feedback/ complaints Reactive mains flushing Water connection procedures, all done by network maintenance contractor Water taking procedures and permits, filling station 	oor	3	4	Mator	 MPDC Code of Practice for Infrastructure and Building developed Improve process of communication from consent planners and Utilities Develop and implement change of use procedure/ use change list (trigger) Enforce water taking procedures and permits, filling station Identified improvement actions in the PHRMPs Increase public awareness Auditing of existing commercial/ industrial facilities for correct use (MPDC Environmental Health) Backflow Prevention Policy and enforcement Network modelling to minimise low pressure events
 Discharge of water Caused by: Breakage or leak Consequences: Scouring of land Damage to property Discharge of chlorinated water to environment 	Operational Reputation/ Image Financial / Economic Environmen tal	2	5	Significant	 Maintenance staff with response times as per service levels Corridor Access Requests (CAR) and contractor education CRM feedback/ complaints Damage by third party claims made Asset management process GIS location of services Condition and performance monitoring based on criticality 	bod	1	2	Minor	 Continual improvement, more accurate GIS location of services/ inheritance of as-built information Improve contractor education

Risk Descriptor	Risk Type	Gross Risk		isk	Current Practices/Strategies			t Ri	sk	Management Options
		Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor	
 Environmental contamination (treatment process) Caused by: Chemicals used in, or wastes from, the treatment process Inadequate handling, delivery, storage Consequences: Damage to environment Public health incident Negative Council image Legal consequences 	Public Health Reputation/ Image Environmen tal Legislative	3	4	Major	 Operations manuals/ emergency procedures Storage/ security/ physical barriers, bunds/ HAZOPS at treatment plants Staff training in HAZNO/ chemical handling / chemical register. Certificate programme for WTP operators. Some diplomas Use of reputable suppliers for delivery and handling Adequate entranceways and handling areas Safety audits and assessments / site certified annually SCADA/ Telemetry real- time monitoring of some chemical dosing 	Good	3	3	Significant	 Improve SCADA/ Telemetry real-time monitoring of chemical dosing / plant control / levels in chemical storage tanks Safety audits on delivery and handling Further training and staff awareness
					Discharge Consents/ compliance/ monitoring					

7.8 Resilience of Infrastructure to Natural Disaster

7.8.1 Introduction

The NZ LGA requires Councils to provide for the resilience of infrastructure assets. 'Highimpact, low probability' disaster events are occurring more often, with 2011 being the most expensive year in history in terms of economic losses.

7.8.2 Resilience

The National Infrastructure Unit defines resilient infrastructure as infrastructure that is able to deal with significant disruption and changing circumstances. This may be due to natural hazards and shock events or events which evolve over time such as changing demographics. However, this plan is largely focussed on being able to provide essential services following a high consequence event such as a natural disaster. Resilience of critical assets is particularly important for continuation of service delivery. Both technical and organisational aspects of resilience have been considered in this plan as summarised in the table below:
Dimension	Attribute	Definition
Technical	Robustness/ Resistance	The strength, or the ability of elements, systems, and systems, and other units of analysis, to withstand a given level of stress or demand without suffering degradation or loss of function.
	Redundancy	The extent to which elements, system, or other infrastructure units exist that are substitutable, i.e. capable of satisfying functional requirements in the event of disruption, degradation, or loss of functionality.
	Reliability	The extent to which the infrastructure components are inherently designed to operate under a range of conditions and hence mitigate damage or loss from an event
Organisational	Preparedness ,Response and Recovery	The capacity to mobilize resources when conditions exist that threaten to disrupt some element or system to maintain service and enable a fast and effective response to and recovery from disruptive events.

7.8.3 Infrastructure Strategy

Section 101B of the Local Government Act 2002 Amendment Act 2014 outlines the requirements of the Infrastructure Strategy. In particular the following requirements are observed:

The infrastructure strategy must outline how the local authority intends to manage its infrastructure assets including providing for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks.

7.9 The Role of the activity as a Lifeline Utility

Lifelines are the essential 'utility' services which support the life of our community and are defined in Schedule one of the Civil Defence Emergency Management Act 2002. These services include Wastewater, Stormwater, Water, Power, Gas, Telecommunications and Transportation networks.

The CDEM Act requires all lifeline utility operators to ensure they are able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency. This is best achieved through the formation of lifeline utility projects - voluntary groups of 'lifeline utility' organisations with representatives from territorial authorities, major utility and transportation sector organisations.

The Waikato Lifelines Utilities Group (WLUG) which Matamata-Piako DC is a member of is a voluntary group of engineering lifelines organisations. It has representatives from the Waikato region's territorial authorities and major energy, telecommunications, and transportation sector organisations.

Its mission statement is "Enhancing the connectivity of lifeline utility organisations across agency and sector boundaries in order to improve infrastructure resilience".

The WLUG aims to:

• encourage and support the work of all participants in identifying and mitigating the effects of hazards on lifeline utility assets and business operations

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- facilitate communication between all participants in order to increase awareness and understanding of each organisations' interdependencies
- create and maintain awareness of the role and importance of lifeline utilities within the Waikato region
- promote ongoing research and technology transfer aimed at protecting and preserving lifeline utilities of the Waikato region
- develop best approaches to mitigation, preparedness and recovery measures for lifeline utilities.

7.10 Civil Defence Emergency Management

The Civil Defence Emergency Management (CDEM) Act 2002 requires Local Authorities to coordinate Plans, Programmes and Activities related to CDEM across the areas of Risk Reduction, Readiness, Response and Recovery. It also encourages cooperation and joint action within regional groups.

Matamata-Piako District is part of a Waikato Region-wide Civil Defence Emergency Management Group, (EMG). Hamilton City Council staff administers this group with the main Group Emergency Operating Centre also based in Hamilton. The three territorial Authorities of Thames-Coromandel, Hauraki and Matamata-Piako have agreed to unite for the purposes of maintaining an emergency operating area.

The Waikato EMG is responsible for all matters involving staff training, general Civil Defence public awareness and maintaining contact lists for schools, pre-schools, rest-homes and the like. Each Local Authority maintains its own contacts for local resources.

Matamata-Piako District is generally sheltered from most natural disasters, although there is an ever-present risk of flooding given its proximity to the Waitoa and Waihou Rivers. Wind, is another danger for Matamata-Piako District with several high wind events hitting the area in recent years.

7.11 Procedures in Place for Rapid and Structured Response to Emergency Failures

We have emergency response plans in place for the major treatment plants and plans are being prepared for the smaller plants. The requirements for these plans are under the HSNO Act which sets the requirement trigger points on the basis of the chemicals stored and used. Emergency Response Plans are still being developed for the smaller treatment plants.

We are consistently testing and refining these plans, and intended to augment our planning by putting in place emergency response plans to manage the effects of significant infrastructure failure.

Emergency Action Plans are kept at all Council water facilities and cover procedures for:

- Water Contamination Incident;
- Fire, Police and Ambulance;
- Emergency Evacuation;

- Fire/Gas leak/ Chemical spill:
- Aggressive/ threatening behaviour;
- Bomb threat; and
- Natural disaster (volcanic hazards, flooding and earthquake).

In the unlikely event of a natural disaster that could affect both the networks and water treatment plant our first priority is to protect the health and safety of the community. We will then restate the service (albeit limited), where possible protect the environment and then source long term infrastructure solutions to return to a normal level of service.

