Kaipara District Council

Activity Management Overview

June 2021

Status: Final

Kaipara te Oranganui

KAIPARA DISTRICT

Two Oceans Two Harbours

This document has been prepared by Kaipara District Council

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REVISION SCHEDULE

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Contents

List of Tables

List of Figures

1 INTRODUCTION

The purpose of this Activity Management (AM) Overview is to outline and summarise in one place, Council's strategic and management long term approach for the provision and maintenance of its infrastructure assets (water, wastewater, stormwater, open spaces, waste minimisation and land drainage assets).

The AM Overview demonstrates responsible management of the district's assets on behalf of customers and stakeholders and assists with the achievement of strategic goals and statutory compliance. This AM Overview should be read in conjunction with the Strategic Activity Management Plans, and Scheme or Lifecycle Plans, for each activity. The set of activity management documents combines management, financial, engineering and technical practices to ensure that the Level of Service (LoS) required by customers is provided at the lowest long-term cost to the community and is delivered in a sustainable manner.

For reference, a list of defined acronyms used throughout this Asset Management Overview is provided at the back of this document as Appendix B.

1.1 SERVICE DESCRIPTION AND SCOPE

Council undertakes the following with assistance from their maintenance contractors, and other service providers as required:

- Asset and activity management
- Customer services
- Treatment plant operation and maintenance
- Network operations and maintenance
- Capital and refurbishment programme
- Consent monitoring and compliance.

The scope of the AMP documents is to determine asset standards, LoS and funding levels to maintain sustainable and affordable activities for Council. The Strategic Activity Management Plans, and associated plans, should be used to drive and manage the activities business throughout the year, and this will require progressive updating to reflect the constantly changing situation.

1.2 ASSUMPTIONS

Council has made a number of assumptions in preparing the AMP, which are described in Table 1 below.

Table 1 - Key assumptions

Assumption type	Assumption	Discussion
Financial assumptions Price Level Changes	That all expenditure has been stated in New Zealand dollar values (GST exclusive) and no allowance has been made for inflation. Asset valuations are in 2019 dollar values. The influence of COVID-19 has dramatically changed how Councils will forecast price level changes. Through Council's membership of the Society of Local Government Managers (SOLGM), economic advisors BERL have cast 3 price level change scenarios with identifying regional characteristics which will influence changing price level projections. The scenarios are: 1. Stalled rebuild where GDP and employment grow more slowly, 2. BERL Mid and 3. Faster rebuild where GDP and employment grow more rapidly. Guidance on the characteristics of districts was provided for Councils to select the scenario most relevant.	The LTP will incorporate inflation factors. This could have a significant impact on the affordability of the plans if inflation is higher than allowed for, however Council is using the best information practicably available from Business and Economic Research Limited (BERL). Due to Kaipara's dominant agricultural base, lower reliance on the most hard-hit tourism sector and its high growth rate, BERL's 'Faster Rebuild' scenario has been adopted. The principal assumption made for the ten year period between 2021 and 2031 is that annual inflation will occur at rates in line with the 'Faster rebuild scenario" Local Government Cost Adjuster estimates and the Local Government Cost Index (LGCI) which have been prepared for local government use by SOLGM.
Levels of service	Activity management activity aims to maintain a consistent level of service across the district.	Although service levels may vary for a number of reasons, the aim is to maintain assets to the levels noted in the Activity Management Plans.
Growth forecasts – Population Growth	Kaipara District Council uses a set of Medium-High series population projections provided by Infometrics as an indication of future growth. This projected growth will slow over 2020 and 2021 with softer net migration and a decline in employment as a consequence of COVID-19. Population growth is projected to pick up from 2022 onwards, with the district growing steadily to reach a population of 32,600 in 2051. Most growth is projected to be centred in the Mangawhai area (as it has been historically) with other south-eastern areas such as Kaiwaka also growing rapidly. Strong growth is also projected for the Northwest of the District though not to the same extent as the Southeast.	If the growth is significantly different it will have a significant impact. If higher, Council may need to advance capital projects. If it is lower, Council may have to defer planned works. Council plans its infrastructure (e.g. size of water pipes) to have sufficient capacity for the population it is anticipated to serve over its design life. If population exceeds the designed capacity, there will be additional costs. The amount of development is a key consideration for Council when planning how it will fund the required infrastructure. If growth falls short of that projected, it may result in a shortfall in income.

Assumption type	Assumption	Discussion
		Growth in eastern parts of Kaipara has steadily increased, and the Mangawhai Central Development project will increase the infrastructure need even further. These growth projections have been factored into Council's modelling and are reviewed regularly.
Population fluctuations	The population of some coastal settlements in Kaipara fluctuate considerably throughout the year with regular influxes of holiday makers. Comparisons of the number of occupied dwellings and unoccupied dwellings as well as comparisons of wastewater volumes suggests the combined population of Mangawhai Village and Mangawhai Heads can more than double during holiday periods. Population fluctuations are expected to continue to be a feature of Kaipara's coastal communities. However, the level to which they fluctuate is anticipated to decrease over time. A trend towards a greater proportion of occupied dwellings versus unoccupied dwellings is already evident in Mangawhai and this is anticipated to continue. This is partly driven by Mangawhai's improving commutability to Auckland and improving services. In Mangawhai and across the district this trend is also being perpetuated by New Zealand's aging population retiring to lifestyle destinations. In addition, some traditional batch communities are emerging as satellite suburbs of growing parent settlements, such as Baylys which is easily commutable to Dargaville.	The capacity of Council's infrastructure needs to be capable of meeting the needs of the peak population, not just the usually resident population. If the peak population increases to beyond the planned capacity of the infrastructure, there may be operational issues and unforeseen costs. A key downward driver on the proportion of holiday homes in Kaipara's settlements is New Zealand's aging population and their desire to retire by the sea. In addition, former holiday homes are increasingly being taken up by young families seeking more affordable housing. These drivers appear unlikely to change. The proportion of holiday homes in Kaipara's coastal settlements may be driven up if the level of disposable income available to the working age population in neighbouring Auckland and Whangarei increases relative to house prices. Such an increase could allow more people to purchase a holiday home in Kaipara. Infometrics economic forecasts suggest this is unlikely to occur, especially due to the COVID-19 recession. This suggests a reversal in the trend towards lower population fluctuations is unlikely over the near planning horizon.
Network capacity	That Council's knowledge of network capacity is sufficient enough to accurately programme capital works.	If the network capacity is lower than assumed, Council may be required to advance capital works projects to address congestion. The risk of this occurring is low; however, the impact on expenditure could be large. If the network capacity is higher than assumed, Council may be able to defer works. The risk of this occurring is low and is likely to have little impact.

Assumption type	Assumption	Discussion
		There is a degree of uncertainty regarding network capacity with increased severity of rainfall events and risk of freshwater flooding, increased frequency of coastal inundation and flooding, and increased drought.
Changes in legislation and policy	Council is aware of the 3 Waters Reform, and the Resource Management Act Reform. Council will understand the direction that 3 Waters is going towards the end of 2021, however this will not impact council business directly until 2023/2024. The Resource Management Act (RMA) is being broken up into three pieces: the Strategic Planning Act (SPA), the Natural and Build Environments Act NBA) and the Climate Change Adaptation Act (CCA). The NBA , as the core piece of legislation is being progress first and many be complete by the end of 2021.	The risk of major change is high due to the changing nature of the Government and politics. If significant changes occur it is likely to have a significant impact on the required expenditure. Council has not mitigated the effect of this.
Natural Hazards	Climate change will bring an increase in the frequency and severity of extreme weather events.	The network capacity may be lowered. There will be an increase in costs to maintain and repair exposed assets. Capital works projects may need to be altered or advanced to account for increased vulnerability.
Capital Works Cost	On average, costs of major capital works will not vary significantly from costs estimated at the concept stage.	Council has a higher level of confidence regarding capital project costs in the short term but less certainty in the longer term due to fluctuations in the economy and district growth trends. A 5% variation in a $500,000 project would add $25,000 to the project cost. Given the long useful life associated with many of Council's capital works projects such a variation would not have a significant rating impact.
Contracts	It is expected that there will be no changes in the availability of tenderers for Council contracts when they are tendered.	Council have recently procured preferred suppliers to mitigate this risk and are able to provide a longer lead time to contractors enabling them to plan their resource requirements well in advance.
Climate change	Climate change will bring an increase in the frequency and severity of extreme weather events impacting council infrastructure assets.	Increasing physical risks could lead to property value reduction, decreased insurability, or increased cost to insure, increased compliance and design costs, reduced ability to develop property and restrictions on land use, and increased costs of repair and protection.

Assumption type	Assumption	Discussion
Property Designations/Resource Consents:	Any new property designations or Resource Consents required for water, stormwater, and wastewater systems, or for the significant upgrading of existing systems, will be able to be obtained, subject to conditions acceptable to Council. Any necessary land purchased, prior to the time that has been scheduled for the actual construction works. Council has assumed that there will be no significant changes to existing resource or discharge consent conditions that create significant additional costs.	The risk can be minimised if Council has a clear and detailed future forward work programme to which it is committed, for at least the next three years, enabling timely consent applications or timely land purchases. This will be achieved through Council's 30-year Infrastructure Strategy. Higher treatment standards will lead to higher capital and operating costs. While Council can anticipate some of these changes and ensure that they are reflected in budgets the final impact will not be known until the Resource Consent is granted. A significant change could increase compliance costs which would need to be funded from increasing user charges or rates.
Drinking Water Standards	There are proposed changes to the New Zealand Drinking Water Standards which the Council are unable to accurately quantify now.	Higher treatment standards will lead to higher capital and operating costs. Any impacts will not be known until revised Drinking Water Standards are published.

1.3 RELATIONSHIP TO COMMUNITY OUTCOMES, COUNCIL POLICIES AND STRATEGIES

Council has adopted a new Vision, Mission and Community Outcomes which include specific reference to managing (maintaining and improving) its infrastructure.

The Long Term Plan 2021-2031 (LTP) is still being generated. It is not expected that the role of asset related activities will significantly change from the LTP 2018/2028.

This overall Council Vision and Mission for the district provides a broad initial direction for the infrastructure related activity priorities and how those assets may be managed. This information, along with community consultation and discussion with other interested parties, contributes to the development of the community outcomes.

Vision: Growing a better Kaipara

Council Mission: Nurturing our people and place by inspiring a vibrant, healthy and caring community

Community Outcomes

1. Climate smart - Climate change and its impacts are reduced through community planning.
2. Celebrating diversity - Our local heritage and culture are valued and reflected in the community.
3. Vibrant communities - Kaipara communities offer an attractive place to live and visit.
4. Healthy environment - Our natural environment is protected and open to the community.
5. Prosperous economy - Development is encouraged, supported and sustainable.
6. A Trusted Council - An open organisation working for our community

Infrastructure Strategy

As part of the LTP Council is required to produce a Long-Term Financial Strategy and an Infrastructure Strategy for its major asset using activities. These documents are required to look out not less than 30 years to identify the issues and challenges which Council will face during that period, how Council would likely respond to them, what this will cost and where the funding will come from. This recognises the long-lived nature of the infrastructure assets Council utilised to provide services, the potential for technology and expectations to change considerably and the potential for expenditure to be quite 'lumpy' as assets enter their renewal cycles.

Activity Management Plans

There is no statutory requirement for Council to generate an AMP. However, it serves a valuable purpose in collecting relevant information about the assets and services at a level of detail that would not be appropriate for the various statutory documents described above.

1.4 STAKEHOLDERS AND CONSULTATION

There are many individuals and organisations that have an interest in how Council does management and/or operation of assets. The following key external and internal stakeholders are identified for this Activity Management Overview:

Table 2 - Stakeholders

External stakeholders	Interest
Kaipara district community	• Ratepayers • Commercial businesses • Public safety • Public health • Protection of private property • Environmental protection • Water quality of local harbours' and ephemeral waterways for commercial and recreational activities
Government agencies (e.g. Department of Health, Ministry for the Environment (MfE), Audit NZ)	• Adherence to Government policies and framework • Ensuring Council is transparent and accountable • Public safety • Environmental health and protection
Fire and Emergency New Zealand	• Council has a responsibility to provide a reticulated supply that meets current firefighting supply standards • Understanding stormwater control and measures to ensure public safety, and to better understand flood issues within the local area
Iwi and Hapū	• Protection of historical relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu and other taonga
Northland Regional Council (NRC)	• Adherence to NRC policies and plans • Environmental impacts and protection • Protection and increase of water quality and water quality standards • Planning for climate change and sea level rise
Maintenance contractor	• Maintain existing services • Understand Council's LoS and their targets and requirements • Understand the local network and the councils' direction for the AMP period
Northland District Health Board (NDHB)	• Council provides reports to the NDHB on compliance with the current water drinking standards, we have a responsibility to ensure the water is safe for our communities to drink and the NDHB is the authority council reports to. Water Safety Plans are submitted to and reviewed by the NDHB
Visitors to the district	• Public safety • Environmental protection • Minimal flooding and flood protection of tourist areas within the surrounding district • Quality of ephemeral waterways and harbours' for recreational activities

External stakeholders	Interest
Land developers and landowners wishing to develop	• Council works with developers in our district to provide better outcomes for our communities with on-going growth

Internal stakeholders	Interest
Elected Members	• Representing the publics' interests and those of the greater district • Protecting the ratepayers' interests and ensuring the transparency of Council's actions and projects • Planning of future works • Allowing for future growth and the provision of services • Maintaining and increasing LoS to the communities
Financial Services Manager	• Understanding the financial implications of the AMP period and how this will affect rates and ratepayers of the district • Ensuring the completeness of asset data and how this affects current valuations and decision-making • Ensuring that budgets are valid and able to be adhered to • Protection of public interest in regard to spending on public assets
Information Services Manager	• Ensuring that all information is recorded correctly and reliably in Council asset registers • Keeping track of assets and asset data
Records and Information Manager	• Ensuring Council's transparency on identified works • Retaining and cataloguing Council information for auditable purposes
Northern Transportation Alliance (NTA)	• Protection of road assets from stormwater • Protection of road users • Identifying growth, renewal and LoS projects where stormwater and road asset projects coincide

Council consults with the public to gain an understanding of customer expectations and preferences. This enables Council to provide a LoS that better meets the community needs. Council's knowledge of customer expectations and preferences is based on:

- Feedback from public surveys
- Public meetings
- Feedback from Elected Members
- Analysis of customer service requests and complaints
- Consultation via the Annual Plan and LTP process.

