2015 Stormwater Asset Management Plan

Draft

December 2014

CONTENTS

Stormwater Activity at a Glance

Some key facts about our stormwater services are:

- Council serves nine major areas and other minor areas with stormwater infrastructure on the District;
- Council serves two land drainage schemes on the District;
- There are 4 stormwater pump stations on the District;
- There are 30,395 stormwater connections on the District (as of June 2014). This comprises of industrial, commercial and residential connections;
- There are 120 land drainage connections on the District (as of June 2014). This comprises of farming, commercial and residential connections;
- The total pipe length of the district's stormwater activity is 197.6 km;
- Between July 2013 and June 2014 there was an average of 15 stormwater related customer requests for service each month.

Figure 1 – Stormwater infrastructure around the district. The first photo shows a stormwater outfall in Whangamata. The second photo represents Jackman Avenue Pump Station in Whitianga. The third photo shows an image of a river that feeds into stormwater infrastructure.

Thames-Coromandel District Council

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Executive Summary

Introduction

The primary purpose of the stormwater activity is to collect and dispose of stormwater to limit the effects of surface water ponding from households and businesses in the District. Council owns and operates nine stormwater schemes and two land drainage schemes that provide stormwater disposal capacity for properties in each of the areas of service with $87.9 million in value (as of 30 June 2014). Council's governance direction complements the stormwater activity by promoting consumer reuse of stormwater through infrastructure such as the collection of stormwater by roof water tanks.

The Asset Management Plan (AMP) is a tactical, infrastructural plan that gives effect to a range of other strategic and tactical planning documents including Council's strategic direction and 2015 Long Term Plan (LTP). This AMP demonstrates how Council's goals and strategic targets will be achieved through effective sustainable management of stormwater assets. The AMP is a central document that is linked to the other strategic documents both internally at Council and externally with its key stakeholders. Asset management is a key business function for Council. This AMP forms the basis for providing inputs into the 2015 LTP as required by the Local Government Act (LGA) 2002.

Levels of Service

Council aims to provide environmentally sound stormwater management to deliver the levels of service in a sustainable and safe manner over the long term.

Council recognises that there is a wide range of customers and stakeholders with an interest in how stormwater is managed; the resident community, holiday makers, specific interest groups within the community and regulators are just some of these stakeholders. The LTP process is the primary mechanism for determining and agreeing levels of service and costs with the community and stakeholders.

The levels of service (LOS) for stormwater management are outlined in Section 2 of this AMP and summarised in Table 1.

Table 1 – Service Level Summary for Stormwater

Key Service Attribute	Customer Level of Service
Safety-flood protection	To provide stormwater services to protect habitable areas from flooding
Quality- reliability	To provide reliable stormwater networks
Responsiveness	To provide prompt responses for service
Sustainable -Environmental performance	To provide stormwater services that do not negatively impact on public health or the natural environment in line with regulatory and legislative requirements
Sustainable -Cost Effectiveness	Sustainable management of the stormwater asset renewals

Future Demand

Thames Coromandel District is still expected to increase in terms of population but slowly and more steady than historically predicted. The population in the District is expected to increase at 20 people per year under the medium growth scenario conditions from 26,847 usually resident population in 2013 (estimate) to 27,486 in 2045. The rate of growth is also higher in the first 10 to 15 years with growth continuing steadily until 2026, after which time the growth slows slightly. Only the Mercury Bay and Coromandel-Colville Community Boards population are projected to grow by 1,900 and 200 people respectively. The population in the other Community Board areas is projected to decline.

The major demographic pattern affecting stormwater services is the wetter seasons such as winter and autumn. The Coromandel Peninsula experiences a large amount of precipitation compared to the rest of the country. The large amount of precipitation requires transmission from developed and undeveloped properties to disposal locations. Both winter and autumn has a large demand for services and in particular the stormwater activity. With the Peninsula also being a very popular place to visit in the summer season especially during the Christmas and New Year period, the large influx of visitors and non-resident holiday

house owners causes the population to increase to many times greater than the usually resident population. This causes a large demand on the stormwater activity also.

Lifecycle Management Plan

We own and operate stormwater services in nine main areas that consist of a variety of assets including inlets, outlets, manholes, stormwater pump stations, detention ponds, soakage cells, stormwater networks and stormwater connections.

Council seeks to manage the stormwater facilities in the most cost effective way over the life of the asset. This can be done in a number of ways including inspecting the facilities to ensure that they are performing and their condition is tidy and safe. Council carries out planned condition and performance surveys to understand the deterioration of water supply asset condition and plan any works to address the defects found.

Council will continue to invest in stormwater infrastructure with the main drivers being:

- To provide stormwater services to protect habitable areas from flooding;
- To provide a responsive stormwater request service;
- To adequately maintain the land drainage schemes in Matatoki and Wharepoa and to reduce the impact of flooding on farm properties;

Risk Management

Risk management is an inherent part of Council's overall management philosophy and is incorporated into all of our stormwater practices. Risk is managed through development and ongoing review of activity risk assessments, as well as through emergency response planning, contingency planning, routine monitoring and maintenance response.

The activity review as part of the development of the 2015 Stormwater AMP identified the following highest risks:

- Financial implications with inaccurate asset valuation and long term planning including renewal forecasts;
- Public safety compromised such as person falling into open manhole causing injury or death;
- Poor asset management practices including AMP, lifecycle management plans (LCMP) etc. resulting in poor quality assets;
- Flooding of many properties and roads. Severe damage to road and other infrastructure resulting from uncontrolled stormwater;
- Flooding of habitable floors, damage to property, road flooding, increased erosion.

The risks identified through these processes are a key input into identification and prioritisation of programmes and projects. Council has planned to address these highest risk events through:

- Implement the asset management improvement programme developed with 2015 AMP; continue with regular inspections and reporting by O & M Contractor on assets; start proactively analysing and reporting on data availability; start building core asset management capability;
- Continue with good responsiveness levels of service; start undertaking root cause analysis;
- Complete the draft 2015 Stormwater AMP including LCMP; Infrastructure Group Manager to action the potential new central AM role with LTP team and Area Managers (for community spaces);
- Increase inspections; investigate flooding incidences for root causes;
- Ensure appropriate rules are included in the District Plan; increase public education about stormwater impacts.

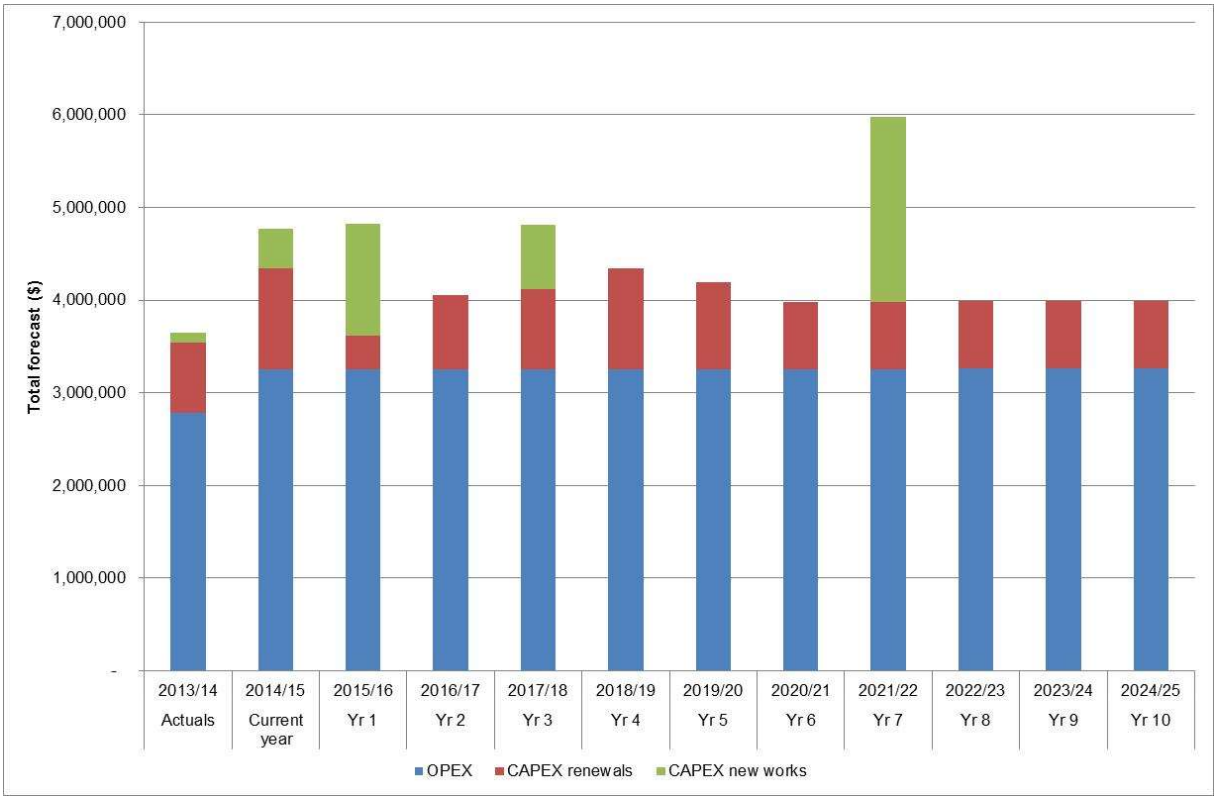
Financial Summary

(Note – Financials will be amended after Council LTP budget resolutions in December 2014)

The total amount of expenditure for operations and maintenance and capital over the next 10 years is $44.2 million, as shown in Figure 17 and detailed in Table 30. This shows that the total annual costs are constant at about $4 million to $5 million per annum except for in 2021/22 with the new Kopu Pump Station. Operation expenditure is $32.6 million for the ten year total and makes up most of the total forecast at 74 per cent.

The expenditure forecasts do not identify required operational and maintenance expenditure and renewal expenditure shortfalls. Unless the shortfall in asset renewals is addressed, Council can expect an increase in unexpected asset failures and systems outages. Addressing the funding shortfall will pose significant challenges for the organisation.

Figure 2: Summary of Total Ten Year Expenditure Forecast (as at 18 December 2014)



Improvement Plan and Monitoring

Improvement opportunities have been identified throughout the development of this AMP. Items have been identified through thorough analysis of Council's stormwater asset data. The main improvement objectives to be achieved in the next three years due to their priority and importance for achieving core asset management and for the stormwater activity include:

The main improvement objectives to be achieved in the next three years due to their priority and importance for achieving core asset management and for the stormwater activity include:

- Undertake data accuracy/completeness assessment of the stormwater information recorded in Loftus system;
- Undertake a practice review of the stormwater information and how it is entered into Council's Loftus system;
- Decrease number of stormwater overflows and blockages through a robust clearing and jetting programme;
- Implement inflow & infiltration reduction programme in all townships on the district.