7.12 Havelock North Water Contamination Incident

The Inquiry stage 1 report has made the following key findings:

(a) Contaminated drinking water was the source of the campylobacter bacterium that caused the gastrointestinal illness campylobacteriosis among Havelock North residents in August 2016. Sheep faeces were the likely source of the campylobacter.

(b) It is highly likely that heavy rain inundated paddocks neighbouring Brookvale Road causing contaminated water to flow into a pond about 90 metres from Brookvale Road bore 1. On 5 and 6 August 2016, water in the pond entered the aquifer and flowed across to Brookvale Road bore 1 where the bore pump drew contaminated water through the bore and into the reticulation system.

(c) Contamination may also have occurred when water from neighbouring paddocks entered roadside drains adjacent to Brookvale Road bores 1 and/or 2 and then entered the bore chambers. If sufficient water had entered the chambers, it could have risen to a level where it overtopped the bore head cable holes and, because the cable seals were loose, travelled down the cables into the water supply. This scenario is regarded as much less likely than travel from the pond to the bore via the aquifer, as described above.

(d) The failings, most notably by the Regional Council and the District Council, did not directly cause the outbreak, although a different outcome may have occurred in their absence.

(e) The Regional Council failed to meet its responsibilities, as set out in the Resource Management Act 1991 ("RMA"), to act as guardian of the aquifers under the Heretaunga Plains. Protection of the water source, in this case the aquifer, was the first and a critical step in the multi-barrier approach to ensuring safe drinking water.

(f) The Regional Council's knowledge and awareness of aquifer and catchment contamination risks near Brookvale Road fell below required standards. It failed to take specific and effective steps to assess the risks of contamination to the Te Mata aquifer near Brookvale Road and the attendant risks to drinking water-safety. This included through its resource consent processes; its management of the many uncapped or disused bores in the vicinity; its State of the Environment and resource consent monitoring work; and its liaison with the District Council.

(g) The Regional Council imposed a generic condition on the water take permits it granted to the District Council, related to the safe and serviceable state of the Brookvale Road bores. This condition failed to meet the necessary standard. It then failed adequately to monitor compliance with the conditions of the permits.

(h) The District Council did not embrace or implement the high standard of care required of a public drinking-water supplier, particularly in light of its experience of a similar outbreak in 1998, and the significant history of transgressions (positive E.coli test results). As a consequence, it made key omissions, including in its assessment of risks to the drinking water supply, and it breached the Drinking-water Standards.

(i) The District Council's failings applied especially to its mid-level managers, who delegated tasks but did not adequately supervise or ensure their implementation. This caused unacceptable delays to the preparation of a Water Safety Plan, which was fundamental in addressing the risks of an outbreak of this nature.

(j) The District Council did not properly manage the maintenance of plant equipment or keep records of that work; and it carried out little or no supervision of necessary followup work. Specifically, it was slow to obtain a report on bore head security, a key plank in source water security, and it did not promptly carry out recommended improvements.

(k) There was a critical lack of collaboration and liaison between the Regional Council and the District Council. The strained nature of this relationship, together with an absence of regular and meaningful cooperation, resulted in a number of missed opportunities that may have prevented the outbreak.

(*I*) The DWAs were too hands-off in applying the Drinking-water Standards. They should have been stricter in ensuring the District Council complied with its responsibilities, such as having an Emergency Response Plan and meeting the responsibilities of its Water Safety Plans.

(m) The DWAs failed to press the District Council sufficiently about the lack of risk assessment, analysis of key aquifer catchment risks, including the link between the Brookvale Road bores and the nearby pond, and a meaningful working relationship between it and the Regional Council. They also failed to require a deeper and more holistic investigation into the unusually high rate of transgressions in the Havelock North and Hastings reticulation systems.

(n) Contingency planning by the District Council was lacking. The District Council had no Contingency Plan (referred to in various contexts also as draft boil notices, or an Emergency Response Plan), water communications plans at the ready.

(o) Consultancy firm MWH New Zealand Ltd ("MWH"), a technical adviser to the District Council, failed competently to assess and report on the security of the bore heads of Brookvale Road bores 1 and 2.

A summary of the stage 2 report and recommendations is available refer RM1963895 and the full report refer RM1963894.

7.13 Business Continuity

Business Continuity is a progression of disaster recovery, aimed at allowing an organisation to continue functioning after (and ideally, during) a disaster, rather than simply being able to recover after a disaster.

Business Continuity Plans have been completed for the water, wastewater and solid waste activities.

7.14 Succession Planning

Succession planning within any business is considered necessary to reduce the risk associated with staff leaving the organisation and forms part of the business continuity process. Succession planning allows institutional knowledge to be passed on, and assists in ensuring continuity of organisational culture.

Council has set up processes to ensure all relevant documents and information required for appropriate decision making are recorded and knowledge transfer can occur even in the absence of key staff.

Staff retention still remains a key issue due to a technical/professional shortage worldwide, a methodology for managing this risk has yet to be resolved formally but the following steps have been implemented in the interim:

- Regular reviews of pay parity
- Management of individual professional development
- Work enjoyment and flexibility
- Management of individual workloads

7.15 Health and Safety

The Health and Safety Team ensures the responsibilities under the Health and Safety at Work Act 2015 (HSWA) are met. Regular safety training is provided to staff and induction processes have been established for contractors and consultants working on Council sites. Council contracts and tenders require HSWA compliance.

Under the HSW Act 2015 everybody is responsible for their own actions including safety, and the safety of others, and that their action or inaction does not cause any harm. Council is serious about its responsibilities for the health and safety of all Contractors while on any Council work site. We aim to keep people free from harm and we expect all Contractors to take the necessary precautions to ensure all work is carried out safely.

The underlying principles to working on site are:

- · Avoidance of workplace accidents and illnesses
- Incidents, injuries, occupational illnesses and environmental damage are unacceptable
- Employees have the right to stop their own work and that of others if they believe it is unsafe to continue

• The establishment of active site health and safety committees is promoted

All Contractors must pre-qualify with regard to health and safety prior to being engaged for any work. The Waikato and Bay of Plenty Councils have teamed up with SHE Software NZ Ltd to develop a new streamlined pre-qualification procedure. The system is made available to all councils throughout NZ to pre-qualify contractors. This will ensure councils are using contractors who operate with effective health and safety management systems and are holding current and relevant insurances. A contractor's approval status is valid for two years and they are then required to provide updated copies of the documentation to ensure on-going maintenance of their Health and Safety systems.

Community groups doing voluntary work for the council also have to be approved and have undergone a briefing of the health and safety information. Volunteers are required to undergo volunteer induction training before doing volunteer work such as track maintenance.

8. Financials

8.1 Overview

Our financial policies ensure our activities are managed prudently and promote transparency and certainty for the community. The policies and financial planning are intended to help achieve the Community outcomes.

The Local Government Act 2002 (Part 6 Subpart 3) requires local authorities to manage their finances "prudently and in a manner that promotes the current and future interests of the community. This implies compliance with applicable Financial Reporting Standards, which include New Zealand equivalents to International Financial reporting Standards (NZ IFRS).