Council undertakes customer surveys on a regular basis, using the National Research Bureau Ltd (NRB). These customer perception surveys assess levels of satisfaction with key services, and the willingness across communities to pay for service improvements.

1.5 LEGISLATIVE FRAMEWORK AND LINKAGES

The AM documents are related to a range of national and local legislation, regulatory and policy documents as listed in through Table 2 below. The legislation and guidelines below are listed by their original title for simplicity; however, all Amendment Acts shall be considered in conjunction with the original Act, these have not been detailed in this document. For the latest Act information refer to http://www.legislation.govt.nz/.

Table 3 - Relevant Legislation

Acts
The Health Act 1956
The Health (Drinking Water) Amendment Act 2007 (an amendment of the Health Act 1956)
The Local Government Act 2002, especially: • Part 7 • Schedule 10 • The requirement to consider all options and to assess the benefits and costs of each option and • The consultation requirements.
The Climate Change Response Act 2002 (and Climate Change Response Amendment Act 2019)
The Civil Defence Emergency Management Act 2002 (Lifelines)
The Resource Management Act 1991
The Local Government (Rating) Act 2002
The Land Drainage Act 1908
The Rivers Boards Act 1908
Marine and Coastal Area (Takutai Moana) Act 2011
The Soil Conservation and Rivers Control Act 1941
The Health and Safety at Work Act 2015
The Utilities Access Act 2010
The Building Act 2004
The Consumer Guarantees Act 1993
The Sale of Goods Act 1908
The Fair-Trading Act 1986
Public Records Act 2005

Table 4 - Relevant regulatory requirements

National policies, regulation, standards and strategies
Drinking Water Standards for New Zealand 2005(08) (DWSNZ)
The Government's Sustainable Development Action Plan
National Policy Statement on Urban Development Capacity 2016
The National Environmental Standard Sources of Human Drinking Water
Code of Practice for Urban Subdivision
The New Zealand Fire Service Fire Fighting Water Supplies Code of Practice: SNZ PAS 4509:2008
NAMS Manuals and Guidelines http://www.nams.org.nz

National policies, regulation, standards and strategies
Office of the Auditor -General's publications http://www.oag.govt.nz
Standards New Zealand • AS/NZS ISO 31000:2009 Risk Management Principles and Guidelines • NZS 4404:2010 Land Development and Subdivision Infrastructure • AS/NZS ISO 9001:2008 Quality Management Systems • AS/NZS 4801:2001 Occupational Health and Safety Management Systems • AS/NZS 2032:2006 Installation of PVC Pipe Systems • AS/NZS 2280:2004 Ductile Iron Pressure Pipes and Fittings • AS/NZS 3725:2007 Design for Installation of Buried Concrete Pipes • AS/NZS 2566.1:1998 Buried Flexible Pipe Design • AS/NZS 2566.2:2002 Buried Flexible Pipe Installation • NZS 3101.1 & 2:2006 Concrete Structures Standard • NZS 3910:2003 Conditions of Contract for Building and Civil Engineering Construction • NZS 4404:2010 Land Development and Subdivision Infrastructure • SNZ HB 4360:2000 Risk Management for Local Government • NZWWA New Zealand Infrastructure Asset Grading Guidelines 1999 • ISO 20400:2017 Sustainable Procurement Standardisation National Guidelines • NZ Pipe Inspection Manual 2006 • QV Costbuilder Construction Handbook.

Table 5 - Relevant Council planning and policy documents

Local policies, regulations, standards and strategies
Council District Plan
Northland Regional Plan
NRC Regional Policy Statement
NRC Regional Air Quality Plan
NRC Regional Coastal Plan
NRC Regional Water and Soil Plan
Council Engineering Standards and Policies 2011
Council Procurement Strategy and Policy Documents March 2012
Fonterra Water Supply Agreement 2009 (Maungaturoto)
Climate Change Strategy

Table 6 - Relevant Council Bylaws

Council Bylaws
Water Supply Bylaw 2009
Wastewater Drainage Bylaw 2016
Consolidated General Bylaw
Taharoa Domain Bylaws 2019

The preparation and implementation of the AM documents and associated long term financial strategies is a means for Council to comply with these requirements.

Local Government Act 2002 (LGA) (and Amendment Act 2019)

As per the LGA 2002

1. The purpose of local government is –
    a. To enable democratic local decision-making and action by, and on behalf of, communities; and
    b. To meet the current and future needs of communities for good-quality local infrastructure, local public services and performance of regulatory functions in a way that is most cost-effective for households and businesses.
2. In this Act, **good-quality**, in relation to local infrastructure, local public services, and performance of regulatory functions, means infrastructure, services, and performance that are –
    a. Efficient
    b. Effective and
    c. Appropriate to present and anticipated future circumstances

    This Act requires local authorities to:

    - Prepare a range of policies, including significance, funding and financial policies
    - Prepare an LTP (formerly the Long Term Council Community Plan or LTCCP), at least every three years, which must identify:
        - Activities and assets
        - How the asset management implications of changes to demand and service levels will be managed
        - What and how additional capacity will be provided, and how the costs will be met
        - How the maintenance, renewal and replacement of assets will be undertaken and how the costs will be met and
        - Revenue levels and sources.

With respect to the Significance and Engagement Policy, all local councils must adopt a policy that sets out their approach to determining the significance of proposals or decisions relating to issues, asset or other matters, and any thresholds, criteria or procedures to be used by Council in assessing whether issues, proposals, decisions or other matters are significant.

Schedule 10 of the Act provides further detail for the LTP, which is relevant to the AM documents. This Act supersedes the 1996 Local Government Amendment Act, which required the adaptation of a Long Term Financial Strategy, prudent activity management, and formal accounting for the "loss of service potential" of assets. In essence however, the intent of these requirements is still relevant as embodied in Audit New Zealand's expectations for AM plans through its requirement for councils to conduct an "assessment of water and wastewater services within its district".

Local Government (Rating) Act 2002, the funding companion to this proposed new LGA:

- Permits councils to strike a rate or charge for any activity they choose to get involved in (s16).

Resource Management Act 1991 and amendments:

The RMA 1991 is an established planning framework covering land designation processes and resource consents for activities that affect the environment. Northland Regional Council (NRC) is responsible for monitoring compliance with certain environmental provisions of this Act.

The RMA is key legislation influencing how stormwater is managed, in particular the effect of the stormwater discharges on the environment. Council is required to gain approval to discharge from the drainage networks under the RMA. Council is working with NRC to understand the Regional Plans for managing stormwater discharges in urban areas.

The RMA sets out the framework for freshwater management. Freshwater is managed by regional councils who are responsible for the water bodies within their boundaries through implementation of the RMA.

Council is also involved in the control of development and subdivisions under the RMA and the District Plan, to manage effects on the environment.

Amendment Bill 2020 will significantly change freshwater management and will add national emissions targets and the national adaptation plan that territorial authorities must give reference to.

Building Act 2004:

The Building Act 2004 and its related provisions set standards for stormwater control as they relate to buildings. Under the Building Act, a territorial authority has a regulatory role in receiving and assessing building consent applications. Council is responsible for producing PIMs (Project Information Memoranda) and LIMs (Land Information Memoranda). Information on drainage plans, flood records, maintenance history, notices and correspondence should be included in these memoranda. Council may reject a building consent where there is a risk of flooding. The Building Act also stipulates the minimum level of flood protection for houses.

The Health (Drinking Water) Amendment Act 2007 amended the Health Act 1956, requiring all water suppliers with the duty to ensure their water is safe to drink. The amended Act introduced a statutory requirement that all drinking water suppliers providing drinking water to over 500 people must develop and implement a Water Safety Plan (WSP) to guide the safe management of their supply. The quality assurance is complemented by the DWSNZ**,** which specifies the maximum acceptable concentrations of harmful contaminants in the water.

Health Act 1956 contains:

- Measures for the prevention or management of outbreaks of disease
- A requirement (s25) for territorial authorities to provide “Sanitary works for villages, towns and cities” which amongst other things are defined as:
  - Drainage works, sewerage works, and works for the disposal of sewage
  - Works for the collection and disposal of refuse, night soil and other offensive matter
  - Sanitary conveniences for the use of the public
  - Any other works declared by the Governor General by Order in Council to be sanitary works, and includes all lands, buildings, machinery, tanks, pipes, and appliances used in connection with any such sanitary works; and
  - Authority for the raising of loans to build such works (s27).

The Health Act requires Council to provide sanitary works, including drainage works for all lands, buildings and pipes used in connection with such works.

National Policy Statement for Freshwater Management 2011

- Reflects central government's policy and directions to local government regarding the management of the nation's freshwater resources. The freshwater objectives seek to safeguard the life -supporting capacity, ecosystem processes and indigenous species, including their associated ecosystems of fresh water. This is to be achieved quantitatively through the sustainable management of taking, damming or diverting fresh water, and qualitatively through the sustainable management of the use and development of land and the discharge of contaminants.

Northland Regional Council (NRC) regulates the water takes in the Kaipara district. Resource consents issued by NRC are a significant driver of the AM programme.

Health and Safety at Work Act 2015:

- The Act introduces a new term, "Person Conducting a Business or Undertaking" (PCBU), which captures employers, self-employed, principals to contracts, manufacturers, designers, etcetera who have the primary health and safety duties. Workers also have duties under the Act. Workers include employees and contractors, the PCBU must ensure that it's duties are carried out as per subpart 2 – Duties of PCBUs of the Act.

Civil Defence Emergency Management Act 2002:

- Requires utility lifelines (such as three waters) to function to the fullest possible extent during and after an emergency and to have plans for such functioning (business continuity plans).
- Crown Public Health has prepared a Response Manual for Accidental Wastewater Discharges, which is a basic set of procedures to prevent threats to public health.

Public Records Act 2005

Council is required to create and maintain full and accurate records including all matters that are contracted out to an independent contractor. This includes records which relate to property or assets owned by and/or administered by the local authority such as contract documents, as-built of public utilities and services such as: roads, drainage, sewerage and stormwater, water supply, flood control, power generated and supply, refuse disposal and public transport.

National Environmental Standards (NES)

The RMA promotes the sustainable use of resources. The main method that the Act uses to control the use of resources including the discharge of effluent to the environment is through the Regional Water and Soil Plan at regional level and District Plans at district level. This has resulted in varying standards for each region and district.

One method of ensuring that environmental standards are applied consistently across the country is provided in sections 43 and 44 of the RMA. These sections allow the Minister for the Environment to promote regulations called National Environmental Standards (NES). When an NES is enacted it means that each regional, city or district council must enforce the same standard. In some circumstances' councils can impose stricter standards.

NES not only protect people and the environment; they also secure a consistent approach and decision-making process throughout the whole country. They create a level playing field.

The following standards are in force as regulations:

- Air quality standards
- Sources of human drinking water standard
- Telecommunications facilities
- Electricity transmission and
- Assessing and managing contaminants in soil to protect human health.

The standards listed below are at various stages of development, ranging from initiating consultation to being legally drafted.

- Ecological flows and water levels
- Future sea level rise and
- Plantation forestry.

The proposed NES for onsite wastewater systems has been withdrawn. These would have developed a warrant of fitness regime for onsite wastewater systems and had the potential to impose significant costs on ratepayers although it was argued that this would have benefited the environment.

This AM Overview has considered the impact of those relevant NES that are known to be in force at the time of the current update. Future AMP updates will need to consider future Standards as the MfE develops these.

Wastewater Drainage Bylaw

Following public consultation under the special consultative procedures of the LGA 2002, Council adopted a Policy for the Discharge and Acceptance of Wastewater and an associated Wastewater Drainage Bylaw in June 2016.

The Policy sets out the manner in which Council will address issues surrounding wastewater, including, but not limited to how applications for new connections are to be made, maintenance responsibilities and other general customer and Council roles and responsibilities. The bylaw sets out the specific conditions and quality parameters that must be met in order to discharge into the wastewater system. The bylaw standards are legally enforceable and breaches of these standards could lead to disconnection and/or prosecution.

Where a discharge into the wastewater system cannot meet the requirements of the bylaw, a separate trade waste agreement must be entered into. This agreement identifies the maximum allowable values that establish an acceptable quality of the wastewater being discharged into the system. These parameters are based on the existing schedule contained within the bylaw. In addition, specific conditions can be included to ensure the discharge can be more easily accommodated at Council's wastewater treatment plants.

Links with other documents

This AM Overview is a key component in Council's strategic planning function. Among other things, the AM Overview, Activity Management Plans and related lifecycle and scheme plans, support and justify the financial forecasts and the objectives laid out in the LTP. It also provides a guide for the preparation of each Annual Plan and other forward work programmes.

2 DEMAND MANAGEMENT

2.1 INTRODUCTION TO DEMAND MANAGEMENT

This section of the AM Overview analyses factors affecting demand including population growth, social and technology changes. The AMP's consider the impact of these trends is examined and demand management strategies are recommended to address demand and ensure:

- Existing assets' performance and utilisation are optimised
- The need for new assets is reduced or deferred
- Council's strategic objectives are met
- Provision of a more sustainable service and
- Council is able to respond to customer needs

The process of demand management provides Council with a high level tool to identify where infrastructure growth is likely to occur over a period of time. It enables a natural structured growth of the public system to occur. Without this type of assessment ad hoc development of localised assets occurs and can leave a burdensome, somewhat redundant legacy for Council to operate and maintain.

Demand management strategies provide alternatives to the creation of new assets in order to meet demand and look at ways of modifying customer demands so that the utilisation of existing assets is maximised and the need for new assets is deferred or reduced.

Precise demand forecasting for the management of infrastructure is a difficult undertaking. This AM Overview has been based on projections provided by Infometrics in order to identify potential future demand for infrastructure. These projections by Infometrics are considered the best available at time of writing and are based on an analysis of both demographic and economic trends. A greater level of uncertainty is recognised given the disruption being caused by COVID-19.