1. Introduction

1.1 Service Overview

1.1.1 Scope of Services

The primary purpose of our stormwater activity is to collect and dispose of stormwater to limit the effects of surface water ponding.

Council have a number of stormwater systems throughout our District to manage run-off and reduce surface water ponding that can lead to risks to public health and safety, damage to property and to avoid dangerous road conditions. The Council's stormwater systems helps ensure that people in the areas of benefit (usually urban areas) have the ability to discharge stormwater into Council's infrastructure. The Council's stormwater systems provide the ability for domestic, commercial and industrial uses which helps protect our communities and visitors.

Thames-Coromandel District Council provides stormwater schemes to nine major areas, other minor settlements and land drainage schemes. The areas are (Figure 3):

- Thames;
- Thames Coast (Ngarimu Bay, Thornton Bay, Te Puru, Waiomu, Ruamahunga, Tapu, Te Mata);
- Coromandel;
- Mercury Bay (Whangapoua, Matarangi, Opito Bay, Cooks Beach, Hahei, Hot Water Beach, Kuaotunu);
- Whitianga;
- Tairua;
- Pauanui;
- Onemana;
- Whangamata;
- Other Settlements (Oamaru Bay);
- Matatoki (Land Drainage);
- Hikutaia/Wharepoa (Land Drainage);

The activity objective for the stormwater activity is:

"To collect and dispose of stormwater to limit the effects of surface water ponding" (Thames-Coromandel District Council).

To achieve this objective the stormwater activity the following is considered:

- The networks are maintained;
- Council responds to faults;
- Council monitors the satisfaction of our customers;

1.1.2 About this Plan

The Stormwater Asset Management Plan (AMP) is a tactical, infrastructure plan that gives effect to a range of other strategic and tactical planning documents including:

- Council's strategic direction and 2015 Long Term Plan (LTP);

This AMP demonstrates how Council's goals and strategic targets will be achieved through effective sustainable management of stormwater assets. This AMP covers a period of ten years between 1 July 2015 and 30 June 2025 and will be finalised after the adoption of the Council 2015 LTP. It is assumed that the AMP will be updated every three years unless there are significant changes to activities, programmes and expenditure.

This plan has been written to provide the information required for good asset management planning as set out in:

- LGA 2002 Schedule 10 and amendments;
- Office of the Auditor General criteria for AMPs, 2006;
- International Infrastructure Management Manual (IIMM) 2011, published by New Zealand Asset Management Support (NAMS);

1.1.3 Activity Rationale

Stormwater services and assets have been developed over many years by Council to serve the needs of the community. The rationale for continued Council involvement in the stormwater activity and ownership of assets is contained in the:

- Local Government Act 2002 where Council is required to continue serving the communities of the District with stormwater networks;
- Health Act 1956 where Council is required to improve, promote and protect public health as well as provide adequate supply and monitoring;
- Resource Management Act (RMA) which promotes sustainable management of natural and physical resources as well as the taking of water and the discharge of stormwater to the natural environment to comply with resource consent conditions;
- Civil Defence Emergency Management Act 2002 which requires lifeline utilities to ensure they are able to function to the fullest possible extent, and have plans in place, to cope during an emergency

The rationale for the stormwater activity is:

- To reduce the amount of stormwater that enters Council's wastewater networks;
- Recognise the impact of climate change and rising sea levels;
- To reduce environmental impacts on stormwater discharge;
- To implement strategies for sustainable and practical management of stormwater disposal;

1.1.4 Asset Summary

Council owns and operates nine stormwater schemes and two land drainage schemes that provide stormwater disposal capacity for domestic, commercial and industrial properties in each of the areas of service worth $87.9 million in value (as of 30 June 2014). The stormwater networks are managed directly by the Council.

A summary of the District's asset class are below:

Table 2 - District wide number of assets (as of June 2014)

Stormwater Asset Class	Quantity
Stormwater Pump Stations	4
Detention Ponds	2
Soakage Cells	4
Inlets	1,238
Manholes	3,170
District Pipeline	197.6 km

Source: Council's Loftus Database and Council's Rating Database

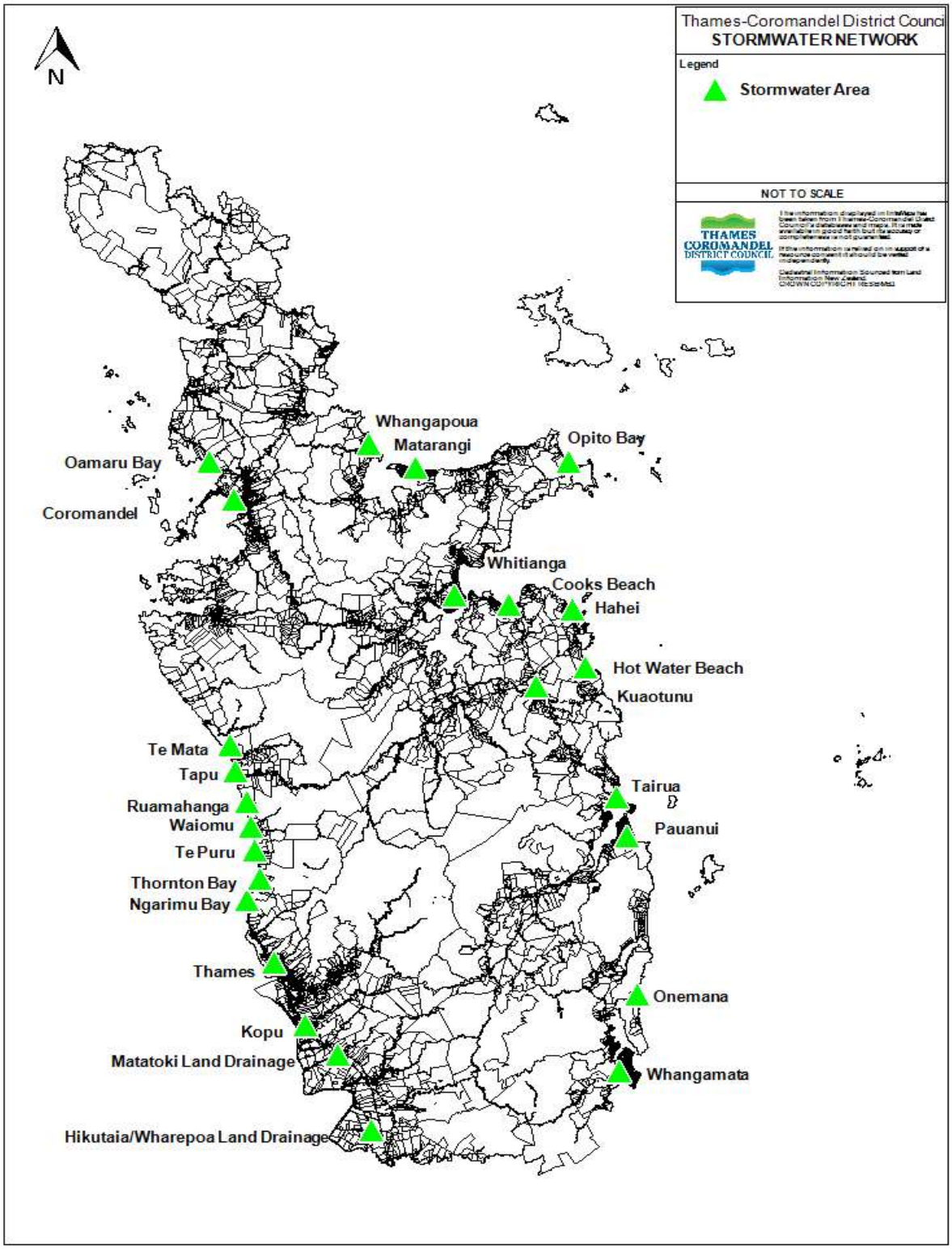


Figure 3 - Overview of TCDC's Stormwater Areas

1.2 Strategic Direction and Linkages

The following is the current vision for the direction of the Council.

"The Coromandel will be the most desirable area of New Zealand in which to live, work and visit"

Our Vision

We will be a leading district council in New Zealand through the provision of quality services and facilities which are affordable, and delivered with a high standard of customer service.

We will earn respect, both as a good community citizen and through our support of community organisations, economic development and the protection of the environment.

Through our actions, the Coromandel will be the most desirable area of New Zealand in which to live, work and visit.

Achieving the Mission and Vision

The stormwater activity has a key role in achieving the vision of the current Council.

Core services such as stormwater are vital day-to-day operations for local communities, however is equally important to the visitor population of the District. The effective disposal of stormwater is vital to our customers and is a pivotal resource for maintaining a community that is a desirable place to live and visit.

The district has a number of industrial zones such as Kopu in Thames and Moewai in Whitianga. To ensure that these industrial areas can operate an effective business, reliable stormwater systems are a fundamental resource. These industrial areas are the back bone of the communities and create employment opportunities for our customers.

Strategic and Corporate Goals

The stormwater activity contributes to Council's Outcomes as shown in Table 3.

Table 3 - Strategic and Corporate Outcome Goals

Council Outcome	The Stormwater Activity...
A Prosperous District	• Effective management of stormwater to prevent excessive surface water creating access difficulties. This helps to ensure uninterrupted operation of businesses and prevent damage to property. By providing a stormwater service, this activity supports growth of the local economy.
A Liveable District	• Provides infrastructure to help build safe and healthy communities by minimising risks because of the stormwater activity and retaining a safe living environment.
A Clean and Green District	• Stormwater management is critical in playing our part in keeping our environment safe and clean

The stormwater activity is the responsible for a large portion of Council's operational and capital spend and may affect the rating impact on our communities. This plan is the basis of the responsible management of the activity to ensure optimal efficiency is obtained.

1.3 Planning Framework

1.3.1 Key Issues

This activity has the following key issues. The section(s) of the AMP that address these issues have also been highlighted:

Table 4 - Key Issues

Key Issue	AMP Section
Renewal of aging infrastructure that has reached the end of its economic life.	Section 4.8
Upgrade the capacity of inadequate sized infrastructure.	Section 4.8

1.3.2 Negative Effects

The negative effects that may occur as a result of the stormwater activity include but are not limited to:

Table 5 - Activity Effects

Negative Effects	
Effect	Mitigation
Environmental effect due the discharge of stormwater into the natural environment.	Compliance with resource conditions set to ensure stormwater discharge is safe.
Noise and vibration nuisance from pumping stations.	Civil structures and other noise-proof frameworks used to mitigate noise and vibration nuisance. New infrastructure is assessed for noise pollution as part of the land use consenting process.
Contaminants from roads and properties enter the stormwater networks which can be discharged to water bodies.	Civil structures such as catchpit grates are installed to reduce the likelihood of contaminants entering the stormwater networks as well as on-going operations and maintenance of outfall structures.