In determining how activities will be funded local authorities are required to take the following into consideration:

- The contribution to the achievement of Community Outcomes (strategic alignment)
- Beneficiaries of each activity (beneficiary/user pays principles)
- The period over which benefits from the activity will occur (intergenerational equity issues)
- The extent to which identifiable individuals contribute to the need to incur expenditure (exacerbator and user pays principles)
- The costs and benefits of funding the activity compared to other activities (cost/benefit, prioritisation principles)
- The impact of funding the activity on the wellbeing of the community (ability to pay principles)

This Activity Plan provides the basis for meeting these requirements.

8.2 How We Fund Our Activities

Council's Revenue and Financing Policy states the basis on which it will fund all activities

Operations

Operations will be funded from targeted rates

Capital

Capital and Renewals expenditure will be funded from the following sources

- Depreciation
- Loans (either internal or external
- Development/Financial contributions
- Private or Community contributions
- Government Subsidies (where applicable);

8.2.1 Processes to Enable Depreciation Calculation

The depreciation calculation requires knowledge of the useful life of the asset and the cost of renewing the asset. Useful life is determined through considering the accepted industry lifespan for that type of asset (e.g AC pipe) and factoring in any observed deterioration (through repairs or sampling) or new connections

The condition of above ground assets is regularly monitored and below ground assets are checked whenever they are uncovered for repairs or new connections; and also when they are forecast for replacement. If it is considered they still have remaining life, the new life is entered into the AssetFinda. An AC pipe sampling programme is proposed starting in 2018 to allow more accurate assessment of remaining life.

8.3 Financial Statements and Projections

8.3.1 Cash Flow Forecasts

The renewals and capital expenditure financial summaries in this Asset Management Plan cover a 30-year planning horizon and are based on financial projections covering the lifecycles of the assets.

The following tables summarise the 30-year financial forecast for the Water Activity under the following headings:

- Operational Expenditure
- Renewals
- Capital
- Asset Management Costs

8.3.2 Projected Operational Costs (no allowance for inflation)

The following table and graph show our projected operating cost of the water activity for the next 10 year assuming our levels of service will not change.

Operations	2018/19	2019/20	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
	Actual	Actual	Budget											
District Water Suspense	1,200	1,666	25,625	25,625	25,625	25,625	35,625	60,625	90,625	90,625	90,625	90,625	90,625	90,625
District Water Non Routine	166,831	177,628	217,654	228,903	228,903	228,903	228,903	228,903	228,903	228,903	228,903	228,903	228,903	228,903
District Water Total	168,031	179,294	243,279	254,528	254,528	254,528	264,528	289,528	319,528	319,528	319,528	319,528	319,528	319,528
Hinuera Water Retic Costs	710	218	2,470	2,470	3,470	3,470	3,470	3,470	3,470	3,470	3,470	3,470	3,470	3,470
Hinuera WTP Costs	62,383	73,793	39,369	39,600	60,015	60,015	60,015	60,015	60,015	60,015	60,015	60,015	60,015	60,015
Hinuera Water Total	63,093	74,011	41,839	42,070	63,485	63,485	63,485	63,485	63,485	63,485	63,485	63,485	63,485	63,485
MM Water Retic Costs	174,798	160,528	137,620	180,968	180,968	180,968	180,968	180,968	180,968	180,968	180,968	180,968	180,968	180,968
MM WTP Costs	707,972	733,427	524,200	525,000	603,551	603,551	603,551	603,551	708,551	708,551	708,551	708,551	708,551	708,551
Matamata Water Total	882,770	893,954	661,820	705,968	784,519	784,519	784,519	784,519	889,519	889,519	889,519	889,519	889,519	889,519
MV Water Retic Costs	239,364	216,949	243,933	295,660	295,660	295,660	295,660	295,660	295,660	295,660	295,660	295,660	295,660	295,660
MV WTP Costs	866,572	1,018,433	407,820	653,615	755,779	755,779	755,779	905,779	1,366,779	1,366,779	1,366,779	1,366,779	1,366,779	1,366,779
Morrinsville Water Total	1,105,937	1,235,382	651,753	949,275	1,051,439	1,051,439	1,051,439	1,201,439	1,662,439	1,662,439	1,662,439	1,662,439	1,662,439	1,662,439
Tahuna Water Retic Costs	13,456	9,950	15,100	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700	16,700
Tahuna WTP Costs	71,435	86,032	53,400	53,700	63,332	63,332	63,332	63,332	63,332	63,332	63,332	63,332	63,332	63,332
Tahuna Water Total	84,891	95,982	68,500	70,400	80,032	80,032	80,032	80,032	80,032	80,032	80,032	80,032	80,032	80,032
TA Water Retic Costs	235,033	310,225	146,770	248,200	248,200	248,200	248,200	248,200	248,200	248,200	248,200	248,200	248,200	248,200
TA WTP Costs	544,355	855,260	568,800	716,900	719,347	719,347	719,347	721,347	757,347	757,347	757,347	757,347	757,347	757,347
Te Aroha Water Total	779,387	1,165,485	715,570	965,100	967,547	967,547	967,547	969,547	1,005,547	1,005,547	1,005,547	1,005,547	1,005,547	1,005,547
TA West Water Retic Costs	60	15,069	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865
TA West WTP Costs	16,737	4,049	24,210	24,210	0	0	0	0	0	0	0	0	0	0
Te Aroha West Water Total	16,798	19,119	27,075	27,075	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865	2,865
Te Poi Water Treatment Costs	89,087	145,843	66,400	66,400	82,909	82,909	82,909	82,909	82,909	82,909	82,909	82,909	82,909	82,909
Te Poi Water Retic Costs	0	0	4,250	4,250	5,250	5,250	5,250	5,250	5,250	5,250	5,250	5,250	5,250	5,250
Te Poi Water Total	89,087	145,843	70,650	70,650	88,159	88,159	88,159	88,159	88,159	88,159	88,159	88,159	88,159	88,159
Waharoa Water Retic Costs	5,451	18,606	10,935	10,935	13,935	13,935	13,935	13,935	13,935	13,935	13,935	13,935	13,935	13,935
Waharoa WTP Costs	36,471	26,614	52,885	53,300	35,212	35,212	35,212	35,212	35,212	35,212	35,212	35,212	35,212	35,212
Waharoa Water Total	41,922	45,220	63,820	64,235	49,147	49,147	49,147	49,147	49,147	49,147	49,147	49,147	49,147	49,147
Raungaiti Pumpstation Costs	9,214	9,213	10,775	10,775	9,883	9,883	9,883	9,883	9,883	9,883	9,883	9,883	9,883	9,883
Water Total for District	3,241,130	3,863,503	2,555,081	3,160,076	3,351,604	3,351,604	3,361,604	3,538,604	4,170,604	4,170,604	4,170,604	4,170,604	4,170,604	4,170,604

Table 8-1: Projected Operational Costs (CM 2378931v2)



Figure 8-1: District Water Opex Trend (CM 2378931v2).