If the growth significantly exceeds expected levels', then there is a risk that the capacity of the infrastructure will be exceeded sooner than anticipated. To minimise this risk Council will need to review capacity requirements based on actual demand growth as new assets are planned.

2.2 POPULATION GROWTH

The Kaipara District has been growing rapidly thanks to its proximity to Auckland, lifestyle opportunities and growing employment. According to the 2018 Census, Kaipara's population grew 20.6% from 18,963 in 2013 to 22,869 in 2018 making it the fastest growing district in Northland. The district's 2020 population is estimated at 25,200 and this is projected to grow to 26,839 in 2026, 28,524 in 2031 and 32,552 in 2051.

These projections are shown in Figure 1 and Table 7.

Figure 1 - Infometrics population forecast for Kaipara

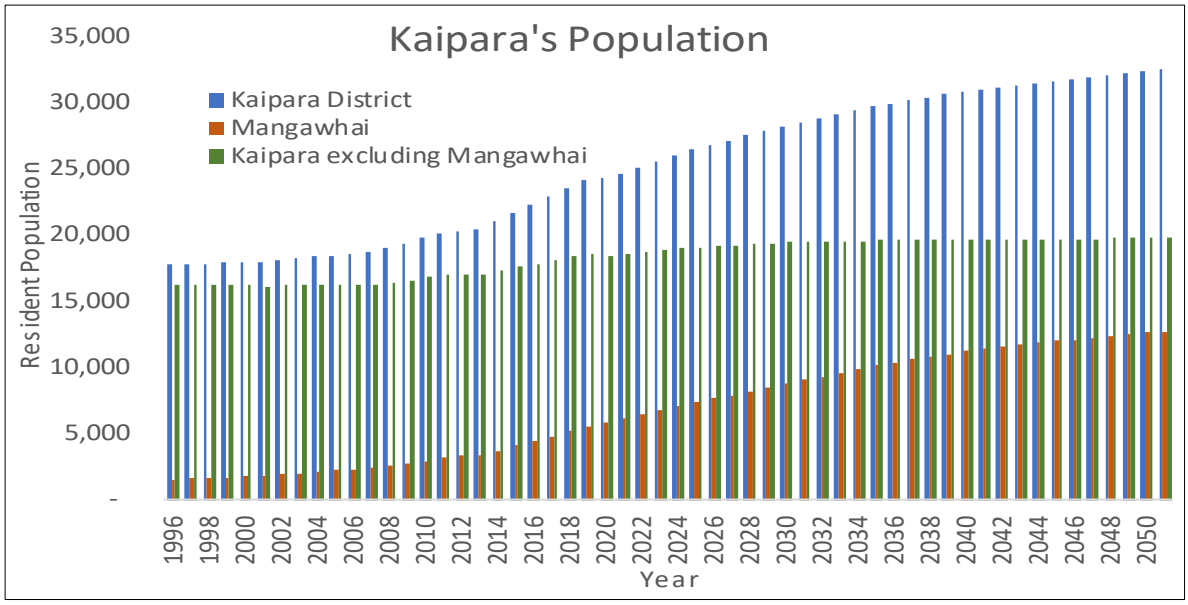
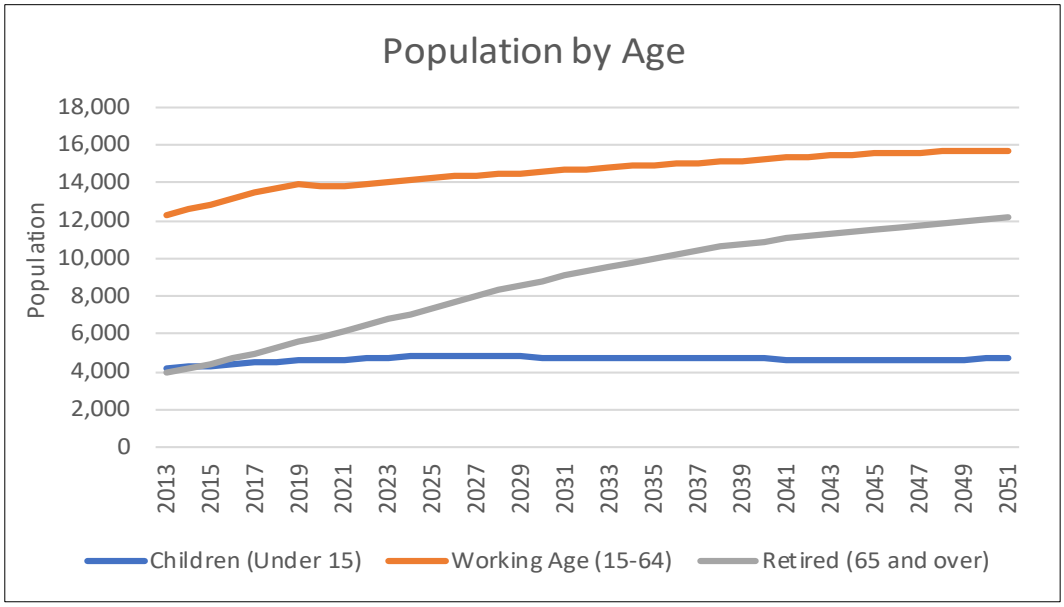


Table 7 - Population projections for Kaipara's communities 2013-2051

Statistical Area 2	Year													
	2013	2019	2020	2021	2022	2023	2024	2025	2026	2031	2036	2041	2046	2051
Dargaville	4,600	5,077	5,102	5,149	5,238	5,328	5,408	5,478	5,540	5,764	5,897	5,978	6,079	6,169
Kaipara Coastal	3,680	3,776	3,747	3,733	3,749	3,762	3,769	3,767	3,759	3,734	3,734	3,750	3,804	3,862
Maungaru	1,815	1,865	1,844	1,829	1,828	1,826	1,824	1,818	1,808	1,756	1,714	1,673	1,637	1,607
Mangawhai Village	535	1,060	1,143	1,232	1,334	1,439	1,521	1,602	1,683	2,059	2,374	2,616	2,756	2,828
Mangawhai Heads	1,320	2,184	2,280	2,388	2,518	2,651	2,765	2,877	2,986	3,535	4,037	4,416	4,600	4,675
Mangawhai Rural	1,505	2,298	2,377	2,466	2,578	2,693	2,786	2,875	2,961	3,447	3,947	4,356	4,775	5,215
Total Mangawhai	3,360	5,542	5,800	6,086	6,430	6,783	7,072	7,354	7,630	9,041	10,358	11,388	12,131	12,718
Kaiwaka	1,760	2,217	2,222	2,236	2,269	2,301	2,339	2,373	2,403	2,520	2,589	2,605	2,610	2,654
Maungaturoto	1,160	1,318	1,322	1,331	1,352	1,372	1,403	1,432	1,459	1,539	1,585	1,607	1,603	1,582
Ruawai-Matakohe	2,430	2,520	2,494	2,476	2,479	2,479	2,488	2,491	2,490	2,474	2,466	2,444	2,422	2,418
Otamatea	1,595	1,785	1,769	1,760	1,765	1,769	1,767	1,761	1,751	1,697	1,641	1,593	1,567	1,541
Kaipara District	20,400	24,100	24,300	24,600	25,110	25,619	26,070	26,473	26,839	28,524	29,983	31,039	31,852	32,552

Kaipara's population is anticipated to continue aging rapidly over the next 30 years. The number of residents aged 65 years and over is projected to grow from 6,104 in 2021 to 12,138 in 2051. The population 15 to 64 years of age is projected to grow slightly, and the population under the age of 15 is projected remain steady.

Figure 2 - Population projections by age group for Kaipara District from 2013-2051



Most of Kaipara's growth has been focussed around Mangawhai and the southeast of the district; those parts which are closest to Auckland. This trend is projected to continue. The growth of Mangawhai and other areas of the Kaipara southeast have primarily been driven by internal migration from centres like Auckland. Many of these migrants are those nearing retirement age and may be able to facilitate their move by selling their family home in Auckland for significantly more than the value of a new home in Kaipara, allowing them to enjoy an early retirement. More recently, these areas have begun to attract young families seeking the affordable housing and lifestyle opportunities Kaipara offers while still being able to commute back to Auckland for employment.

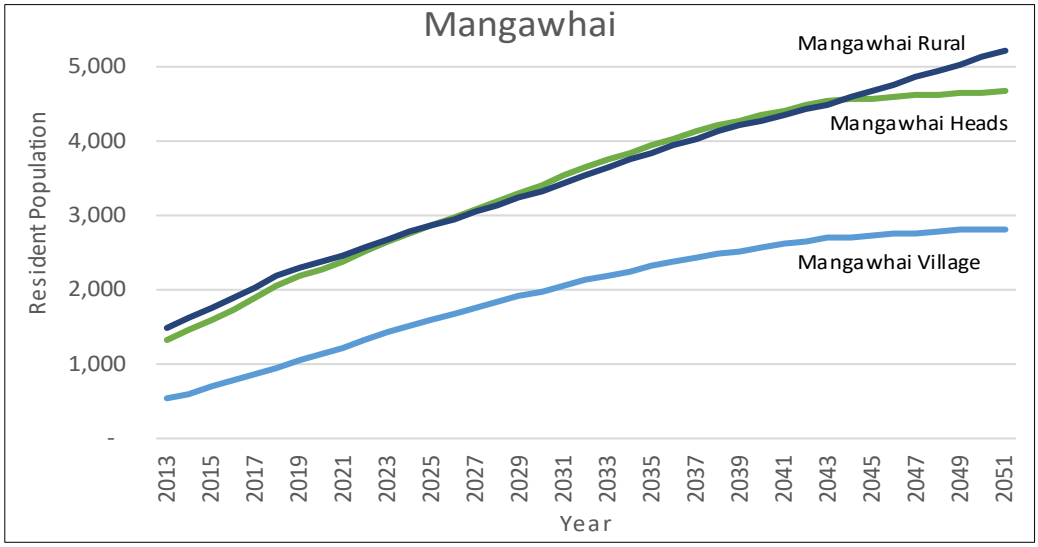
Mangawhai

Mangawhai is now the largest centre in Kaipara with an estimated 2020 resident population of 6,210 (Infometrics, 2020e). According to the 2018 Census, Mangawhai's population increased 60% from 2013 to 2018. In addition to Mangawhai's estimated resident population, past analysis comparing the number of unoccupied dwellings to occupied dwellings and wastewater flows between peak and off-peak times suggests Mangawhai's population (in particular Mangawhai Heads) greatly swells during holiday periods, with a peak population likely exceeding 7,700. This has implications for Council when planning for infrastructure and service provision. Services must be able to cope with peak, not just usually resident, demand.

However, Mangawhai is a town facing transition. Recent data suggests the proportion of people living permanently in Mangawhai is increasing. This is likely due to people retiring permanently to their holiday homes, as well as more new homes being built for permanent residents.

A comparison of population growth to employment growth reveals Mangawhai's population is growing exponentially, however its employment is growing only modestly. In 2019 there were only 1,099 filled jobs in Mangawhai. This, together with the older age structure of the population suggests a high proportion of retirees in the Mangawhai community. In addition, there are a number of indicators suggesting more working-age people are moving to Mangawhai and commuting to the North Shore of Auckland for work. More affordable housing and anticipated better lifestyle opportunities, coupled with improving transport links and new technology which increasingly enables working from home, are considered to be factors driving this trend. Figure 2 shows Infometrics are projecting strong population growth for all three of the Statistical Area 2s that comprise the Mangawhai Area (Infometrics, 2020f). On the whole, Mangawhai's population is projected to grow to 7,630 by 2026, 9,041 by 2031, and 12,718 by 2051.

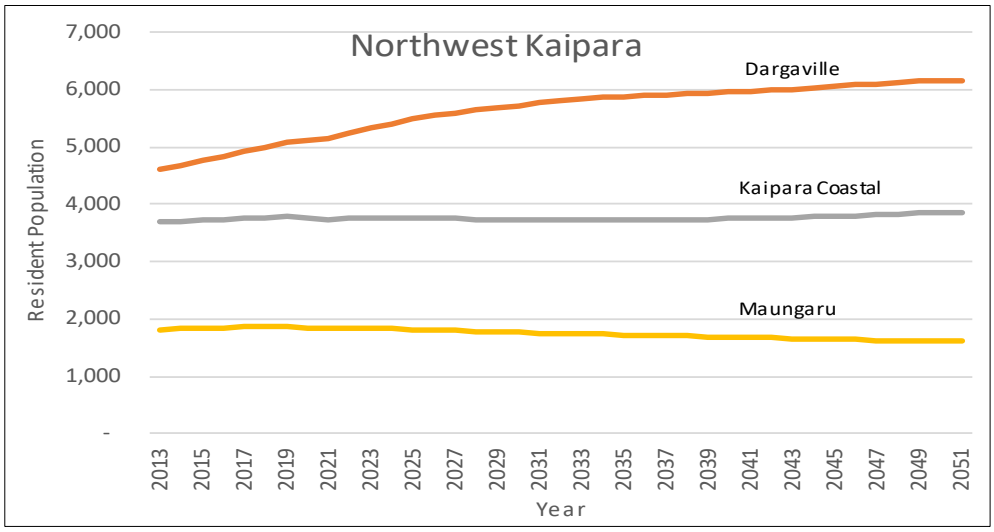
Figure 3 - Projected population growth in the three Statistical Area 2s



North-West Kaipara

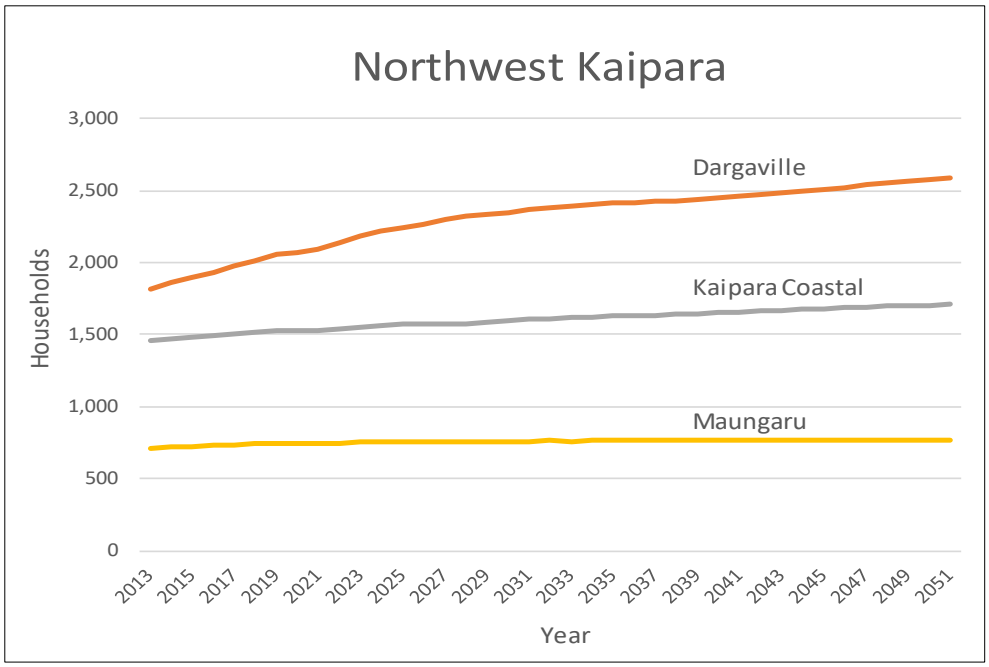
In contrast to the southeast, population growth in northern and western parts of the district appears to be more closely aligned to employment growth, with more jobs attracting and retaining workers and their families. Employment in Kaipara District grew steadily over the past decade, at nearly 2% per annum. Employment growth is expected to turn negative in 2020 and 2021 because of COVID-19 and the resultant economic shock. Strong employment and population growth is expected for the remainder of the 2020's as the district recovers from the economic shock and returns to its prior growth path.

