Wastewater Asset Management Plan 2018

Wastewater Asset Management Plan Status

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Wastewater Asset Management Plan

1 Forward 6

1.1 Introduction 6

1.2 Our Strategic Goals 6

1.3 Our Wastewater System 6

1.4 Why Council has Wastewater Systems 9

1.5 Key Issues for the Wastewater Systems 10

1.6 How we Fund this Activity 11

1.7 Key Achievements / Limitations of this AMP 11

1.8 Relationship of Asset Management Plan to other Council Documents 13

1.9 Relationships with Stakeholders 14

2 Strategic Environment and Legal Framework 16

2.1 Council's Mission Statement 16

2.2 Legislative and Regulatory Requirements 18

2.3 Future Demand 20

2.4 Council Policy for Development Levies. 23

2.5 Bylaws 23

2.6 Policies 23

2.7 Property Information 23

3 General Over view of the Wastewater Networks 26

3.1 What does the Activity Involve? 26

3.2 Overview of the Wastewater systems 26

3.3 Waipukurau Wastewater Network 29

3.4 Waipawa Wastewater Network 32

3.5 Otane Wastewater Network 35

3.6 Takapau Wastewater Network 36

3.7 Porangahau Wastewater Network 38

3.8 Te Paerahi Wastewater Network 41

4 Levels of Service 43

4.1 Introduction – Levels of Services 43

4.2 Framework for Establishing Levels of Service 43

4.3 Council's Customers 43

4.4 Community Outcomes 44

4.5 Setting Levels of Service 44

4.6 Wastewater Levels of Service from LTP 50
5 Demand Management 56
5.1 Demand 56
5.1 Implications of Uncertainty 57
5.2 Factors Influencing Demand 57
5.3 Future Demand Statement 58
5.4 Demand Forecast 59
5.5 Design Standards for Demand Management 60
5.6 Demand Management Plan 61
6 Risk Management 63
6.1 Introduction 63
6.2 Risk Management Procedure 63
6.3 Risk Assessment Context 64
6.4 Risk Management Activities 64
6.5 Risk Evaluation Process 65
6.6 Risk Matrix 68
6.7 Risk Rating Categories 69
6.8 Risk Register 69
6.9 Risk Management Relationships to AMP Documents 70
6.10 Risk Treatment 71
6.11 Lifelines 72
6.12 Identified Risk 74
6.13 The Most Critical Risks 77
6.14 Key Assumptions and Uncertainties affecting Risk 77
6.15 Significant Negative Effects 78
6.16 Risk Register Spreadsheets 79
7 Life Cycle Management 82
Introduction – Lifecycle Management 82
7.1 Introduction – Lifecycle Management 82
7.2 Routine Maintenance Plan 82
7.3 Maintenance Needs, Standards and Timing 83
7.4 Routine Maintenance Operations Costs 83
7.5 Council Confidence 83
8 Financial Summaries 84

8.1 Revenue and Financing Policy 84
8.2 Council Financial Strategy 85
8.3 Fees and Charges 85
8.4 Development Contributions 87
8.5 Asset Valuation 87
8.6 Valuation Methodology 89
8.7 Financial Summary – Wastewater 90
9 Asset Management Plan Assumptions 92
9.1 Key Assumptions 92
9.2 Limitations of this plan include: 93
10 Asset Management Practices 94
10.1 Introduction 94
10.2 Asset Register 96
10.3 Accounting Financial Systems 101
10.4 Communication 102
11 Improvement Plan 104
11.1 Renewals Works Programme 104
11.2 Capital Works Programme 106
11.3 Strategic Works Programme 109
11.4 Minor Works 109
11.5 Summary of Council Strategy for Future Demand 109
11.6 Risk Management 109
12 Glossary of Terms 110

1 Forward

1.1 Introduction

The collection, transmission, treatment and disposal of wastewater is a function of the Central Hawke's Bay District Council permitted by the Local Government Act 2002. Council has chosen to exercise this function by providing wastewater systems in Otane, Waipawa, Waipukurau, Takapau, Porangahau, and Te Paerahi on behalf of each of the communities serviced. The Wastewater Asset Management Plan describes how the Council manages this activity.

1.2 Our Strategic Goals

To provide wastewater infrastructure that:

- Protect public health;
- Protect the natural environment;
- Provide the continuity of service within the reticulated areas;
- Minimal interruptions during maintenance and extension works;
- Provide the service in a sustainable way;
- Mets the Resource Consent conditions set by HBRC;

Whilst:

- educating the community about the benefits and role of wastewater collection, treatment and disposal as well as improving their awareness of the implication of stormwater ingress into the wastewater systems;
- encouraging the community to participate in decision making processes and to be informed about changes or initiatives within the District regarding wastewater;
- ensuring the District's treated wastewater and biosolids are disposed in an efficient and sustainable manner
- Nil leakage or over flows from the reticulated networks
- Broken pipes and other defective assets are replaced
- The wastewater network is planned for, designed, managed, and maintained to meet the service levels agreed with the community and operated within relevant national standards and guidelines.
- Council developed strategies and environmental goals are supported

1.3 Our Wastewater System

The Council provides wastewater systems in the following areas:

1.3.1 Waipukurau

The Waipukurau wastewater system has been in operation since 1923 and has had numerous upgrades to enable the reticulation to meet its present and projected demands. The wastewater is collected from the residential, commercial and industrial areas of Waipukurau and carried to the treatment facility in Mt Herbert Road. The average daily

discharge of treated effluent into the Tuki Tuki River in 2017/18 was an average of 2531m^3/day. The asset includes:

- Wastewater Treatment Plants 1
- Pipes 58.74km
- Manholes 577
- Pumping Station 5
- Connection 1948

1.3.2 Waipawa

The Waipawa wastewater scheme has been in operating since 1910. It collects wastewater from the residential, commercial, and a small industrial areas of Waipawa and delivers it via a gravity sewer system to the pump station at the Wastewater Treatment Plant. It has had numerous upgrades to enable it to meet the present and projected demands placed on it. The average daily discharge of treated effluent adjacent Bush Drain in 2017/18 was an average of 1301m^3/day. The asset includes:

- Wastewater Treatment Plants 1
- Pipes 30.04km
- Manholes 248
- Pumping Station 2
- Connection 858

1.3.3 Otane

The reticulation for the wastewater system in Otane was installed in 1990. All but the southern bottom corner of the Otane urban area is reticulated. The scheme was extended to service the bottom end of Bell Street and Knorp Street towards White Road in 1999. The sewage gravity feeds to an oxidation pond at the end of Lawrence Street. The average daily discharge of treated effluent is discharged into a open drain which ultimately flows into the Papanui Stream in 2017/18 was an average of 189.6m^3/day. The asset includes

- Wastewater Treatment Plants 1
- Pipes 9.8km
- Manholes 248
- Pumping Station 0
- Connection 252

1.3.4 Takapau

The reticulation in Takapau was installed in 1982. All of the Takapau residential area is reticulated. The scheme is relatively new and operates very effectively. The sewage gravity feeds through the reticulation to a pumping chamber situated at the intersection of St Clair Street and Meta Street. From this point, the sewage is pumped to an oxidation pond adjacent to the Makaretu River on Burnside Road. The average daily

discharge of treated effluent is discharged into the wetlands adjacent Makaretu River in 2017/18 was an average of 217m^3/day. The asset includes

- Wastewater Treatment Plants 1
- Pipes 8.45km
- Manholes 55
- Pumping Station 1
- Connection 199

1.3.5 Porangahau

The reticulation in Porangahau Township was installed in 1990. All of the developed town area is serviced by the sewerage. The system gravity feeds to a pump station sited at the intersection of Jones Street and Keppel Street. From here the sewage is pumped out to the oxidation pond off the end of Jones Street. From the oxidation pond the treated effluent then flows through stone media and discharges into the open drain which flows into the Porangahau River. The average daily discharge of treated effluent in 2017/18 was an average of 217m^3/day. The asset includes

- Wastewater Treatment Plants 1
- Pipes 4.03km
- Manholes 33
- Pumping Station 1
- Connection 105

1.3.6 Te Paerahi

The reticulation in Te Paerahi Beach settlement was installed in 1990. All of the Te Paerahi Beach residential area is reticulated. The scheme is relatively new and operates very effectively. The sewerage is collected at the main pump station on Te Paerahi Road adjacent to the public camping ground toilet block, then pumped up to the oxidation pond in the sand dunes behind the golf course. The treated effluent then discharges into a wetland, soaking away into the sand dunes. The average daily discharge of treated effluent in 2017/18 was an average of 92.3m^3/day. The asset includes

- Wastewater Treatment Plants 1
- Pipes 4.85km
- Manholes 26
- Pumping Station 2
- Connection 126

1.3.7 Trade Waste

Trade Waste is managed under the Council's Trade Waste Bylaw 2008 including recent amendments. The aim of the bylaw is to protect the community's assets and prevent

problems. The bylaw specifies that certain standards of quality are met by each commercial discharger controlling the amounts of solids, fats, chemicals, etc. that is discharged.

1.3.8 Responsibilities

The wastewater assets are managed by the Technical Services Department of Council. Council currently manages a Facilities Management Contract with Higgins Ltd. Their Team operates and maintains the reticulated system, pumping stations and treatment facilities on behalf of the Council, as well as minor capital works. Most capital works are carried out by external companies selected via a competitive process.

1.4 Why Council has Wastewater Systems

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

11A Core services to be considered in performing role

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

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

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

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

An Asset Management Plan (AMP) is compiled to:

- Record the asset which is used to provide an activity.
- Record Council's objectives for, thought processes about, and processes of implementation for providing the activity.
- Show the community and the auditors that Council is a prudent provider of activities.
- Meet Community expectation for Council to provide wastewater services.
- Over previous generations and in the absence of any other viable options, the communities served by these wastewater systems have called upon

Council to provide these systems, and have contributed towards the capital involved in their installation and the on-going costs to maintain them.

- To ensure the community health, well-being and safety in each of these communities by providing for the collection, transmission, and disposal of wastewater.
- To ensure public access to wastewater services.
- To ensure the public is adequately protected from the dangers of flooding in design storm conditions.

1.5 Key Issues for the Wastewater Systems

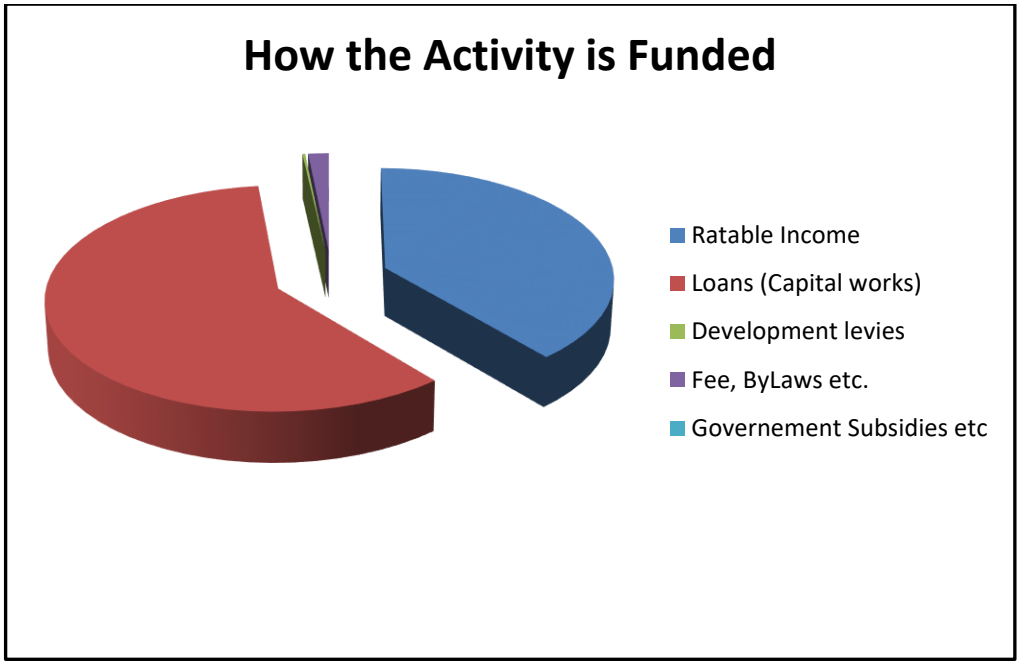
Council is facing a number of key issues over the life of this document and beyond. We are in a time of potentially significant change with the recent Plan Change 6 by the HBRC. Plus indicator are saying there is a potential to increase households in the serviced parts of the District by around 10-19% over the next 30 years which will have significant impact of the capacity of the wastewater system in Waipukurau, Waipawa and Otane.

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

- Changes in the demographic make of the District and its impact on the provision of this activity.
- Consent Renewals – Council will be facing the renewal of a number of discharge consents for the smaller systems like Otane and Takapau. The changes to the management of the environment brought about by Plan Change 6 will make these renewal challenging.
- Mt Herbert Pump Station up grade.
- The impact of Aging infrastructure and its effect on the resilience of the networks.
- The impact of infiltration on the capacity of the wastewater networks during peak storm events.
- The impacts that global warming will/may have on the provision of wastewater disposal systems.

1.6 How we Fund this Activity

Council funds this activity from a number of budget areas



Operating Cost

- Fixed charge applied to each rating unit connected.
- Half charges applied to rating units where services are available
- Commercial properties etc. where pan charges will apply within a rating unit after the first pan
- Direct charges such as Trade Waste charges

Capital Cost

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

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

1.7 Key Achievements / Limitations of this AMP

Achievements of this plan include:

- The construction and commissioning of a new stormwater balance pond at Waipukurau oxidation ponds.
- Meets the LGA requirement and provides a link to the LTP and other Plans.

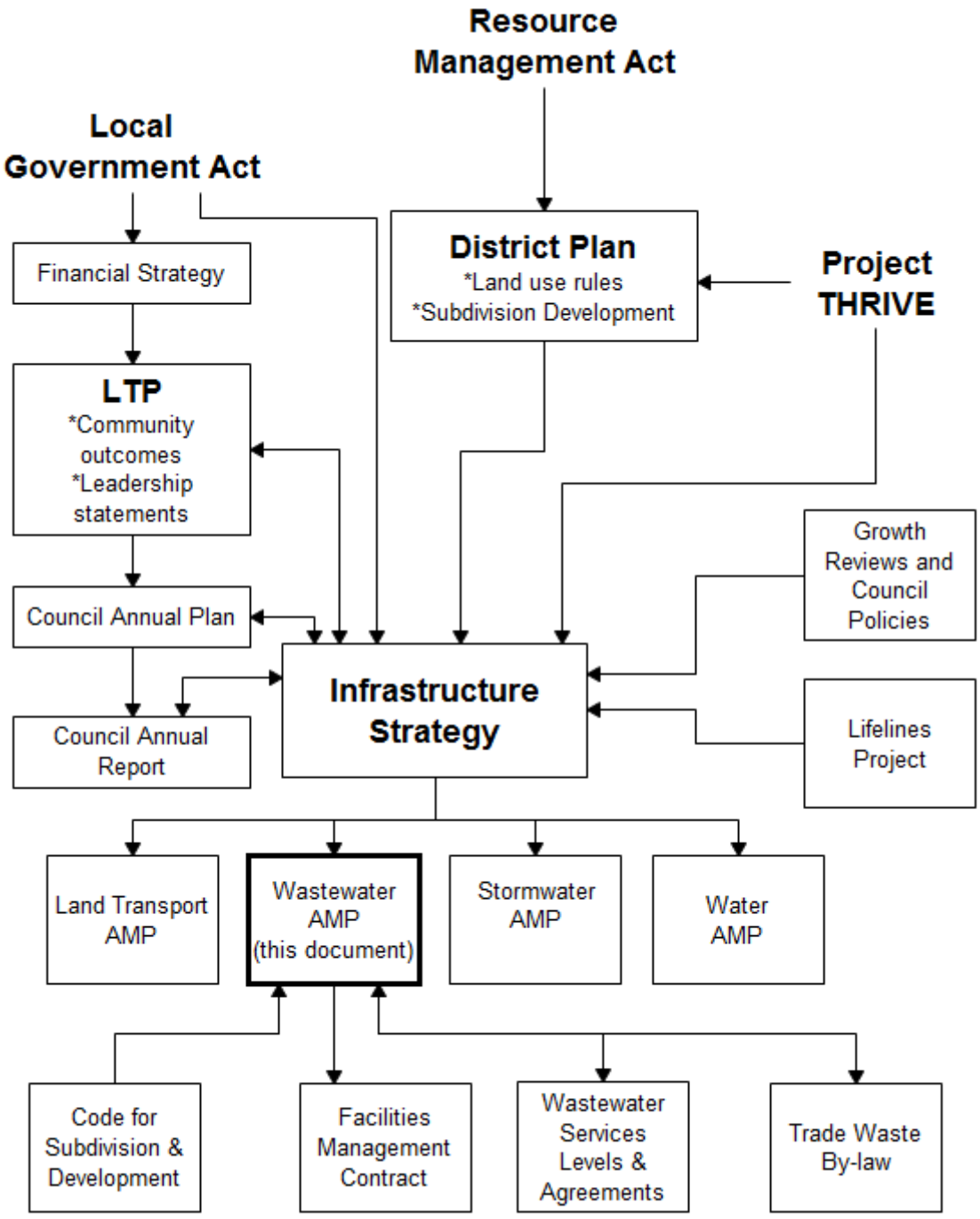
- Write the Infrastructure Strategy for the next 30years to highlight the difficulties this Activity faces.
- Includes updated expenditure and 10 year renewal and expenditure forecast.
- Asset valuations have been completed by Council staff, giving more accuracy and certainty at a lower cost.
- Outlines Council's Asset Management practices.
- Ongoing GPS positioning of most manholes in Waipawa and Waipukurau and other townships has been achieved.
- Rewriting of this AMP has resulted in a simpler, easier to read and use AMP than the previous version.
- Strategies and tactics to manage the wastewater asset with a very limited budget have been better explained than previously.
- Significant reduction in infiltration in Waipukurau and Waipawa.
- Greater understanding of the buried infrastructure thru work such as CCTV inspection and the good old dig and find method of tracing buried pipes.