8.3.3 Projected Reticulation (Line and Points) Renewal Costs (no allowance for inflation)

Year	Smoothed (5 Years)	Total Retic (Lines and				
		Points)				
2022	1,899,021	0				
2023	1,899,021	814,940				
2024	1,899,021	7,956,369				
2025	1,899,021	617,889				
2026	1,899,021	105,909				
2027	573,752	972,591				
2028	573,752	1,461,925				
2029	573,752	32,294				
2030	573,752	307,522				
2031	573,752	94,428				
2032	317,187	167,658				
2033	317,187	151,901				
2034	317,187	158,422				
2035	317,187	58,284				
2036	317,187	1,049,670				
2037	2,663,927	170,238				
2038	2,663,927	639,952				
2039	2,663,927	225,308				
2040	2,663,927	11,522,284				
2041	2,663,927	761,850				
2042	1,280,176	556,425				
2043	1,280,176	3,807,682				
2044	1,280,176	807,212				
2045	1,280,176	543,842				
2046	1,280,176	685,721				
2047	476,102	510,051				
2048	476,102	152,381				
2049	476,102	600,766				
2050	476,102	603,423				
2051	476,102	513,891				
2052	535,398	797,201				
2053	535,398	543,822				
2054	535,398	664,236				
2055	535.398	195.655				

Table 8-2: Projected Reticulation Renewal Costs (CM 2395116)

2056	535,398	476,074
2057	702,694	2,020,851
2058	702,694	451,466
2059	702,694	593,472
2060	702,694	305,557
2061	702,694	142,123
2062	509,529	362,095
2063	509,529	1,214,281
2064	509,529	339,558
2065	509,529	587,730
2066	509,529	43,980
2067	570,979	905,635
2068	570,979	383,375
2069	570,979	499,868
2070	570,979	787,048
2071	570,979	278,968
2072	670,311	1,442,275
2073	670,311	459,619
2074	670,311	782,132
2075	670,311	349,810
2076	670,311	317,720
2077	1,074,717	371,125
2078	1,074,717	215,738
2079	1,074,717	510,173
2080	1,074,717	253,842
2081	1,074,717	4,022,705



Figure 8-2: Reticulation Renewal Trend (CM 2395116)

8.3.4 Projected Plant Renewal Costs (no allowance for inflation)

Year	Smoothed (5	Total Plant
	Years)	Renewal Costs
2022	802,664	90,548
2023	802,664	2,495,134
2024	802,664	605,812
2025	802,664	567,195
2026	802,664	254,632
2027	998,657	565,426
2028	998,657	662,446
2029	998,657	426,979
2030	998,657	3,066,765
2031	998,657	271,670
2032	390,081	211,637
2033	390,081	684,593

Table 8-3: Projected Plant Renewal Costs (CM 2395633)

2049	1,361,422	420,189
2050	1,361,422	3,017,237
2051	1,361,422	359,590
2052	1,067,129	691,794
2053	1,067,129	2,337,640
2054	1,067,129	774,736
2055	1,067,129	954,889
2056	1,067,129	576,585
2057	1,090,464	627,384
2058	1,090,464	858,891
2059	1,090,464	743,280
2060	1,090,464	2,902,127
2061	1,090,464	320,638
2062	567,057	198,424
2063	567,057	828,751
2064	567,057	415,903
2065	567,057	663,957

2066	567,057	728,251
2067	1,474,360	725,799
2068	1,474,360	2,544,247
2069	1,474,360	999,541
2070	1,474,360	2,903,328
2071	1,474,360	198,888
2072	497,173	242,867
2073	497,173	690,350
2074	497,173	708,564
2075	497,173	507,611
2076	497,173	336,475
2077	1,029,125	615,065
2078	1,029,125	619,274
2079	1,029,125	521,025
2080	1,029,125	3,076,936
2081	1,029,125	313,327



Figure 8-3: Plant Renewal Cost Trend (CM 2395633)

8.3.5 Depreciation vs Projected Renewal Spending (no allowance for inflation) (Source: RM1977151)

Annual Plan	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Renewal Spend											
Water	1,221	3,015	3,120	3,151	3,233	3,305	1,381	1,526	1,565	1,605	1,647
Total renewal spend	1,221	3,015	3,120	3,151	3,233	3,305	1,381	1,526	1,565	1,605	1,647
Depreciation											
Water	1,670	1,714	1,806	1,870	1,934	2,002	2,055	2,107	2,162	2,219	2,317
Total depreciation	1,670	1,714	1,806	1,870	1,934	2,002	2,055	2,107	2,162	2,219	2,317
Renewal / depreciation	73%	176%	173%	169%	167%	165%	67%	72%	72%	72%	71%



Table 8-4: Depreciation vs Projected Renewal Spending (CM 2391522 DRAFT)

8.3.6 Projected Capital Projects for Next 30 years

All these projects are for increased level of service and growth except the installation of security fencing, which relates to risk management.

The projected capital projects for the next 30 years are presented in the table below:

Table 8-5: Capital Projects 2021 to 2031 (CM 2350824v4)

Business Case Name (Project)	Gr.	LoS	Ren.	Total 2021 to 31	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
MM Water Pipe Size Increases Associated with New Subdivisions	50%	50%	0%	292,500	29,250	29,250	29,250	29,250	29,250	29,250	29,250	29,250	29,250	29,250
MV Water Pipe Size Increases Associated with New Subdivisions	50%	50%		277,500	27,750	27,750	27,750	27,750	27,750	27,750	27,750	27,750	27,750	27,750
TA Water Pipe Size Increases Associated with New Subdivisions	50%	50%		180,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Treated Water Storage Construction 1	0%	100%		1,000,000	0	0	0	200,000	800,000	0	0	0	0	0
Lime Dosing Tank Duplication - Te Aroha	0%	100%		100,000	0	100,000	0	0	0	0	0	0	0	0
Minor Compliance Upgrade WATER Projects	0%	50%	50%	350,000	0	0	0	350,000	0	0	0	0	0	0
Powdered Activated Carbon	0%	100%		100,000	0	0	100,000	0	0	0	0	0	0	0
Raw Water Intake Compliance	0%	100%		500,000	0	0	0	250,000	250,000	0	0	0	0	0
Raw Water Monitoring (NZDWS and Consent Compliance)	0%	100%		100,000	0	0	100,000	0	0	0	0	0	0	0
HSNO Upgrades	0%	100%		1,000,000	200,000	200,000	200,000	200,000	200,000	0	0	0	0	0
MV Lockerbie Bore Pump and Water Treatment Plant	50%	50%		4,500,000	500,000	0	2,500,000	1,500,000	0	0	0	0	0	0
MM South Bore	100%	0%		550,000	0	0	0	0	0	0	0	0	0	550,000
Gross Pollution Monitoring (Conductivity and PH Probes)	0%	100%		150,000	0	0	150,000	0	0	0	0	0	0	0
Rolleston Street Generator	0%	100%		100,000	0	0	100,000	0	0	0	0	0	0	0
Reticulation On Line Monitoring	0%	100%		250,000	0	0	250,000	0	0	0	0	0	0	0
Reticulation Monitoring	0%	100%		150,000	0	150,000	0	0	0	0	0	0	0	0
Water Pipe Size Increases Associated with Renewals	0%	100%		400,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Lime Dosing Tank Duplication - Tills Road	0%	100%		100,000	0	100,000	0	0	0	0	0	0	0	0
Implement Water Loss Strategy	0%	100%		150,000	50,000	50,000	50,000	0	0	0	0	0	0	0
Taharoa Rd Industrial Ringmain	0%	100%		1,000,000	0	0	400,000	600,000	0	0	0	0	0	0
MV Water Treatment Plant UV	0%	100%		750,000	0	0	0	750,000	0	0	0	0	0	0
TA Water Treatment Plant UV	0%	100%		750,000	0	0	0	750,000	0	0	0	0	0	0
TA WTP Old Res. Seismic Upgrades	0%	50%	50%	80,000	80,000	0	0	0	0	0	0	0	0	0
Sludge and Waste Handling Implementation	0%	100%		500,000	0	0	0	500,000	0	0	0	0	0	0
Tower Road – upgrade 200mm WM	60%	40%		175,000	0	175,000	0	0	0	0	0	0	0	0
Eldonwood South - WM upgrade. 200 ring main	60%	40%		360,000	360,000	0	0	0	0	0	0	0	0	0
Waharoa Airfield bore supply develop and construct Treatment	100%	0%		800,000	0	0	150,000	650,000	0	0	0	0	0	0
MV Wisely Water Treatment Plant	50%	50%		1,500,000	0	0	1,500,000	0	0	0	0	0	0	0
				16,165,000	1,305,000	890,000	5,615,000	5,865,000	1,365,000	115,000	115,000	115,000	115,000	665,000