Below listed are some of the positive effects as a result of the stormwater activity:

Positive Effects	
Effect	Outcome
Provides infrastructure to support business development in the community.	This provides capacity within the activity and therefore promotes growth throughout the district.
Provides infrastructure to protect habitable areas from flooding.	This provides safety for property owners in regards to possible flooding

1.4 Management Structure

Overall responsibility for the Water Services department management lies within the Infrastructure Group and Group Manager Infrastructure who reports to the Chief Executive of Thames Coromandel District Council as shown in Figure 4.

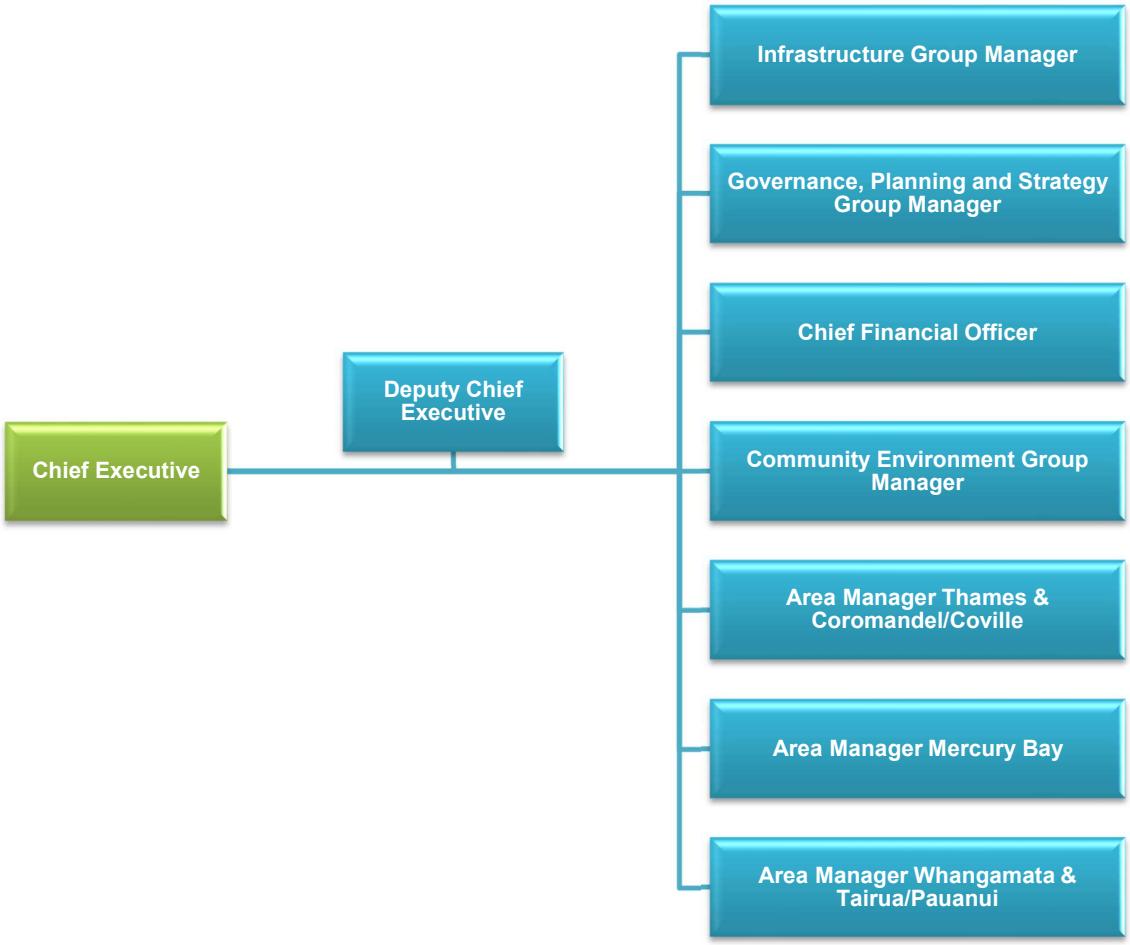


Figure 4 - TCDC's Corporate Structure

Infrastructure Services

The Water Services department is part of the Infrastructure Group. The Infrastructure Group also includes the other departments:

- Roading;
- Solid Waste;
- Asset Data Management;

Water Services Team

Council has a team of Engineers, Field Staff, Management and Contractors to ensure the activity is run within the bounds of the relevant legislation and the levels of service set out in this plan. This activity is a centrally administrated with a district wide approach to its management.

2. Levels of Service

2.1 Overview

Council aims to provide safe and affordable stormwater services in the District and to deliver the levels of service in a sustainable manner over the long term. Council has a number of stormwater systems throughout the District to manage run-off and reduce surface water ponding that can lead to risks to public health and safety, damage to property and to avoid dangerous road conditions.

At a high level, the stormwater activity service levels are (and outlined in Section 2.6):

- To provide stormwater services to protect habitable areas from flooding;
- To provide a responsive stormwater request service;
- To adequately maintain the land drainage schemes in Matatoki and Wharepoa and to reduce the impact of flooding on farm properties;

This section defines the level of service or the qualities of the service that the Council intends to deliver and the measures used for monitoring. The adopted level of service supports the Council's strategic goals and is based on user expectations, statutory and national standard requirements.

2.2 Customers and Stakeholders

Good knowledge of stakeholder values and drivers is essential for an effective, efficient and safe stormwater activity. Table 6 shows key customers and main stakeholders involved in stormwater and their specific areas of interest. As the Coromandel Peninsula is a desirable place to visit particularly in the summer period, our customers and stakeholders are wider than our ratepayers.

Table 6 - Key Stormwater Customers and Stakeholders

Segment	Area of interest
Customers	
The community - citizens and ratepayers	• Rates impact • Interested in safe and sustainable stormwater services
Resident ratepayers	• These customers make up about half of our ratepayers, and are focused on retaining current levels of service and where possible to make savings to minimise rating impacts.
Non-resident ratepayers	• These customers are mainly holiday makers and have a focus on receiving services that are provided over the peak summer period. Many are from Auckland and Hamilton. • They expect to stay and move around the District safely, particularly when there is a storm event.
Visitors to the District	• These customers expect a healthy and natural environment particularly of the waterways. • They expect to stay and move around the District safely, particularly when there is a storm event.
Industry and commercial	• The District has a number of small industrial zones that support the local economy. They expect reliable stormwater services to continue their business operation uninterrupted with access to their businesses maintained at least cost. • The aquaculture and fishery industries are interested in unpolluted waterways for their business. They do not want polluted waterways caused by stormwater flooding and road runoff.
External Stakeholders	
Iwi	• It is a requirement to consult with Iwi for the majority of resource consent applications due to the cultural effects of discharging stormwater into the natural environment. Iwi are interested in ensuring that cultural aspects of the activity have been thoroughly assessed and given due consideration.

Segment	Area of interest
	They are interested in improvement to the natural environment and inclusion in decision making early on.
Environmental groups	• Interested in improvement to the natural environment and inclusion in decision making early on.
Waikato Regional Council (WRC)	• WRC issues and monitors the resource consents for stormwater discharge under a set of resource consent conditions.
Government agencies (Office of the Auditor General, Audit New Zealand, Ministry of Local Government, Ministry for the Environment, Department of Internal Affairs, Ministry of Civil Defence and Emergency Management (CDEM))	• Interested in the prudent management of the stormwater activity. • Set national policy, standards and legislation and audit our performance.
Internal Stakeholders	
Mayor and Councillors	• Strategic outcomes • Rates impact
Community Boards	• Interested in specific projects in their area, levels of service, and rates impact, and working with community groups
Area Managers	• Interested in specific projects in their area, levels of service, and working with community groups
Deputy Chief Executive Group	• This group is a collection of managers that help sets the direction of the organisation to achieve the strategic outcomes.

2.3 Legislative Requirements

The key legislation affecting the levels of service provided by the stormwater activity are summarised in Table 7.

Table 7 - Key Stormwater Legislation

Legislation	Requirement
Local Government Act (LGA) 2002 and updates	This Act requires local authorities to: • Describe the activities of the local authority. • Identify community outcomes and priorities, at least every six years. Additionally indicators need to be developed which assess the contribution of the wastewater activity to these outcomes. • Prepare a range of policies, including Significance, Funding and Financial Policies. • Prepare a LTP, at least every three years. AMPs are the main method of demonstrating Schedule 10 requirements. Schedule 10 requires the Council's LTP to contain information on the implications of changes in demand or service levels. This means that local authorities should disclose: • Whether they intend to change the service levels for an asset over the life of the plan; • What they expect will happen either to demand for the service and/or consumption of the service; and • Demonstrate how risks are to be managed.
	The Local Government Act 2002 provides the general framework and powers under which New Zealand's 78 democratically elected and accountable local authorities operate. The Act consists of 12 Parts and 20 schedules. In brief, the legislation sets out a range of obligations, restrictions and powers, including requiring local authorities to assess their communities' needs for water, and wastewater and sanitary services, and placing an obligation on local authorities to provide water services to ensure continued public ownership of water services (Parts 7-9 & 11).

Legislation	Requirement
	The LGA Amendment 2014 requires Council to develop a 30 year infrastructure strategy. This strategy is an extension of the AMP and will have an implication on funding some parts of the activity including development contributions. This plan will require Council to take a long term look at the delivery of its services.
	The LGA 2002 (Section 123) also puts an obligation on the local authority to complete a Water and Sanitary Services Assessment (WASSA) to assess the impact of these services (which includes wastewater) on the public health of the community, and to consult with the community on these impacts or any inadequacies of these services.
	Section 130 puts an obligation on the local authority to maintain the water services that it has developed. The Council is unable to divest its ownership of these assets except to another local government organisation.
Resource Management Act 1991 (RMA) and updates	The RMA is the key legislation that sets out how we should manage our environment. The RMA is relevant to the stormwater activity as land and watercourses that TCDC disposes stormwater to are a valuable natural resource, that needs to be protected against significant negative effects. Council also has a role to play in the control of development and subdivisions under the RMA and the District Plan, to manage these effects on the environment.
Building Act 2004	The Building Act 2004 and its related provisions set standards for stormwater control as they relate primarily 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 stipulates the minimum level of flood protection for houses.
Utilities Access Act 2010	The Utilities Access Act 2010 requires utility operators and corridor managers to comply with requirements.
Civil Defence and Emergency Management (CDEM) Act 2002	Requires lifeline utilities to function at the fullest possible extent during and after an emergency and to have plans for ensuring these functions (business continuity plans).