Limitations of this plan include:

- Council is faced with two options when discussing future demand and the subsequent projects required to meet these demands.
- Further investigation alternative treatment options for Waipawa and Waipukurau as a result of system reviews.
- Inspection and condition rating of some of the key assets is still required to form a better overall picture of the wastewater asset on which to base life cycle management decisions.
- A history of condition data needs to accumulate on assets in order to better understand their long term behaviour.
- Ongoing verification of Wastewater Assets to ensure the Asset Register is accurate and maintained to the highest standard Council can provide with limited resources.
- The impact of the globe warming has not been assessed or taken into account as part of this review of the Wastewater AMP.
- Lack of detailed information about the private infrastructure beyond Council control that connects to council networks. This is an area we are working on as the issues arise from customer enquires etc.

1.8 Relationship of Asset Management Plan to other Council Documents

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



These documents fulfil the following roles:

- Infrastructure Strategy

  This document has been required by the recent amendments of the Local Government Act 2002 and sets out the direction of how the Council will provide this Activity for the next 30 years, and address things such as demand (or lack of demand as the case may be).

- Long Term Plan (LTP)

  A consultation document that sets out how community identified outcomes will be funded over the next 10 year for each Council activity.

- Wastewater Asset Management Plan (this document)

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

- Lifelines

  The lifelines report "Facing the Risks" 2001 Hawke's Bay Engineering Lifelines Project considers risks for earthquake, meteorological, flood, volcanic impacts, landslides, tsunami and aquifers and their potential for contamination. (*Within chapter 6.11 of that report, the impacts for the civil networks for Central Hawke's Bay District (water, sewer and wastewater) are discussed and some further investigations are suggested to obtain data to develop mitigation measures for these risks.)*

- Annual Plan

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

- Annual Report

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

- Facilities Management Contract

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

1.9 Relationships with Stakeholders

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

- External

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

  Hawke's Bay Regional Council

  Commercial and Business interest organisations

  Ministry of Health

  Ministry for the Environment

  Local Iwi

  Department of Conservation

  Fish & Game

  Consultants and contractors

  New Zealand Transport Agency

  Developers

- Internal

  Councillors

  Chief Executive

  Asset Management staff

  Financial Support staff

  Information Technology staff

  Regulatory staff

  Council FM Contractor

2 Strategic Environment and Legal Framework

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

2.1 Council's Mission Statement

Council's Mission Statement is:

"Our vision for Central Hawke's Bay District is a proud and prosperous district made up of strong communities and connected people who respect and protect our environment and celebrate our beautiful part of New Zealand."

2.1.1 Community Outcomes

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

Community Outcome	Commentary
A lifetime of good health and wellbeing	The provision of adequate wastewater management and systems ensures that the collection and treatment of wastewater flows causes the least risk to public health.
An environment that is appreciated, protected and sustained for future generations	The provision of adequate wastewater management and systems minimises the adverse impacts of wastewater on the environment.
A strong, prosperous and thriving economy	The provision of adequate wastewater management and systems meets growth needs to best serve the community.
Provide the management and disposal of the wastewater systems in a sustainable way	Council works to provide the wastewater system in the most cost effective and stainable way by using the latest technologies and looking for outside the square opportunities.

2.1.2 Corporate Wastewater Activity Goal

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

"Reliable, safe, effective and efficient management of collection and disposal of sewage and trade waste to ensure that the capacity of available facilities is optimised and that neither public health nor the environment is comprised."

The Strategic Result required to:

Based on this philosophy to provide a reliable, safe and cost effective collection and disposal of wastewater, Council will achieve the wastewater activity goal by:-

- Collecting and controlling wastewater to an acceptable standard.
- Ensuring the provision of a cost effective wastewater system that protects public health and the environment, and that is affordable to the community.
- Ensuring the wastewater system is planned for, designed, managed and maintained to meet the service levels agreed with the community and is operated so as to prevent any undue nuisance, disturbance or damage to property, within the financial constraints set by Council.
- Conforms to all relevant national standards and guidelines.
- Ensure the systems are operated in a manner that meets or exceeds our obligation set out in our Resource Consents.
- Ensuring the incidence of any surcharging are dealt with in a prompt and efficient manage. That appropriate action is taken to prevent future incidences of surcharging.
- Supporting Council's Development Strategies and Council's environmental Goals.
- Maintaining piped reticulation at a level that optimises the economic life and performance of the asset.

2.1.3 Key Performance Measures

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

Strategic Action	Key Performance Measures (KPMs)
Achieve defined levels of service.	• the agreed measures are achieved each year when reported in the annual report
Protect the health and safety of the community and of the maintenance and operational personnel.	• No report of ill health due to contaminated wastewater • No report of health problems due to stagnation or retention of wastewater encouraging insect infestation
Manage and maintain services so as to ensure any adverse impacts on the environment and/or on the communities are minimised.	• Resource consent compliance at all times
Ensure the capacity of all wastewater	• Current system can manage the flow of events that it was designed for (wastewater capacity

Strategic Action	Key Performance Measures (KPMs)
systems is sufficient to prevent undue nuisance and disturbance or damage to property.	modelling) • Downstream capacity allows unhindered flow of wastewater in a normal event (1 in 50 year return period)
Comply with statutory requirements.	• No negative opinion from audit of this Asset Management Plan
Achieve compliance with appropriate technical standards.	• New works are designed to cope with 1 in 50 year return period storm events
Implement Council's policies.	• Council Policy is clear and enforced at all times
Promote development within the Central Hawke's Bay District.	• Contribution Fees/Development Levies are applied according to rules set out
Achieve defined standards of system management.	• Processes/methods and system requirements are achieved as set out in this Asset Management Plan

2.2 Legislative and Regulatory Requirements

2.2.1 General

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

2.2.2 Legislation and Planning Documents

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

Legislation or Regulation	Council Responsibilities
The Local Government Act 2002	• Erect, construct, and maintain any public work, which in the opinion of the Council may be necessary or beneficial to the District. • May make bylaws with regard to wastewater services within the District. • Comply with certain financial management practices. • Consult with communities. • Complete assessments of wastewater services within the District.
The Resource Management Act 1991	• Sustain the potential of natural and physical resources to meet the reasonable needs of current and future generations. • Comply with the District and Regional Plans. • Avoid, remedy, or mitigate any adverse effect on the environment and structures.
Hazardous Substances and New Organisms (HSNO) Act 1996	• To protect human health and the environment from persistent organic pollutants. • Requiring that decisions are made on the basis of the environmental, health and safety effects of hazardous substances and new organisms.
The Building Act 2004 and amendments.	• Ensure all buildings and facilities constructed for the wastewater activity comply with the Act.

	• Produce Project Information Memoranda (PIM's), which supply all available information relating to an individual property. For wastewater services the relevant information may include details of access restrictions to reticulation, approvals, leases, plans, relevant records, notices, flood hazard and or historical flood records etc. • Require provision of wastewater facilities.
The Health and Safety in Employment Act 1999	• Ensure that its employees, contractors, and general public are protected from injury as a result of its activities. • Notify the Occupational Safety and Health Department of serious harm or fatal accidents as a result of its activities within seven days. • Maintain a hazard register.
The Health Act 1956	• MOH can require local authority to provide wastewater works for the benefit of its district where the lack of wastewater control is adversely affecting sewerage systems and impacting of public health. • Government grants and subsidies may be made available from time to time for wastewater works in relation to the impact of wastewater on sanitary works. • Local Authorities may make bylaws for improving, promoting, or protecting public health, and preventing or abating nuisances, regulating drainage and the control, collection and disposal of wastewater. • MOH has the power to forbid the discharge of wastewater drainage where this contains insanitary matter.
The Public Works Act 1981	• Set requirements for the acquisition of land by local authorities for wastewater works.
The Local Government (Rating) Act	• May rate for provision of wastewater services.
The Climate Change Response Act 2002	• provide for the implementation, operation, and administration of a greenhouse gas emissions trading scheme in New Zealand that supports and encourages global efforts to reduce the emission of greenhouse gases
The New Zealand Coastal Policy Statement	• To protect the character and qualities of the coastal environment
Employment Relations Act 2000	• The control of wastewater relating to the public systems within the District is an essential service and strike action and lockouts are not permitted in regard to this service provision except in accordance with special conditions of the Act.
The Civil Defence Emergency Act 2002	• Establish and be a member of a Civil Defence Emergency Management Group. • Coordinate, through regional groups, planning, programmes, and activities related to civil defence emergency management across the areas of reduction, readiness, response and recovery, and encourage cooperation and joint action within those regional groups. • Improve and promote the sustainable management of hazards in a way that contributes to the public's well-being and safety and to property protection. • Ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency (Lifeline Plans).

2.3 Future Demand

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

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

Forecasting Assumption	Risk	Likelihood of Occurrence	Financial Effect	Effect of Uncertainty
Population Growth – Population growth has been allowed for at a rate equivalent to the halfway medium to high projection made by Statistics NZ. (Source: Central Hawke's Bay District Long Term Planning Demographic and Economic Growth Directions 2018-2048 Report)– Currently 13,720 (2017). **2018** **2028** 13,850 14,200 **1.2%**	That population growth is higher than predicted. That population growth is lower than predicted	Low Moderate	Moderate Moderate	Will put pressure on Council to provide additional infrastructure and services. Small increases above the current extensions can be covered May put pressure on Council to maintain existing infrastructure and services while the rating base falls. Official population projections are based on a standard set of variables that do not tend to change quickly (fertility, mortality and migration).
Population and Age Breakdown **Total population** / **% above 65 years** **2013** 13250 17 **2018** 13,850 20 **2028** 14,200 26 **2048** 14350 33	There will be a decline in the ability to pay measures, with more people on fixed incomes.	Moderate	Moderate	Levels of service could be at risk.

Forecasting Assumption	Risk	Likelihood of Occurrence	Financial Effect	Effect of Uncertainty
Housing Growth – Total new Households per year: This is based on housing growth not slowing as much as the population as there has been a trend to a lower number of people per household. Demographic trends show growth is likely to occur in urban areas. . (Source: Central Hawke's Bay District Long Term Planning Demographic and Economic Growth Directions 2018-2048 Report basing household growth on the halfway medium to high projection made by Statistics NZ.).	That housing growth is higher than predicted. That housing growth is lower than predicted.	Low Moderate	Low Moderate	Will put pressure on Council to provide additional infrastructure. Council have opted to use a halfway moderate to high growth assumption. **If this is not achieved it could result in lower number of ratepayers to fund Council activities and puts affordable Levels of Service at risk**.
Economic Growth – Although only limited economic growth has been recognised in this LTP – it is nevertheless important that there should not be negative growth (or a decline) in the District.	That the number of businesses and employees reduces.	Moderate	Moderate	Lower affordability, decrease in rate payers.

	No of Households	Average No pe
2018	5625	
2028	6160	53.5
2048	6250	4.5

2.4 Council Policy for Development Levies.

Council has an existing policy of the taking and use of Development Levies as allowed in the Local Government Act 2002. Because of the recent amendment Council has review and amending the policy as part of the LTP 2018 -28. The Policy, which was first adopted on 29 June 2006, is included in the LTP. In summary, the Policy:

- Charges Development contributions under the Local Government Act 2002.
- Requires developers to fully fund all changes to the infrastructure caused by their development.
- Describes areas within which the contributions will apply.
- Charges for the effects that developments have on the infrastructure.
- Council also resolved that no wastewater connections to the Council wastewater networks from properties which are outside the approved wastewater areas will be allowed.
- Development levies are only raised for identified improvement projects that are listed in Council's forward works programmes and included in the LTP.

2.5 Bylaws

The main bylaws for this activity are the Central Hawke's Bay District Council Wastewater Bylaw 2013 and the Trade Waste Bylaw 2008.

2.6 Policies

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

- School Sewerage Charges Remission Policy. – *Rating issue only*
- Stormwater Laterals and Sewer repairs Policy – *clarification of responsibility*
- Levels of Asset Management Plan Preparation Policy. - *clarification of level of AMP*

2.7 Property Information

2.7.1 Resource Consents

The operation of the treatment portion of this activity resource consent is required for discretionary activities covered in the Hawke's Bay Regional Resource Management Plan. If there is any doubt as to whether consent will be necessary, the issues are discussed with the Regional Council Environmental Consents Officers.

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

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

Council holds the resource consents listed below.

Wastewater System	Permit No.	Purpose	Expiry Date
Otane	DP030230Wb DP030858Ab	To discharge municipal sewage after treatment in the Otane oxidation pond to water, and to land where it may enter water, being an intermittently flowing un-named tributary of the Papanui Stream. To discharge contaminants (odour) associated with the operations of the Otane wastewater treatment system to air.	30 September 2015
Waipawa	DP030232Wa DP030860Aa	To discharge treated municipal sewage to water and to land where it may enter water. To discharge contaminants (odour) associated with a sewage treatment plant to air.	30 September 2030
Waipukurau	DP030231Wa DP030859Aa	To discharge treated municipal sewage to water, and to discharge contaminants (odour) associated with a sewage treatment plant to air.	30 September 2030
Takapau	DP980271Wa	To discharge treated sewage effluent from the Takapau oxidation pond into or onto land (wetland) in circumstances which will result in that contaminant entering water.	31 May 2018
Porangahau	DP030233W DP030861A DP080621L (This consent has lapsed 31 May 2014)	To discharge treated domestic effluent into the Porangahau River via a constructed wetland. To discharge contaminants (odour) to air associated with the operation of the Porangahau Township Oxidation Pond	31 May 2021
Te Paerahi	DP030234L DP030862A	To discharge treated domestic effluent into or onto land (via soakage) from the existing Te Paerahi (Porangahau Beach) oxidation pond where that contaminant may enter water. To discharge contaminants (odour) to air associated with the operation of the Te Paerahi (Porangahau Beach) Oxidation Pond	31 May 2021

2.7.2 Property Designations

A designation is recorded in the Central Hawke's Bay District Council's District Plan for the following site.

Site	Location	Map number	Designation number
Waipawa Sewage Treatment Plant	Pourerere Rd Waipawa	9	21
Waipukurau Sewage Treatment Plant	Mt Herbert Rd Waipukurau	31	24
Proposed Sewage Treatment Plant	Kairakau Rd Kairakau	38	30
Proposed Sewage Treatment Plant	Pourerere Rd Pourerere Beach	40	34
Te Paerahi Sewage Treatment Plant	Te Paerahi Rd Porangahau Beach	19	36
Otane Sewage Treatment Plant	Lawrence St Otane	24	56
Porangahau Sewage Treatment Plant	Jones St Porangahau	44	65
Takapau Sewage Treatment Plant	Burnside Rd Takapau	12	75

3 General Over view of the Wastewater Networks

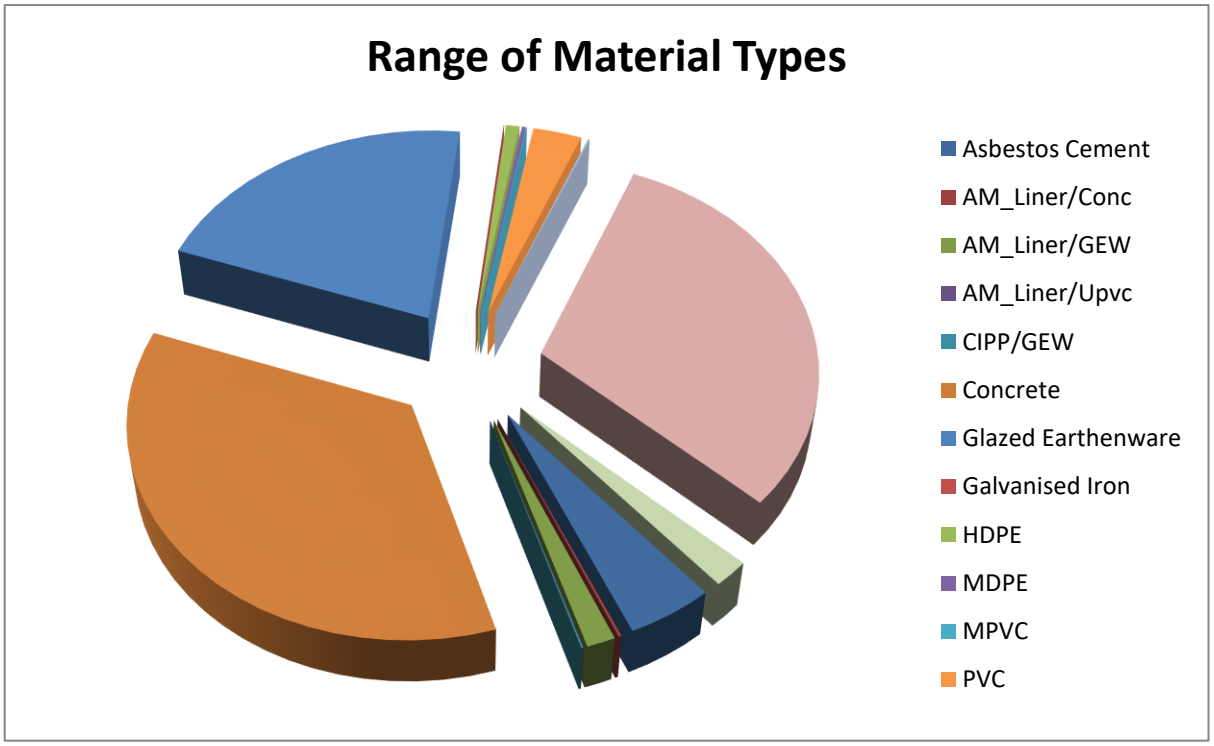
3.1 What does the Activity Involve?