Figure 4 - Projected population growth in the Northwest Kaipara area



Note that while population growth appears modest, particularly in Maungaru, the number of households is projected to continue growing in all areas over the length of the planning period. This is because population aging and trends towards smaller families are resulting in less people living in each house. Dargaville is therefore projected to grow by 488 households between 2021 and 2051, with a further 183 households in Kaipara Coastal, and 28 households in Maungaru (see Figure 5).

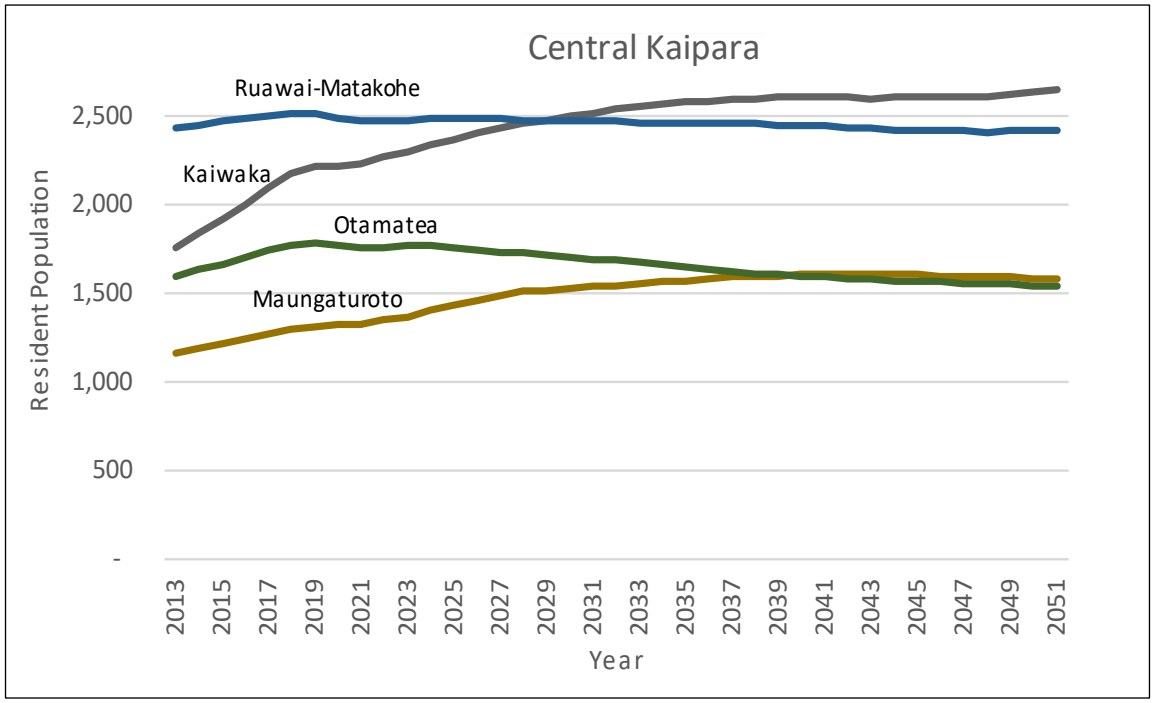
Figure 5 - Projected household growth in the three SA2s in the Northwest Kaipara area



Central Kaipara

The fortunes of Kaipara's central areas will be influenced by a mix of those factors driving growth in Mangawhai and those driving growth in Northwest Kaipara. Maungaturoto and Kaiwaka are projected to grow as a result of both local employment growth and their proximity to Auckland and improving transport linkages. By contrast, the population in the Ruawai-Matakohe area is projected to remain relatively stable while the Otamatea area is projected to experience population decline as a result of population aging and limited employment growth. Of note, both the Ruawai-Matakohe and Otamatea areas are projected to have more households in 2051 despite having smaller populations. This is because of a trend towards less people per household. Population projections for areas in Central Kaipara are shown in Figure 5.

Figure 6 - Projected population growth in central Kaipara



2.3 POPULATION FLUCTUATIONS

The population projections in the previous section refer only to Kaipara's "usually resident population". These are those people who usually live in an area and does not capture those who may be holidaying there or who may be resident for part of the year (e.g. weekends and public holidays or over summer) while primarily living at another address.

The popularity of some Kaipara settlements as holiday destinations means their populations can increase considerably at certain times of the year. This is an important planning consideration for Council whose infrastructure and services need to be able to meet peak demand.

Past analysis comparing the number of unoccupied dwellings to occupied dwellings and wastewater flows between peak and off-peak times suggests the combined population of Mangawhai Village and Mangawhai Heads more than doubles during holiday periods. Similar population fluctuations are anticipated to occur in other holiday settlements such as Whakapirau, Pahi, Tinopai, Glinks Gully and Baylys however no modelling has been done for these smaller settlements.

These population fluctuations are anticipated to continue into the future, however their severity is anticipated to ease as holiday homes are increasingly being taken up by new permanent residents. This is partly due to

an influx of retirees into these lifestyle locations, some of whom may be retiring to their existing holiday home. In addition, some traditional Bach communities may take on a more permanent nature as satellite suburbs of parent settlements e.g. Baylys with its commutability to Dargaville, Whakapirau with its commutability to Maungaturoto and increasingly, Mangawhai with its improving commutability to Auckland's North Shore.

Mangawhai is increasingly transitioning from a holiday settlement into a fully-fledged town, with more services and an increasing proportion of permanent residents. This transition is anticipated to continue into the future.

2.4 HOUSEHOLD GROWTH

The ageing population of the district, combined with trends of greater life expectancy and smaller families, means that the average household size of the district is projected to ease from 2.37 individuals per household in 2019 to 2.14 individuals per household in 2051. The effect of this is that more houses will be required to house the same population. Accordingly, household numbers are projected to grow faster than the population, from 10,000 in 2019 to 14,600 in 2051 (refer to Table 9).

Table 8 - Household projections for Kaipara's communities

	Year													
Statistical Area 2	2013	2019	2020	2021	2022	2023	2024	2025	2026	2031	2036	2041	2046	2051
Dargaville	1,817	2,056	2,072	2,096	2,139	2,181	2,215	2,245	2,272	2,367	2,420	2,463	2,525	2,584
Kaipara Coastal	1,460	1,530	1,526	1,527	1,542	1,555	1,566	1,572	1,576	1,603	1,634	1,658	1,687	1,710
Kaiwaka	690	875	883	895	915	935	957	977	996	1,078	1,135	1,163	1,179	1,203
Mangawhai Village	237	472	511	552	599	648	684	720	756	923	1,067	1,188	1,267	1,310
Mangawhai Heads	615	1,000	1,043	1,091	1,149	1,208	1,257	1,305	1,351	1,586	1,798	1,964	2,053	2,091
Mangawhai Rural	625	999	1,035	1,077	1,128	1,181	1,224	1,267	1,308	1,538	1,765	1,941	2,115	2,291
Total Mangawhai	1,477	2,471	2,589	2,719	2,876	3,037	3,166	3,291	3,415	4,046	4,630	5,093	5,434	5,692
Maungaru	712	748	744	743	748	753	757	759	760	761	765	767	769	771
Maungaturoto	426	502	509	518	531	545	561	577	591	644	689	728	756	771
Otamatea	641	732	731	732	739	747	750	752	753	755	753	750	752	750
Ruawai-Matakohe	940	1,049	1,045	1,045	1,053	1,061	1,070	1,077	1,081	1,100	1,119	1,125	1,123	1,121
Kaipara District	8,163	9,962	10,098	10,277	10,544	10,814	11,042	11,250	11,444	12,354	13,143	13,747	14,225	14,602

Household growth should not be taken as a proxy for dwelling growth. Dwelling growth pertains to the number of dwellings (houses and apartments) be they occupied or unoccupied, whereas household growth pertains to the number of "family units" or "households" who live in these dwellings. Households can thus include families, people living alone and people flatting together. Household projections therefore make no allowance for unoccupied dwellings (e.g. holiday homes).

2.5 GROWTH AND DEMAND TRENDS

Future demand for services is driven by:

- Extent and location of urban growth
- Changing environmental expectations
- Community expectations
- Industrial/commercial demand
- Legislation.

There are growth-driven capital projects of significance over the 10 year LTP and 30 year Infrastructure Strategy periods. There is a strong focus on ensuring resilience of assets now and in the future and adequately maintaining and renewing infrastructure. In general, the forecasts assume that any additional demand for services created by the increased growth levels will be absorbed by the rating base growth and by more efficient delivery of services.

Projections for growth in demand for services must take into account new developments and existing residents in areas not yet serviced. Additionally, community expectations vary geographically and over time. Council can track the future demand for future services through community consultation via the LTP and Annual Plan processes.

2.6 NPS ON URBAN DEVELOPMENT

The National Policy Statement on Urban Development 2020 was gazetted on 23 July 2020. It took effect on 20 August 2020 when it replaces the National Policy Statement on Urban Development (NPS-UD) Capacity 2016. The NPS-UD 2020 recognises the national significance of:

- having well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future
- providing sufficient development capacity to meet the different needs of people and communities.

The NPS 2016 requires all councils to provide for growth to occur in their areas such that a lack of 'development infrastructure' is not an impediment to that growth.

There are no communities in Kaipara with a population larger than 30,000 experiencing high rates of growth and so compliance only with requirements PA1-4 is required. Broadly these can be summarised as:

- For expected growth in period from now to 3 years the land and development infrastructure has to be feasible, zoned and serviced (or able to be serviced if it is developer responsibility)
- For medium term growth (3-10 years) the land does not need to be serviced but plans to service must be included in the LTP; and
- For long term growth (10-30 years) the land does not need to be serviced but provision to do so needs to be included in the Infrastructure Strategy.

In practical terms it is difficult for Council to predict when a particular developer might decide to proceed and what the staging of that development might be. In the absence of a specific proposal it is not cost-effective for Council to pro-actively install capacity for developments that 'might' proceed.

The approach adopted by Council is therefore to engage with the development community and seek a co-ordinated approach that will provide for the development on a 'just in time' basis and with confidence that any works required are financially feasible for both the developer and Council.

2.7 TECHNOLOGICAL CHANGE

A constant awareness of technology changes is necessary to most effectively predict future trends and their impact on the utility infrastructure assets, as a smaller council better technology has the ability to provide better solutions for decreased costs, allowing council to implement programs like demand management through changes to our engineering standards or by installing the technology ourselves on existing systems.

2.8 ECONOMIC TRENDS

Kaipara's economy is founded on its primary industries (particularly dairy), supported by a strong manufacturing sector, which in turn is closely aligned with the primary sector e.g. meat and dairy product processing and making of agricultural supplies (Infometrics, 2020a). In 2019, the primary sector (agriculture, forestry and fishing) accounted for 26.6% of Kaipara's GDP while manufacturing contributed a further 11.5% as is shown in Figure 6. Dairy cattle farming's contribution to the local economy alone was six times the national

average, with 12.1% of Kaipara's GDP coming from dairy cattle farming compared to 2% nationally. The primary and manufacturing sectors were also two of the biggest contributors to employment in Kaipara in 2019 accounting for 25.4% and 11.6% of filled jobs, respectively (Figure 7). Construction was another important contributor, also accounting for 11.7% of filled jobs (Infometrics, 2020a).