2.4 Industry Standards and Guidelines

The primary documents that guide service standards for the stormwater activity are summarised in Table 8.

Table 8 - Key Stormwater Industry Standards and Guidelines

Standard /Guideline	Description
Council's Code of Practice	Council's 2013 Engineering Code of Practice for Subdivision and Development outlines in Section 4 the compliance for engineering design and construction while fulfilling conditions imposed by a resource consent for subdivision and development (or works that are carried out as a permitted activity).
Standards Association of New Zealand	Provides a range of standards covering required or recommended practice which may impact directly on assets or management of contracts, e.g. the NZS4404 Code of Practice for Urban Subdivision provides a range of stormwater standards. The revised NZS4404:2010 now includes formal provision for low impact design for stormwater, stormwater treatment, and now requires climate change impacts to be taken into account.
Water New Zealand Best Practice Guidelines	Water New Zealand is a national not-for-profit sector organisation that provides best practice guidelines in the provision of stormwater including modelling. They also coordinate national performance benchmarking on an annual basis. There are also many best practice documents on low impact design including Permeable Pavement Design Guidelines, and Bio-retention Guidelines developed by Auckland Council and available to the wider industry.
Technical publications	There are well recognised technical publications originally developed by legacy Auckland Regional Council and now Auckland Council that are used widely by the stormwater industry. The technical publications relating to stormwater management include:

Standard /Guideline	Description
	• TP10 Stormwater Management Design; • TP108 Stormwater Runoff Modelling; • TP124 Low Impact Design Manual; • TP90 Erosion and sediment control guidelines for earthworks. WRC also develops various technical publications relevant for the stormwater industry.

2.5 Community Engagement

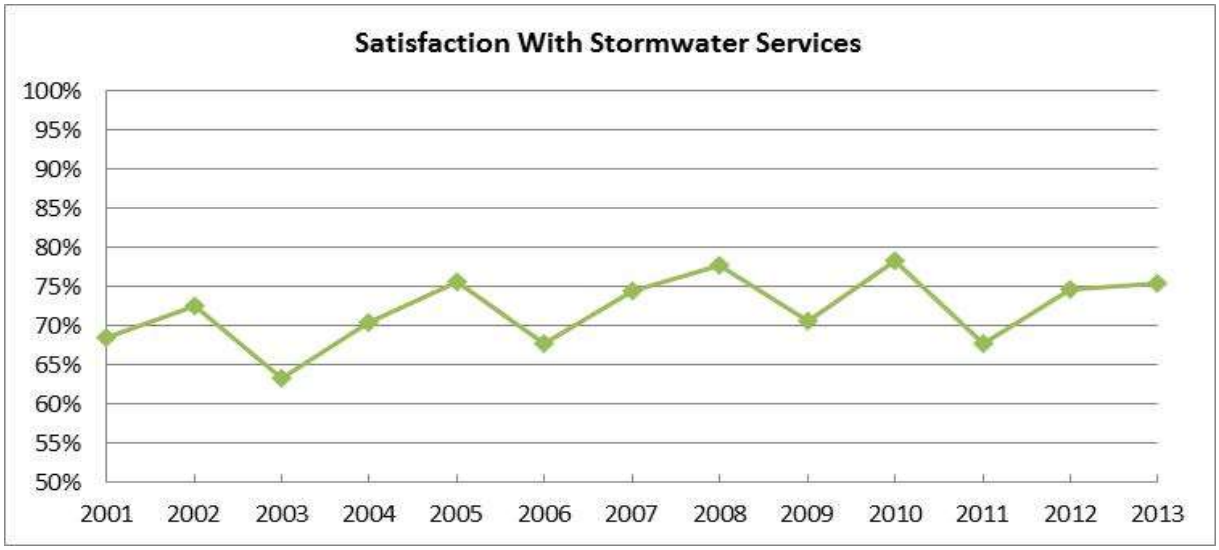
Community engagement on developing levels of service for stormwater services used the following main consultation initiatives:

- Request for service (RFS);
- Customer surveys;
- LTP and Annual Plan consultation processes;
- Consultation on significant projects mainly through the Community Boards;
- Iwi for consultation about discharge and significant projects.

2.5.1 Customer Satisfaction

Figure 5 shows that customer satisfaction has remained over 65 per cent since 2004 and has been trending at 75 per cent for the last two years. Customer satisfaction for stormwater services is lower than for water supply and wastewater services. The satisfaction fluctuates mainly due to major weather events.

Figure 5 – Customer Satisfaction with the Stormwater Activity



Source: Council's Policy & Planning Department

2.6 Service Level Summary

The stormwater levels of service have been developed based on:

- User service expectations;
- Strategic and corporate goals;
- Public health and safety;
- Statutory requirements.

The performance measures will be achieved through the delivery of our capital and operational works programmes.

The levels of service and performance measures for the stormwater activity are summarised in Table 9. A full description of levels of service targets, measures and metadata over the next ten years is included in Appendix B – Detailed Levels of Service Table.

Table 9 - Stormwater Level and Performance Measure Summary

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target
A liveable district	Safety-flood protection	To provide stormwater services to protect habitable areas from flooding	The number of flooding events that occur in Council's district (for serviced areas)	Mandatory	*0*	*0*	*0*
- providing infrastructure to help build healthy communities			For each flooding event, the number of habitable floors affected (per 1,000 connections to Council's stormwater system)	Mandatory	*0.1*	*0*	*<1*
A prosperous district	Quality-reliability	To provide reliable stormwater networks	The number of complaints received by Council about the performance of its stormwater system (per 1,000 connections to Council's stormwater system)	Mandatory	*Not measured*	*Not measured*	≤5
- maximising economic opportunities from the Peninsula's natural setting			Number of blockages per 100km of stormwater pipeline per year	Technical LOS	*Not measured*	*Not measured*	TBC
			Percentage of stormwater network in satisfactory condition (condition grades 1,2 or 3)	Technical LOS	*Not measured*	*Not measured*	TBC
		Land drainage schemes in Matatoki and Wharepoa are maintained to reduce the impact of flooding on farm properties	Percentage of requests for maintenance of land drains actioned within 10 working days	Customer LOS	*Not measured*	*Not measured*	TBC
	Responsiveness	To provide prompt responses for service	The median response time to attend a flooding event, measured from the time Council receives notification to the time that service personnel reach the site	Mandatory	*Not measured*	*Not measured*	≤180 minutes
			Percentage of stormwater manhole-popping requests attended and made safe within 2 hours	Customer LOS	*Not measured*	*Not measured*	TBC

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target
A clean and green district	Sustainable - Environmental performance	To provide stormwater services that do not negatively impact on public health or the natural environment in line with regulatory and legislative requirements	Compliance with Council's resource consents for discharge from its stormwater system measured by number of abatement notices, infringement notices, enforcement orders or convictions received by Council in relation to those resource consents	*Mandatory*	*Not measured*	*Not measured*	Number of abatement notices = 0 Number of infringement notices = 0 Number of enforcement orders = 0 Number of successful prosecutions = 0 Total for all enforcement actions = 0
- providing for our unique environment to be protected							
A liveable district *- providing infrastructure to help build healthy communities*	Sustainable - Cost Effectiveness	Sustainable management of the stormwater asset renewals	Rate of annual asset renewal measured by essential services benchmark *(how much of asset stock being replaced each year)*	Technical LOS	NA	>100%	>100%

1. *Stormwater Level and Performance Measures 2015-2016 Targets are to be confirmed in December 2014 and January 2015.*

2.7 Strategies for Achieving Service Levels

The main strategies for meeting the current service levels are:

- The Operational and Maintenance Contract to ensure service requirements for safety and reliability are met, particularly in the summer peak period;
- Asset renewal strategies to address defects and assets in very poor condition.

2.8 Significant Capital Projects

There are no capital works driven projects planned during the period of this AMP.

3. Future Demand

3.1 Overview

This section describes how the Thames-Coromandel District is developing and the approach Council will take to manage the effects of demand and growth for the stormwater activity. This section also presents the demand factors that impact on the Council's stormwater management and how we will plan for the increasing stormwater demand over the next 30 years.

Knowing where in the district and how the Coromandel Peninsula's population is going to change is a critical factor in the effective management of infrastructure. To enable robust forward planning, growth projections must be based on sound logic and robust data. Although this AMP is for a 10 year period, the growth projections have been assessed out to 2045 to inform the 30 year infrastructure strategy.

3.2 How the District is Growing

Thames Coromandel District is still expected to increase in terms of population but slowly and more steady than historically as shown in Table 10.

Table 10 - Recommended Medium Growth Scenario

Output	2013 (estimate)	2015	2025	2035	2045	Change (2013 - 2045)	Average annual change	Annual average growth rate
Usually Resident Population	26,847	26,888	27,188	27,286	27,486	639	20	0.1%
Total Dwellings	24,164	24,421	25,894	27,338	28,952	4,788	150	0.6%
Total Rating Units	26,679	26,977	28,540	30,059	31,749	5,070	158	0.5%

Source: Council's Projections for Resident Population, Dwellings and Rating Units to 2045 (Prepared by Rationale, May 2014)

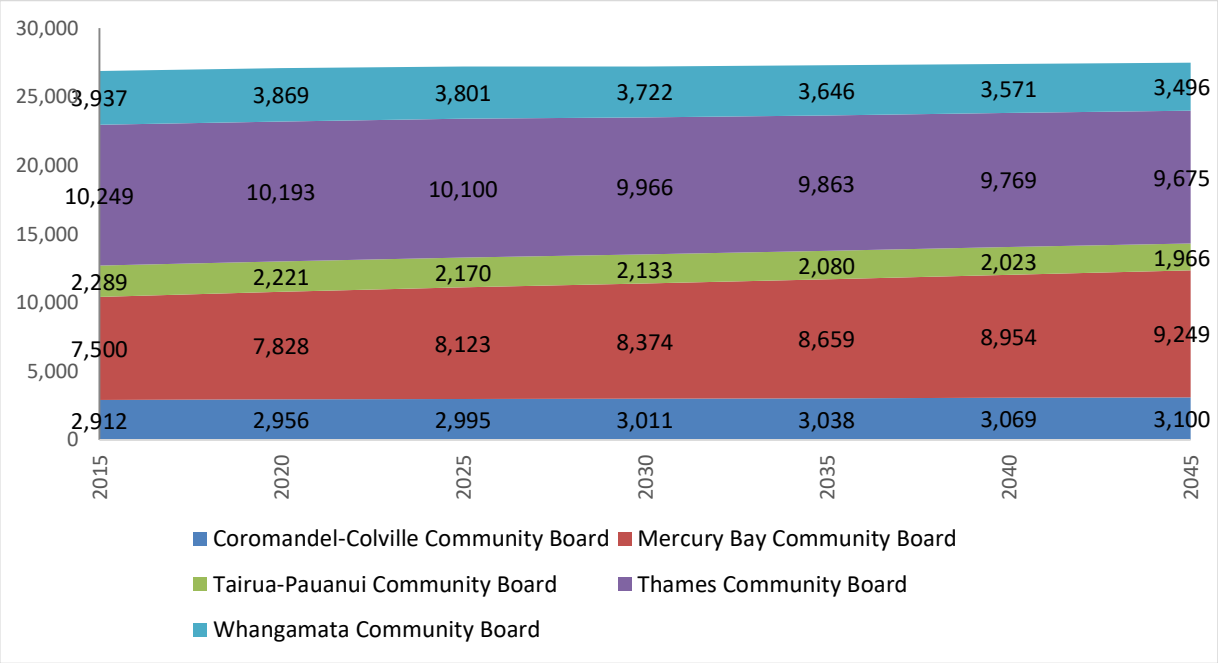
The population in the district is expected to increase at 20 people per year under the medium growth scenario. The rate of growth is also higher in the first 10 to 15 years with growth continuing steadily until 2026, after which time the growth slows slightly.