Gr = Growth. Funded from Financial Contributions under the Resource Management Act 1991 LoS = Increased Level of Service. New work resulting in improved service, e.g. increased water pressure on flows Ren = Renewal

Business Case Name (Project)	Gr.	LoS	Ren.	Total 2031 to 51	2031/36	2036/41	2041/46	2046/51
MM Tawari WTP Take & Use Consent Renewals	0%	100%	0%	500,000	500,000	0	0	0
MM Sth/Burwood WTP Take & Use Consent Renewals	0%	100%	0%	500,000	500,000	0	0	0
MV Scott Rd Groundwater Take	0%	100%	0%	200,000	200,000	0	0	0
MM Tills Rd WTP (Wateariki Stm) Consents	0%	100%	0%	500,000	0	0	0	500,000
				1,700,000	1,200,000	0	0	500,000

Table 8-6: Capital Projects 2031 to 2051 (CM 2350824v4)

8.3.7 Projected Capital and Renewal Costs (no allowance for inflation) (Source: 1958899)

The graph below shows the actual cost of water (Retic and Plant) capital works combined with all renewals over the 30 years of this strategy.

Year	Retic Renewals	Plant Renewals	Retic Capital	Plant Capital	Total
2022	1,899,021	802,664	525,000	780,000	4,006,686
2023	1,899,021	802,664	490,000	400,000	3,591,686
2024	1,899,021	802,664	815,000	4,800,000	8,316,686
2025	1,899,021	802,664	715,000	5,150,000	8,566,686
2026	1,899,021	802,664	115,000	1,250,000	4,066,686
2027	573,752	998,657	115,000	0	1,687,409
2028	573,752	998,657	115,000	0	1,687,409
2029	573,752	998,657	115,000	0	1,687,409
2030	573,752	998,657	115,000	0	1,687,409
2031	573,752	998,657	115,000	550,000	2,237,409
2032	317,187	390,081	115,000	790,000	1,612,268
2033	317,187	390,081	115,000	250,000	1,072,268
2034	317,187	390,081	115,000	250,000	1,072,268
2035	317,187	390,081	115,000	250,000	1,072,268
2036	317,187	390,081	115,000	250,000	1,072,268
2037	2,663,927	1,266,699	115,000	250,000	4,295,626
2038	2,663,927	1,266,699	115,000	250,000	4,295,626
2039	2,663,927	1,266,699	115,000	250,000	4,295,626
2040	2,663,927	1,266,699	115,000	250,000	4,295,626
2041	2,663,927	1,266,699	115,000	250,000	4,295,626
2042	1,280,176	856,561	115,000	250,000	2,501,737
2043	1,280,176	856,561	115,000	250,000	2,501,737
2044	1,280,176	856,561	115,000	250,000	2,501,737
2045	1,280,176	856,561	115,000	250,000	2,501,737
2046	1,280,176	856,561	115,000	650,000	2,901,737
2047	476,102	1,361,422	115,000	250,000	2,202,524
2048	476,102	1,361,422	115,000	250,000	2,202,524
2049	476,102	1,361,422	115,000	250,000	2,202,524
2050	476,102	1,361,422	115,000	250,000	2,202,524
2051	476,102	1,361,422	115,000	250,000	2,202,524

Table 8-7: Total Capital and Renewal Costs (CM 2395116)



Figure 8-4: Total Projected Capital and Renewal Costs

8.3.8 Projected Financial Costs (no allowance for inflation)

The tables below summarise all the costs associated with the activity as shown in the preceding tables and graphs. These tables contain the information for 10 years for operations and asset management and 30 years for renewal and capital. It should be noted that we have not smoothed out our plant renewals as the individual assets vary so much in cost and criticality.

Table 8-8: Total Projected Renewal, Capital and O & M Costs

Year	Retic Renewals	Plant Renewals	Retic Capital	Plant Capital	Total Capital and Renewal	Operations & Maintenance	Asset M'ment	Total Opex	Total Cap, Ren and O & M
2022	1,899,021	802,664	525,000	780,000	4,006,686	2,986,602	254,528	3,241,130	7,247,816
2023	1,899,021	802,664	490,000	400,000	3,591,686	3,608,975	254,528	3,863,503	7,455,189
2024	1,899,021	802,664	815,000	4,800,000	8,316,686	2,290,553	264,528	2,555,081	10,871,767
2025	1,899,021	802,664	715,000	5,150,000	8,566,686	2,870,548	289,528	3,160,076	11,726,762
2026	1,899,021	802,664	115,000	1,250,000	4,066,686	3,032,076	319,528	3,351,604	7,418,290
2027	573,752	998,657	115,000	0	1,687,409	3,032,076	319,528	3,351,604	5,039,013
2028	573,752	998,657	115,000	0	1,687,409	3,042,076	319,528	3,361,604	5,049,013
2029	573,752	998,657	115,000	0	1,687,409	3,219,076	319,528	3,538,604	5,226,013
2030	573,752	998,657	115,000	0	1,687,409	3,851,076	319,528	4,170,604	5,858,013
2031	573,752	998,657	115,000	550,000	2,237,409	3,851,076	319,528	4,170,604	6,408,013
2032	317,187	390,081	115,000	790,000	1,612,268	3,851,076	319,528	4,170,604	5,782,872
2033	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2034	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2035	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2036	317,187	390,081	115,000	250,000	1,072,268	3,851,076	319,528	4,170,604	5,242,872
2037	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2038	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2039	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2040	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2041	2,663,927	1,266,699	115,000	250,000	4,295,626	3,851,076	319,528	4,170,604	8,466,230
2042	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2043	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2044	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2045	1,280,176	856,561	115,000	250,000	2,501,737	3,851,076	319,528	4,170,604	6,672,341
2046	1,280,176	856,561	115,000	650,000	2,901,737	3,851,076	319,528	4,170,604	7,072,341
2047	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2048	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2049	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2050	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128
2051	476,102	1,361,422	115,000	250,000	2,202,524	3,851,076	319,528	4,170,604	6,373,128