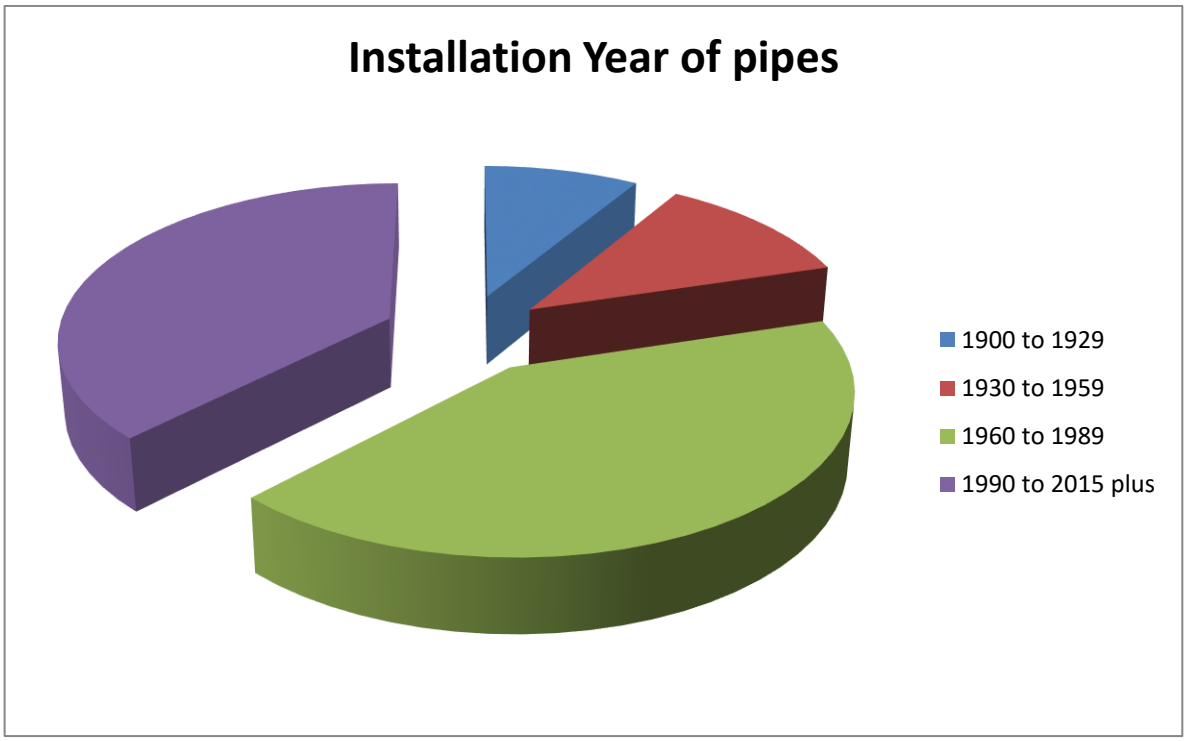
Council undertakes this Activity to identify and manage the risks of Wastewater flows and minimise the risk wastewater has to Public Health, provide benefits to the community through reliable, safe, effective and efficient management of collection and disposal of sewage and trade waste to the urban residents of CHB, and both commercial and industrial activities in CHB. The management of this activity also minimises the effects on the environment from adverse discharges.

Council Technical Services Department manages and maintains the collection and disposal of wastewater in the built up areas of Central Hawke's Bay District. The Network comprise of two larger systems servicing the two main towns of Waipawa and Waipukurau. Plus four smaller networks that provide coverage for the Townships of Otane, Takapau, Porangahau, and Te Paerahi. The following gives a general break down of the water assets and detail description of each network.

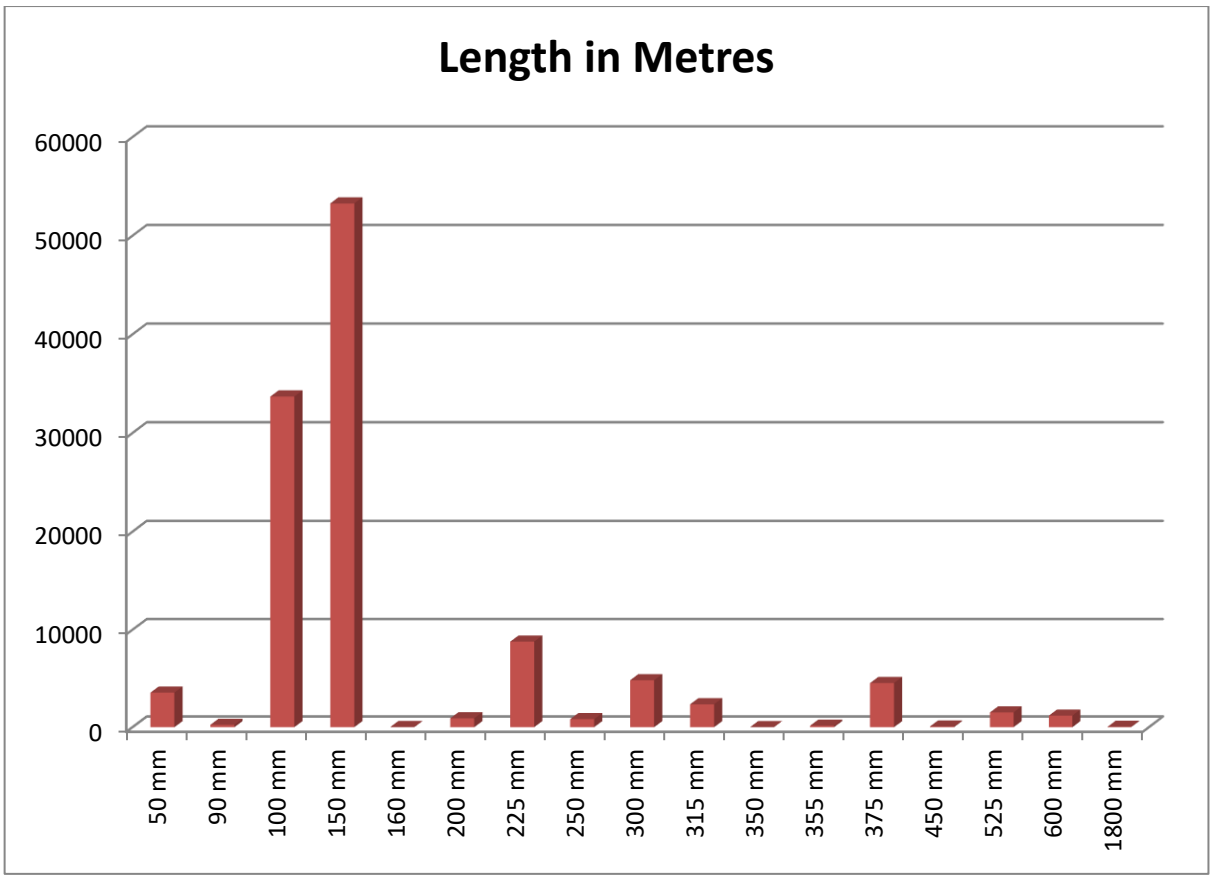
3.2 Overview of the Wastewater systems

The pie chart below indicates the type of pipes materials used in the wastewater network and the range of installation year.

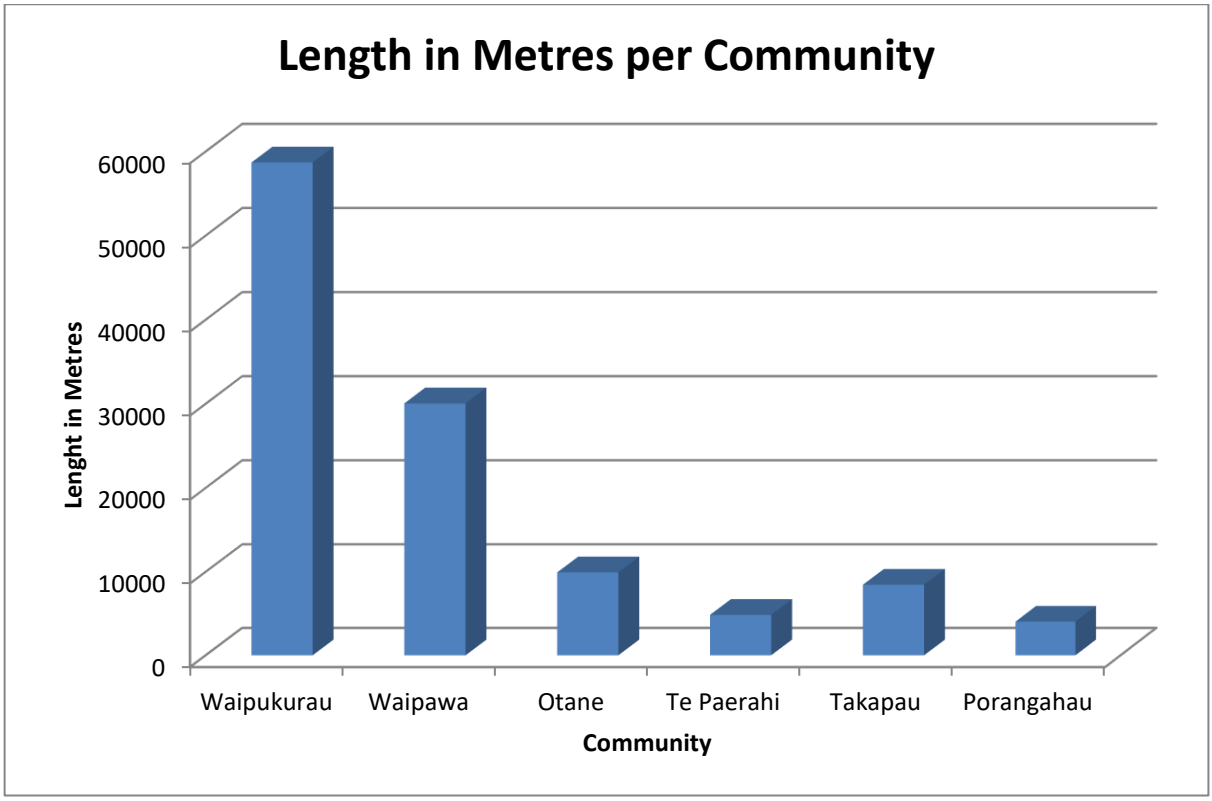




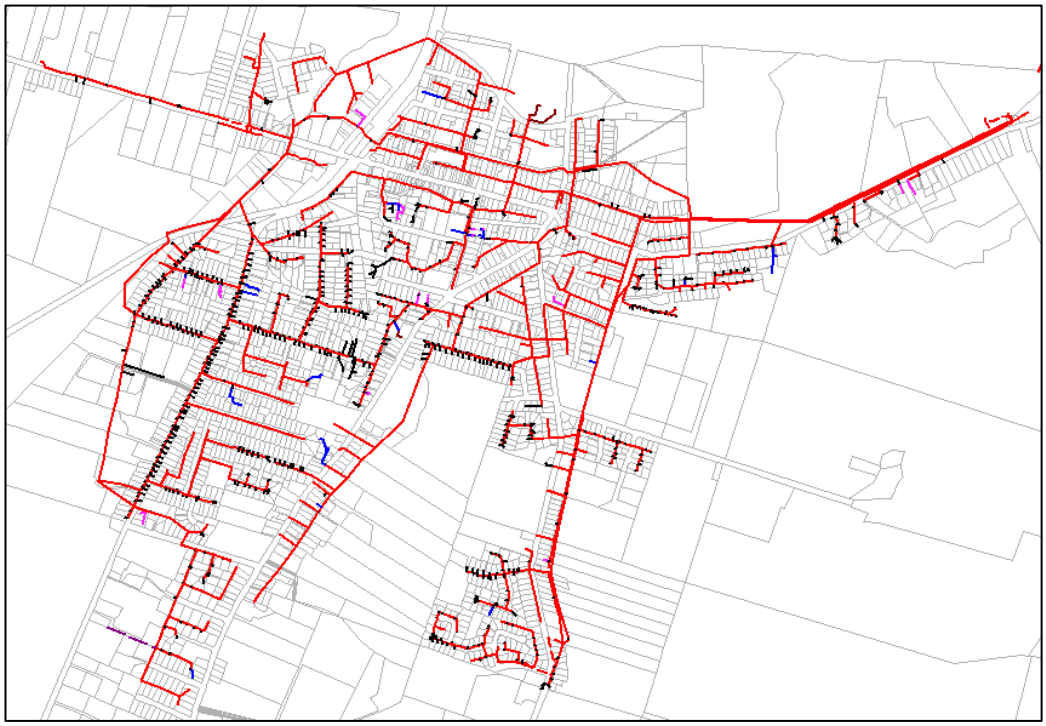
This chart show the number of metres of various diameter of pipe through the District



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



3.3 Waipukurau Wastewater Network



Waipukurau Wastewater Network

The Waipukurau wastewater system has been in operation for approximately 85 years and has had numerous upgrades to enable the reticulation to meet its present and projected demands. It is believed that initial construction of the reticulated sewer network commenced in about 1923. The scheme has progressively developed since then in line with the development and growth of the town. There have been a number of trunk mains constructed since about 1970 primarily to handle the peak flows and to eliminate the surcharging and under capacity problems experienced prior to this time. The trunk main upgrades were also designed to accommodate projected urban expansion, particularly to the west of Racecourse Road. A resource consent for the treatment plant was granted in December 2006 and expires on 30 September 2030.

The wastewater system collects wastewater from the residential, commercial and industrial areas of Waipukurau and carries the waste to the treatment facility on Mt Herbert Road. The pipe work ranges in size from 100 mm Ø up to and including 600 mm Ø and is made of a range of materials including glazed earthenware, uPVC, concrete, asbestos cement, steel and galvanised iron. There are 524 manholes within approx. 41km of reticulation, 4 lift pump stations (Svenson, Redwood, Takapau & Harris), one main pump station (Mt Herbert), and 1920 connections within the system.

The sewage is collected at the main pump station on Mt Herbert Road, adjacent to the wastewater treatment plant. The sewage is pumped into a partitioned area of the oxidation pond where three aerators provide intense aeration. The effluent then flows to the larger part of the pond for maturation before being discharged from the pond into the adjacent Pah Flat Stream and thereafter into the Tuki Tuki River.

3.3.1 System Capacity, Performance and Condition

Overall the system capacity, performance and condition has been assessed by staff after discussion with Contractors (both FM and other contractors directly employed by Council) review of CCTV footage etc. and can be described as follows:

Asset Capacity / Performance

Waipukurau wastewater system is nearly fully utilised and perform well without any major deposition, blockage or overflow problems. The exception is the Redwood Drive area of town where a number of overflows on to private property have occurred in the past. Currently a project to relay the pumped main from the Redwood Drive Station is under way to resolve this problem.

Although the performance of the network is assessed to be good, during sustained heavy rainfall events the wastewater systems in Waipukurau are all susceptible to infiltration and inflow. As a result they can become overloaded in some areas with pipes running in a surcharged condition causing the pipelines to become pressurised. Overflows can occur from individual pipelines, gully traps and manholes.

In the future, extensions to the present system may be required at Porangahau Road, Racecourse Road, Mt Herbert Road, Takapau Road and Tavistock Road and the Hatuma Road area of Waipukurau

Asset Condition

Approximately 43% of the wastewater system in Waipukurau is greater than 50 years of age. A wide range of materials has been used in the makeup of the reticulation network. Historical and maintenance records indicate the pipelines range in condition from excellent to poor, and having an average condition of good.

3.3.2 Pump Stations

Mount Herbert Road Pump Station

The Mt Herbert Road Pump Station was originally constructed in 1954 in conjunction with an Imhoff Tank at the site and was subsequently upgraded in 2001/02. It is located within the oxidation pond property. A new pump station has been constructed in in 2016 and is fitted with 2 new main pumps and 1 new over flow pump. The station has also been fitted with to screens to remove solids from the incoming wastewater flow. The pump discharges directly into the oxidation pond. In addition there is also a 250 mm Ø pipe that discharges directly into the Pah Flat stream in the event of the wet well overflowing through pump failure or inflow exceeding the capacity of all three pumps. The electrical control equipment is contained in a purpose built shed located on top of the pumping station dry well. The pumping station (power supply, wet well and pump status) is remotely monitored by the Facilities Management Contractor by way of a telemetry system.

Takapau Road Pump Station

The Takapau Road Sewer Pump Station was constructed in 1966. It is located adjacent to the State Highway approximately 70 m east of Coughlan Road. It currently has one

submersible pump in a 1.5 m diameter wet well. This pump station services the lower laying areas of Coughlan Road and Takapau Road West and delivers the effluent to an adjacent gravity main. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station.

Redwood Drive Pump Station

The Redwood Drive Pump Station was constructed in 1979 to service the Holt subdivision area (Redwood Drive, Totara Street, Holt Place and Kowhai Place). The truck wash from Bushett's Transport Company is also connected to Redwood Drive Pump Station. The pump station has two submersible pumps (one on duty, one on standby) in a circular wet well. Effluent is pumped via a 106 m long rising main to the Tavistock Road gravity main. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station.

Svenson Road Pump Station

The Svenson Road Pump Station was constructed in 1975 to service the Blundell Avenue catchment. The pump station has one submersible pump in a circular wet well. Effluent is pumped into the adjoining manhole on Tavistock Road. The pump is operated by float switches and the electrical control equipment is contained in a cabinet located no top of the pumping station.

Harris Street Pump Station

The Harris Street Pump Station was constructed in 1984 to service the Harris Street and Acklin Street industrial area. The pump station has one submersible pump in a circular wet well. Effluent is pumped via a rising main to a manhole behind the sale yards. The pump is operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station.

Asset Capacity / Performance

Main components of Waipukurau pump stations are pumps, wells, valves and electrical controls.

Apart from the Harris Street pump station which was constructed in 1984 and is relatively younger than the others, Waipukurau sewage pump stations are assessed to perform in a good. However, performance of the main pump station on Mount Herbert Road was considerably increased after an upgrade in 2002.

Asset Condition

Waipukurau pump stations are generally kept in good condition with regular maintenance.