Council developed a growth model to better understand how the district, as well as at Community Board area level, will likely grow.

Three growth scenarios were tested and the medium growth scenario is considered the most appropriate for Council's long term planning purposes and has been adopted for the 2015 AMPs. The medium growth scenario provides realistic projections that are conservatively optimistic at a lower rate than the past 12 years but consistent with the growth in population over the last seven years. The population growth projected under the medium series is consistent with historical trends of a relatively stable population.

The population forecast by Community Board area is presented in Figure 6. This shows that the only Community Board areas projected to grow are Mercury Bay and Coromandel-Colville. The population in the other Community Board areas is projected to decline.

Figure 6 - Resident Population Growth by Community Board Area



Source: Council's Projections for Resident Population to 2045 (Prepared by Rationale, May 2014)

3.3 Growth and Demand Trends

This section details the key trends affecting stormwater demand.

3.3.1 Changes in Population and Demographic Patterns

In terms of geographic spread of growth, the Mercury Bay Community Board area is projected to experience the highest growth. The Coromandel-Colville Community Board area is the only other area where the population is forecast to increase. The population in the other community board areas is forecast to decline, however the dwelling and rating unit growth is still positive this is most noticeable in Coromandel-Colville.

Within the Mercury Bay Community Board area, most of the dwelling growth, outside Whitianga, is projected to occur in the popular holiday settlements. Dwelling growth in these areas will result in the district's proportion of holiday homes increasing from 47% of total dwellings in 2013 to 51% in 2045.

The major demographic patterns affecting stormwater services, household size, seasonal peak, peak day, dwelling and rating units are discussed below.

Average Household Size

The average household size for the District is projected to decline as shown in Table 11 following historical trends, although the rate of decline is forecast to slow down in the future compared to historical trends. This is based on historical trends and is most likely due to a number of factors such as age demographics and a reduction in multiple families living as one household. The Thames and Whangamata Community Board areas are projected to decline at a faster rate than the others.

Table 11 - Average Household Size for the District

Average household size	2015	2020	2025	2030	2035	2040	2045
Number of people	2.16	2.13	2.10	2.08	2.05	2.03	2.00

Sourced from Council's Projections for Resident Population, Dwellings and Rating Units to 2045 (Prepared by Rationale, May 2014)

Seasonal Peak

The Coromandel Peninsula is a very popular place in the summer season especially the Christmas and New Year period. The large influx of visitors and non-resident holiday house owners causes the population to increase to many times greater than the usually resident population. This seasonal peak has a large impact on demand for services. It has been estimated that about half of all the properties in the District are considered holiday homes, owned by people who visit occasionally or who, increasingly, live here on a part-time basis.

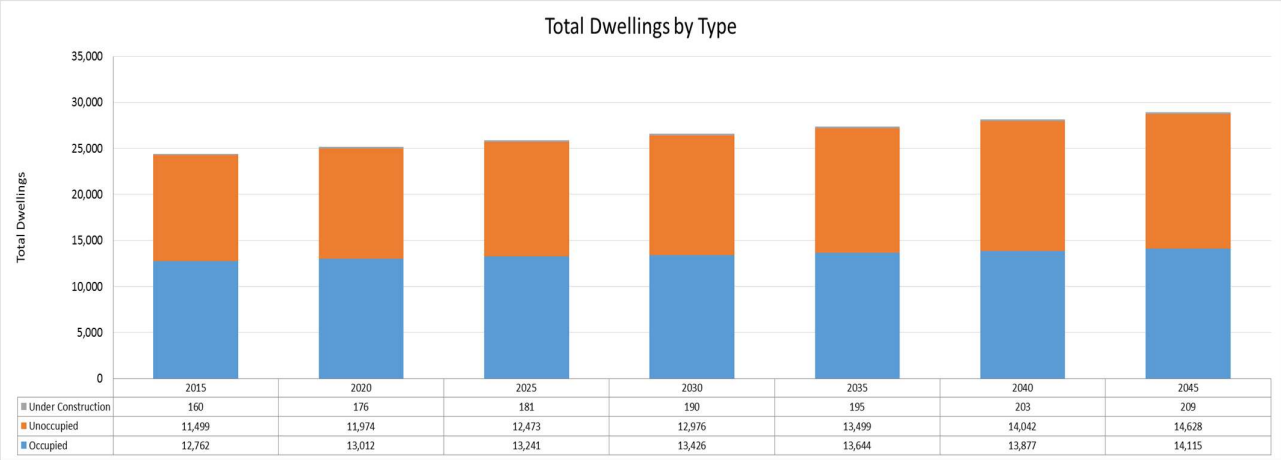
Dwellings

The dwelling growth is only 43% of the historical projections; however the growth rate is closer to that experienced over the last seven years. The proportion of occupied dwellings remains relatively stable, reducing from 52% in 2013 to less than 50% in 2045.

The dwellings in all community board areas are projected to increase. Mercury Bay and Coromandel-Colville increase at around 90 and 20 dwellings per year respectively, with the others having lower growth of around 10 dwellings per year.

Dwelling growth is shown in Figure 7 below.

Figure 7 - Council's Total Dwellings by Type



	2015	2020	2025	2030	2035	2040	2045
Under Construction	160	176	181	190	195	203	209
Unoccupied	11,499	11,974	12,473	12,976	13,499	14,042	14,628
Occupied	12,762	13,012	13,241	13,426	13,644	13,877	14,115

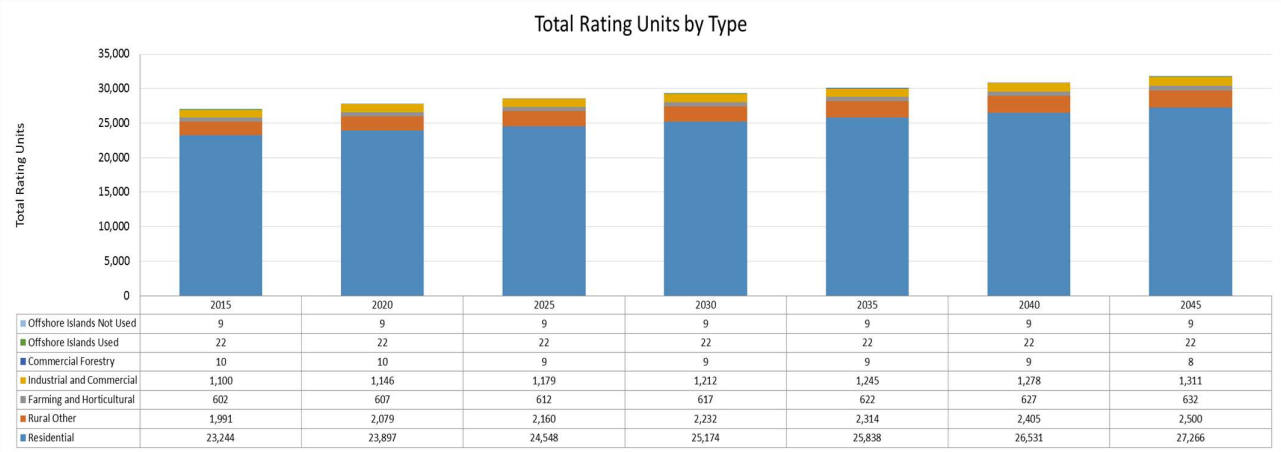
Source: Council's Projections for Resident Population, Dwellings and Rating Units to 2045 (Prepared by Rationale, May 2014)

Rating Units

The change in the rating units is slightly less than the dwelling growth, around 0.5% per year. While most of this is due to residential related rating unit growth, the Industrial and Commercial rating units increase by around 250 units by 2045, at a rate of nearly eight units or 0.5% per year.

Around one third of this Industrial and Commercial rating unit growth occurs in the Mercury Bay area. The remainder is spread fairly evenly between the other community board areas.

Figure 8 - Council's Total Rating Units by Type.



	2015	2020	2025	2030	2035	2040	2045
Offshore Islands Not Used	9	9	9	9	9	9	9
Offshore Islands Used	22	22	22	22	22	22	22
Commercial Forestry	10	10	9	9	9	9	8
Industrial and Commercial	1,100	1,146	1,179	1,212	1,245	1,278	1,311
Farming and Horticultural	602	607	612	617	622	627	632
Rural Other	1,991	2,079	2,160	2,232	2,314	2,405	2,500
Residential	23,244	23,897	24,548	25,174	25,838	26,531	27,266

Source: Council's Projections for Resident Population, Dwellings and Rating Units to 2045 (Prepared by Rationale, May 2014)

3.4 Demand Management Plan

Managing Council's stormwater demand is not only about managing increasing future needs and expectations but also about change in behaviours and philosophy. Through this multifaceted approach, we can reduce environmental impacts and reduce stormwater discharge.

Our current demand management programme is summarised in Table 12.

Table 12 - Current Demand Management Programme

Programme	Description
Requests for Services	The Council provides on-going operational and maintenance support to properties within the stormwater areas of service. This helps reduce the amount of flooding and inundation that are reported.
Pricing	Stormwater rates are structured to promote users to minimise stormwater flooding and inundation on properties.

The future demand management programme includes targeting townships that are influenced by the large increase in absentee population.

Demand Strategies

Capacity needs to be adequate to cater for the seasonal peak in demand and ensure levels of service continue to be met. There are a number of ways to provide for the increase in demand; some of these have been listed below:

- **Capacity Upgrades** - This method of infrastructure provision is to build the total required capacity into the stormwater network and have the capacity available over the non-peak periods. This forms part of renewals and capacity upgrades which is expensive; however it takes the pressure off the operations of the schemes over the winter period.