8.3.9 Key Operational (Asset Management Improvement) Projects

Project Name	Description	Timing	Costs
Investigate options to increase pressure in higher areas of town like Bellybunnion place	Need to further investigate this. Is it internal design or pressure in main. Flow meter test required. Also need to complete modelling on additional areas in MV and see what impacts are.	annual	\$20k
Prepare/update an Emergency Response Plan, draft boil water notices, and up-to-date contact lists for vulnerable individuals, schools, and childcare centres.	Identified as an issue in Havelock North enquiry. Must be regularly updated.	2018/19	In-house
Prepare a prioritised programme of watermain upgrades using the hydraulic model	Upgrades for all urban networks required meet the minimum flow and pressure requirements as set out in the Fire Service Firefighting Code of Practice.	2018/19	\$30k
Develop a Water Loss strategy for the urban supply networks.	Strategy to work towards reducing relatively high water loss. Use specialist consultant.	2018/19	\$50k
Implement Water Loss Strategy	Implement strategy physical works and operation changes.	2019/20	\$50k per year
Prepare and implement an AC pipe sampling programme	Pipe samples are obtained and sent to the Opus laboratory for assessment.	2018-2022	\$33k per year
Waharoa Industrial – water supply AEE for Waihou River source	Prepare Assessment of Environmental Effects report for potential water source from Waihou River	2018/19	\$150K
Backflow prevention	A maintenance cost. Should we allocate \$200k per annum.	first 5 years	\$200k per annum
District Water treatment plants - look into alternative options on Lime dosing	An investigation into this is required first. Then make capital provision.	2018/19	\$5k

8.4 Borrowing Needs

8.4.1 Key Financial Forecast Assumptions

The cost figures arrived at is the best possible estimates at the time of preparation. More accurate figures will be prepared during each year's annual plan preparation. Some of the works in the plan need more investigation and therefore the works may vary depending on the options available.

The assumptions made in the preparation of the plan are:

- Council is committed to sustain the current levels of service to the community
- Growth projections are based on Statistics New Zealand forecasts
- There will be no sudden changes of demand due to growth
- Renewal is funded through the depreciation charges
- Growth related expenditure is charged through development contribution
- Demand may change as a result of rural/residential zoning revisions
- Gifted assets are recognised at standard industry costs, as per unit rates in the valuation immediately preceding the asset being acquired
- Confidence in the data used to produce the 10-year forecasts for this AMP has been assessed at 80 85%.

Growth predictions used in the Demand section of this plan play an important part in the calculation of development contributions

Useful lives have been ascribed to the assets and provide information to support replacement plans. The useful lives are used in the calculation of depreciation.

8.4.2 Asset Base Life

The base lives of assets within the water system were recently reviewed by staff and then peer reviewed by consultants. The following changes were made to asset life as a result of that review:

	Base	e Lives
Material	Current	New
Alkathene 15 – 40 mm	60	40
Alkathene 15 – 40 mm	60	40
Asbestos Cement <100Ø	60	50
Asbestos Cement <1962	60	60
Asbestos Cement >1961	60	75
Boss Pipe (Wastewater & SW)	100	100
Cast Iron	80	80
Concrete	80	80
Copper	80	30
Ductile Iron	80	40
Galvanised Iron	60	40
Galvanised Steel	60	40
HDPE	100	88
MDPE	100	88
mPVC	80	80
PVC	80	80
uPVC	80	80
Resin Lined Pipes	50	50
Ribloc Lined Pipes (W/water & SW)	50	50
Steel - Concrete Lined	80	60
Steel - Spiral Welded	80	60
Steel - Spiral Riveted	80	60
Unknown (Mains)	60	60
Unknown (Service)	60	50

Table 8-9: Asset Base Lives²

9. Improvement Plan

9.1 **Proposed Actions**

Matamata-Piako District Council is committed to ongoing improvement in the quality of its Water Services management practices. This is reflected in the risk based strategic management approach that has been adopted to determining priorities for improvement.

Being able to implement (in terms of cost and technical implementation issues) actions to enhance business practices for each of the criteria has also been assessed.

This has enabled both the highest overall risk areas and the business improvements, which will deliver the highest relative payback to be identified.

This Improvement Plan is integral to that approach, quantifying current business practice and measuring progress toward an identified future position.

The purpose of the Improvement Plan is to:

- Identify, develop and implement AM planning processes
- Identify and prioritise ways to cost-effectively improve the quality of the AM plan
- Identify indicative time-scales, priorities, and human and financial resources required to achieve AM planning objectives

The Improvement Plan is subject to constant reappraisal and change. While reappraisal is an on-going process, the Improvement Plan will form the basis of the Water Service annual business planning.

9.2 Improvement Projects

(Improvement projects are summarised in 8.3.8 above.)

1 AM Policy Development					
Element	Minimum 0 – 25		Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100
1 AM Policy Development	Corporate expectations ex and simply, e.g. "all depart AM Plans every three year	pressed informally ments must update s".	Defined policy statements for all significant activities. Clear linkage to corporate goals. Policy supported by high-level action plans with defined responsibilities for delivery.	AM Policy and Strategy reviewed and adopted by Executive Team each year Expectations of each activity area defined with detailed action plans, resources, responsibilities and timeframes.	AM Policy and Strategy fully integrated into the organisations business processes and subject to defined audit, review and updating procedures
Current Status	Core- Intermediate	 Current status Council has implemented a restructure to allow a high focus on AM AM Policy and Strategy reviewed and adopted by Executive Team each year Expectations defined for activity areas with action plans, resources, responsibilities and timeframes Processes are in place though not necessarily able to deliver on all expectations 			
Appropriate Target	Intermediate	Future status All processe Related polic AM practices 	s in place, aligned a cies and strategies i s/processes are em	and consistent revised and aligned for co bedded and part of 'busir	onsistency less as usual'

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
1	Commission the development of a Water Loss Strategy.	AM Policy Development		2018-28	\$50k

Levels of Service and Performance Management							
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100			
2 Levels of Service and Performance Management	Asset contribution to organisations objectives and some basic levels of service have been defined.	Customer Groups defined and requirements informally understood. Levels of service and performance measures in place covering a range of service attributes. Annual reporting against	Customer Group needs analysed. Costs to deliver alternate key levels of service are assessed. Customers are consulted on significant service levels and optione	Levels of service consultation strategy developed and implemented. Technical and customer levels of service are integral to decision making and business planning.			
Current Status	Core	 Annual Customer Survey Customer request management module (CRM) Response times reported for some activities LoS costs are known to some extent but there are gaps and alternative options are seldom analysed Key stakeholders are known and needs are generally understood LTP consultation process, includes pre-consultation on LoS options 					
Appropriate Target	Intermediate	 Measurable technical performance measures that provide useful information for decision-making User intercept surveys to gather more detailed data on stakeholder needs and expectations Minimum specifications to clarify expectations around service delivery outcomes Key LoS options are cost analysed 					

Demand Forecasting							
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100			
3 Demand Forecasting	Demand forecasts based on experienced staff predictions, with consideration of known past demand trends and likely future growth patterns.	Demand forecasts based on robust projection of a primary demand factor (e.g. population growth) and extrapolation of historic trends. Risk associated with demand change broadly understood and documented.	Demand forecasts based on mathematical analysis of past trends and primary demand factors. A range of demand scenarios is developed (e.g. high/medium/low).	As for 'intermediate' plus risk assessment of different demand scenarios with mitigation actions identified.			
Current Status	Core	 Understanding of aging population District Plan changes at hearing stage Recent Population Growth Scenario Projections (2017) 					
Appropriate Target	Intermediate	 Period review of demographic, economic and recreation trend assumptions Periodically review strategies Feasibility studies with a range of demand scenarios for major projects 					