Mt Herbert Road pump station was upgraded in 2002 by the addition of new pumps, instruments and extensions. In 2011/12 The Harris Street station will be upgraded with a new control cabinet to house new control and the addition of telemetry to monitor the pumps.

3.3.3 Treatment/Disposal Areas

Physical Parameters

The Waipukurau Treatment Plant was first constructed in 1975 as a single stage oxidation pond with pre-treatment being provided with an Imhoff tank. Since then a number of upgrades have been carried out including the demolition and removal of the Imhoff tank. The treatment process now consists of a anaerobic pond, balance pond facultative area, a biological attachment (BAS) area, and a floating wetland covered area all within the oxidation pond. The effluent from the pond is then pumped through sand filters with the addition of chemicals, UV irradiated, and discharged into the Tukituki River.

Asset Capacity / Performance

The performance of the components of Waipukurau treatment plant varies from very good to poor with the changes in weather conditions and rain events.

Asset Condition

The condition of the components of Waipukurau treatment plant is excellent as it is a new asset.

3.4 Waipawa Wastewater Network

Waipawa Wastewater Network

The Waipawa wastewater scheme has been in operation for approximately 103 years. It collects wastewater from the residential, commercial, and industrial areas of Waipawa and delivers it via a gravity sewer system to the pump station at the Oxidation Pond. It has had numerous upgrades to enable it to meet the present and projected demands placed on it. The pipe work ranges in size from 100 mm Ø up to and including 450 mm Ø and made of various materials including earthenware, uPVC,

concrete, and asbestos cement. There are 186 manholes, 27 lamp holes, 23.2 km of sewer mains, and 845 connections within the reticulation.

The sewage gravity feeds to a pumping station adjacent to the oxidation pond off Pourerere Road, approximately 1.5 kilometres east of Waipawa. The sewage is then pumped up into the oxidation pond from which the treated effluent discharges into the adjacent Bush Drain.

Resource consent for the treatment plant was granted in December 2006 and expires on 30 September 2030.

The system suffers from severe wastewater infiltration, and a new pumping station was installed near McGreevy Street in 2001. This pump station only works when the main sewer is full of wastewater, and pumps excess wastewater directly to the oxidation pond.

Surcharging of the sewer during heavy or prolonged rain events is common in the lower areas of the town.

3.4.1 Lamp Holes

There are 12 lamp holes in Waipawa wastewater system, these are systematically been replaced by manhole or remove depending on circumstances and location.

3.4.2 System Capacity, Performance and Condition

Asset Capacity / Performance

Although the performance of the network is assessed to be good, during sustained heavy rainfall events the wastewater systems in Waipawa are all susceptible to infiltration and inflow. As a result they can become overloaded in some areas with pipes running in a surcharged condition causing the pipelines to become pressurised. Overflows can occur from individual pipelines, gully traps and manholes.

The performance grading of the piped reticulation is assessed to be 'good' however there are infiltration problems causing system surcharges in wet weather. This infiltration may be due to service connection pipe condition, sewer mains pipe condition or direct connection of wastewater lines or direct inflow from flooded gully traps. Visual inspections during rain events have indicated that direct inflow and/or direct connection is probably the more predominant cause of surcharges.

Asset Condition

More than half of the wastewater pipelines in Waipawa are greater than 50 years of age. A wide range of materials has been used in the make up of the reticulation network. Historical and maintenance records indicate the pipelines range from excellent to poor with an average condition of good.

3.4.3 Pump Stations

Pourerere Road Pump Station

The pump station was constructed in association with the Oxidation Pond in 1974. It is located within the boundaries of the oxidation pond property. The pumping station consists of a large wet well (4m x 2m x 3.5 m deep) drained by three submersible pumps which pump effluent directly into the oxidation pond. The pumps are operated by float switches within the wet well. The number of pumps operating concurrently is determined by the rate of flow into the pump station and resultant effluent level in the wet well. Two of the pumps are normally on duty with the third pump set for high flows only. The electrical control equipment is contained in a purpose built shed located adjacent to the surface of the wet well. A standby electricity generator is installed next to the shed. The pumping station (power supply, wet well level and pump status) is remotely monitored by the Facilities Management Contractor by way of a telemetry system.

McGreevy Street Pump Station

The pump station was completed in 2002.

The purpose of the McGreevy St Pump Station is to transfer flows that exceed the capacity of the gravity main. This site normally only operates during storm flows and has approximately twice the capacity of the gravity main (with all gravity main lift pumps running). However it can be used for normal operational flows to reduce flows in the main gravity sewer.

At commissioning the capacity of the single 22 kW submersible pump was measured at 511 m3/h (140 l/s), which exceeds the estimated maximum flow during wet weather. The pumped volume is 15m3 between top and bottom water level and the pump starts at 48% full and stops again at 17% full.

At present the pipeline feeding the McGreevy Street pump station slopes slightly in the reverse direction, away from the pump station (for self-cleaning when off line). A timer admits fresh water after a pre-set period lying idle to flush the pump chamber to prevent the chamber lying full of sewage for long periods and generating odours.

Asset Capacity / Performance

Main components of Waipawa pump stations are pumps, wells, valves telemetry devices and electrical controls.

Performances of the components of Pourerere Rd pump station are good to moderate. The new pump station on McGreevy St pump station performs very well.

Asset Condition

Pourerere Rd pump station is generally in a fair condition. The condition of McGreevy St pump station is excellent.

3.4.4 Treatment/Disposal Areas

The Waipawa oxidation pond has an area of approximately 2.6 ha and was constructed in 1967. The treatment process now consists of a facultative area, a biological attachment (BAS) area, and a floating wetland covered area all within the oxidation pond. The effluent from the pond is then pumped through sand filters with the addition of chemicals, UV irradiated, and discharged into the Bush Drain which flows to the

Waipawa River. One second hand aerator from Waipukurau pond has been installed in the facultative area of the pond.

Asset Capacity / Performance

The performance of the components of Waipawa treatment plant varied from very good to poor.

Asset Condition

The condition of the components of Waipawa treatment plant varies from excellent to very poor, with the majority of the components being rated as good.

3.5 Otane Wastewater Network

Otane Wastewater Network

The reticulation for the wastewater system in Otane was installed in 1990. All but the southern end of the Otane urban area is reticulated. The scheme was extended to service the bottom end of Bell Street and Knorp Street towards White Road in 1999. The scheme, being relatively new, operates very effectively and was constructed of 150mmØ and 200mmØ uPVC mains, with 100mm laterals to each property. Manholes have also been installed at changes in grade and/or direction.

There are 87 manholes, 7,168 m of sewer mains and 248 connections within the reticulation.

The sewage gravity feeds to an oxidation pond at the end of Lawrence Street.

The treated effluent discharges by way of a piped drain into an open drain approximately 500 metres from the pond. This drain provides further treatment to the effluent, and runs for approximately 3.8 kilometres before ultimately discharging into a branch of the Papanui Stream.

The resource consent for the treatment plant expires on 30 September 2015.

3.5.1 System Capacity, Performance and Condition

Asset Capacity / Performance

The performance grading of the piped reticulation is assessed to be 'good'.

Asset Condition

The Otane Wastewater system was constructed in 1990 using uPVC pipe mains. Historical and maintenance records indicate the pipelines have caused little demand, in recent year Council has found an issue with infiltration, therefore the overall condition has been rated as average.

3.5.2 Pump Stations

There are no pump stations in Otane wastewater system.

3.5.3 Treatment/Disposal Areas

The Otane Oxidation Pond was constructed in 1990. Incoming effluent is screened at a manhole adjacent to the oxidation pond. The Floating Treatment Wetlands separates the pond into 5 zones, each contributing to the processes of the wastewater treatment. A Reliant blower aerator has been installed on the pond. A full description of the treatment process and details are available in the Otane Wastewater Treatment Plant Operation and Management Plan 2011.

The treated effluent discharges into a manhole then into a filter before being discharged into a pipe. This pipe travels for approximately 500 metres to an open drain. This drain acts as a wetland and provides tertiary treatment to the effluent, carrying it for approximately 3.8 kilometres before its eventual discharge into a branch of the Papanui Stream.

Asset Capacity / Performance

The performance of the components of this asset varies from very good to moderate.

Asset Condition

The treatment and disposal facilities are generally in good condition.

3.6 Takapau Wastewater Network

Takapau Wastewater Network

The reticulation in Takapau was installed in 1982. All of the Takapau residential area is reticulated. The scheme is relatively new and operates very effectively. The scheme was constructed of 150 mm Ø uPVC mains, with 100 mm Ø laterals to each property. Manholes were installed at each change in grade and/or direction. There are 55 manholes, 6.3km of sewer mains, and 193 connections within the reticulation.

The sewage gravity feeds through the reticulation to a pumping chamber situated at the intersection of St Clair Street and Meta Street. From this point, the sewage is pumped to an oxidation pond adjacent to the Makaretu River on Burnside Road.

The treated effluent then flows to an engineered wetland from which it is discharged either by way of evaporation, or through the ground to the Makaretu River.

The resource consent expires on 31 May 2018.

3.6.1 System Capacity, Performance and Condition

Asset Capacity / Performance

Takapau wastewater is not fully utilised and perform well without any major deposition, blockage or overflow problems.

Based on the perceived condition (excellent), performance (good) and the network is well within the theoretical base life for these systems, (the estimated remaining economic life is calculated at 50 to 60 years) The performance grading of the connections is assessed to be ‘good’.

Asset Condition

The piped reticulation is almost all of PVC material and relatively newer reticulation system (pipes installed in 1982), therefore it is assessed to still be in excellent condition.

3.6.2 Pump Stations

Meta Street Pump Station

The pump station at the corner of Meta Street and St Clair Street pumps all the effluent from the township via a 1.7 kilometre long rising main to the oxidation pond. There are two submersible pumps (one duty, one standby) in a 1.8 m diameter x 6.4 m deep wet well. The well also has a 1.8 m diameter x 35 m long horizontal section for additional emergency storage capacity. The pump station was constructed in 1982. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station. The power supply to this pumping station is remotely monitored by the Facilities Management Contractor by way of a telemetry system.

Asset Capacity / Performance

Main components of Meta St pump station are pumps, wells, valves and electrical controls.

Performances of the components of Meta St pump station are good to moderate.

Asset Condition

Meta St pump station components are generally in a good condition.

3.6.3 Treatment/Disposal Areas

The Takapau Oxidation Pond was constructed in 1982 adjacent to Burnside Road. The Oxidation Pond works conventionally with the treated effluent being piped from the pond to a manufactured surface flow wetland area on the other side of the road, adjacent to the Makaretu River. The wetland area provides additional treatment to the effluent before its eventual discharge through a combination of evaporation and transpiration from the wetland plus the underground and overland flow to the river. A Reliant blower aerator has been installed on the pond.

Asset Capacity / Performance

The performance of the components of Takapau treatment plant varies from very good to moderate.

Asset Condition

The treatment and disposal facilities are generally in good condition.

3.7 Porangahau Wastewater Network

Porangahau Wastewater Network

3.7.1 General Description of Network

The reticulation in Porangahau Township was installed in 1990. All of the developed town area is serviced by the sewerage. The scheme, being relatively new, operates very effectively. The scheme is constructed of 150mmØ UPVC mains with 100mmØ laterals to each property. Manholes have also been installed at change in grade and/or direction. There are 33 manholes, 3.7km of pipeline, one pump station, and 105 connections within the reticulation.

The system gravity feeds to a pump station sited at the intersection of Jones Street and Keppel Street. The sewage is then pumped up to the oxidation pond off the end of Jones Street. From the oxidation pond the effluent then flows through stone media and discharges into the open drain which flows into the Porangahau River.

The resource consent for the treatment plant expired on 30 September 2003. A new consent has been applied for.

3.7.2 System Capacity, Performance and Condition

Asset Capacity / Performance

Porangahau wastewater reticulation is partly utilised and perform well without any major deposition, blockage or overflow problems.

The performance grading of the reticulation is assessed to be ‘good’.

Asset Condition

The Porangahau township wastewater reticulation system was constructed in 1990 using uPVC pipes. Historical and maintenance records indicate the pipelines have had little maintenance demand and therefore have been given an ‘excellent’ condition grading.

3.7.3 Pump Stations

Jones Street Pump Station

The whole of the reticulation servicing Porangahau Township falls to the pump station on Jones Street. The pumps lift the effluent into the gravity trunk main which falls to the oxidation pond. There are two submersible pumps (one duty, one standby) in a circular wet well. The pump station was constructed in 1988. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station. Council is currently constructing a new replacement control cabinet complete with telemetry to monitor the station.

Asset Capacity / Performance

Main components of Porangahau Jones St pump station are pumps, wells, valves telemetry devices and electrical controls.

Performances of the components of Jones St pump station are generally good.

Asset Condition

Jones St pump station components are generally in a good condition (control cabinet being upgraded).

The following table summarizes the performance and condition of the pump station components located in Porangahau.

3.7.4 Treatment/Disposal Areas

The Porangahau Township Oxidation Pond was constructed in 1990 at the end of Jones Street, Porangahau. The treated effluent is piped from the pond outlet through a sub-surface flow wetland area constructed with a stone media. From this wetland area the effluent flows into an open drain before eventual discharge into the Porangahau River.

Asset Capacity / Performance

The performance of the components of this asset varies from very good to moderate.

Asset Condition

The treatment and disposal facilities are generally in good condition.

3.8 Te Paerahi Wastewater Network

Te Paerahi Wastewater Network

The reticulation in Te Paerahi Beach settlement was installed in 1990. All of the Te Paerahi Beach residential area is reticulated. The scheme is relatively new and operates very effectively. It was constructed of 150 mmØ uPVC mains, with 100 mmØ laterals to each property. In addition, manholes have been installed at each change in grade and/or direction. There are 26 manholes, 3.9km of sewer mains, two pump stations, and 124 connections within the reticulation.

The sewerage is collected at the main pump station on Te Paerahi Road adjacent to the public camping ground toilet block, then pumped up to the oxidation pond in the sand dunes behind the golf course.

On the pond is an aerator which mainly operates in the summer months when the load increases with the influx of holiday makers. The treated effluent then discharges into a wetland, soaking away into the sand dunes.

The resource consent for the treatment plant expired on 30 September 2003. A new consent has been applied for.

3.8.1 System Capacity, Performance and Condition

Asset Capacity / Performance

Te Paerahi wastewater system is partly utilised and perform well without any major deposition, blockage or overflow problems.

The performance grading of the system is assessed to be ‘good’.

Asset Condition

Being a relatively newer reticulation system (installed in 1990), Te Paerahi wastewater system is assessed to still be in excellent condition.

Based on age, perceived condition (excellent), utilisation (100%) and performance (good) of the existing pipe connections and using the appropriate base life for these systems, the remaining economic life of these connections is estimated at 60 to 70 years.

3.8.2 Pump Stations

Makaramu Crescent Pump Station

The pump lift station on Makaramu Crescent pumps effluent from the catchment south of Makaramu Street to a manhole at the corner of Makaramu Crescent and Makaramu Street. There are two submersible pumps (one duty, one standby), in a circular wet well. The pump station was constructed in 1990. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station. As this site has no telemetry Council is planning to replace the existing post mounted cabinet with a new ground mounted cabinet complete with telemetry.

Te Paerahi Road Pump Station

The pump station on Te Paerahi Road pumps all the effluent from the beach area via a 500 m long rising main to the oxidation pond. There are two submersible pumps (one duty, one standby) in a circular wet well. The pump station was constructed in 1990. The pumps are operated by float switches and the electrical control equipment is contained in a cabinet located on top of the pumping station.

Asset Capacity / Performance

Main components of Te Paerahi pump stations are pumps, wells, valves telemetry devices and electrical controls.

Performances of the components of Te Paerahi pump stations are good.

Asset Condition

Te Paerahi sewage pump stations are generally in good condition.

3.8.3 Treatment/Disposal Areas

The Te Paerahi Oxidation Pond was constructed in 1990 and is located in the sand dunes behind the golf course. Within the pond is a floating aerator. The treated effluent is piped from the pond outlet to a wetland soakage system from which it discharges into the ground.

Asset Capacity / Performance

The performance of the components of this asset varies from very good to moderate.

Asset Condition

The treatment and disposal facilities are generally in good condition.

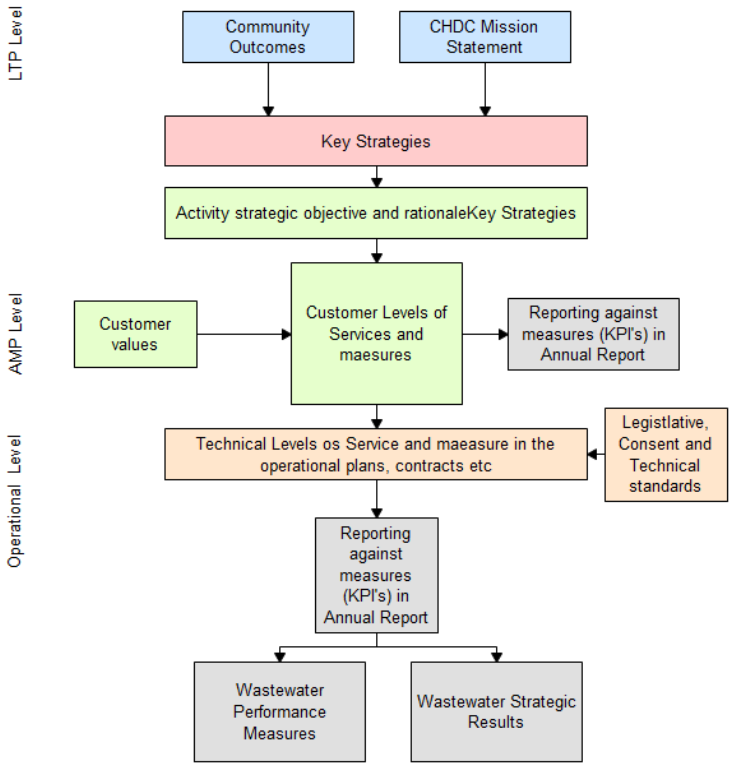
4 Levels of Service

4.1 Introduction – Levels of Services

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

4.2 Framework for Establishing Levels of Service

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



4.3 Council's Customers

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

Internal

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

External

- Private Property Owners
- Commercial or Industrial Property Owners
- Hawke's Bay Regional Council

4.4 Community Outcomes

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

Community Outcome	Commentary
A lifetime of good health and wellbeing	The provision of adequate wastewater management and systems ensures that the collection and treatment of wastewater flows causes the least risk to public health.
An environment that is appreciated, protected and sustained for future generations	The provision of adequate wastewater management and systems minimises the adverse impacts of wastewater on the environment.
A strong, prosperous and thriving economy	The provision of adequate wastewater management and systems meets growth needs to best serve the community.
Provide the management and disposal of the wastewater systems in a sustainable way	Council works to provide the wastewater system in the most cost effective and stainable way by using the latest technologies and looking for outside the square opportunities.