Figure 7 - Contributions of different sectors to Kaipara's GDP in 2019

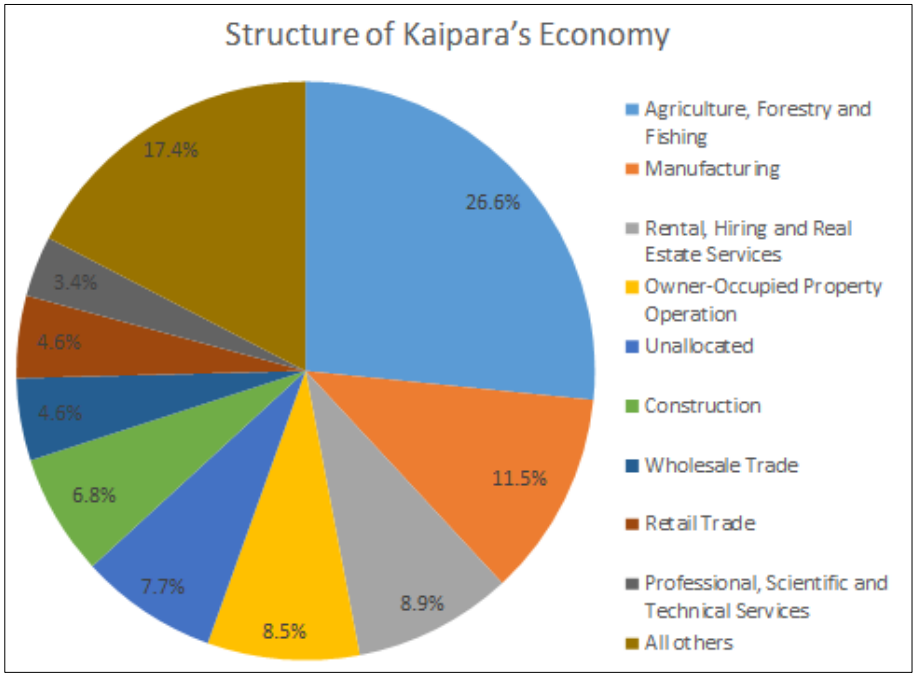
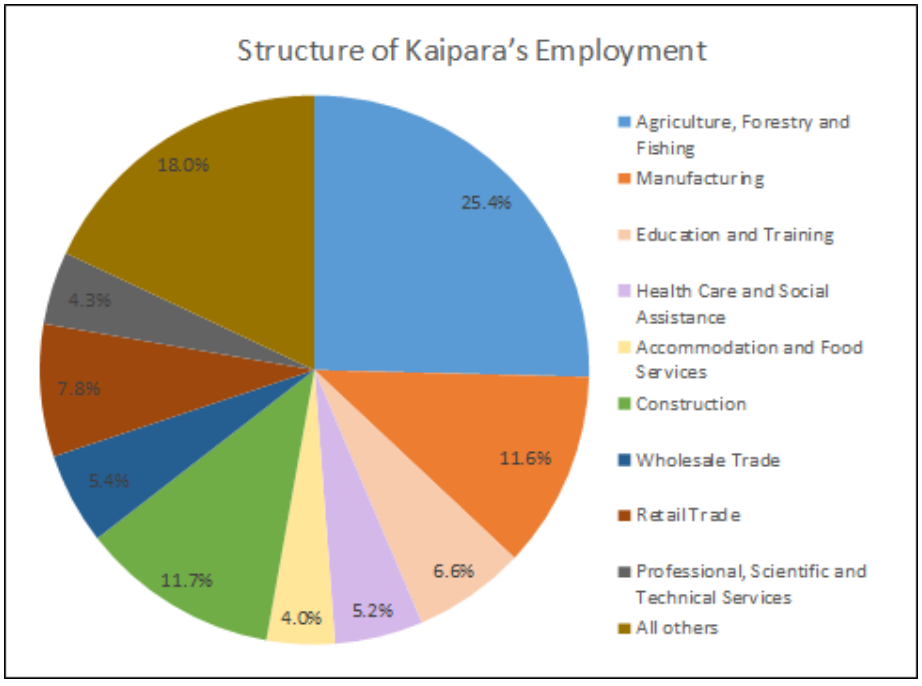


Figure 8 - Contribution of different sectors to the number of filled jobs in Kaipara in 2019



However, the structure of Kaipara's economy is not consistent across the district (Infometrics, 2020a). The northwest Kaipara area is predominantly focussed on the primary sector with agriculture, forestry and fishing accounting for 64.9% of GDP and 67.6% of filled jobs in 2019 (see Figures 49 and 50). Dairy farming alone accounted for 33.1% of northwest Kaipara's 2019 GDP while sheep, beef and grain farming accounted for a further 13.3%, horticulture and fruit growing a further 11.7% and forestry a further 5% (Infometrics, 2020a).

Southeast Kaipara was also highly dependent on the primary sector (32.8% of 2019 GDP) but was also well supported by the manufacturing sector (18.2% of 2019 GDP) (Infometrics, 2020a). The greater importance of manufacturing to southeast Kaipara likely reflects the presence of Fonterra's Maungaturoto Dairy Factory. Collectively, the primary and manufacturing sectors accounted for almost half of all filled jobs in the southeast Kaipara area (Infometrics, 2020a).

Dargaville township, which acts as a service centre to the wider northwest Kaipara area had a more diversified economy with a stronger focus on manufacturing, which accounted for 14.4% of GDP and 12.2% of filled jobs in 2019 (Infometrics, 2020a). This reflects the presence of Silver Fern Farms' meat works together with the many smaller fabricating, processing and manufacturing businesses present in the town. As a rural service centre, and with many of its manufacturing businesses supporting the primary sector (e.g. the meat works), Dargaville's fortunes are closely linked to the primary industries it services. Drought years have been seen to result in less commercial activity in Dargaville due to farmers having less money to reinvest in their businesses and rural workers having less disposable income. This trend is likely to also be true of other rural Kaipara towns such as Maungaturoto, however detailed data for these towns is not available.

By contrast, Mangawhai has little economy of its own with only 1,099 filled jobs in 2019 for a usually resident population of 5,620 people (Infometrics, 2020a). This reflects the large number of retired people who have chosen to make Mangawhai their home, as well as the increasing number of working age people who commute to Auckland for their employment. Unsurprisingly for a fast growing seaside resort, Mangawhai's economy is primarily comprised of real estate services (21.7% of GDP and 6% of filled jobs) and the construction sector (11% of GDP and 16.4% of filled jobs). Accommodation and food services were also important, accounting for 14.7% of filled jobs (Infometrics, 2020a).

Kaipara's economy has followed the national and global economy into recession in the wake of the COVID-19 pandemic and associated lockdowns (Infometrics, 2020g). Data available at the time of writing shows economic activity in Kaipara has fallen but also reveals the district has underlying strengths that should allow it to weather the storm better than most. Kaipara's GDP declined by 7.2% in the June 2020 quarter compared to the same quarter in 2019. However, this was mild compared to the decline of 12.6% in the national economy over the same period (Infometrics, 2020g).

Kaipara's strong agricultural sector can be seen to be softening the downturn. The sector's status as an essential service allowed it to continue operating throughout the lockdowns. Overall, Infometrics estimates 58% of Kaipara's economy could operate at Level 4, and 81% at Level 3 – both higher than the national averages of 53% and 75%. The 2019-2020 dairy season is estimated to have contributed $221 million to the local economy, up $28 million from the previous season, despite drought conditions (Infometrics, 2020g). This pay-out together with good returns for other food exports has continued to support local economic activity.

This economic resilience is highlighted by spending in the district (Infometrics, 2020g). Marketview data shows card spending in Kaipara declined just 6.5% per annum in the June 2020 quarter – the fourth smallest decline among the two-thirds of territorial authorities Infometrics monitor. This hit to spending pulled annual spending growth down to +0.7% per annum, but this slower growth compares favourably to the -2.8% per annum decline in national spending (Infometrics, 2020g).

Building activity is also continuing to support the Kaipara economy with the June 2020 quarter recording the largest value of non-residential work consented since records began in mid-1995 (Infometrics, 2020g). New accommodation, education, and office projects worth a combined $17.5 million were consented in the June

2020 quarter. While this represents projects already in motion prior to the pandemic, Kaipara's pre-existing growth pressures and resilient economy suggest construction activity should likewise prove resilient (Infometrics, 2020g). Over the medium and long term, Mangawhai's continued growth and transition to a service centre, together with an influx of population to other areas of Kaipara, driven by an expanding Auckland population, are likely to sustain both residential and commercial construction activity.

Kaipara's tourism sector is also likely to prove more resilient than most, though will still decline. This is because international tourists only accounted for 11.4% of tourism spending in Kaipara prior to COVID-19 compared to 40.5% nationally (Infometrics, 2020m).

Kaipara is also likely to benefit from additional visitors from Auckland due to the lockdown restrictions. Prior to COVID-19, visitors from Auckland already accounted for the single largest share of domestic tourism spending in Kaipara (46.1% or $50.2 million) (Infometrics, 2020m). Other areas of Northland were the second largest contributor (40.7% or $44.2 million) with other areas of New Zealand comprising the remainder (13% or $14.6 million). These figures highlight the importance of visitor experiences within driving distance, with Kaipara strategically placed to offer weekend getaways for the cities of Auckland and Whāngārei (Infometrics, 2020m). Not surprisingly given the above, total tourism expenditure in Kaipara only decreased 1.8% in the year to June 2020 compared to a decrease of 12.3% in New Zealand over the same period. Total tourism expenditure was approximately $116 million in Kaipara during the year to June 2020, down from $118 million the previous year (Infometrics, 2020g).

Despite Kaipara's relative resilience, the scale of the pending recession should not be downplayed (Infometrics, 2020g). Job losses are already rising. Between June 2019 and June 2020, 367 additional people in Kaipara were being supported by Jobseeker Support or the COVID-19 Income Relief Payment (Infometrics, 2020g).

Once international trade and travel begin to return to normal (or reach a new normal), the factors that contributed to Kaipara's economic success prior to 2020 are likely to stimulate economic growth once again. Demand for Kaipara's produce, population growth and interest from tourists in exploring the Kauri Coast are therefore likely to lead to further expansion of Kaipara's economy over the remainder of the 2021-2051 planning horizon, once the COVID-19 economic recovery is overcome.

Over the long term, shocks affecting the primary sector (particularly the dairy sector) and the rate of population outflow from Auckland will continue to be the primary drivers of Kaipara's economic performance. Opportunities to diversify and de-risk the district's primary sector, as well as lifting productivity will help to reduce shocks and improve performance.

2.9 12LEGISLATIVE CHANGE

Legislative change can significantly affect Council's ability to meet minimum LoS and may require improvements to infrastructure assets. Changes in the NRC Proposed Plan for Northland, environmental standards, and the RMA 1991, may affect services.

In addition, changes in legislation can influence the ease at which new consents are obtained or existing consents are renewed. Experience demonstrates that consent conditions are becoming more stringent with increased monitoring requirements being commonplace and the likelihood of better management and possible reduced volumes in water take consents.

The MfE is promoting a series of NES that can be enforced as regulations under the RMA. One such standard is the proposed standard for Ecological Flows and Water Levels, the objective of which is to facilitate the sustainable management of New Zealand's water resource. It intends to promote consistency in the way decisions are made to ensure sufficient variability and quantity of water flowing in rivers, groundwater systems, lakes, and wetlands. Whilst the Onsite Wastewater Systems National Environmental Standard has been withdrawn, other standards have the potential to impose costs on ratepayers including those not connected to a Council wastewater system

During the 2030s, more stringent environmental regulation is expected to result in higher carbon prices and greater regulation related to freshwater quality. Coupled with greater uptake of automation technology across the economy, this is expected to reduce the rate of employment growth, particularly in agriculture, though growth will remain positive.

2.10 CHANGES IN WEATHER PATTERN

According to NIWA projections (2016; 2019), Northland and Kaipara District will see an increase in temperature of 0.5-1.5°C by 2040, and 1.0-3.5°C by 2090. This compares to a temperature increase in New Zealand during last century of about 0.7°C. Kaipara will see an increase in the number of hot days and heatwave days and an increase in the number of dry days. The increase in accumulated potential evapotranspiration deficit (PED) will lead to an increase in drought potential. NIWA projects slight variations in annual rainfall changes (around 2%), with increases projected in autumn and decreases for winter and spring. Potential increases in the intensity of ex-tropical cyclones and severe storms (i.e. wind speeds and rainfall) are anticipated. Frequency of cyclones are projected to decrease or stay the same. There is a projected increase in the severity of rainfall events (more intense short duration rainfall events). By 2090, the depth of a current 1-in-100-year, 1-hour duration rainfall event is projected to increase by approximately 35%. With the increase in intense, short duration rainfall events there is increased potential of flooding.

3 LEVELS OF SERVICE AND PERFORMANCE MEASURES

Levels of Service (LoS) are attributes which Council expects of its assets to deliver the required services to stakeholders. A key objective of an AMP is to match LoS provided by the activity with agreed expectations of customers and their willingness to pay for that LoS.

The LoS provide the basis for the lifecycle management strategies and works programmes identified in the AMP. With assets, there are often higher levels of maintenance and renewal requirements proposed (increased LoS) than the resources allow for. Trade-offs then have to be made as to what impacts on the ability of an asset to provide a service against the nice to have aspects.

LoS can be strategic, tactical, operational and implementation should reflect the current industry standards and be based on:

- Customer Research and Expectation Information gained from stakeholders on expected types and quality of service provided
- Statutory Requirements Legislation, regulations, environmental standards and Council bylaws that impact the way assets are managed. These requirements set the minimum LoS to be provided
- Strategic and Corporate Goals Guidelines for the scope of current and future services offered and manner of service delivery, and define specific LoS that Council wishes to achieve
- Best Practices and Standards Specify the design and construction requirements to meet the LoS and needs of stakeholders
- The LoS have been developed to contribute to the achievement of the stated Community Outcomes that were developed in consultation with the community (s1.4) and taking into account
- Council's statutory and legal obligations
- Council's policies and objectives and
- Council's understanding of what the community is able to fund.

The LoS included in this AM Overview are the LoS prepared, consulted on and adopted as part of the LTP consultation process. The Strategic Activity Management Plans for each activity details the LoS and associated performance measures. These now include non-financial performance measures in accordance with s261B of the LGA which came into force on 30 July 2014, and DIA mandatory performance measures.

The LTP performance measures are reported on through the annual reporting process. Council's current actual performance will be reported in the Annual Report.

The Activity Management Improvement Plan (AMIP) includes an action for Council to review its LoS to identify if there is further opportunity for improved efficiencies and/or best practice that can be incorporated into the service framework. Currently the LoS reported in the AMPs are customer focused and those that are included in the LTP. An extension of the LoS and performance measures to include the more technical measures associated with the management of the activity has commenced with the inclusion of the non-financial performance measures.

4 CRITICAL ASSETS

Critical assets have been defined as being assets with a high consequence of failure[1]. They are often found as part of a network, in which, for example, their failure would compromise the performance of the entire network.