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
1	Prepare Assessment of Environmental Effects report for potential water source from Waihou River	Demand Forecasting		2018-19	\$150k

Asset Register Data						
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
4 Asset Register Data	Basic physical information recorded in a spreadsheet or similar (e.g. location, size, type) but may be based on broad assumptions or not complete.	Sufficient information to complete asset valuation – as for 'minimum' plus replacement cost and asset age/life. Asset hierarchy, asset identification and asset attribute systems documented.	A reliable register of physical and financial attributes recorded in an information system with data analysis and reporting functionality. Systematic and documented data collection process in place. High level of confidence in critical asset data.	Information on work history type and cost, condition, performance, etc recorded as asset component level. Systematic and fully optimised data collection programme. Complete data base for critical assets; minimal assumptions for non- critical assets.		
Current Status	Intermediate	Data largely complete except for a number of unknown material/ages. Documented processes are in the QA system and audited as part of the corporate QA				
Appropriate Target	Intermediate	Accurate asset data for vested assets, received and inputted in a timely manner Accurate asset data for capital and renewal received and captured in a timely manner All critical assets captured and flagged in database High confidence in critical asset data Systematic asset data capture and verification programmes in place Improved alignment with new LTP categories				

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
1	Prepare and implement an AC pipe sampling programme	Asset Register Data		2018-2022	\$33k/year

Asset Conditi	Asset Condition Data								
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100					
5 Asset Condition	Condition assessment at asset group level (top down). Supports minimum requirements for managing critical assets and statutory requirements (e.g. safety)	Condition assessment programme in place of major asset types, prioritised based on asset risk. Data supports asset life assessment. Data management standards and processes documented. Programme for data improvement developed.	Condition assessment programme used to derive benefit cost analysis of options. A good range of condition data for all asset types (may be sampling based). Data management processes fully integrated into business processes. Data validation process in place.	The quality and completeness of condition information supports risk management, lifecycle decision making and financial/performance reporting. Periodic reviews of programme suitability carried out.					
Current Status	Intermediate	 Still lagging behind in assessing condition of some assets The condition rating used for assets due for replacement Renewal profiles available for most assets 							
Appropriate Target	Intermediate	 Systematic condition-rating programmes in place for assets including critical plant Condition rating information used to update asset lives and produce renewal profiles 							

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
1	Prepare and implement a AC pipe sampling programme	Asset Condition		2018-22	\$33k/year

Risk Management							
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100			
6 Risk Management	Critical assets understood by staff involved in maintenance/renewal	Risk framework developed. Critical assets and high risks	Systematic risk analysis to assist key decision-making.	Formal risk management policy in place.			
	decisions.	identified. Documented risk management strategies for critical assets and high risks.	Risk register regularly monitored and reported.	Risk is quantified & mitigation options evaluated.			
			Risk managed consistently across the organisation.	Risk integrated into all aspects of decision making.			

Current	Core	Risk matrix developed
Status		Critical assets identified
Appropriate	Intermediate	Corporate risk framework implemented
Target		 Risk register regularly monitored and reported
		Risk action plans for critical assets
		Business continuity plans

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
1	Prepare/update an Emergency Response Plan, draft boil water notices, and up-to-date contact lists for vulnerable individuals, schools, and childcare centres.	Risk Management		2018-19	in-house

Decision-making				
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100
7 Decision Making	AM decisions based largely on staff judgement and agreed corporate priorities.	Formal decision making techniques (MCA/BCA) are applied to major projects and programmes.	Formal decision making and prioritisation techniques are applied to all operational and capital asset programmes within each main budget category. Critical assumptions and estimates are tested for sensitivity to results.	As for 'intermediate' plus The framework enables projects and programmes to be optimised across all activity areas. Formal risk based sensitivity analysis is carried out.
Current	Core	- Conital and renowal in	rightigation techniques applied to	Pulk Fundad itama
Status		 Capital and renewal - p Strategies and LoS do 	not necessarily always drive decis	sion making
Appropriate Target	Core	 LoS, Strategies, and Ri Renewal profiles to aid More systematic appro 	isk, to have greater influence on p decision making ach to operations and maintenand	prioritisation ce tasks

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
2	Investigate options to increase pressure in higher areas of town like Bellybunnion place	Decision making		Annual	\$20k

Renewal Planning				
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100
8 Renewal Planning	There is a schedule of proposed renewal projects and associated costs, based on staff judgement of future requirements.	Projects have been collated from a wide range of sources such as operational staff and risk processes. Renewal projects for the next three years are fully scoped and estimated.	As for "core" plus formal options analysis and business case development has been completed for major projects in the 3-5 year period. Major renewal projects for the next 10-20 years are conceptually identified and broad cost estimates are available.	Long term renewal investment programmes are developed using advanced decision techniques such as predictive renewal modelling

Current Status	Intermediate	 Renewals based on age profile, condition, maintenance demand, customer service issues Expenditure spread out over period to manage effect on rates
Appropriate Target	Intermediate	 Greater use of renewal profiles and asset data to set budgets Condition-rating programmes to feed into renewal planning

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
2	Prepare a prioritised programme of watermain upgrades using the hydraulic model	Renewal Planning		2018/19	\$30k
3	Prepare and implement an AC pipe sampling programme	Renewal Planning		2018/22	\$33k per year

Maintenance Planning					
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100	
9 Maintenance Planning	Organisational objectives and how asset functions support these are	Asset criticality considered in response processes.	Contingency plans for all maintenance activities.	Forensic root cause analysis for major faults.	
	understood. Compliant with legislation	Fault tracing and closure process.	Asset failure modes understood.	Optimisation of all reactive and planning programmes alongside renewal planning.	
	and regulations.	Strategy for prescriptive versus performance-based	Frequency of major preventative maintenance	Procurement models fully	
	Maintenance records maintained.	maintenance developed.	optimised using benefit-cost analysis.	explored.	
		Key maintenance objectives established and measured.	Maintenance management software implemented.		