4.5 Setting Levels of Service

The formal way to set levels of service, as described in the NAMS manual "Creating Customer Value for Community Assets" involves an iterative process of Council setting levels of service, consulting with the community on those levels of service, amending those levels of service as a result of that consultation, and Council then providing the resources to achieve the levels of service agreed with the community. The results of applying those resources is then monitored to see if the levels of service are being met, or amending the resourcing to ensure they are met. The whole process is then repeated for each three year LTP cycle.

Levels of Services are formal adopted by Council as part of the consultation process with the LTP. Once set it is the responsibility of the asset Manager to implement the services level and ensure the FM contract provides the requires service

Levels of service generally fall into two categories:

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

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

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

4.5.1 Council's Direction

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

4.5.2 Customer Research

Customer consultation in the form of surveys and focus groups is desirable to understand customers' expectations. Council carried out this consultation in year 2010-11 and plans further consultation in the years 2018-19.

Customer information is received through compliments, complaints or service requests to Council. This is recorded in two databases – "Request for Service" and "Mailtracker".

Request for Services: This is an electronic recording system used by Council to log, allocate and track request, compliments, or complaints from the public through the phones or over the front counter.

Mailtraker: This is an electron recording and tracking system for all mail received by the Council.

The information in these databases can be used in understanding:

- Public perception and expectation of the activity.
- Current and Desired Levels of Service.

- Council responsiveness.
- Contractor responsiveness.

Since October 2011 Council has not carried out any consulted by way of survey with the community to gain feedback on Levels of Services for the wastewater activity.

4.5.3 Request for Service

The "Request for Service" (RFS) database is used to log calls from customers. Council logs requests and passes wastewater related issues onto the facilities maintenance contractor for action and monitoring. Once the issue has been actioned and completed Council are informed. Then Council can reply to the customer explaining the outcome of their request.

As a part of this process Council's current facilities maintenance contractor is required to enter any public request there received directly into Council's Request for Services database.

When loaded into the RFS database Council staff can interrogate the information and report back to the Council Management Team and Councillor. Through the monthly reports, Annual reports etc. It is also the responsibility of the appropriate staff to report back to the originating person i.e. the Customer what action has been taken and if necessary give an explanation.

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

4.5.4 Incoming Communications

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

4.5.5 Operational Levels of Service

The operation and maintenance roles for the wastewater activity are completed under the 'Facilities Management Contract' (currently Contract No. 455). The Contractor is Higgins Contractors HB. The final expiry date of the contract is 1 November 2018.

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

The specific outcomes stated in the FM Contract are that:

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

1. *Provide adequate capacity to dispose of wastewater to prevent undue nuisance and disturbance or damage to property.*
2. *Does not shift the incidence of over flows from one area to another.*

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

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

(i) Customer Service & Public Consultation

(ii) Responsiveness

(iii) Maintenance and continuity of Service

(iv) Quality Control

(v) Reporting

(vi) Outcomes

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

4.5.6 Judgement

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

4.5.7 Wastewater Discharge Quality

The wastewater discharges from the treatment plants are regularly tested in accordance with the testing regime set by the resource consent conditions issued from the Hawke's Bay Regional Council. The list of routine tests is shown in the table below.

Network	Otane				Waipukur		Waipawa		Takapau		Porangahau		Te Paerahi	
Sample Site	STP Discharge	203 & 269 Drumpeel Road	Farm Drain	Papanui Stream (US & DS)	STP Discharge	Tuki Tuki River (US & DS)	STP Discharge	Waipawa River (US & DS)	STP Discharge	Makaretu River (US & 2x DS)	Porangahau Town STP Discharge	Porangahau Town River STP Discharge (US & DS & Kate's Quarry)	Te Paraehi Beach STP Discharge	Piezometers
Faecal Coliforms	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
E.Coli	☑	☑	☑	☑	☑	☑	☑	☑			☑	☑		
Enteroccoci											☑	☑		
Total Organic Carbon									☑	☑				
Dissolved Inorganic Nitrogen	☑	☑	☑	☑	☑	☑	☑	☑						
Nitrite	☑	☑	☑	☑	☑	☑	☑	☑						
Volatile Solids					☑	☑	☑	☑						
Clarity		☑	☑	☑		☑		☑				☑		
pH	☑	☑	☑	☑	☑		☑		☑	☑	☑	☑	☑	
Suspended Solids	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	
cBOD5	☑				☑		☑		☑		☑	☑	☑	
Soluble cBOD5						☑		☑						
Total Ammoniacal Nitrogen	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
Soluble Reactive Phosphorus	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑		☑
Total Nitrogen	☑	☑	☑	☑	☑		☑				☑	☑		☑
Total Phosphorus	☑	☑	☑	☑	☑	☑	☑	☑			☑	☑		☑
Dissolved Oxygen	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	
Temperature	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	
COD									☑					
Condition of River						☑		☑		☑		☑		
Nitrates	☑	☑	☑	☑		☑		☑	☑	☑	☑	☑	☑	☑
TKN											☑	☑		
Turbidity												☑		
Conductivity									☑	☑		☑		
Frequency	**F**	**M**	**M**	**M**	**F**	**M**	**F**	**M**	**M**	**M**	**F**	**M**	**F**	**M**
F = Fortnightly, M = Monthly														

In addition to these:

- Flow at all ponds is monitored thru the Telemetry system and reported as required by the Resource Consent conditions.
- The Otane, Waipukurau and Waipawa Oxidation Ponds will also be tested every two years for Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc, Arsenic and Iron.
- at Takapau all (STP and River) monthly samples are also tested for Conductivity, Nitrite-Nitrogen, Dissolved Reactive Phosphorus and Total Organic Carbon.

4.5.8 Setting Levels of Service in Practice

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

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

1. The amount of funding available in the current year for operations and maintenance is increased by the rate of inflation for the next year's budget.
2. The extent of renewal works to be considered is limited to the amount of depreciation raised for the year.
3. The projects (capital improvements) that staff recommend should be carried out are listed.
4. These funding requests (operations and maintenance, renewals and capital works) are included in the total LTP funding, and the resulting increase in rating requirement is determined. Since this amount exceeds Council's expectations for the rating increase, capital works projects are then reprogrammed or deleted to meet the rating expectations.
5. Levels of service for customers are then written to match the results that can be expected from the amount of funding available to carry out the activity.

4.6 Wastewater Levels of Service from LTP

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

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

Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
The sewerage system is convenient, safe and reliable	Quality	Target number of dry weather sewerage overflows (per 1000 connections to the total sewerage systems)		≤10	≤10	≤10	≤10	Request for Service System

Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
		Target number of total sewerage overflows (per 1000 connections to the total sewerage systems)		≤30	≤30	≤30	≤30	Request for Service System
	Compliant	Compliance with the territorial authority's resource consents for discharge from its sewerage system measured by the number of:						
		abatement notices;		0	0	0	0	Management Reporting

Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
		infringement notices;		0	0	0	0	Management Reporting
		enforcement orders; and		0	0	0	0	Management Reporting
		convictions, received by the territorial authority in relation those resource consents.		0	0	0	0	Management Reporting

Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
	Responsive	Median response time for attending sewerage overflows resulting from blockages or other faults (measured from the time that notification is received to the time that the service personnel reach the site)		≤1hr	≤1hr	≤1hr	≤1hr	Request for Service System

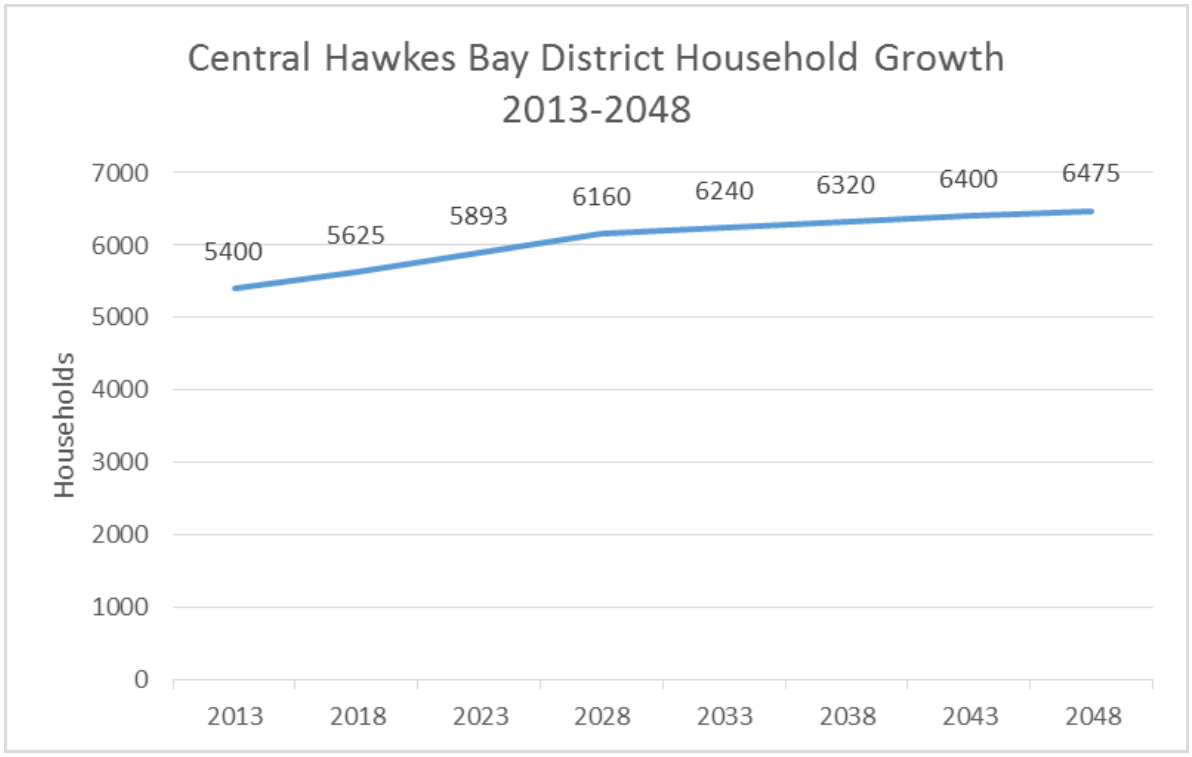
Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
		Median resolution time for attending sewerage overflows resulting from blockages or other faults (measured from the time that notification is received to the time that the service personnel reach the site)		≤ 4 hrs	≤ 4 hrs	≤ 4 hrs	≤ 4 hrs	Request for Service System

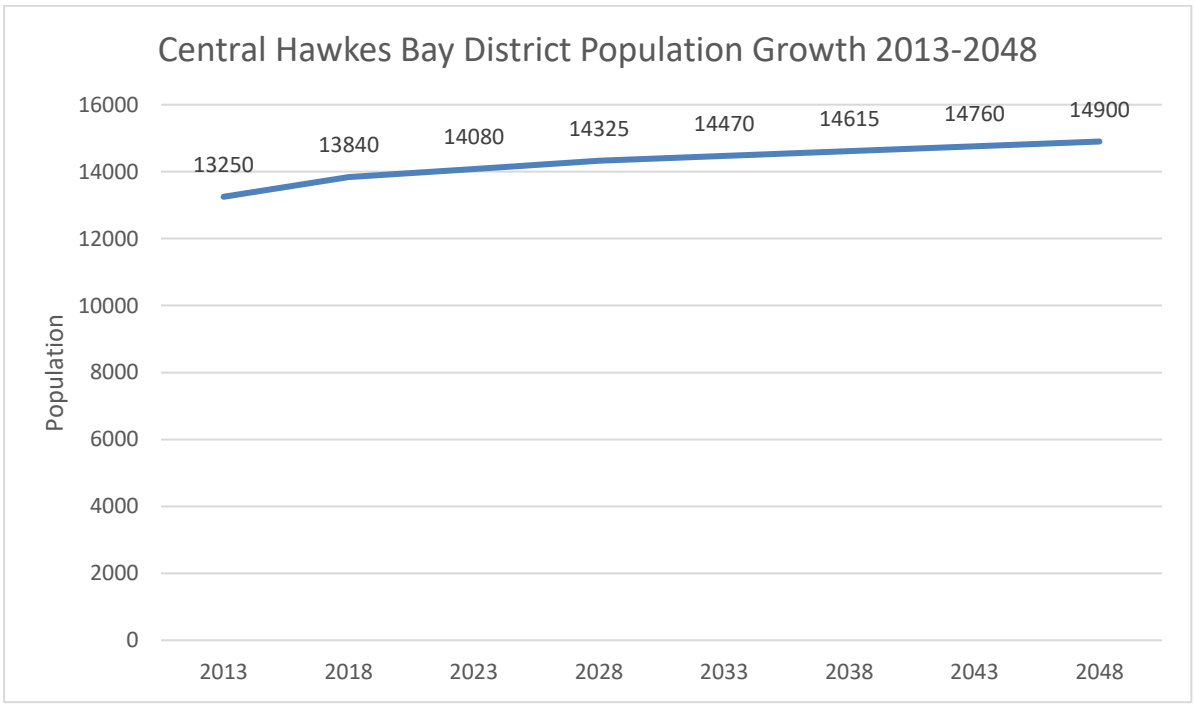
Waste Water								
What customers want / Customer Value	**Customer Levels of Service**	**Performance Measure**	**Baseline**	**Year 1 Target (2018/19)**	**Year 2 Target (2019/20)**	**Year 3 Target (2020/21)**	**Year 4-10 Target (2019/20)**	**Performance Measure Reporting**
	Customer Service	Number of complaints received per annum per 1000 sewerage connections about any of the following: Sewage odour, Sewerage system faults, Sewerage system blockages or Council's response to issues with its sewerage systems.		≤ 10	≤ 10	≤ 10	≤ 10	Request for Service System
	Customer Service	The percentage of users satisfied with the wastewater service provided	90%	90%	90%	90%	90%	Independent Community Views Survey

5 Demand Management

5.1 Demand

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





5.1 Implications of Uncertainty

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

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

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

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

The other alternative scenario predicted for the district is the expected increase in population and or demand for infrastructure from the proposed RWSS dam. Here Council is faced with a positive growth period of unknown quantity. This effect makes it very difficult to accurately predict growth requirements as there are number of possible combination for growth. To help rationalise these options we have looked at building on existing infrastructure where possible and suggested projects that best build a more sustainable and robust infrastructure.

5.2 Factors Influencing Demand

The factors influencing demand can be broken into two categories:

- Activity factors.
- Asset factors.

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

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

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

The following activity based factors influence demand on wastewater collection and disposal:

- Population increase/decrease
- Demographics of communities
- Economy and Socio-economic factors
- Subdivision development
- Land use changes
- Recreational development
- Industry and Commercial development
- Tourism development
- Cultural development

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

- Design capacity for wastewater facilities/structures
- Design capacity for reticulation
- Wastewater discharge quality (future requirement)
- Treatment design standards (future requirement)
- Environmental design standards
- Debris buildup and other system inefficiencies

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

5.3 Future Demand Statement

As a result of the recent earthquake events in Christchurch causing the cancellation of the 2011 census no new statistical data is available upon which to review growth patterns and trends. In view of this and also the recent resulting economic decline in the Building consent figures Council has opted to rely on the data provide by Statistics NZ and Valuation NZ rateable properties data to predict the potential for growth in the region.

Based on the Statistics NZ and QV NZ data CHB appears to be experiencing a down turn in economic growth in a similar pattern to many provincial areas of New Zealand. There are neither large increases nor decreases in population anticipated. There is however a changing pattern as the population ages, households become smaller and people choose to relocate to other areas within the District. The changing patterns place pressure on existing infrastructure or create a demand for new infrastructure in certain locations. This is the primary reason why water, wastewater, and stormwater contributions are taken on a catchment basis. This enables Council to match growth and demand to location. Council also takes a proactive and long-term view that growth in certain areas has been limited by the recession and this scenario may change over time as economic recovery gains momentum. Most assets for water, wastewater, wastewater and the roading have a life expectancy of 50 to 100 years, so the construction or upgrading of new assets has to be designed to allow for an increase in demand over this time period.

More detailed information on anticipated growth is contained in the Development Levy Policy as reviewed in 2015.

5.4 Demand Forecast

In ordered to predict future demand Council has employed Mr Sean Bevin of Economic Solutions Ltd, Napier to conduct an analysis growth in the District to determine the demand for services. His report "Central Hawke's Bay District Long-Term Growth Environment and Outlook 201-2046" paints the picture for the district based on two scenarios

> Scenario 1- the "Status Quo" position and indicates a gradual decline in population over the next 30 years. Various statements in recent news items supports this outlook for rural New Zealand, so Council considers this a valid prediction of the future of the District for planning purposes.
>
> Scenario 2 is the growth outlook for the District and is based on an optimistic view of what could happen should the RWSS project proceed and growth occurs.

5.4.1 Projected Change in Customer Expectations

Historical trends in customer expectations for wastewater services are that little changes over the years. There are no comments from customers most of the time, and when comments come they are due to a specific wastewater problem.