3.5 Changes in Technology

Technological advancement will have an impact on the stormwater activity by facilitating the reduction of water usage. The main changes in technology to manage the demand on the stormwater activity are summarised in Table 13.

Table 13 - Changes in Technology Summary

Technological change	Description and possible future impact
Wastops	With the influence of climate change and the rise in sea levels, Wastops protect Council's infrastructure and allows us to maintain the ability to discharge stormwater to the ocean.
Concrete Canvas	Concrete Canvas is a new material designed to form a water proof surface for water to travel on. This will provide rainfall and stormwater an easier path to discharge. A trail of concrete canvas has been installed in an open channel drain in Whitianga.
Soakage Cells	Soakage Cells are a technology used as a form of storage under trafficked areas. Rainwater enters the ground and filters through the ground where it enters the soakage cells as temporary storage. This provides Council with the capacity to discharge stormwater slowly during high demand periods.

Spatial Analysis	Improvements in Geographic Information Systems will allow Council to take advantage of improved location accuracy.
Contract Renewal Process	Environmental sustainability and technology innovation is valued in the Stormwater activity. This is a current operational and maintenance requirement for Council's contracts.

3.6 Capital Plan for Growth and Demand

There is no growth driven stormwater projects identified for the period of this AMP. However it is likely that some further stormwater assets will be vested in Council through development processes undertaken by the private sector.

3.7 Growth and Demand Assumptions

The key growth and demand assumptions are as follows:

- Population projections are based on medium growth scenario in accordance with Council's growth model (dated May 2014);
- Projections have been based on historic census data and it has been assumed that the trends that have been observed will continue;
- The summer seasonal peak period and peak day will continue based on historical trends and locations.

To limit the effect of these assumptions, Council undertake growth projection analysis on a three yearly basis to inform the LTP process. Capacity assessments will also be updated on a 3 yearly basis.

4. Lifecycle Management Plan

4.1 Overview

Council provides stormwater services to deliver the levels of service defined in Section 2 in the most cost effective way over the life of the asset. The stormwater assets and facilities are maintained and developed in a way that is fit for purpose and sustainable over time and consistent across the District while recognising community differences.

Council's key asset management principle is meeting the service levels and managing risk while minimising whole-of-life costs. It is important that asset lifecycle costs are considered in decision making as they are typically several times greater than the initial development costs. Asset management is required to deliver an appropriate balance between asset cost, levels of service and risk. The stormwater activity is predominantly both service and asset centred.

4.2 Asset Information

4.2.1 Overview

The stormwater activity means the provision of collecting and disposing of stormwater from properties or businesses to limit the effects of surface water ponding. This is completed to deliver the levels of service defined in Section 2 in the most cost effective way over the life of the asset.

The activity also promotes the safe discharge of stormwater into the natural environment with the objectives of reducing the risks associated with public health and safety and dangerous road conditions. Council is obliged to provide stormwater services within our District. On the district, 94% of properties are rated for domestic purposes and the remaining 6% are rated for commercial or industrial purposes.

What It Includes

Table 14 - What the Stormwater Activity Includes

Stormwater	Ensuring stormwater is controlled and disposed of, when required treated, in order to protect people's health, safety and property.
Land Drainage	Safeguarding the environment, including land and buildings, through the provision and maintenance of an effective and efficient drainage system in the geographic districts included in the schemes.

Source: TCDC's Long Term Plan 2012-2022

4.2.2 Asset Information

Council owns and operates nine major stormwater areas with and other minor settlements that supple stormwater infrastructure to domestic, commercial and industrial properties in each of the areas of service with $87.9 million in value (as of 30 June 2014).

District's Water Assets Summary

A summary of the District's asset class and values are below:

Table 15 - District Wide Number of Assets (as of June 2014)

Stormwater Asset Class	Quantity
Stormwater Pump Stations	4
Detention Ponds	2
Soakage Cells	4
Other Above Ground Assets	1
Inlets	1,238
Manholes	3,170
Outlets	85
Soakpits	10
Other	866
Stormwater Connections	30,395
District Stormwater Drains	197.6 km
Total Depreciated Replacement Costs	$87.9 Million
Annual Depreciation Costs	$1.3 Million

Source: Council's Loftus Database, Council's Rating Database and Council's Valuation Spreadsheets

Figure 9 – Examples of stormwater infrastructure around New Zealand. The first photo shows a detention pond with energy dissipation. The second photo represents riparian planting along a riverbed. The third photo shows a perspective from inside a stormwater outfall.

Network Summary

A summary of each township's pipe length and connection quantities are below:

Table 16 - Township Pipe Length (as of November 2014)

Locality	Length (km)	Number of Connections
Thames	57.4	4,799
Thames Coast	8.0	See Footnote[1]
Coromandel	9.7	1,381
Mercury Bay	30.0	9,597
Whitianga	38.9	3,981
Tairua	12.1	1,625
Pauanui	14.0	2,447
Onemana	2.4	See Footnote
Whangamata	24.8	5,388
Other Settlements	0.3	See Footnote
Land Drainage Schemes	**Length (km)**	**Number of Connections**
Matatoki	18.7	70
Hikutaia/Wharepoa	20.7	50

Source: Council's Loftus Database and Council's Rating Database

Cost Summary

A summary of each asset's values are listed below:

Table 17 - Value of Asset Classes (as of June 2014)

Stormwater Asset Class	Value
Reticulation Assets	$85,487,804.60
Plant	$2,421,210.41
Total Depreciated Replacement Costs	**$87,909,015.01**
Annual Depreciation Costs	**$1,337,315.19**

Source: Council's Fixes Asset Register

[1] Remaining connections in Council's Rating Database are grouped as 'Other' which totals 1,057.

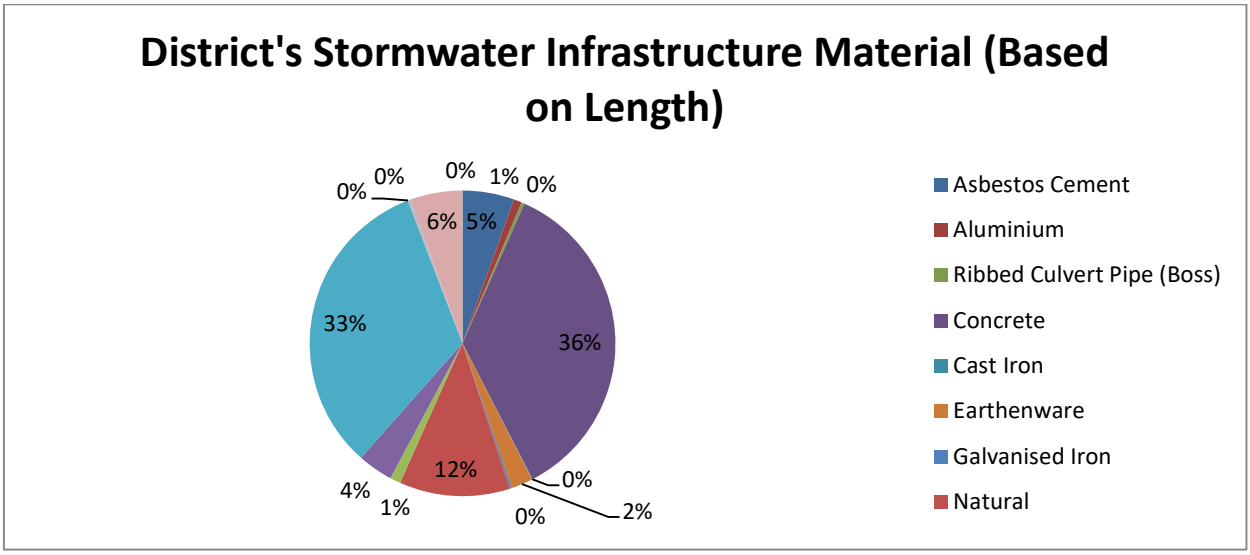
Pump Stations

There are four stormwater pump stations within the District's reticulation networks. The pump stations pump stormwater from lower elevated areas to outfalls that could not be completed by gravity.

Network Materials

The District's stormwater network infrastructure is comprised of different materials (Figure 10). The District's major material by percentage is Concrete (36%), followed closely by Reinforced Concrete (33%). There is also a large quantity of other older materials that were installed in the early mining periods on the Peninsula. These materials are still in use today. Materials that either underperform or pose other risks are called problematic materials. Problematic materials include materials such as Asbestos Cement (AC), Cast Iron (CI) and Galvanised Iron (GI) are addressed in Section 4.4.

Figure 10 – District's Stormwater Infrastructure Material (Based on Length)

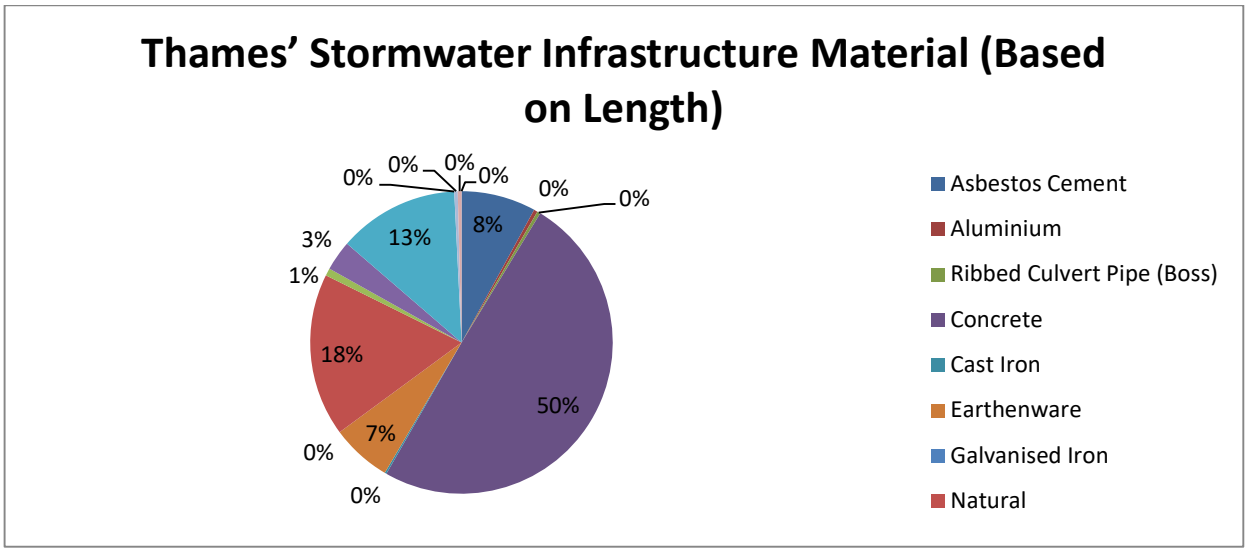


Source: Council's Loftus Database (as of November 2014)

Township Materials

The District's materials can also be broken down per township. Figure 11 illustrates the material breakdown of Thames as an example. The dominant material used in Thames is Concrete (50%) as well as natural drains such as swales (18%). As a result of the early mining industry, there is a large quantity of older materials used in the network such as Asbestos Cement (8%) and older Earthenware (7%). A further breakdown of each township's materials by length can be found in Appendix F – Township's Material by Length Graphs.