Current	Core	CRM system				
Status		Asset failures investigated and identified				
		Preventative maintenance undertaken				
Appropriate	Intermediate	 Performance measures based on response times 				
Target		 Maintenance schedules implemented for routine and critical tasks 				
		Asset condition data used for maintenance planning				
		 Key objectives established and measured 				
Capital Works Planning						
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Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
10 Capital Works Planning	There is a schedule of proposed capital projects and associated costs, based on staff judgement of future requirements.	Projects have been collated from a wide range of sources such as operational staff and risk processes. Capital projects for the next three years are fully scoped and estimated.	As for "core" plus formal options and business case analysis Development has been completed for major projects in the 3-5 year period. Major capital projects for the next 10-20 are conceptually identified and broad cost estimates are available.	Long term capital investment programmes are developed using advanced decision techniques such as predictive renewal modelling (refer section 3.1)		

Current	Intermediate	• sd
Status		
Appropriate	Intermediate	 Improved criteria for assessing proposed Bulk Fund projects
Target		 LoS, Strategies, and Risk, to have greater influence on prioritisation
		 Strategies used more to guide capital works planning

Priority	Improvement	Element	Action Officer	Target completion	Projected cost
2	Use hydraulic model to identify areas of non- compliance with Fire Service Code of Practice minimum flows and produce prioritised list of mains to be upgraded	Capital Works Planning		2020-22	\$30k

Financial and Funding Strategies						
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
11 Financial and Funding Strategies	Financial forecasts are based on extrapolation of past trends and broad assumptions about the future. Assets are re- valued in accordance with International Financial Reporting Standards (IFRS).	Ten year+ financial forecasts based on current AMP outputs. The quality of forecasts meets IFRS requirements. Significant assumptions are specific and well-reasoned. Expenditure captured at a level useful for AM analysis.	Ten year+ financial forecasts are based on current and comprehensive AMPs with detailed supporting assumptions / reliability factors. Asset expenditure information is linked with asset performance information.	The business unit publishes reliable ten year+ financial forecasts based on comprehensive, advanced AMPs with detailed underlying assumptions and high confidence in accuracy. Advanced financial modelling provides sensitivity analysis, evidence-based whole of life costs and cost analysis for level of service options.		

Current	Core	Funding Policy
Status		 Ten year financial forecast in AMP and LTP
		 Maintenance & Operations – based on historical expenditure
		Renewal profiles available for most assets
Appropriate	Intermediate	Renewals – based on asset performance and condition information
Target		• Optimised trade-off between maintenance and renewals in line with budget constraints

See: 'Renewal Planning', 'Capital Planning', 'Maintenance Planning' and 'Asset Condition' sections.

Asset Management Teams						
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
12 AM Teams	AM allocated primarily to one or two people who have AM experience.	Cross-Council coordination occurs through a Steering Group or Committee, AM training occurs for primary staff.	All staff in the organisation understand their role in AM, it is defined in their job descriptions, and they receive supporting training aligned to that role.	A formal AM capability building programme is in place and routinely monitored. The AM structure has been formally reviewed with		
		The executive team have considered options for AM functions and structures.	A person on the Executive Team has responsibility for delivery the AM Policy/Strategy.	consideration of the benefits and cost of options.		

Current	Intermediate	 All relevant staff now in activity groups to strengthen AM planning
Status		 AM training needs identified as required
		• A person on the Executive Team has responsibility for delivery the AM Policy/Strategy
Appropriate	Intermediate	• All appropriate staff in the organisation understand their role in AM, it is defined in their
Target		job descriptions, and they receive training aligned to that role

Asset Management Plans						
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
13 AM Plans	Plan contains basic information on assets, service levels, planned works and financial forecasts (5-10 years) and future improvements.	As for 'Minimum' plus executive summary, description of services and key/critical assets, top down condition and performance description, future demand forecasts, description of supporting AM processes, 10 year financial forecasts, 3 year AM improvement plan.	As for 'Core' plus analysis of asset condition and performance trends (past/future), effective customer engagement in setting LoS, ODM/risk techniques applied to major programmes.	As for 'Intermediate' plus evidence of programmes driven by comprehensive ODM techniques, risk management programmes and level of service/cost trade-off analysis. Improvement programmes largely complete with focus on ongoing maintenance of current practice.		

Current Status	Intermediate	All levels largely achieved10 year financial programme
		3 year improvement programme
Appropriate Target	Intermediate	Intermediate status for all AMPs

See: Remainder of Improvement Plan

Information Systems						
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100		
14 Information Systems	Asset register can record core asset attributes – size, material, etc.	Asset register enables hierarchical reporting (at component to facility level).	More automated analysis reporting on a wider range of information.	Financial, asset and customer service systems are integrated and all advanced AM functions are		
	Asset information reports can be manually generated for AMP input.	Customer request tracing and planned maintenance functionality enabled.	Key operations, unplanned maintenance and condition and performance information held.	enabled.		
		System enables manual reports to be generated for valuation, renewal forecasting.				

Current	Core	AssetFinda and Authority AM
Status		Currently in the process of implementing Infrastructure data - replacing Outlook
		Data considered 80% reliable
		 Condition data for buildings and plant is recent and fairly comprehensive
		Performance data for pipes available through hydraulic model
		 Planned maintenance functionality is available but not implemented yet
		• CRM
		• GIS
Appropriate	Intermediate	Data systematically captured and updated to improve functionality of systems
Target		Planned maintenance functionality implemented
		Condition and performance information held for critical assets, buildings, pools, spas

See: 'Asset Register Data' and 'Levels of Service and Performance Measures' sections

Service Delivery Mechanisms							
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100			
15 Service Delivery Mechanisms	Service delivery roles clearly allocated (internal and external), generally following historic approaches.	Contracts in place for external service provision. Core functions defined.	Internal service level agreements in place with internal service providers. Contracting approaches reviewed to identify best delivery mechanism. Tendering/contracting policy in place. Competitive tendering practices applied.	All potential service delivery mechanisms reviewed and formal analysis carried out. Risks, benefits and costs of various outsourcing options are considered.			
Current Status	Core	 Internal service level age date Internal service delivery Tendering policies in pl Internal procedures in l Procurement Strategy Approved contractors Contracts Procedures 	greements with internal service pr y approaches not reviewed for so lace Promapp Manual	roviders not in place or out of			

Appropriate
TargetIntermediate• Minimum service delivery standards for internal providers that are outcome based

See: 'Quality Management' and 'Levels of Service and Performance Measures' sections.

Quality Management				
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100
16 Quality Management	Simple process documentation in place for service-critical activities.	Defined quality policy and basic Quality Management System. All critical activity processes	Process documentation implemented in accordance with the Quality Management System plan.	ISO 9001 certification achieved and surveillance audits demonstrate the satisfactory operation of the Quality Management
		documented.	All processes documented to appropriate level of details.	System.

Current Status	Intermediate	 ISO 9001 accredited Internal & external auditing Corporate quality systems in Promapp
Appropriate Target	Advanced	 Minimum specifications for service delivery Improved quality procedures and documentation at operational level

Improvement Number	Priority	Improvement	Element	Action Officer	Target completion	Projected cost
	1	Prepare/update an Emergency Response Plan, draft boil water notices, and up-to-date contact lists for vulnerable individuals, schools, and childcare centres.	Quality Management		2018/19	In-house

Improvement Planning				
Element	Minimum 0 – 25	Core 26 – 50	Intermediate 51 – 75	Advanced 76 – 100
17 Improvement Planning	Improvement actions identified and allocated to appropriate staff.	Current and future AM performance assessed and gaps used to drive the improvement actions. Improvement plans identify objectives, timeframes, deliverables, resource requirements and responsibilities.	Formal monitoring and reporting on the improvement programme to Executive Team. Project briefs developed for all key improvement actions.	Improvement plans specify key performance indicators (KPIs) for monitoring AM improvement and these are routinely reported.
Current Status	Intermediate	 Improvement plan identifies objectives, timeframes, deliverables, resource requirements and responsibilities 		
Appropriate Target	Intermediate	Project briefs develope	d for major improvement actions	

See: All sections of Improvement Plan

Appendix 1: Water Modelling Overview Reports – Pressure and Firefighting Capacity

RM 1918293 and RM1928895