In March 2016, the Water Services Team developed a criticality framework with respect to consequence of failure with the help of a consultant. It is anticipated that actions would be put into place to reduce the consequences of failure to High (Major) e.g. by duplication or elimination of an asset, or it is accepted that the very high cost of lowering the consequence is not justifiable given the very low likelihood of occurrence associated with the particular hazard. In the latter case some consideration would be given to contingency planning, but the nature and scale of the potential occurrence is likely to be difficult to predict and require the implementation of emergency management procedures at the time.

Criticality classes - management approach

Table 7 shows the lower three of five categories of criticality derived from the criticality framework. The High (Extreme) category would be managed in the Council's Risk Matrix and Council would not tolerate a situation where the consequence was considered to be Extreme and the Likelihood any higher than Rare.

In order to reduce the consequence to High (Major), a cost benefit analysis will have to be carried out to see if the (high) cost duplication or elimination of an asset would be justifiable when compared to the acceptance of the risk considering that the likelihood of occurrence is low. Contingency planning can be implemented as well as emergency management approaches because the nature and scale of the occurrence is unpredictable.

Table 9 - Criticality classes – management approach

Consideration		Insignificant / Minor	Moderate	High (Major)
1	Primary description	Assets with low consequence of failure and largely managed reactively by contractor without direct Council input (other than Call Centre referral).	Assets with tolerable consequence of failure but not on a reoccurring basis. Response will typically require additional resources and generate widespread and/or lengthy disruption.	Assets that ideally do not fail and are managed pro-actively to prevent this. If failure does occur, it is a major event requiring significant resourcing and management input.
2	Consequences of failure	Limited in both extent and time (typically less than 3-4 hours maximum) and covered by adopted LoS targets. Extent of disruption also likely to be limited. Some customers may be unaware of situation.	Impact on customers (key and residential) is more significant in relation to extent and/or duration. May generate impacts on health, safety, damage and environment. Contingency servicing may be required and some management of demand.	Major impact on residential and/or key customers. Services are disrupted for lengthy period and inconvenient alternatives put in place. Significant and/or lasting adverse impacts occur in any, or several, of service delivery, health, safety, damage, environment.

[1] National Asset Management Steering Group, Association of Local Government Engineering NZ Inc. (2006) 3rd edition (Version 3.0), *International Infrastructure Management Manual*, National Asset Management Steering Group, Association of Local Government Engineering NZ Inc. (INGENIUM)

Consideration		Insignificant / Minor	Moderate	High (Major)
3	Impact during remediation	Some alternative servicing may be required for some customers in extra-ordinary circumstances. Otherwise customers expected to cope with loss of service. Some discomfort and inconvenience for some affected customers.	Likely to require demand management and provision of alternative servicing for duration. Discomfort and inconvenience for large group of customers. Individual evacuations may be required.	Significant demand management required. Alternative servicing barely adequate. Widespread evacuations may be required.
4	Maintenance response	Routine maintenance response typically within capacity and authorisation of maintenance contractor.	The response to the incident will require resources beyond the normal capacity of the contractor such as multiple tankers or sucker trucks, additional manpower or specialist skills, additional equipment such as generators etcetera brought in. Urgency with obtaining equipment not held in stock. Note that it is still anticipated that the contractor would have contingency plans in place to undertake the lower end of this escalation as part of their 'normal' response and without the involvement, or approval, of Council management.	Contractor fully committed to response and additional resourcing utilised. 'Fix at any cost' approach may be required in relation to obtaining required equipment and materials. Overall response is managed by Council management in consultation with the contractor and any external resources engaged. It is not anticipated that the Declaration of a Local Emergency would be required in these circumstances, but this could occur in unusual circumstances.
5	Escalation and communication	Largely dealt with at normal operational level. Call Centre would be advised. Council Water Services management advised in monthly reporting and on an informal/courtesy basis.	Escalation to management of Water Services for input into solution. Senior management and Mayor/local Councillor advised of situation and remedial measures underway. Communication staff briefed as required. Some 'public service' announcements required and co-operation of community sought.	Major event for Council. Primary focus of Council activity until resolved. Communication staff updated regularly and managing media and Mayor/Councillor enquiries. Regular briefing of senior management and CE. Potential to escalate to emergency management status if required to manage impacts or acquire resources.
6	Planned maintenance and inspections regime	Prescribed maintenance undertaken as required for specific electro/mechanical equipment. Maintenance of other assets likely to be irregular and budget constrained. Standby equipment routinely checked for serviceability	Valves and controls exercised routinely to check operability. Equipment that is easily accessible (not requiring excavation) is subject to regular inspections; includes electrical, mechanical and hydraulic equipment that	As for Moderate plus prescribed maintenance linked to contractual reporting and KPIs. Consideration given to duplication of equipment to ensure ongoing functionality even in event of asset failure

Consideration		Insignificant / Minor	Moderate	High (Major)
		where this provides full, or substantially, the same capacity as duty equipment. Service alternated to manage wear on duty/standby configurations. Many readily accessible assets are subject to regular inspections even though they have a relatively low criticality. The inspection is relatively low cost, typically undertaken as part of a circuit and serves to minimise the likelihood of minor issues leading to failure, and associated costs, or a situation arising that would reflect adversely on Council if noted by the public but not 'Called in' e.g. graffiti. Such inspections reduce the likelihood of avoidable failures but might not be justifiable if subjected to strict cost/benefit analysis.	does not have an installed or easily implemented bypass. In some circumstance's consideration should be given to exposing assets (e.g. in pits and chambers) to allow regular inspections to be undertaken.	(some loss of capacity may be acceptable).
7	Contingency planning and Critical Spares	Generic contingency planning appropriate for wide group of assets and circumstances. Notwithstanding availability of stand-by equipment the time required for sourcing replacement should be assessed and this may require holding of Critical Spares if time running without back-up is considered to be unacceptable.	Planning would reflect the upper end of generic contingency planning. Consideration would be given to the more significant impacts of asset failure and the nature of the resources required to manage the situation and affect a recovery. This may result in the holding of increased inventory and more robust assessment of the compatibility of existing spares versus the installed assets.	Specific contingency planning for identified hazards arising from failure of specific asset. Assumptions (e.g. availability of repair or replacement equipment) checked on a regular basis. Critical spares held and periodically checked for condition and serviceability.
8	Asset Information and location	Attributes of asset may be incomplete or not verified. Updating occurs when opportunity arises. Location generally plotted from As builts or 'best fit'. Servicing and repair may require some time to locate asset.	All attributes of asset are known and verified. Specific repair spares and equipment identified. Location of asset will be generally known with consideration given to how difficult it would be to find if required.	All attributes of asset are known and verified. Specific repair spares and equipment identified. Location of asset will be known and piloted if required to ensure rapid ability to respond.

Consideration		Insignificant / Minor	Moderate	High (Major)
			Connectivity of valves and lines known and verified by testing.	Connectivity of valves and lines known and verified by testing.
9	Performance monitoring	Monitoring by exception i.e. if issue/complaint arises an investigation is undertaken.	Some form of regular inspection/measurement should be in place to detect any decline in performance that would indicate imminent failure.	Regular monitoring of performance as appropriate. Likely to be SCADA connected. Targets and response limits defined using approaches such as Hazard Analysis Critical Control Point (HACCP).
10	Condition monitoring	Assets are inspected as the opportunity arises either from asset modification (e.g. adding a connection) or repair of asset failure.	Periodic inspections are undertaken on the asset, or very similar assets, to determine if deterioration is occurring. Industry knowledge about the likely decline of similar assets may be utilised if it can be established, they are in comparable situations. Any asset failure is carefully investigated to determine if asset deterioration was the primary driver.	Techniques are identified that allow the condition of the specific asset to be monitored in relation to likely failure modes. Inspections are scheduled and likely to become more frequent as the asset ages or as deterioration is noted. Analysis is undertaken using the measured deterioration to predict likely asset life.
11	Renewal Planning	These assets are operated on a 'Fix When Fail' basis. Renewal is only considered when there is clear evidence that the failure was generated by the deterioration of the condition of the asset and that this is likely to extend beyond the point of failure to the extent that renewal of the entire asset can be justified rather than a localised repair/renewal. Renewal would also require consideration of the cost benefit of repair versus renewal and whether acceptable LoS have been breached. Multiple failures over several years may be an acceptable outcome albeit this would result in the pipe being closely monitored and included in potential renewal within the near term.	The key characteristic is that the impacts are considered to be tolerable but not on a regular basis. A single asset failure considered to be directly attributable to condition deterioration, and considered to be indicative of overall asset condition, would trigger a response to minimise the likelihood of a repeat occurrence within the short to medium term.	These are assets for which failure Is considered to be unacceptable and to be avoided if it is practical and possible to do so. In the absence of actual failure records for the specific asset it will be necessary to assemble as much information as is relevant to the renewal decision. This will include information on failure of other assets considered to be similar, general industry knowledge, specific testing undertaken on the asset and a rigorous review of the consequences and likelihood of failure. It is unlikely that age by itself will be sufficient unless this is all that is available and there is consensus that failure is not an option.

Consideration		Insignificant / Minor	Moderate	High (Major)
12	Prioritisation	In the event that budget provisions are constrained these are the assets that would be given the lowest priority for investigations, preventative maintenance and renewals. If resources are constrained these are the projects that should be deferred. Care should however be exercised to ensure that any increasing maintenance costs arising do not exceed the cost associated with renewal. There is also the risk that Council will be perceived to be running its assets down by not progressing routine renewals in response to failures and it is therefore still desirable to be able to maintain an ongoing programme of renewals of assets that have obviously deteriorated to the point where this is required.	These sit between the Low and High Criticality projects. They would have status above the Low but would be subservient to the High.	These are the highest priority projects to progress both in terms of funding the necessary works in the operational or CAPEX budgets but also in terms of ensuring that works actually progress during the intended planning period. In the event that any asset is identified as having Extreme (High) consequences of failure then a remedial plan to reduce that consequence would have the highest consequence unless it is considered that the associated likelihood of occurrence does not justify such an investment.

5 ASSET VALUES

5.1 OVERVIEW

The valuation was based on substantially complete asset registers, appropriate replacement costs and useful lives, providing a relative degree of confidence in the valuation data

Asset values are presented in the Activity Management Plans in terms of current replacement value and depreciated replacement value. Depreciated replacement value is the current replacement cost less allowance for physical deterioration and optimisation for obsolescence and relevant surplus capacity.

Depreciation

Depreciation of assets must be charged over their useful life.

- Depreciated Replacement Cost is the current replacement cost less allowance for physical deterioration and optimisation for obsolescence and relevant surplus capacity. The Depreciated Replacement Cost has been calculated as:

$$\frac{\text{Remaining useful life}}{\text{Total useful life}} \times \text{replacement cost}$$

- Depreciation is a measure of the consumption of the economic benefits embodied in an asset. It distributes the cost or value of an asset over its estimated useful life. Straight-line depreciation is used in this valuation
- Total Depreciation to Date is the total amount of the asset's economic benefits consumed since the asset was constructed or installed
- The Annual Depreciation is the amount the asset depreciates in a year. It is defined as the replacement cost minus the residual value divided by the estimated total useful life for the asset; and
- The Minimum Remaining Useful Life is applied to assets which are older than their useful life. It recognises that although an asset is older than its useful life it may still be in service and therefore have some value. Where an asset is older than its standard useful life, the minimum remaining useful life is added to the standard useful life and used in the calculation of the depreciated replacement value.

6 ASSET DATA CONFIDENCE

Confidence in asset data is improving at Kaipara District Council with better use of AssetFinda. Confidence ratings are assigned to asset quantities, replacement costs and life expectancy using the following ratings:

Table 10 - Asset data confidence ratings

Grade	Label	Description	Accuracy
A	Accurate	Data based on reliable documents	5%
B	Minor inaccuracies	Data based on some supporting documentation	15%
C	Significant data estimated	Data based on local knowledge	30%
D	All data estimated	Data based on best guess of experienced person	40%

7 FINANCIAL AND LIFECYCLE STRATEGY AND MANAGEMENT

7.1 INTRODUCTION

Whilst this section notes the generic strategies used by Council, it is supplemented by specific strategies for each activity detailed in the Activity Management Plans and related scheme or lifecycle plans. The lifecycle strategies for each asset component incorporates the following:

- Operations and maintenance strategies to keep the assets operational
- Renewal strategies to replace assets as they reach the end of their useful life
- Development strategies to address growth and demand
- Disposal strategies for when the asset is no longer required
- Work programmes and the associated financial forecasts.

Management of the lifecycle of each asset should optimise performance whilst minimising the total lifecycle costs of assets. The management process balances the various competing demands and investigates the capacity and performance constraints of each component to establish a regime to achieve the overall objectives.

7.2 WORK CATEGORIES

Council's lifecycle activity management strategies are divided into the following five work categories:

Asset operations: The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials. The Operations category also incorporates funding to address the AMIP actions and the provision of professional services. The AMIP is generally focused on a three-year timeframe (covering the lifespan of this AMP) with a nominal allowance for years 4 to 10. As the actions in the programme are addressed, and the AMP reviewed, new initiatives will be identified and added to the programme and budgets will be revised accordingly.

Asset maintenance: The ongoing day-to-day work activity required to keep assets serviceable and prevent premature deterioration or failure. Three categories of maintenance are carried out:

- Unplanned maintenance – work carried out in response to reported problems or defects

- Preventative maintenance – work additional to scheduled inspections and maintenance identified during inspections as essential to continued operation
- Planned maintenance – work carried out to a predetermined schedule or programmed as a result of identified needs

Asset Renewal: Major work that restores an asset to its original capacity or the required condition. This includes both planned and reactive renewals.

New Capital: Creation of new assets (including those created through subdivision and other development) or works which upgrade or improve an existing asset beyond its existing capability or performance in response to changes in supply needs or customer expectations.