Figure 11 - Thames' Stormwater Infrastructure Material (Based on Length)

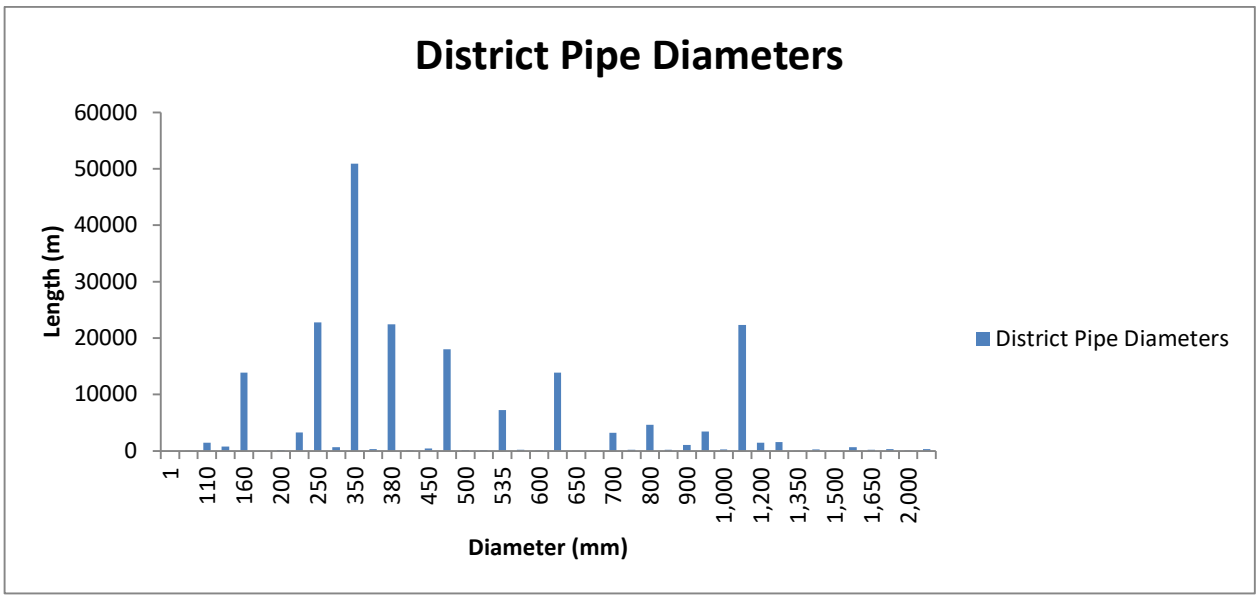


Source: Council's Loftus Database (as of November 2014)

District Pipe Diameters

The District's stormwater pipelines are comprised of different sizes. The transmission of stormwater throughout townships depends on multiple requirements such as the quantity of precipitation and customer demand to fulfil the levels of service outlined in Section 2of this document. The District's most common pipe size by length is 300mm. This is a common size due to its moderate capacity to transmit stormwater in reticulation networks. The next most common pipe is 225mm (12%) in diameter. These are also commonly used to transmit stormwater in smaller residential areas. Figure 12 shows the district's pipe diameters by overall length.

Figure 12 - District's Pipe Diameters by Length



Source: Council's Loftus Database (as of November 2014)

4.2.3 Asset Ownership

Council owns all of the stormwater above and below ground reticulation assets from source to the property connection. Council is also the owner of the resource consents that allow the discharge of stormwater to the natural environment. Catchments containing streams are the responsibility of Waikato Regional Council.

Identified below are two asset systems that are not currently owned by Council, but are used in a stormwater scheme:

- Roading infrastructure including assets such as catchpits that transmit stormwater from roads are the responsibility of Council's Roading department.
- State highway infrastructure includes stormwater assets that convey stormwater from state highways to roading infrastructure. This is the responsibility of New Zealand Transit Authority.

4.2.4 Critical Assets

Critical assets are those assets that cannot be allowed to fail, as their failure would result in unacceptable consequences. The criticality of above and below ground assets is assessed below.

Above Ground Assets

Complex above ground assets such as stormwater pump stations, detention ponds and soakage cells are assumed operationally to be critical assets.

Further to this, a criticality assessment of the majority of each above ground assets' components has been undertaken. This document analyses the criticality of each facilities components.

Below Ground Assets

There has been no formal criticality assessment completed for below ground assets. As an improvement item, a critical analysis of both above and below ground assets will identify and assign criticality ratings to assets. This includes large main pipelines that discharge stormwater from large catchments close to flood prone areas. It also includes critical infrastructure that discharges stormwater from low lying areas typically situated on flat land. This is an improvement item and will be included in Section 7.

4.2.5 Asset Age

The age information for the above below asset information is partially complete. The age information for the below ground asset information is mostly complete (89%). The information regarding both above and below ground assets is not complete and is an improvement item that will be included in Section 7. Table 18 shows a summary table of the District's above ground asset age range.

Table 18 - Above Ground Asset Age Ranges

Asset Class	Year Range
Stormwater Pump Stations	1998-2012
Detention Ponds	N/A[2]
Soakage Cells	N/A[3]

Source: Council's Loftus Database.

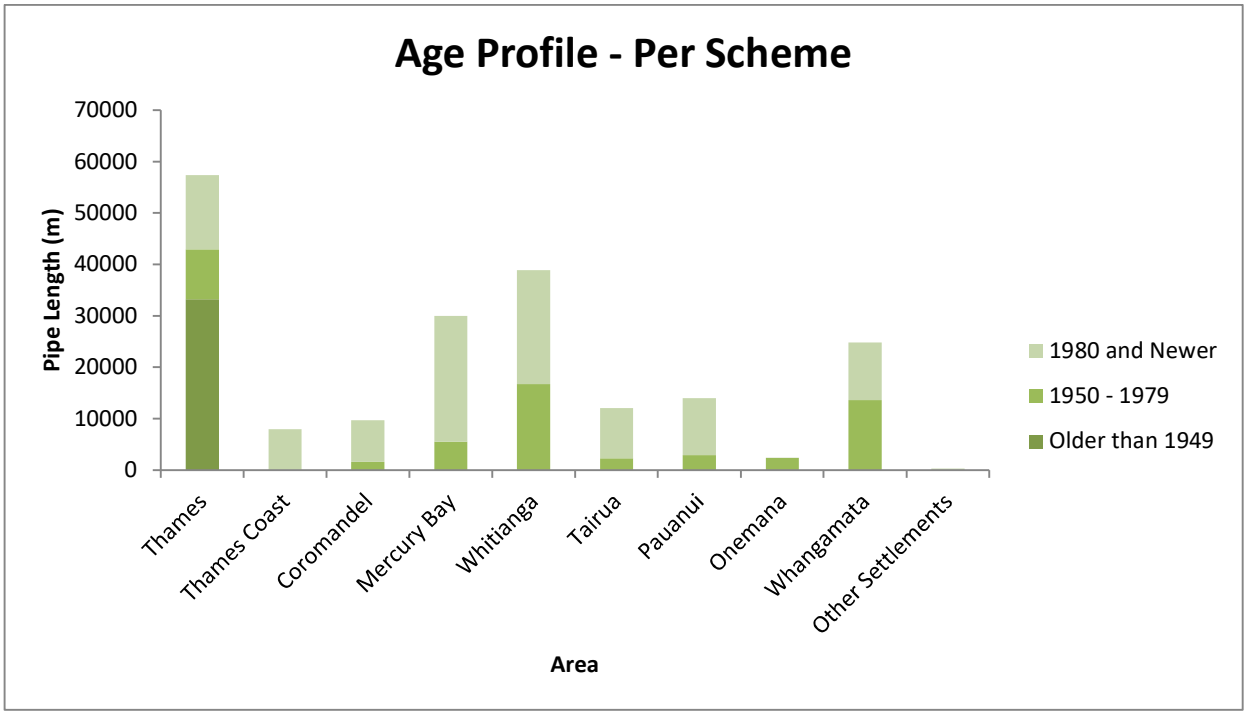
Reticulation

The majority of the reticulation pipework in the district is comparatively new in a national context. Older pipework is mainly found in areas such as Thames and Coromandel. These are areas where the larger renewal and replacement projects have been planned.

[2] No construction date listed for natural detention pond.
[3] No construction date listed for soakage cells.

The financial valuation of Council's assets is based on age. The majority of assets with an age pre-dating 1949 have their age based on historical extrapolation. Because a significant portion of infrastructure was installed in the 1920s during the mining boom, plans were not recorded or stored within Council. Therefore the age of unknown assets are either allocated to 1920 or extrapolated from surrounding assets that were installed at a similar time.

Figure 13 - TCDC's District Wide Pipe Age Profile per Scheme



Source: Council's Loftus Database (as of 30 June 2014)

The district has had a significant amount of stormwater infrastructure installed as part of residential developments. This can be clearly seen in the 1980s and 1990s when development was at its peak on the eastern seaboard of the district.

The majority of the Thames network was installed between the 1920s and 1940s. A large portion of this infrastructure is still in service. A significant portion of this infrastructure is nearing the end of its useful life and is in need of programmed renewal.

4.3 Asset Condition

Asset condition is an important determinant for Council's asset renewal planning. Both the above and below ground asset condition ratings have been outlined in Table 19Table 19 and **Error! Reference source not found.** below. The condition of the above ground assets is based on the 2011 asset condition assessment completed by an external contractor.

Newly created assets have been assigned an unknown value or a value of Very Good. A condition value will be assigned after a formal condition assessment has been undertaken.

Above Ground Assets

The condition of stormwater pump stations in the district is rated between Good and Very Good. There is no stormwater pump stations listed with condition ratings of poor or very poor. Further components of that asset may have a poor or very poor rating which is not reflected as the overall status.

No formal asset condition assessments have been undertaken on detention ponds or soakage cells. The quantity of unknown assets falls outside the recognised industry standards of 10%. This is an improvement item and will be added to Section 7.