5.4.2 Projected Impact of Changes in Technology

Current and future changes in technology have the potential to impact on the wastewater activity primarily in the options available for treatment of wastewater. This will allow better quality of effluent to be produced and could reduce the cost of doing this.

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

Current and future changes in technology have the potential to impact on the wastewater activity in three significant ways:

- ***Change in runoff and volume of flow from properties (new technology could either increase or decrease this).***
- ***Generation of new types of contaminants in wastewater.***
- ***Provision of new solutions for disposal and/or reuse of wastewater.***

5.4.3 Projected Change in Demand on Service

In general (Scenario 1) there is a nil population growth in the District as a whole and potentially a slight decrease. However, in some parts of the District population growth has occurred and future growth is expected. This is driven by addition housing occurring and is likely to continue in some areas in the District.

This will have an impact on infrastructure even though the permanent residential population may not increase. An example of this type of impact is the increase in holiday homes in Porangahau and Te Paerahi which will most likely translate to increased demand for wastewater services.

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

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

5.5 Design Standards for Demand Management

Design standards and guidelines are used to:

- manage wastewater collection and disposal.
- assess the need for improvements in wastewater services.
- ensure the most appropriate solutions are installed.

The standards and guidelines include:

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

Other solutions available are:

- Education and communication programmes.
- Setting wastewater restrictions/controls for commercial and industrial sites.
- The use of development impact fees.
- Development controls through land use zoning.
- Subdivisional controls through Engineering Codes of Practice requirements.
- Setting trade waste charges relative to influence onsite treatment options and other decision making

5.6 Demand Management Plan

5.6.1 Overview of Council Strategic Direction

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

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

5.6.2 Demand Management

Currently demand management for wastewater services is implemented through:

- Council Policy and By-law documents.
- Subdivision controls and consent conditions.
- Land development controls such as land use zoning.

- Consultation on capital works projects through the LTP process.
- Providing feedback to customers on operation and maintenance costs through the Annual Report process.
- Feedback to customers on achievements against performance measures and levels of service through the Annual Report process and future LTP consultation.

6 Risk Management

6.1 Introduction

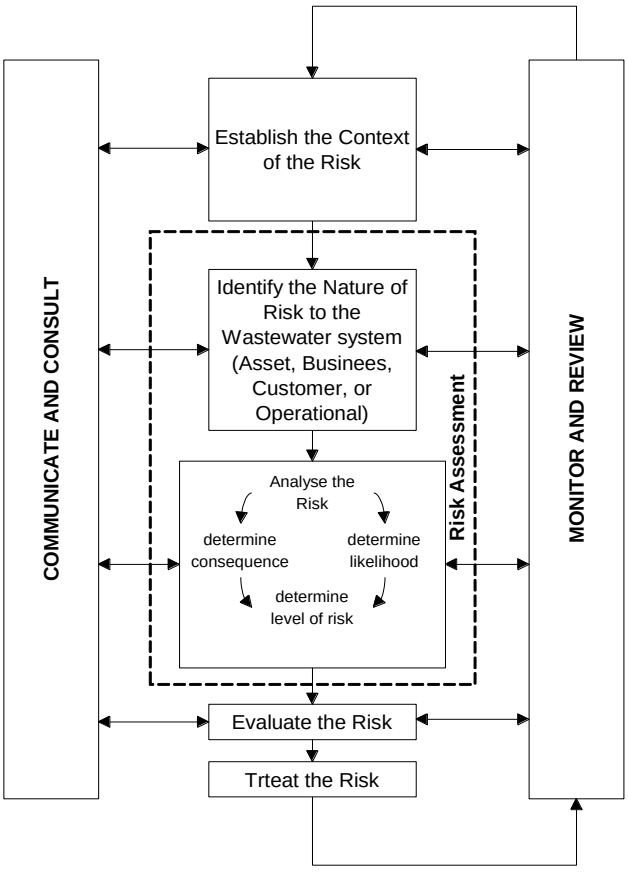
Risk management involves looking at all the activities carried out in providing the Wastewater Services and assessing what might go wrong and how often this might occur. The information gained from this can be used to eliminate the risk, reduce its effect, or allow a contingency plan to be prepared to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

6.2 Risk Management Procedure

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

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

The risk management process is illustrated below.



6.3 Risk Assessment Context

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

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

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

6.3.1 Strategic Context

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

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

6.3.2 Organisational Context

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

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

6.3.3 Event Management Context

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

6.3.4 Assessment Process

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

6.4 Risk Management Activities

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

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

6.5 Risk Evaluation Process

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

6.5.1 Likelihood Scale

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

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

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

6.5.2 Consequence Scale

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

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

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

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

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

6.6 Risk Matrix

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

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

6.7 Risk Rating Categories

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

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

6.8 Risk Register

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

Using this break down the impact of the tangible (physical components) and the Non-tangible (non-physical attributes) have been assessed against expected hazards thus creating a risk profile for each wastewater system. Below is a summary of all the network risks and we can see that the risks range from low to high.

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

6.9 Risk Management Relationships to AMP Documents

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

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

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

6.10 Risk Treatment

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

Risk treatment options generally fall into the following categories:

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

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

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

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

Any significant additions or changes to the risk register will be noted as they occur through regular reporting procedures. It is recommended that the risk register have a comprehensive update every 12 months and be included in the Facilities Management Contract documentation. Sample of Council Register is shown below. Completed forms for the wastewater ponds and pumping stations can be view on Council computers system under N:\Admin\Health and Safety\Hazard Registers\

HAZARDS Site Inspection form

Site: _____ Inspection Date: _____ Inspected by: _____

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

	Other Observations/Notes			

6.11 Lifelines

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

- Hawke's Bay is one of the most earthquake prone regions in New Zealand, with 22 known active faults and folds that are capable of producing very strong earthquakes:
    - Large subduction thrust earthquakes on the interface between the Australian and Pacific tectonic plates occur regularly. They are capable of producing high levels of shaking over a large part of the region and could cause ground level drops of up to 600 millimetres.

- The tectonic plate margin close to the East Coast of the North Island is capable of generating earthquakes and submarine landslides that could cause devastating tsunami, despite there being few recorded tsunami in recent times.

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

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

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

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

- Civil Services
  - Pipes that are attached to bridges or other structures are at risk from seismic activity.
  - Some pumping stations and control equipment are at risk from ground shaking, flooding or tsunami.
  - Prolonged power failure will have a serious effect on civil services in the region.
- Energy
  - Seismic activity poses the greatest potential risk to continued electricity supply.
  - Some sites are vulnerable to flooding that could cause electrical equipment to fail.
  - Transmission lines can be at risk from earthquakes, landslip, snow, severe wind and ashfall.
  - Gas networks are most vulnerable to seismic damage where they are supported above ground by bridges and other structures.

- Remaining cast iron pipes in local gas distribution lines are at risk from fracture during a major earthquake. This could lead to an outbreak of fire.

- Communications
  - Any major emergency is likely to cause overloading of telephone networks.
  - People rely on local radio and television stations for information during an emergency and loss of these services could have serious effects.
  - Earthquakes pose the biggest threat to broadcasting studios, equipment and transmitter sites. Access to transmitter sites may be difficult after an earthquake or major storm.
  - Back-up power supplies to run Emergency Operation Centres during an emergency would be dependent on the availability of diesel deliveries.
- Transportation
  - Bridges and roads are at risk from the effects of earthquakes, including ground-shaking, liquefaction and fault displacement. These could result in structural damage, the raising or lowering of bridges or roads and chasms opening in roads.
  - Many roads and bridges in the region cross low-lying areas, which are difficult to protect from the effects of major flooding or tsunami.
  - The availability and maintenance of alternative routes is important to ensure access after a natural disaster.
  - In the south of the Hawke's Bay region seismic activity could damage rail lines. In the north the rail network is more at risk from flooding and landslip.
  - At the low-lying Hawke's Bay Airport, earthquakes could cause runways to move or crack and a subduction thrust event may lead to an influx of underground seawater. The airport is also at risk from flooding and tsunami inundation.
  - Seismic activity could cause major disruption to cargo handling at the Port of Napier. Tsunamis also present a major risk to port operations.

6.12 Identified Risk

Health and Safety

Council has a Health and Safety Policy (Document 9.1) set out in the Procedures Manual. This outlines the statuary framework that Council is required to follow, and refers to the Health and Safety Business Plan. This plan provides a methodology for Council's to meet its strategic objective for Health and Safety, and both legislative and ACC requirements for Health and Safety management processes.

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

Asset Risk Plan / Business Continuity / Lifelines

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

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

Wastewater assets are insured through the Council Insurers brokers, currently AON Insures for underground assets and through and Jardine Lloyd Thompson Limited Insurers for above ground assets.

6.12.1 Construction and Maintenance Work

Council Owned and Operated Works:

All contracts run by Council for work on Council assets are set up and managed using NZS3910. Sections in this document deal with the management of Health and Safety risks as well as the general business risk encountered in day to day contact management.

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

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

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

Subdivisional Works:

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

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

6.12.2 Financial Issues

A concerted effort has been made to identify properties connected to the wastewater networks. While this work is ongoing there is a risk that:

- There are still unidentified connected properties that are not being charged.
- That undeveloped properties are not paying the relevant ½ charge for rates

Expenditure is controlled by staff by:

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

b. reviewing expenditure monthly.

c. reporting exceptions.

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

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

6.12.3 Climate Change Response Act 2002

Climate Change Response Act 2002

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

Natural hazards and Climate Change

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

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

6.12.4 Changing Demographics

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

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

6.12.5 Planning

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

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

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

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

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

6.12.6 General Issues

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

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

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

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

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

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

6.13 The Most Critical Risks

The most critical risks are:

- Incomplete management and supervision of this Activity due to limited staff resources.
- Identified improvement works that would improve service delivery cannot be funded and therefore will not be built.
- The requirements of the Regional Council in future resource consents for wastewater treatment standards may result in unpalatable or undeliverable requirements of this Activity.
- The limited application of risk assessment could lead to avoidable risks occurring and requiring more funding than the avoidance cost.
- Detailed planning of District wastewater requirements for the future and the related capital contribution regime has not been done. This is due to the lack of an Urban Growth Strategy and District Plan review for the district. This could mean that future requirements are not meet in the time they are needed.
- The changing legislative environment.

6.14 Key Assumptions and Uncertainties affecting Risk

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

- There will be an ongoing requirement for the provision of this activity.
- The demand for this activity will increase, and not reduce. The amount will vary depending on which scenario occurs.
- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's Utility, Technical Services, and Corporate Services Departments staff, and staff of the Facilities Management Contractor Higgins Contractors HB.
- The operational and maintenance requirements for this activity will remain similar for the next ten years.
- Funding will be available to provide the operational and maintenance requirements of this activity.

- Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works.
- Funding for capital improvements will be limited by political decisions as to the level of funding available.
- The dollar values shown in this Plan are June 2014 dollars, adjusted where appropriate by "BERL" estimated rates of inflation.
- Some capital and renewal costs are rough order of cost estimates that will need to be further researched and refined.
- Incomplete management and supervision of this Activity due to limited staff resources

6.15 Significant Negative Effects

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

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

- Moderate risk of health problems due to unsanitary conditions resulting from failure of private wastewater disposal.
- Reduced commercial and industrial activity could result from lack of access to reticulated wastewater systems and this would impact on the social and economic wellbeing of the community.
- The risk of degrading the environment caused by the accumulative effect of on-site disposal system within a confined township/residential area.

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

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

6.16 Risk Register Spreadsheets

WAIPUKURAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural – Seismic	Flood	Land-slide	Tsunami	Volc Ash	Hazards: Human – Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	2	1	0	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	3	3	1	0	1	1	2	1	2	2	1	1	1	3	2	Medium	
Manholes	1	3	1	0	1	2	3	2	2	2	2	1	3	3	3	Medium	
Mains	3	2	1	0	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	3	2	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	2	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	2	2	1	4	3	3	4	3	3	3	4	High	
Sewer Ponds	2	2	0	0	2	0	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	1	3	1	0	0	1	1	1	4	4	4	2	3	2	3	Medium	
Telemetry	1	1	0	0	1	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	0	0	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

Wastewater Network

WAIPAWA

Tangible

COMPONENT/ SEGMENT	Hazards: Natural – Seismic	Flood	Land-slide	Tsunami	Volc Ash	Hazards: Human – Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	2	1	0	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	3	3	1	0	1	1	2	1	2	2	1	1	1	3	2	Medium	
Manholes	1	3	1	0	1	2	3	2	2	2	2	1	3	3	3	Medium	
Mains	3	2	1	0	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	3	2	1	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	3	2	1	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Pump Stations	2	3	1	0	2	2	1	4	3	3	4	3	3	3	4	High	
Sewer Ponds	2	2	0	0	2	0	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	1	3	1	0	0	1	1	1	4	4	4	2	3	2	3	Medium	
Telemetry	1	1	0	0	1	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	0	0	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

Wastewater Network

OTANE

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Hazards: Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	2	2	0	0	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	3	3	0	0	1	1	2	1	2	2	1	1	1	3	2	Medium	
Manholes	1	3	0	0	1	2	3	2	2	2	2	1	3	3	3	Medium	
Mains	3	2	0	0	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	3	2	0	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Rail crossings	2	2	0	0	1	1	1	3	3	3	3	2	3	2	3	Medium	
Sewer Ponds	2	2	0	0	2	0	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	1	3	0	0	0	2	2	1	4	4	4	2	3	2	3	Medium	
Telemetry	1	1	0	0	1	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	0	0	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

Wastewater Network

TAKAPAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Hazards: Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	0	2	0	0	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	0	3	0	0	1	1	2	1	2	2	1	1	1	2	2	Low	
Manholes	0	3	0	0	1	2	3	2	2	2	2	1	3	2	3	Medium	
Mains	0	2	0	0	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	0	2	0	0	1	1	1	2	2	2	2	1	2	2	2	Low	
Pump Stations	0	3	0	0	2	2	1	4	3	3	4	3	3	2	4	Medium	
Sewer Ponds	0	2	0	0	2	0	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	0	3	0	0	0	1	1	1	4	4	4	2	3	2	3	Medium	
Telemetry	0	1	0	0	2	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	0	0	0	0	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	0	1	0	0	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

Wastewater Network

PORANGAHAU

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	1	2	0	1	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	1	3	0	1	1	1	2	1	2	2	1	1	1	2	2	Low	
Manholes	1	3	0	1	1	2	3	2	2	2	2	1	3	3	3	Medium	
Mains	1	2	0	1	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	1	2	0	1	1	1	1	2	2	2	2	1	2	2	2	Low	
Sewer Ponds	1	3	0	1	2	1	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	1	3	0	1	0	2	2	1	4	4	4	2	3	2	3	Medium	
Telemetry	1	1	0	1	1	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	1	2	0	1	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems
Power	1	2	0	1	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

Wastewater Network

TE PAERAHI

Tangible

COMPONENT/ SEGMENT	Hazards: Natural: Seismic	Flood	Land-slide	Tsunami	Volc Ash	Human: Damage/Infill	Cross contamination	Impact: Customers	Operational	Business	Environmental	Legal	H & S	Likelihood	Consequence	Criticality	Comments
weighting	50%	80%	20%	0%	10%	50%	50%	100%	50%	80%	50%	20%	30%				
Private Retic	1	2	0	2	1	2	2	1	1	1	2	1	1	2	2	Low	
Connection/laterals	1	3	0	2	1	1	2	1	2	2	1	1	1	2	2	Low	
Manholes	1	3	0	2	1	2	3	2	2	2	2	1	3	3	3	Medium	
Mains	1	2	0	2	1	1	1	3	3	3	3	1	3	2	3	Medium	
Sub Mains	1	2	0	2	1	1	1	2	2	2	2	1	2	2	2	Low	
Pump Stations	1	3	0	2	2	2	1	4	3	3	4	3	3	2	4	Medium	
Sewer Ponds	1	2	0	2	2	0	2	1	4	4	4	2	3	2	3	Medium	
Outfalls	1	3	0	2	0	1	1	1	4	4	4	2	3	2	3	Medium	
Telemetry	1	1	0	2	2	1	0	1	3	3	1	2	2	1	2	Low	
Location/Access	1	2	0	2	0	3	3	2	4	2	1	2	2	2	3	Medium	Veiw form physical access point plus buildings over etc creating access problems Also access to pond
Power	1	1	0	2	2	0	0	3	4	4	4	2	3	1	4	Medium	

Non - Tangible

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

Key

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

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

General Comments

7 Life Cycle Management

Introduction – Lifecycle Management

7.1 Introduction – Lifecycle Management

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

The overall objective of the Life Cycle Management Plan is

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

7.2 Routine Maintenance Plan

7.2.1 Scope of Maintenance Plan

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

- Ensuring maintenance of wastewater systems is carried out regularly to meet required Outcomes.
- Ensuring asset condition information is reported to the asset managers for consideration and entry in the asset database.

7.2.2 Service Procurement (Method of Contracting)

The routine management, maintenance and operations for the wastewater activity are included in Contract No. 240 - Facilities Management Contract (FMC). The Contractor is Higgins Contracting Limited. The final expiry date of the contract is 30 October 2015, but it includes an extension clause allowing the contract to be extended until 30 October 2018. The services covered by this contract for the wastewater activity are:

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

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

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

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

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

(vi) Routine inspection service.

(vii) Reporting to Council.

(viii) Management and professional advice services.

The Facilities Management Contract puts emphasis on a partnering style relationship between Contractor and Council, where there is a mutual commitment to achieving the contract objectives and outcomes by maximising the effectiveness of co-operation. The nature of the work under the FMC, with elements requiring flexibility and co-operation (emergency response, variability of natural cycles, etc.) means the contract is a partnership. The Contractor works alongside and with Council to provide the outcomes expected by its customers within the resources that are available.