Development works falls into two separate categories:

- Council funded
- Developer funded as part of subdivision development or by way of contributions

Asset decommissioning / disposal: Any of the activities associated with the disposal of a decommissioned asset. Assets may become surplus to requirements for any of the following reasons:

- Under-utilisation
- Obsolescence
- Provision exceeds required LoS
- Uneconomic to upgrade or operate
- Policy change
- Service provided by other means (e.g. private sector involvement)
- Potential risk of ownership (financial, environmental, legal, social, vandalism)

The relationship of day-today work categories to the lifecycle management strategies together with a description of the work involved is shown in the table below:

Table 11 - Contract work group relationship with lifecycle management strategies

Contract work category	Description of works	Planned maintenance	Preventative maintenance	Responsive maintenance	Asset renewals reactive
Routine work	Work carried out on cyclical basis.	X			
Ordered work	Specific order issued by Engineer.		X	X	X
Priority work	Urgent routine or ordered work to address operational issues.	X	X	X	X
Emergency work	System malfunction, service disrupted.			X	X

7.3 RENEWALS STRATEGY AND EXPENDITURE FORECAST

Renewal expenditure is major work that does not increase asset design capacity but restores, rehabilitates, replaces or renews an existing asset to its original capacity. Work over and above restoring an asset to original capacity is 'new works' expenditure.

Council reviewed its renewal strategy during the 2020 Long-Term plan budget reviews and is moving towards a renewals based approach to our capital works to focus on resilience; to rehabilitate or replace assets when justified by condition and where there is a significant reduction in performance.

The current state of our asset data affects Council's ability to accurately forecast necessary renewals. The water and wastewater renewal strategies are based on a combination of age and condition where it is known. Other asset renewals are broadly based on asset lives, further modified through local knowledge and experience gained from the maintenance contract staff and local resources on asset performance. Council's current renewal strategy is presented below.

Assets are considered for renewal as they near the end of their effective working life or where the cost of maintenance becomes uneconomical and when the risk of failure of critical assets is sufficiently high.

Council's renewal programme has been developed by:

- Taking asset age, condition and remaining life predictions from the asset database, calculating when the remaining life expires and converting that into a programme of replacements based on replacement costs; and
- Reviewing and justifying the renewals forecasts using the accumulated knowledge and experience of asset operations and AM staff. This incorporates the knowledge gained from tracking asset failures through the customer services system, known location of asset issues, and contractor knowledge.

When justifying renewals, the following factors are considered:

- Asset performance: Renewal of an asset when it fails to meet the required LoS. The monitoring of asset reliability, capacity and efficiency during planned maintenance inspections and operational activity identifies non-performing assets. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption and inappropriate or obsolete components.
- Risk: The risk of failure and associated financial and social impact justifies action (e.g. probable extent of damage, safety risk, community disruption).
- Economics: It is no longer economic to continue repairing the asset (i.e., the annual cost of repairs exceeds the annualised cost of renewal). An economic consideration is the co-ordination of renewal works with other planned works such as road reconstruction.
- Efficiency: New technology and management practices relating to increased efficiencies and savings will be actively researched evaluated and, where applicable, implemented.
- Levels of service: Consideration of the adaptative pathways planning outcomes and whether the levels of service are still required by communities.

The renewal programme is reviewed in detail at each Activity Management Plan update (three yearly) and every year the annual renewal programme is reviewed and planned with the input of the maintenance contractor.

If work is deferred for any reason, this work will be re-prioritised alongside the next year's renewal projects and a revised programme established.

Renewal works identified by way of the above renewal strategies may be deferred if the cost is beyond the community's ability to fund it. This situation may arise if higher priority works are required on other infrastructure assets; short term peaks occur in expenditure or if an inadequate rating base exists.

When renewal works are deferred, the impact of the deferral on economic inefficiencies and the scheme's ability to achieve the defined service standards will be assessed. Although the deferral of some renewal works may not impact significantly on the short-term operation of assets, repeated deferral will create a liability in the longer term.

7.4 NEW CAPITAL (ASSET CREATION, ACQUISITION, ENHANCEMENT) STRATEGY AND EXPENDITURE FORECAST

New Capital works are planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations.

When evaluating significant new capital proposals, the following issues will be considered:

- The contribution the new or improved assets will make to the current and anticipated future LoS and community outcomes
- The risks and benefits anticipated to be made from the investment
- The risks faced by not proceeding with the development works. These could include safety risks, social risks and political risks, as well as sea level rise and natural hazards
- Ability and willingness of the community to fund the works
- Future operating and maintenance cost implications
- The adaptive capacity of the asset and its significance in the long-term resilience of the community. Whether increased capacity of the asset is required to adapt to increased natural hazards and meet required LoS

Significant new capital works will be prioritised and programmed with contributions from:

- Targeted user groups (e.g. special interest groups, industry groups, adjacent residents)
- The general community (through public consultation)
- Council staff and consultants that may be engaged to provide advice to Council
- The LTP/Annual Plan process
- The elected Council (significant proposals are subject to Council decision and available funding)
- Adaptive Pathways Planning decisions

Growth related capital works are undertaken to extend the provision of infrastructure to new properties or to provide additional capacity that is required to service those properties. Growth related works also include moving the location and/or changing the design of the asset to allow for managed retreat and community relocation. It is important to separate out these costs as a portion of them may be recoverable as development contributions and it is also desirable that there is a degree of transparency in relation to what is being contributed by new residents versus existing residents.

LoS capital works are undertaken when the current asset is not able to provide/perform the desired LoS. This may relate to capacity, capability, safety, appearance etcetera. This may be driven by legislation change, resource consent requirements or customer aspiration. Continuing with the existing asset will generate a LoS gap.

7.5 ASSET DECOMMISSIONING AND/OR DISPOSAL STRATEGY AND FINANCIAL FORECAST

Council does not have formal strategy documents relating to asset disposals. When disposal of an asset needs to be considered, Council will address this case-by-case.

There are no areas of operation that Council plans to abandon therefore asset disposal is a by-product of renewal or upgrade decisions that involve the replacement of assets, adaptive pathways planning and/or other climate change responses

Assets may also become surplus to requirements for any of the following reasons:

- under-utilisation
- obsolescence
- provision exceeds required LoS
- uneconomic to upgrade or operate
- policy change
- service provided by another means (e.g. private sector involvement)
- potential risk of ownership (financial, environmental, legal, social, vandalism)

Depending on the nature and value of the assets they are either:

- made safe and left in place
- removed and disposed to landfill
- removed and sold
- reinstituted and/or repurposed

Council follows a practice of obtaining the best available return from disposal or sale of assets within an infrastructural activity. Any net income is credited to that activity.

7.6 DEPRECIATION (LOSS OF SERVICE POTENTIAL)

Service potential is defined as the economic benefit embodied in assets that over time declines as the assets age and deteriorate. Depreciation is charged annually to recover from the users of services the equivalent annual decline in service potential and renewals are undertaken to restore it. The loss (or gain) in service potential over time can therefore be described as the difference between the annual renewal and depreciation provisions.

If this figure is negative, the renewals undertaken in that year are lower than the financial depreciation. This would be expected when assets are young, but over the life of all assets the accumulated figure would be expected to be close to zero if the assets were being sustained indefinitely. Service potential is restored through renewals and is effectively funded through the annual depreciation charge.

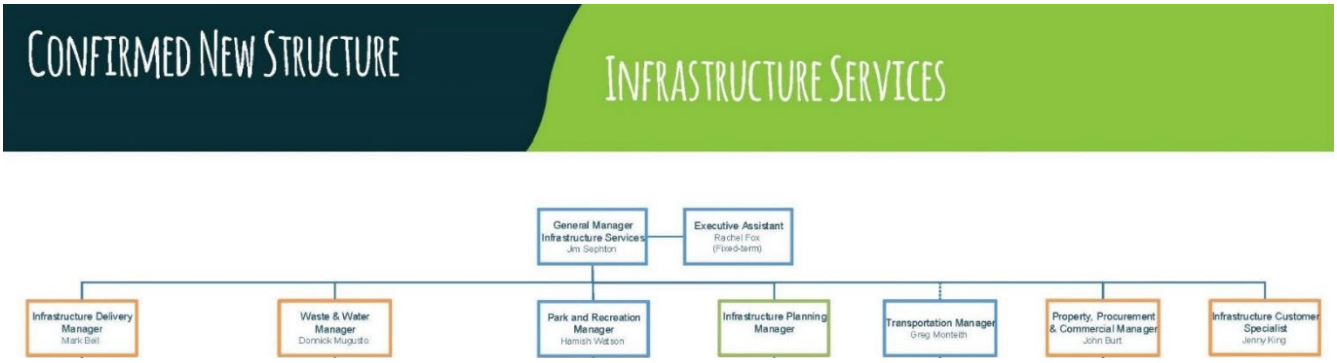
Previously, Kaipara district rates have not included a component for depreciation, meaning users of the asset were not contributing to the asset's upkeep or replacement costs. Council is progressively moving towards a position whereby rates will fund depreciation. By funding the depreciation, a reserve is set up that can be used to fund the renewal expenditure when it is required.

8 SERVICE MANAGEMENT

8.1 ORGANISATION

The figure below illustrates the organisation structure utilised to deliver the infrastructure services.

Figure 9 - KDC organisational structure



8.2 CONTRACTUAL SETTING

Council has an in-house team of engineers to oversee the operations and management of assets. The 3 waters O&M Contractor commenced in July 2016 and a critical component of activity management (AM) has been added in the O&M Contract, capturing field repair data and cost in Council's AM tool, AssetFinda. Additional services are procured on an as required basis and may include investigation and design services. The various functions are noted in Figure 10o below.

Figure 10 – Contractual setting

The Operations Contract delivers the lifecycle management outcomes on a day-to-day basis. The specification of the Operations Contract incorporates the various inspections that monitor asset condition/capacity and provide the basis for programmed maintenance. The frequency of the programmed inspections regime is established in the specification of the Operations Contract. This is supplemented as required by inspections generated from Council's customer Help Desk system.

When programmed inspections are undertaken by the Operations contractor, the act of inspection may initiate a series of responses based on the observations of the contractor. These could include:

- Programmed maintenance tasks, based on usage or time
- Responsive maintenance based on condition or capacity
- Planning of a Preventative Maintenance Response based on a prediction of future failure
- Reporting for upgrading or renewal through to the professional services provider. This occurs when the scope of the intervention is not covered with the Operations Contract and requires consideration of alternatives (upgrades) or prioritisation within existing budgets (renewals)
- Ad-hoc inspections of breaks or infrastructure that allow an opportunity to inspect reticulation when responding to an incident
- Collection of data from inspections and interventions for incorporation into Council's GIS system

The inspections will be recorded in the AssetFinda for Council to review and act accordingly. Any key actions are discussed at monthly contract meetings between Council and the Operations contractor.

These monthly meetings are also supplemented with meetings where the performance of the system is reviewed, and a more strategic review of performance is undertaken to aid the Annual Planning process for the next financial year. These meetings will review issues that have arisen over the past period and assess current programmes and budgets. This may lead to the re-evaluation of the following year's Annual Plan or, in extreme cases, initiate a review within the current financial year to address critical infrastructure issues.

8.3 POTENTIAL ALTERNATIVE METHODS OF SERVICE DELIVERY

The geographic location of Kaipara district could lend itself to shared water services with neighbouring Councils including Whangarei District Council (WDC) and Far North District Council (FNDC), or even Council Controlled Organisations such as Watercare Services Ltd in Auckland.

This could potentially reduce costs for both KDC and Kaipara ratepayers by lowering operational and maintenance costs through consolidation of contractor staff between the two or three councils.

Although this set-up may present cost-saving opportunities for council, the process of amalgamating services regionally between multiple councils may take some time and will likely require central government intervention to progress.

It has been decided to have shared services between the District Councils and the Northland Regional Council for GIS services in the first instance, with further shared services being considered in other areas in the future.

9 ACTIVITY MANAGEMENT SYSTEMS AND PROCESSES

9.1 ACTIVITY MANAGEMENT SYSTEMS

Access to effective information systems is essential for asset managers to help them store and analyse asset information to make good AM decisions. Council uses the support tools listed in Table 12 to manage the infrastructure activities:

Table 12 - AM support tools

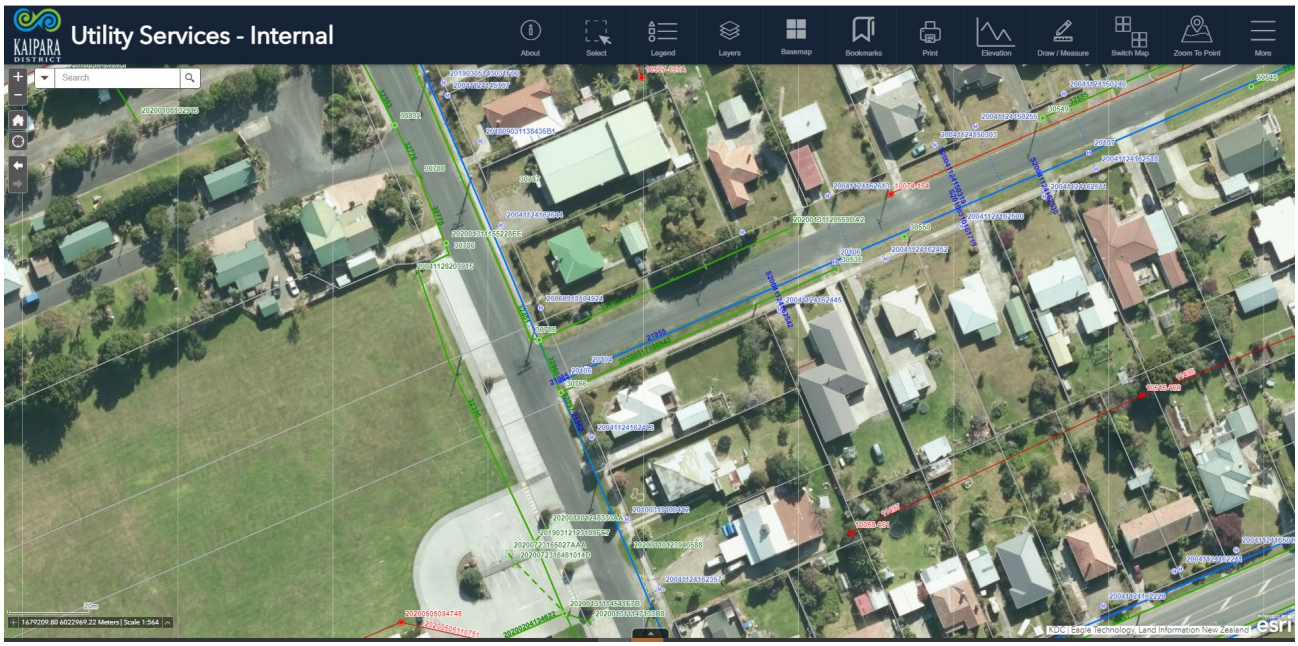
System name	System purpose	Purpose
ESRI (GIS)	Asset location	The location of assets are stored within tables and represented spatially via a series of points, lines or regions. Asset information from AssetFinda is exported to LocalMaps.
AssetFinda	Asset register	Details on the assets size, material, date of installation and other related information for assets are recorded within AssetFinda.
LocalMaps	Enquiring and viewing asset information	Web-based GIS viewer enabling viewing and enquiry of assets.
MagiQ	Accounting	Council accounting and financial systems are based on NCS software and GAAP Guidelines.
Advanced information	Telemetry	The performance of the treatment plants and pumping stations is monitored via the advanced information telemetry system.
SCADA	Telemetry	Newly installed SCADA at various water and wastewater assets helps in daily operations of WTPs and pump stations and also helps in meeting resource consent requirements.

9.2 LOCAL MAPS

The ESRI GIS system is the core GIS system used to store and display the spatial data related to Council's assets. The ESRI system provides the information supporting the LocalMaps system, which is widely used within Council as a user-friendly interface to the GIS asset data, enabling quick access to asset location and asset attribute information.

A screen shot of the LocalMaps GIS web viewer is shown in Figure 11 below:

Figure 11 - LocalMaps screenshot



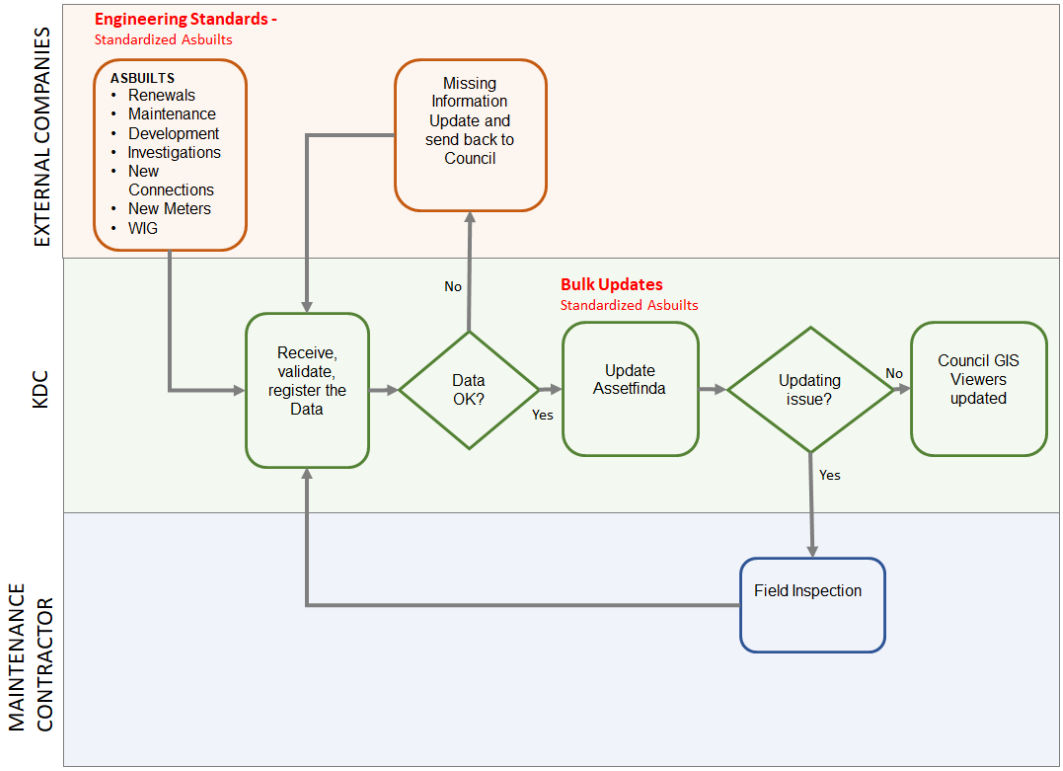
The representation of the assets within this system is believed to be reasonably comprehensive, although gaps and inaccuracies in the data are known to exist.

Improvements to data quality and identification / resolution of data anomalies will be resolved primarily through the maintenance contract and projects, when works are completed on the network.

The ESRI system is externally hosted and is updated as as-built information is received and passed on via the data maintenance process. As-built data is sourced from new development, capital works projects and from the maintenance contractor.

The data maintenance process is represented in Figure 12 below.

Figure 12 - Data maintenance process

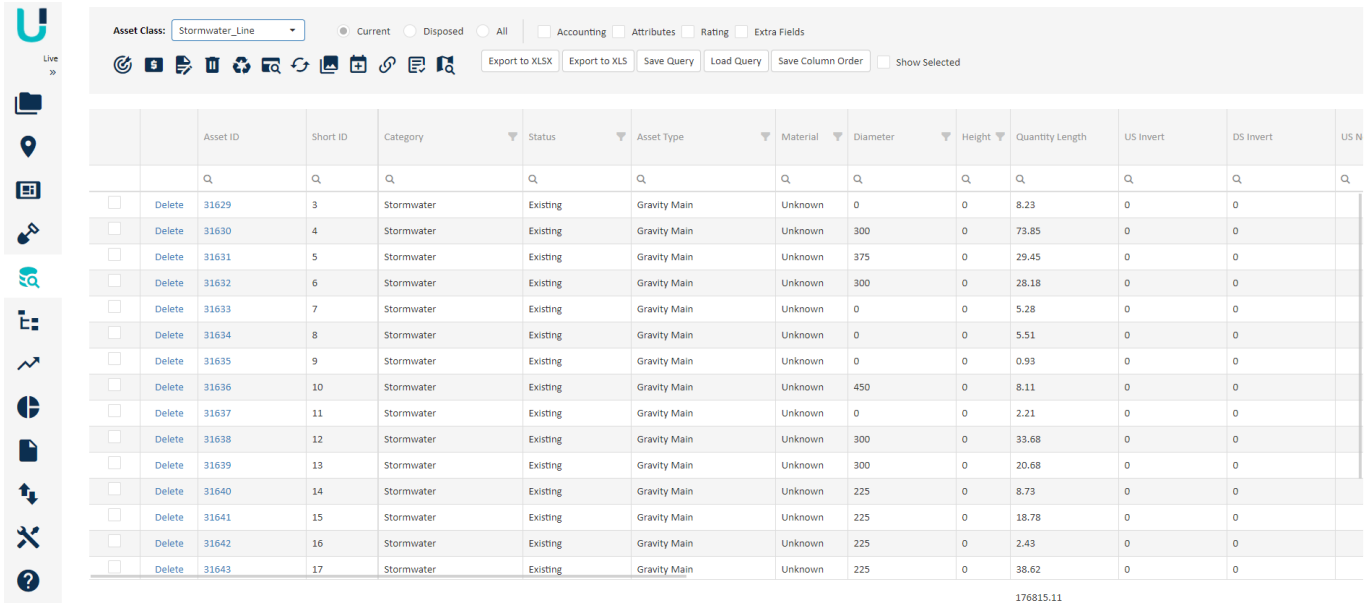


9.3 ASSETFINDA

The AssetFinda system is an asset information tool used to record asset related information. This currently includes basic assed descriptors including asset name, size, material, install date, invert levels, condition and performance. The completeness of the data within these fields is highly variable and the accuracy cannot be currently qualified.

The system was recently upgraded from a table-based system to be web-enabled. The system is externally hosted and maintained. A screenshot of the AssetFinda system is included in Figure 13 below:

Figure 13 - AssetFinda screenshot



The system has the ability to:

- undertake asset valuations and depreciation calculations for assets
- record various maintenance activities against the asset. This capability has yet to be fully defined and implemented.

There is a need for this system to be further enabled and the supporting processes implemented to ensure appropriate maintenance activity data and condition and performance data collected from the field, can be uploaded in the system and used for monitoring the decline in asset serviceability and determination of timing for asset renewal.

An improvement item has been identified to enable the AssetFinda system to be modified for the recording of this information.

The O&M Contractor collects data related to breaks, repairs and renewals from the field uploads it in AssetFinda to be used for monitoring the decline in asset serviceability and determination of timing for asset renewal.

9.4 TELEMETRY

Council operates a GSM telemetry system that monitors various characteristics (flows, levels, pH, and turbidity) via daily email and SMS texts to operators' mobile phones.

Data generated through telemetry monitoring is used to demonstrate compliance of treatment plants with DWSNZ, resource consent compliance and to monitor the performance of the treatment systems, reservoir levels and pumping station levels. The previous telemetry system was managed by an external consultant separate to the maintenance contractor which created ownership and responsibility issues. The system also had reached the end of its economic life with numerous components not being supported.

10 RISK MANAGEMENT (INCLUDING HEALTH AND SAFETY)

10.1 RISK MANAGEMENT FRAMEWORK

Risk Management is undertaken to identify specific business risks associated with the ownership and management of assets and to determine the direct and indirect costs associated with these risks.

Council is familiar with the risks associated with activities however it has not formalised a risk management strategy. A Criticality Framework was defined in 2016 which utilises slightly different, but nonetheless aligned, definitions to the corporate framework. However, this is only half of the risk equation with the other portion being the likelihood of failure (LOF). The highest risks are associated with assets that have elevated criticality and a relatively high LOF, typically generated by deterioration of the asset due to aging or environmental attack.

A detailed assessment of the LOF has not been undertaken for each of the assets considered to have Moderate or High criticality and generally these criticalities were assigned to types of assets, or specific circumstances, rather than specific assets.

While a particular type of asset will be assigned a criticality group e.g. pipes under buildings are 'High' the actual risk level of a particular pipe under a building could vary considerably. If the pipe was relatively new, or recently confirmed to be in good condition by CCTV survey, the risk might be appropriately described and managed, as Moderate. Conversely if an asset is approaching the end of its expected working life and/or confirmed to be in poor condition then the Risk would elevate to High and a quite different management response would be required.

Generally, criticality relates to the impact of failure and this does not usually change during the life of the asset i.e. the vertical column that the asset is in does not change. LOF is closely aligned with asset condition and typically the likelihood of failure will increase as the asset ages i.e. the asset will move up the vertical column on the risk matrix to a higher risk level. Therefore, risk management relies on ongoing review of the status of particular assets with the Criticality Framework providing a useful guide to which assets warrant the most attention.

The risks specific to each activity are included in the Activity Management Plans.

10.2 HEALTH AND SAFETY

Council has a Health and Safety (2016) Policy aimed at providing and maintaining a safe and healthy working environment to Council employees, contractors and members of the public. With respect to activity management activities it is particularly important to protect staff, contractors and the public from hazards associated with Council assets. *"At the Kaipara District Council (Council) we will all keep everyone safe and healthy at work, and get better at being safe every year, by doing these things".*

Appendix A: Continuous improvement

Activity Management Improvement Programme (AMIP)

Continuous improvements are necessary as Kaipara District Council (KDC/Council) continues to achieve the appropriate (and desired) level of activity management practice; delivering services in the most sustainable way which meeting the community's needs.

The Improvement Plans for all of the activities are included in the Improvement Plan Section of the Strategic Asset Management Plans (SAMPS) and for further review please find these documents on the Kaipara District Council's website.

Appendix B: List of acronyms and abbreviations

List of acronyms

The following lists key acronyms and abbreviations used in this document:

Term	Definition
AC	Asbestos concrete (pipe type)
AEP	Annual Exceedance Probability (e.g. 10% is once in 10 years)
AM	Activity Management
AMIP	Activity Management Improvement Plan
AMP	Activity Management Plan
AMS	Activity Management Systems
BERL	Business and Economic Research Limited
CAPEX	Capital expenditure
CDEM	Civil Defence Emergency Management
Council/KDC	Kaipara District Council
CPP	Competitive Pricing Procedures
DP	District Plan
DWSNZ	New Zealand Drinking Water Standards
EW	Earthenware (pipe type)
Fibro	Fibrolite (pipe type)
FNDC	Far North District Council
GAAP	Generally Accepted Accounting Practices
Galv	Galvanised (pipe type)
GEW	Glazed earthenware (pipe type)
GIS	Geographical Information System
HIRDS	High Intensity Rainfall Design System
IIMM	International Infrastructure Management Manual
IPCC	Intergovernmental Panel on Climate Change

Term	Definition
KDC/Council	Kaipara District Council
LGA	Local Government Act 2002
KITE	Kaipara Information Technology Environment
LGA	Local Government Act 2002
LIM	Land Information Memoranda
LOF	Likelihood of Failure
LoS	Level of Service
LTP	Long Term Plan
MfE	Ministry for the Environment
NAMS	National Asset Management Steering Group
NCS	Napier Computer System
NES	National Environmental Standards
NIWA	The National Institute of Water and Atmospheric Research
NOVAF	Novaflex (trade name for a pipe type)
NRC	Northland Regional Council
O&M	Operations and Maintenance
ODRC	Optimised Depreciated Replacement Cost
OPEX	Operational expenditure
PHRMP	Public Health Risk Management Plan
PIM	Project Information Memoranda
PVC	Polyvinylchloride (pipe type)
RCRRJ	Reinforced concrete rubber ring joint (pipe type)
RMA	Resource Management Act 1991
SAMP	Strategic Activity Management Plan
SWCMP	Stormwater Catchment Management Plan
URP	Usual Resident Population
SWCMP	Stormwater Catchment Management Plan
WDC	Whangarei District Council
WIG	Water Infrastructure Group
WSAA	Water Services Association of Australia
WSP	Water Safety Plan
WWTP	Wastewater Treatment Plant
WTP	Water Treatment Plant