7.3 Maintenance Needs, Standards and Timing

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

7.4 Routine Maintenance Operations Costs

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

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

7.5 Council Confidence

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

8 Financial Summaries

8.1 Revenue and Financing Policy

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

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

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

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

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

8.2 Council Financial Strategy

Council has set its Financial Strategy to ensure funds are available maintain the network and ensure an appropriate level of renewals are under taken to ensure the performance of the network to meet the Levels of Services set out in section 4 of this document. This funding level is capped due to the limits on rates as highlighted in the Strategy when considering the following factors:

- growth in public debt – principally to fund waste water upgrades,
- limitations on future rate rises,
- and the need to contain costs by maintaining the existing levels of service and existing core services and infrastructure, rather than providing for growth

8.3 Fees and Charges

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

New Connections:

• Application Fee	$128.00 including GST
• Inspection Fee	$128.00 including GST

Existing Connections:

• Inspection Fee	$128.00 including GST

Discharge of Trade Waste

Note:

- Charges for the discharge of Trade Waste and conditions thereof are recovered under the Central Hawke's Bay District Council Trade Waste Bylaw 2006. The following charges are provided in Schedule 1D of the Bylaw.

B Trade Waste Charges				
Category	**Description**	**excl GST**	**GST**	**incl GST**
B1 Volume	Payment based on the volume discharged $/m^3			
	Waipukurau	$0.21	$0.03	$0.24
	Waipawa	$0.21	$0.03	$0.24
B3 Suspended solids	Payment based on the mass of suspended solids $/kg			
	Waipukurau ISS	$1.22	$0.18	$1.40
	VSS	$0.15	$0.02	$0.17
	Waipawa ISS	$1.57	$0.23	$1.80
	VSS	$0.21	$0.03	$0.24
B4 Organic loading	Biochemical oxygen demand or chemical oxygen demand $/kg.			
	Waipukurau	$1.63	$0.25	$1.88
	Waipawa	$1.03	$0.16	$1.19
B5 Nitrogen	Payment based on the defined form(s) of nitrogen $/kg.			
	Waipukurau	$2.44	$0.37	$2.81
	Waipawa	$2.17	$0.33	$2.50
B6 Phosphorous	Payment based on the defined form(s) of phosphorous $/kg.			
	Waipukurau	$8.10	$1.21	$9.31
	Waipawa	$6.53	$0.98	$7.51
Tankered Waste Charges				
Tankered Wastes ($/m^3)		$0.0174	$0.0026	$0.02

8.4 Development Contributions

Council requires Development Contributions from developers under the Local Government Act 2002. Council's policy set out how the levies are calculated based on the list of capital project included in the LTP 2018 - 28. This policy indicates how the levy will be charged and the dollar value per domestic connection for all new connections to each wastewater system.

8.5 Asset Valuation

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

Community	Asset Class	Total Replacement Cost	Total Replacement Cost	Total Annual Depreciation
Otane	Wastewater Mains	$3,302,010.36	$2,506,142.07	$28,254.56
	Wastewater Manholes etc	$622,500.00	$443,975.00	$6,225.00
	Wastewater Plant	$1,489,957.00	$693,556.25	$28,859.34
	Connections*	$683,726.40	$487,642.46	$6,837.26
	Reticulation Total	$4,608,236.76	$3,437,759.53	$41,316.82
	Plant Total	$1,489,957.00	$693,556.25	$28,859.34
	Total	$6,098,193.76	$4,131,315.78	$70,176.16
Porangahau	Wastewater Mains	$1,007,761.17	$722,380.00	$9,807.14
	Wastewater Manholes etc	$247,500.00	$175,587.50	$2,475.00
	Wastewater Plant	$1,046,340.38	$423,127.13	$59,147.51
	Connections*	$284,886.00	$202,110.79	$2,848.86
	Reticulation Total	$1,540,147.17	$1,100,078.29	$15,131.00
	Plant Total	$1,046,340.38	$423,127.13	$59,147.51
	Total	$2,586,487.55	$1,523,205.42	$74,278.51
Takapau	Wastewater Mains	$2,710,629.90	$1,932,987.08	$21,927.29
	Wastewater Manholes etc	$415,035.19	$275,207.13	$4,125.00
	Wastewater Plant	$1,254,257.00	$443,026.03	$39,703.58
	Connections*	$539,926.80	$190,711.81	$17,091.41
	Reticulation Total	$3,665,591.89	$2,398,906.02	$43,143.70
	Plant Total	$1,254,257.00	$443,026.03	$39,703.58
	Total	$4,919,848.89	$2,841,932.05	$82,847.28
Te Paerahi	Wastewater Mains	1,055,215.98	$832,956.24	$8,785.79
	Wastewater Manholes etc	$1,250,554.90	$757,299.29	$37,656.68
	Wastewater Plant	$195,000.00	$141,375.00	$1,950.00
	Connections*	$341,863.20	$247,850.82	$3,418.63
	Reticulation Total	$2,647,634.08	$1,838,106.35	$49,861.10
	Plant Total	$195,000.00	$141,375.00	$1,950.00
	Total	$2,842,634.08	$1,979,481.35	$51,811.10
Waipawa	Wastewater Mains	$11,375,232.28	$5,698,305.25	$80,118.88
	Wastewater Manholes etc	$2,140,616.00	$1,172,221.09	$18,502.46
	Wastewater Plant	$6,318,017.27	$4,312,809.50	$200,691.34
	Connections*	$2,327,925.60	$1,589,090.25	$73,946.38
	Reticulation Total	$15,843,773.88	$8,459,616.59	$172,567.72
	Plant Total	$6,318,017.27	$4,312,809.50	$200,691.34
	Total	$22,161,791.15	$12,772,426.09	$373,259.06
Waipukurau	Wastewater Mains	$20,958,294.61	$8,633,954.39	$209,758.65
	Wastewater Manholes etc	$4,383,630.18	$1,881,609.93	$44,366.62
	Wastewater Plant	$10,692,394.05	$8,008,681.08	$316,915.01
	Connections*	$5,285,313.60	$2,268,644.51	$53,492.54
	Reticulation Total	$30,627,238.39	$12,784,208.83	$307,617.81
	Plant Total	$10,692,394.05	$8,008,681.08	$316,915.01
	Total	$41,319,632.44	$20,792,889.91	$624,532.82
Dsitrict Totals	Reticulation Total	$58,932,622.17	$30,018,675.61	$629,638.16
	Plant Total	$20,995,965.70	$14,022,574.99	$647,266.78
	District Total	$79,928,587.87	$44,041,250.60	$1,276,904.94

8.6 Valuation Methodology

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

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

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

8.7 Financial Summary – Wastewater

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

Account	Full Year Actuals 2013/14	Total Annual Plan Budget 2014/15	LTP Budget 2015/16	LTP Budget 2016/17	LTP Budget 2017/18	LTP Budget 2018/19	LTP Budget 2019/20	LTP Budget 2020/21	LTP Budget 2021/22	LTP Budget 2022/23	LTP Budget 2023/24	LTP Budget 2024/25
Wastewater (Sewerage)	**4,750,423**	**3,511,171**	**4,854,432**	**4,335,544**	**5,002,313**	**5,371,509**	**5,992,021**	**5,210,788**	**5,098,102**	**5,289,924**	**5,456,517**	**5,574,145**
Income	-188,095	-107,000	-150,000	-153,675	-157,563	-161,675	-166,121	-170,939	-176,136	-181,754	-187,861	-194,493
Expense	2,770,078	2,786,064	3,191,183	3,302,125	3,457,424	3,565,991	3,714,351	3,965,234	4,020,040	4,078,325	4,272,584	4,316,409
Depreciation	852,672	848,931	1,182,789	1,212,576	1,295,082	1,321,180	1,347,833	1,497,232	1,513,971	1,527,101	1,676,522	1,691,504
Employee Costs	0	0	24,786	25,257	25,762	26,303	26,882	27,500	28,160	28,864	29,614	30,414
Operations	970,925	946,320	972,981	1,006,436	1,034,021	1,063,406	1,103,629	1,138,430	1,176,068	1,226,209	1,270,898	1,319,491
Overheads	370,535	425,485	459,522	469,217	486,119	488,617	500,627	521,395	527,077	542,002	566,733	575,344
Interest Costs	575,946	565,328	551,106	588,638	616,440	666,484	735,381	780,679	774,764	754,149	728,816	699,656
Capex	1,805,085	608,827	1,570,004	909,009	1,389,234	1,607,414	2,025,772	1,017,144	735,043	760,034	786,635	814,954
Capital	1,242,835	0	949,000	272,479	736,155	936,049	1,334,938	304,893	0	0	0	0
4028729. DIST SEWER CAPITAL IMPVTS	0	0	0	0	0	0	0	0	0	0	0	0
4181729. OTANE SEWER CAPITAL IMPVTS	0	0	100,000	0	630,990	0	0	0	0	0	0	0
4282729. TAKAPAU SEWER CAP IMPUTS	27,096	0	0	0	105,165	0	667,469	0	0	0	0	0
4383729. WAIPUK SEWER CAPITAL IMPVTS	1,110,020	0	849,000	0	0	0	0	0	0	0	0	0
4484729. WPA SEWER CAPITAL PROJECTS	70,970	0	0	272,479	0	287,391	0	304,893	0	0	0	0
4585729. PHAU SEWER CAPITAL PROJECTS	11,984	0	0	0	0	648,658	0	0	0	0	0	0
4586729. PHAU BEACH SEWER CAPITAL PROJECT	22,765	0	0	0	0	0	667,469	0	0	0	0	0
Renewal	562,251	608,827	621,004	636,529	653,079	671,365	690,835	712,250	735,043	760,034	786,635	814,954
Loans	448,224	223,280	243,245	278,086	313,218	359,780	418,020	474,349	519,156	558,320	585,159	637,275
Loans Repaid	448,224	223,280	243,245	278,086	313,218	359,780	418,020	474,349	519,156	558,320	585,159	637,275
Reserves	-84,869	0	0	0	0	0	0	-75,000	0	75,000	0	0

Next twenty years beyond the current LTP period

Account	LTP Budget 2025/26	LTP Budget 2026/27	LTP Budget 2027/28	LTP Budget 2028/29	LTP Budget 2029/30	LTP Budget 2030/31	LTP Budget 2031/32	LTP Budget 2032/33	LTP Budget 2033/34	LTP Budget 2034/35	LTP Budget 2035/36	LTP Budget 2036/37	LTP Budget 2037/38	LTP Budget 2038/39	LTP Budget 2039/40	LTP Budget 2040/41	LTP Budget 2041/42	LTP Budget 2042/43	LTP Budget 2043/44	LTP Budget 2044/45
Wastewater (Sewerage)	**5,674,061**	**5,937,662**	**6,045,757**	**6,052,128**	**6,252,018**	**6,160,303**	**6,069,924**	**6,910,590**	**6,424,627**	**11,841,391**	**7,927,114**	**7,489,851**	**9,454,767**	**8,003,820**	**7,992,736**	**8,035,673**	**8,416,077**	**12,940,582**	**9,249,376**	**14,301,155**
Income	-200,444	-206,578	-212,899	-219,414	-226,128	-233,047	-240,179	-247,528	-255,102	-262,908	-270,954	-279,245	-287,790	-296,596	-305,672	-315,025	-324,665	-334,600	-344,839	-355,391
Expense	4,342,290	4,526,396	4,549,080	4,564,563	4,736,222	4,603,477	4,621,705	5,004,066	5,104,682	5,377,766	5,860,504	5,961,783	6,118,344	6,480,992	6,581,442	6,695,663	7,038,231	7,323,716	7,626,182	8,164,276
Depreciation	1,706,041	1,876,481	1,892,422	1,909,109	2,078,780	1,944,841	1,963,951	2,305,786	2,330,204	2,377,279	2,611,246	2,639,679	2,675,483	2,911,570	2,941,390	2,972,486	3,221,899	3,267,370	3,324,177	3,611,379
Employee Costs	31,144	31,891	32,657	33,441	34,243	35,065	35,907	36,768	37,651	38,554	39,480	40,427	41,398	42,391	43,408	44,450	45,517	46,609	47,728	48,874
Operations	1,363,506	1,409,040	1,456,145	1,504,880	1,555,302	1,607,473	1,661,455	1,717,315	1,775,119	1,834,939	1,896,849	1,960,924	2,027,243	2,095,888	2,166,944	2,240,500	2,316,647	2,395,481	2,477,101	2,561,609
Overheads	582,437	598,289	614,585	631,336	648,557	666,261	684,462	703,174	722,412	742,191	762,528	783,439	804,940	827,048	849,782	873,160	897,185	921,924	947,349	973,497
Interest Costs	659,161	610,694	553,271	485,797	419,339	349,837	275,931	241,024	239,297	384,802	550,401	537,313	569,281	604,095	579,917	565,067	556,983	692,331	829,827	968,917
Capex	839,404	864,588	890,527	917,244	944,763	973,107	1,002,302	1,697,334	1,063,346	6,101,527	1,660,721	1,161,952	2,979,071	1,232,719	1,269,703	1,307,795	1,347,032	5,509,419	1,429,071	5,844,945
Capital	0	0	0	0	0	0	0	664,962	0	5,006,280	532,614	0	1,782,258	0	0	0	0	4,121,974	0	4,373,001
4028729. DIST SEWER CAPITAL IMPVTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,121,974	0	4,373,001
4181729. OTANE SEWER CAPITAL IMPVTS	0	0	0	0	0	0	0	0	0	0	532,614	0	0	0	0	0	0	0	0	0
4282729. TAKAPAU SEWER CAP IMPUTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4383729. WAIPUK SEWER CAPITAL IMPVTS	0	0	0	0	0	0	0	664,962	0	5,006,280	0	0	1,782,258	0	0	0	0	0	0	0
4484729. WPA SEWER CAPITAL PROJECTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4585729. PHAU SEWER CAPITAL PROJECTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4586729. PHAU BEACH SEWER CAPITAL PROJECTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewal	839,404	864,588	890,527	917,244	944,763	973,107	1,002,302	1,032,373	1,063,346	1,095,248	1,128,107	1,161,952	1,196,813	1,232,719	1,269,703	1,307,795	1,347,032	1,387,445	1,429,071	1,471,945
Loans	692,812	753,257	819,050	789,735	797,161	816,766	686,096	456,717	511,702	625,005	676,843	645,361	645,141	586,704	447,264	347,240	355,479	442,047	538,962	647,325
Loans Repaid	692,812	753,257	819,050	789,735	797,161	816,766	686,096	456,717	511,702	625,005	676,843	645,361	645,141	586,704	447,264	347,240	355,479	442,047	538,962	647,325
Reserves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

9 Asset Management Plan Assumptions

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

9.1 Key Assumptions

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

- There will be an ongoing requirement for the provision of this activity
- Funding will be available to provide the operational and maintenance requirements of this activity for the next 10 years.
- Depreciation will be raised and used to fund replacement of deficient infrastructure.
- Funding for renewal works will be limited by the amount of depreciation raised through rates each year, and any surplus depreciation funding raised will be retained to be used in the future for renewal works.
- Forecasts of areas where new demand is planned for will be correct and funding from development contributions will pay towards these improvements.
- The demand for this activity will increase, and not reduce.
- Funding for capital improvements will be limited by political decisions as to the level of funding available.
- The dollar values in this Plan are based on June 2018 dollars and have been adjusted using the pipe lines BERL adjustment figures for the rate of inflation has been applied.
- All capital and renewal costs are rough order of cost estimates that will need to be further researched and refined.
- The forecasts are based on the best available knowledge of asset condition and performance, and on the levels of service that are being delivered. More detailed evaluation of asset renewal requirements will be undertaken.
- Demand levels are based on the report by Sean Bevan entitled "*Central Hawkes Bay District Long-Term Planning. Demographic and Economic Growth Direction 2018-2048*" dated 28th August 2017.
- Population Data is based on the current data available at the time of writing the report by Sean Bevan.
- The knowledge of the practitioners directly providing this activity, both on a day-to-day basis and historically, has been relied upon. These practitioners include Council's Technical Services Department staff and Financial Services Department staff, and staff of the Facilities Management Contractor.

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

9.2 Limitations of this plan include:

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

10 Asset Management Practices

10.1 Introduction

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

The Asset Management Data		
Data or Process	**Current Practice**	**Desired Practice**
Asset Register	Council has adopted the use of a programme called AssetFinda to store all lines, points and plant data in a graphical electronic database.	Not change at this point in time
Asset Hierarchy of Wastewater Asset	Currently council has developed a hierarchy of the asset according to their location within the networks and the risk implication of failure	It would be beneficial to improve the current coarse analysis of the networks based on risk level to a higher level. This work would improve the decision making process of where best to apply limited funds.
Asset Identification	Current practise is to use the automatic asset identification system from our asset management programme.	This gives a consistent and logical asset ID system but as the asset gets replaced the old Id is removed and a new id is attached to the new asset. This makes tracking from old plans/maps difficult. It would be helpful to contactors and other users of the maps to find a way to retain a consistent name for key elements like manholes.
Spatial Location Data	Current practise is to locate the asset spatially based on best knowledge at the time of loading.	It would be desirable that assets are located geospatially using a GPS coordinate give both X, Y and Z attributes .
Physical attribute fields for all asset types are well defined.	Our asset management programme has a range of defined fields to be filled in. These are filled in based on the information supplied by "As Built" records. For unknown data such as date a default date of 1/1/1950 is used – but a note will be entered in the notes area to indicate this as well as the accuracy marked down.	
Condition, Performance, Criticality and Accuracy settings	The programme has 4 slide bars to set these function. The use of these is covered under the AssetFinda Council user notes.	It would be useful to use the combination of Performance and criticality to provide a risk assessment of the asset.

Asset lives	Currently we are using the NAMM's manual to set the base lives with some adjustment based on local knowledge of the assets condition. This is covered in detail in the Valuation Document.	Improve knowledge of the asset condition by physical inspection or CCTV

Data or Process	**Current Practice**	**Desired Practice**
Strategic Planning		
Wastewater flows	Council has done hydraulic modelling of the Waipawa and Waipukurau systems.	To look at the model and compare recent flow rates at similar points to those used to calibrate the model to measure the effectiveness of our renewals programme. To look at redoing the models within a 3-5 year time frame.
Inflow and Infiltration	CCTV condition assessments, Hydraulic modelling and flow gauging, SCADA data analysis and verification. Plus collection of overflow data during peak storm events	Focus on strategy within existing OPEX Budgets and Renewal Programme Strategies.
Risk management	Current our risk analysis is based on a table top exercise at high level.	Review the risk register and drill down to a lower level to assess specific asset risks and use the data as a basis for initiating capital expenditure, operational improvements or renewal of assets.
Service level reviews	Current Levels of Service are meeting the needs of the users	
Renewal work	Current practise is to set the amount of renewal work to the level of funding.	It would be desirable to increase the level of funding to a level that meets the actual need of replacement and not capped at the amount Council can afford.
Capital Works	Current practise to do the essential works and cap the work at value that can be funded via loans etc.	To increase capital works to the level that is needed to meet demand and support growth of the District.
Long term financial planning	Renewals/Capital planning is based on year to year prediction of issues	Improve the long term renewals and capital works programme to meet the possible impact of growth.
Emergency planning	Emergency plans and business continuity plans are in place.	

Asset Management Plan	Work on a 3 yearly review of the plans to meet the need of the Council	Tune the plans to become a more user friendly document that helps the council role of managing the assets

10.2 Asset Register

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

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

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

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

At present only the accounting tools are used.

10.2.1 Performance Forecasting

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

Condition Grading

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

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

Performance Grading

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

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

10.2.2 Data Accuracy

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

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

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

10.3 Accounting Financial Systems

Financial Management processes are carried out through Council's Financial Management system. Costs are recorded against specific general ledger funding categories as they are incurred. The accounting system is an accrual accounting system, which backdates the expenditure to the financial year in which it is occurs. For asset management purposes, and accounting purposes, expenditure is divided into four categories:

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

10.3.1 Core versus Advanced Management Plans

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

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

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

- Financial forecasts based on broad assumptions.
-

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

10.4 Communication

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

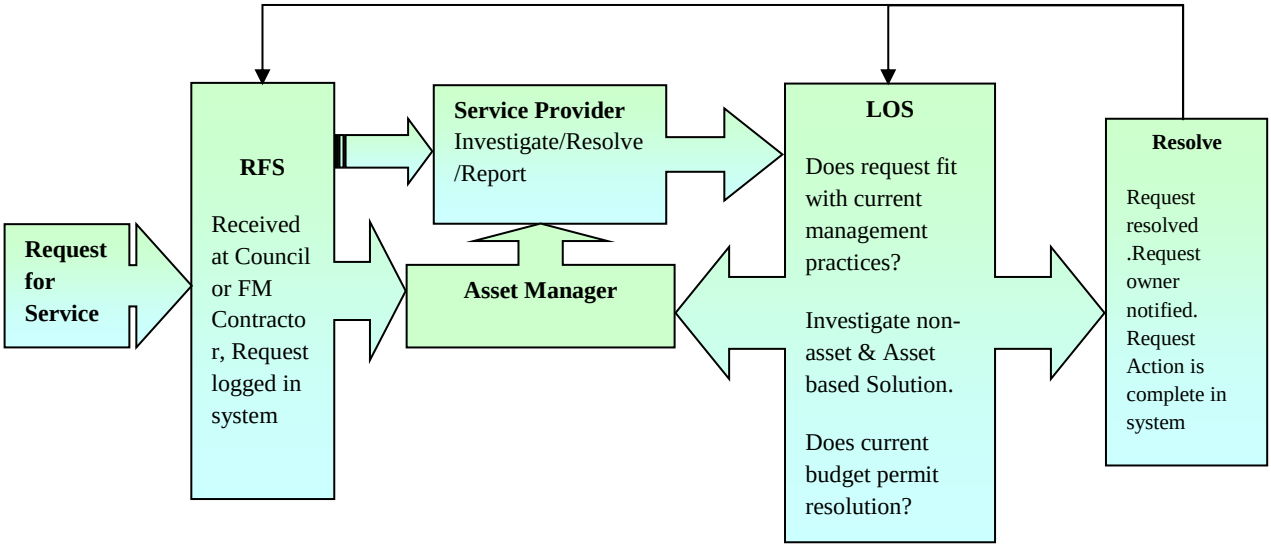
Renewal and capital tasks are managed by Council's Technical Services Unit. Work is carried out by either by an agreed variation to the Facilities Management Contract or through the letting of a tender for the work.

10.4.1 Service Request

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

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

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



Basic Process of the Request for Service System

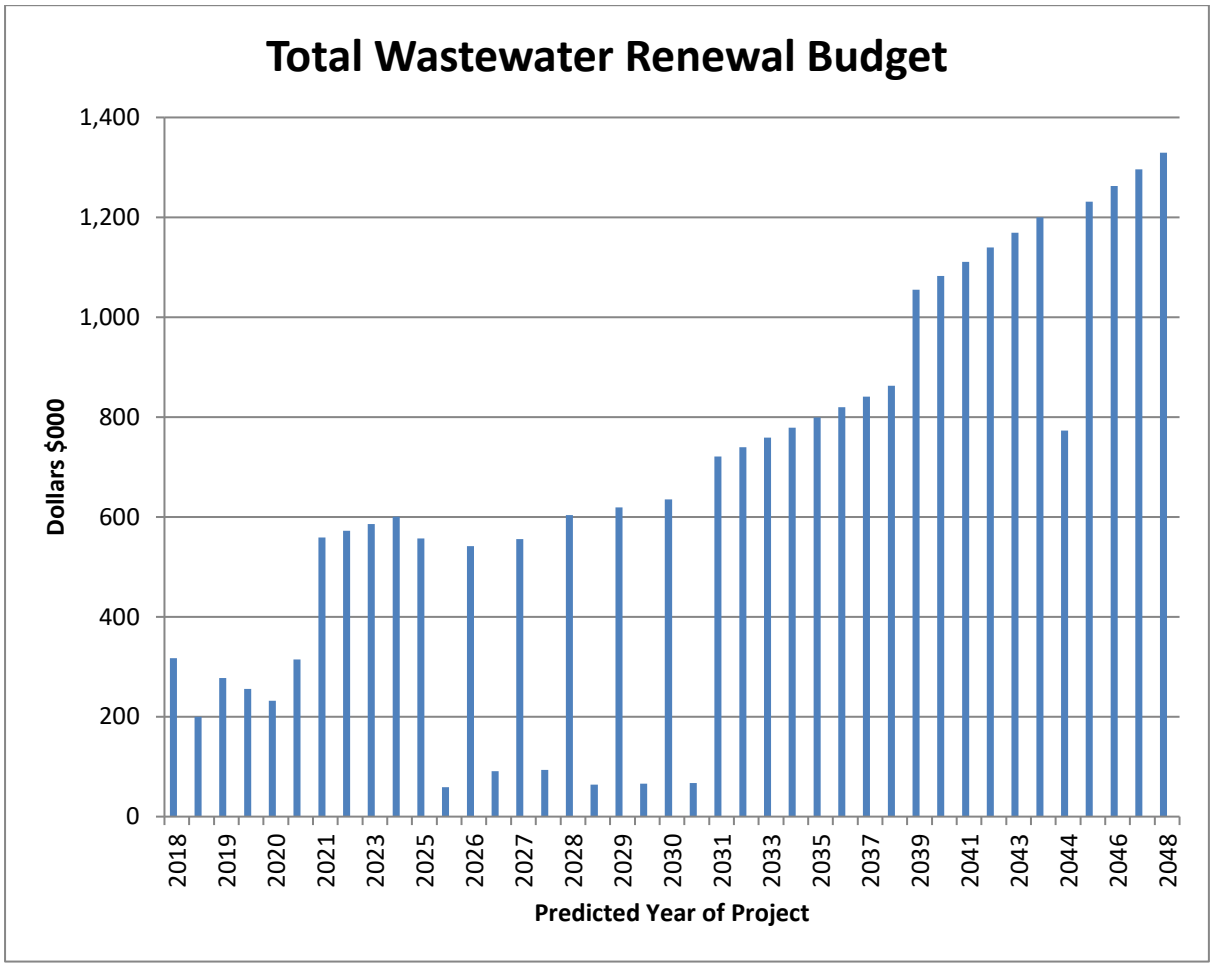
10.4.2 Incoming Communications

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

11 Improvement Plan

11.1 Renewals Works Programme

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



As Council only has a limited budget for renewal of $621,004 per annum in 2017 prices – compared to the annual depreciation of $1,276,905 that should be available - it is expected that Council will not be able to fund the required level of maintenance to ensure that the networks will met the current levels of Service. This is especially prominent when you look at the existing Waipawa trunk gravity sewer main. This was installed in the early 1910 and has now reached a level where the performance rating is well below satisfactory. On current price the estimated cost of replacement is in the order of $16 million.

The current funding philosophy limits the amount of renewal work that can be carried out in any one year to the level that matches the Council income for this type of work. Therefore work is assessed on the following bases

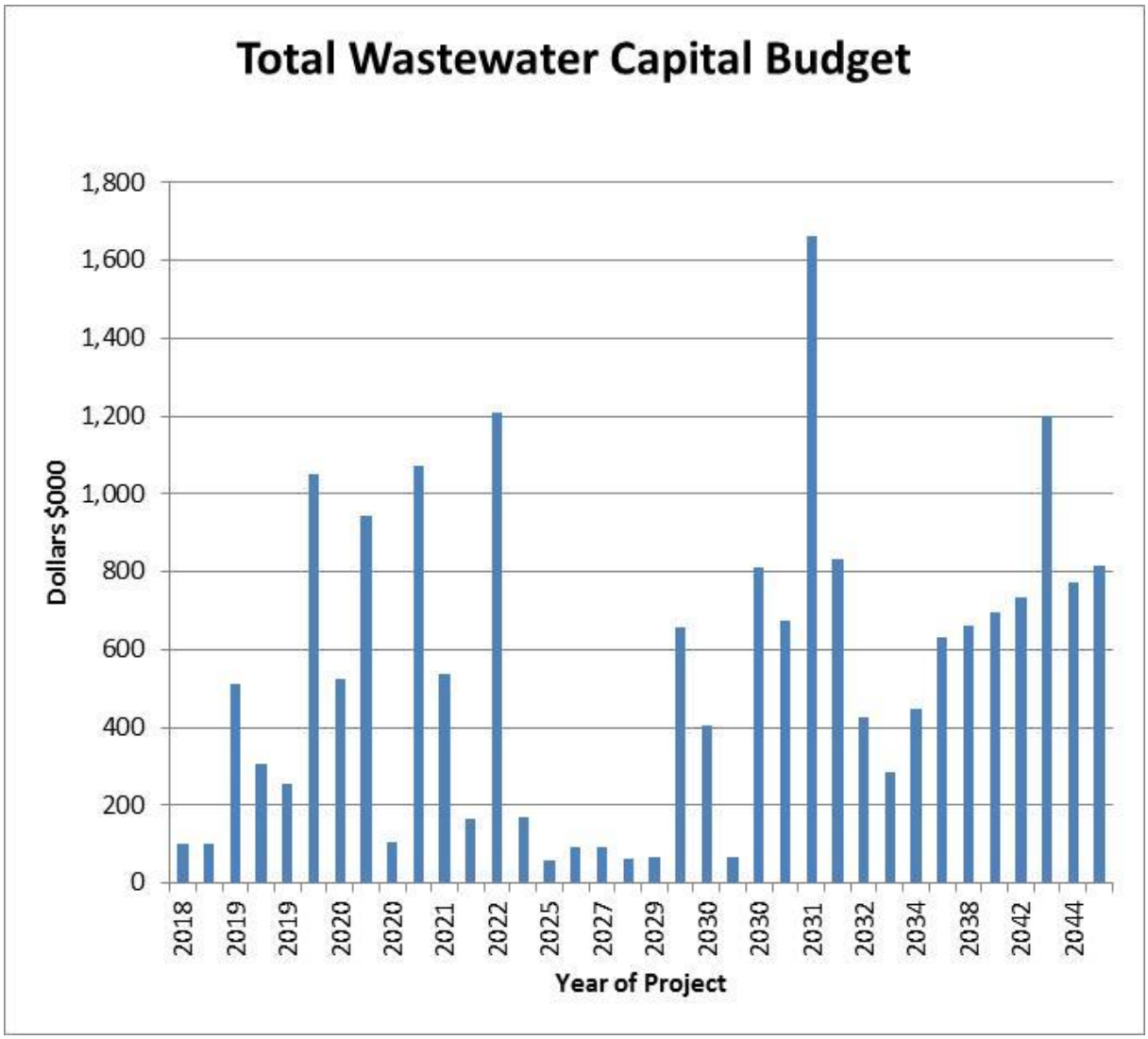
- Assets will be assessed for renewal annually.
- Assets will be renewed on a priority basis, with the most necessary renewals being carried out first (this may result in younger assets being replaced before older assets because of their condition). Such as pump replacement, upgrading/relining of mains, replacement manholes etc.
- Renewal work that comes to the attention of Council or contractors (through routine inspection or incidentally) will be carried out immediately, funding permitting.

Renewal Works Projects 2018 to 2048

Project	Project Year	Value	Description
District Wastewater	2018	$317,004	Renewals work
District Wastewater	2019	$271,004	Renewals work
District Wastewater	2020	$221,004	Renewals work
District Wastewater	2021	$521,004	Renewals work
District Wastewater	2022	$521,004	Renewals work
District Wastewater	2023	$521,004	Renewals work
District Wastewater	2024	$521,004	Renewals work
District Wastewater	2025	$471,004	Renewals work
District Wastewater	2026	$446,004	Renewals work
District Wastewater	2027	$446,004	Renewals work
District Wastewater	2028	$471,004	Renewals work
District Wastewater	2029	$471,004	Renewals work
District Wastewater	2030	$471,004	Renewals work
District Wastewater	2031	$521,004	Renewals work
District Wastewater	2032	$521,004	Renewals work
District Wastewater	2033	$521,004	Renewals work
District Wastewater	2034	$521,004	Renewals work
District Wastewater	2035	$521,004	Renewals work
District Wastewater	2036	$521,004	Renewals work
District Wastewater	2037	$521,004	Renewals work
District Wastewater	2038	$521,004	Renewals work
District Wastewater	2039	$621,004	Renewals work
District Wastewater	2040	$621,004	Renewals work
District Wastewater	2041	$621,004	Renewals work
District Wastewater	2042	$621,004	Renewals work
District Wastewater	2043	$621,004	Renewals work
District Wastewater	2044	$621,004	Renewals work
District Wastewater	2045	$621,004	Renewals work
District Wastewater	2046	$621,004	Renewals work
District Wastewater	2047	$621,004	Renewals work
District Wastewater	2048	$621,004.00	Renewals work

11.2 Capital Works Programme

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


Total Wastewater Capital Budget
Dollars $000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2018
2019
2019
2020
2020
2021
2022
2025
2027
2029
2030
2030
2031
2032
2034
2038
2042
2044
Year of Project

Capital Works Projects 2018 to 2048

ProjectDescription	ProjectCompletion	Sum
Otane wastewater treatment upgrade	2018	$100,000
Takapau resource consent renewal	2018	$100,000
Otane wastewater treatment upgrade	2019	$511,500
Takapau wastewater treatment upgrade	2019	$306,900
Waipawa trunk main renewal	2019	$255,750
WPK WPA Treatment Improvements	2020	$1,048,575
Takapau wastewater treatment upgrade	2020	$524,288
Waipawa trunk main renewal	2020	$943,718
Porangahau / Te Paerahi wastewater treatment upgrade	2020	$104,858
WPK WPA Treatment Improvements	2021	$1,072,692
Porangahau / Te Paerahi wastewater treatment upgrade	2021	$536,346
Otane wastewater treatment upgrade	2022	$164,766
Porangahau / Te Paerahi wastewater treatment upgrade	2022	$1,208,281
Otane wastewater treatment upgrade	2023	$168,720
Shortfalls in reticulation	2025	$59,145
Shortfalls in reticulation	2026	$91,024
Shortfalls in reticulation	2027	$93,481
Waipawa Shortfalls in existing reticulation	2028	$64,066
Waipawa Shortfalls in existing reticulation	2029	$65,732
New main industrial area to pond	2029	$657,317
Extensions for growth	2030	$404,644
Waipawa Shortfalls in existing reticulation	2030	$67,441
New main industrial area to pond	2030	$809,288
Waipukurau industrial reticulation	2030	$674,407
Waipukurau industrial reticulation	2031	$1,660,659
New main industrial area to pond	2031	$830,330
Extensions for growth	2032	$425,959
Waipukurau industrial reticulation	2032	$283,973
Extensions for growth	2034	$448,397
Extensions for growth	2036	$629,356
Extensions for growth	2038	$662,507
Extensions for growth	2040	$697,406
Extensions for growth	2042	$734,142
Extensions for growth	2044	$772,814
Extensions for growth	2046	$813,523

11.3 Strategic Works Programme

Modelling

Computer based models of the Waipukurau and Waipawa wastewater have being created. These models will help Council understand the wastewater systems, identify significant shortcomings in the systems, and allow various improvement scenarios to be trialled to optimise improvements and costs. As the model is now becoming dated and significant work to reduce infiltration has been done Council will need to re – model the networks in the next 5 years.

CCTV Work

To maximise Council knowledge of the asset Council will continue to do CCTV footage of wastewater mains throughout the District wastewater networks. The prioritisation of the work will be done on a basis of the lines that are found to be cause the most problems with blockages, infiltration etc. First and then other lines as needed. Should Council have request for selected lines to be CCTV'ed these will be done on a case by case bases.

11.4 Minor Works

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

11.5 Summary of Council Strategy for Future Demand

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

11.6 Risk Management

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

12 Glossary of Terms

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

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

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

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

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