Table 19 - Condition Data for Above Ground Assets

Stormwater Above Ground Asset Class	Overall Asset Condition						Total
	Unknown	5	4	3	2	1	Number
Stormwater Pump Stations	0	0	0	0	3	1	4
Detention Ponds	2	0	0	0	0	0	1
Soakage Cells	4	0	0	0	0	0	4
Other Above Ground Assets	1	0	0	0	0	0	1
Total	**7**	**0**	**0**	**0**	**3**	**1**	**11**
%	**64%**	**0%**	**0%**	**0%**	**27%**	**9%**	**100%**

Source: Veolia Water's 2011 asset condition and performance assessment and Council's Loftus database (as of November 2014)

Below Ground Assets

The condition of the majority of the below ground assets (78%) in the district is rated as unknown. This is attributed to no formal condition assessment being undertaken for below ground assets. There is 22% of the districts' below ground assets that are very good. It is assumed these are new assets and have been given a condition rating of one upon entry into Council's Asset Management System.

The condition of each township's stormwater reticulation pipes is identified in Table 20. The majority of the reticulation network in each township is rated as unknown (75%). However, there are a large percentage of pipes with a Very Good rating (24%) and the remainder between Moderate and Very Poor (2%). These pipes are mainly found in historical townships such as Thames, Coromandel and older areas within Tairua.

Table 20 - Township Pipe Condition Data

Pipe Class	Asset Condition						Total
	Unknown	5	4	3	2	1	Number
Thames	1,600	19	0	21	0	253	1,893
Thames Coast	252	0	0	0	0	52	304
Coromandel	153	1	0	2	0	130	286
Mercury Bay	407	0	0	2	1	239	649
Whitianga	561	1	0	3	0	314	879
Tairua	339	9	0	2	0	35	385
Pauanui	251	0	0	0	0	130	381
Onemana	63	0	0	0	0	0	63
Whangamata	401	6	0	0	0	121	528

Other Settlements	6	0	0	0	0	0	6
Total	**4,033**	**36**	**0**	**30**	**1**	**1,274**	**5,374**
%	**75%**	**1%**	**0%**	**1%**	**0%**	**24%**	**100%**

Source: Council's Loftus Database (as of November 2014).

4.4 Asset Performance

The performance of the stormwater assets is assessed, to a large degree, on the ability to discharge stormwater from customers as well as meeting peak demands and the break/safety/reliability relationship of the asset. The performance of the above ground assets is based on the 2011 asset condition assessment completed by an external contractor. The performance of below ground assets is based on number of breaks. This is based on operational data that reports on the number of breaks of an asset.

Newly created assets have been assigned an unknown value. A performance value will be assigned after a formal condition assessment has been undertaken.

There are no known significant issues with any above ground stormwater assets.

Above Ground Assets

The performance of the majority of the District's above ground assets is rated as an unknown condition (56%). There is also a one stormwater pump station that has a poor rating (11%). The remaining 33% have a Very Good performance rating. The large amount of unknown assets is attributed to no performance assessment being undertaken for detention ponds and storage cells in the stormwater networks. The quantity of unknown assets falls outside the recognised industry standards of 10%. This is an improvement item and will be added to Section 7.

Table 21 - Above Ground Asset Performance Data for Asset Class on the District

Stormwater Above Ground Asset Class	Asset Performance						Total
	Unknown	5	4	3	2	1	(No)
Stormwater Pump Stations	0	0	1	0	0	3	4
Detention Ponds	2	0	0	0	0	0	2
Soakage Cells	4	0	0	0	0	0	4
Other Above Ground Assets	1	0	0	0	0	0	1
Total	**7**	**0**	**1**	**0**	**0**	**3**	**11**
%	**64%**	**0%**	**9%**	**0%**	**0%**	**27%**	**100%**

Source: Veolia Water's 2011 asset condition and performance assessment and Council's Loftus database (as of November 2014).

Below Ground Assets

The performance of the Districts' below ground assets is of an unknown performance from within Council's Asset Management System. Whilst inlets, manholes and outlets are operational and functional, there is no current practice where the below ground performance data is entered into Council's Asset Management System. This is an improvement item and will be added to Section 7.

Network Performance

The stormwater network performance of the district's assets is regarded as Very Good. There were a total of 3 reported incidents of flooding and stormwater not draining away between July 2013 and July 2014.

Table 22 - Leaks and Breaks in the District per 100km

Year	Number of Flooding and Stormwater not draining away	Number of Flooding and Stormwater not draining away Per 100km (197.5km)
2013/14 Financial Year	3	0.01

Source: Contractor's Monthly Reports

Consent Status

Council has a comprehensive discharge resource consent for stormwater discharge on the district. This consent is broken into a summary of each area's stormwater infrastructure and catchments.

Council currently has no known performance issues associated with resource consent conditions.

Pump Stations

Council currently has no known performance issues associated with stormwater pump stations.

4.5 Asset Capacity

Asset capacity is assessed for both above and below ground assets. It is recognised that long term strategies are important for ensuring that asset provision considers future growth and demand for the stormwater activity, as well as affordability and whole of life costs.

4.5.1 Above Ground Assets

Council is not aware of any currently capacity issues relating to above ground infrastructure.

4.5.2 Below Ground Assets

Hydraulic Modelling

Council has undertaken some hydraulic modelling of township's water supplies. This is undertaken as required due to the large operational cost of undertaking the stomrwater study and model calibration.

The following outlines the hydraulic modelling that has been undertaken.

1. Whitianga Stormwater Network (2007) - Model fully built and calibrated. This needs to be updated with new infrastructure development.
2. Pauanui Stormwater Network (2007) - Model fully built. This needs to be updated with new infrastructure development and calibrated.
3. Whangamata Stormwater Network (2007) - Model fully built. This needs to be updated with new infrastructure development and calibrated.

4.6 Operations Strategies

4.6.1 Operations and Maintenance Needs

Operational and maintenance strategies cover the practices that we employ to operate and maintain the stormwater facilities and infrastructure to achieve the optimum use of the asset and the agreed service levels. Council keeps the stormwater facilities suitable, accessible, safe and well maintained by carrying out planned and responsive maintenance.

Council aims to optimise its maintenance activities to minimise the total maintenance cost. The optimal maintenance mix is a balance of planned and reactive maintenance. Maintenance includes minor repairs that cannot be capitalised, consistent with Council's capitalisation policy.
Maintenance definitions are as follows:

- **Proactive** – proactive inspection and maintenance works planned to prevent asset failure;
- **Reactive** – reactive action to correct asset malfunctions and failures on an as-required basis (i.e. emergency repairs).

4.6.2 Service Delivery Arrangements

Council's contractor undertakes operational strategies when carrying out reactive and preventative maintenance. The contract between Thames-Coromandel District Council and their contractor is a long-term performance based contract. Council also have a number of staff that manage the maintenance and operations contact, provide field engineering support, monitoring of the contractor's activities, auditing and provide community liaison in three main areas: Thames/Coromandel, Mercury Bay and Whangamata/Tairua/Pauanui.

Veolia Water is Council's current operations and maintenance contractor for utilities infrastructure. Council have a contract with Veolia Water consisting of 16 schedules that provide specifications for services they provide to Council.

Reactive and Preventative Maintenance

Operations and maintenance on Council's assets are completed to specified levels of service. This includes stormwater pump stations, detention ponds, soakage cells, manholes, inlets outlets, stormwater connections and network infrastructure. Council's operational actions for the stormwater activity include:

Table 23 - Operations and Maintenance Activities

Purpose	Asset operations and maintenance	Description
Reactive Response	Unplanned operations	Unplanned operations provide services in response to customers or service faults. This includes a service failure or asset failure such as a water leak or stormwater blockage.
	Leak detection	Unplanned leaks on Council's assets may require the employment of leak detection equipment or services to locate leaks under hardscape surfaces.
Emergency Response	Emergency response plan	An emergency may require the use of the Emergency Response Plan (ERP), which is specifies the correct response action to an emergency. This document provides mitigation and management techniques for staff to follow in case of an emergency.

Purpose	Asset operations and maintenance	Description
Preventative Response	Planned operations (Day-to-day operations)	Planned operations on Council's assets to ensure their continued service and maximised functionality. This includes operations such as responding to requests for services.
	Peak period operations	With a large influx of absentee homeowners in the summer periods, Council's contractors must ensure key assets are readied. This involves activities such as flushing stormwater outlets and checking manholes.
	SCADA operation and maintenance	The operation and maintenance of Council's SCADA system is a critical aspect operating Council's assets. The operation and maintenance of this network is required to ensure its continued operations and maintenance of stormwater pump stations. Monitoring work is completed by Eletcro Care Technology.
	Resource consents	The operations of Council's infrastructure require compliance with resource consent conditions.
	On-going monitoring	Continuous monitoring of Council's stormwater assets is critical for con-going operations and maintenance.
	Stormwater Pump Stations/Detention Ponds Audits	Council's operations staff regular auditing treatment and filter facilities ensures their continuous operations and asset compliance with maintenance activities.

Maintenance Activities

Table 24 – Above Ground Maintenance Activities

Above Ground Assets	Description
Reactive	Reactive maintenance to Council's above ground assets is typically completed by requests for service.
Cyclic	Cyclic maintenance to Council's above ground assets is completed through planned inspections. This is typically for assets that require servicing such as pumps.
Routine	Routine maintenance to Council's above ground assets is completed through Contractors' inspections or Council's audits. This typically assesses above ground assets for service level failure such as flushing stormwater outfalls.

Table 25 – Below Ground Maintenance Activities

Below Ground Assets	Description
Reactive	Reactive maintenance to Council's below ground assets is typically completed by RFS.
Cyclic	Cyclic maintenance to Council's below ground assets is completed through planned inspections.

Routine	Routine maintenance to Council's below ground assets is completed through Contractors' inspections or Council's audits. This typically assesses below ground assets for service level failure such as manholes.

It is noted that it is not clear whether the operations and maintenance forecast amounts are sufficient to maintain the current service levels (refer to Section **Error! Reference source not found.**). Further work is required to determine the required operational and maintenance expenditure required for the system in relation to the service level achievement. The operations and maintenance forecasts need to be reviewed regularly to ensure the service requirements are being met.

4.7 Renewal Strategies

Asset renewal is the process of restoring the level of service delivered by an asset to its original design level, or close to it, by repairing or replacing the degraded components. The purpose of the renewal strategy is to maintain the levels of service by identifying the most cost-effective time to renew individual or groups of assets.

Council is committed to providing long term sustainable infrastructure. This involves maintaining levels of service at the least cost and making sustainable long term decisions.

Across the district there is a large portion of aged assets at or nearing the end of their design life. The Eastern Seaboard has generally been developed over the last forty years and the Coromandel Township has had a significant portion of the stormwater scheme replaced in the 1980s and as a result there has not been a significant focus for renewals. The older assets are for the most part found in Thames, older parts of Coromandel and Tairua. Renewal works have been undertaken for a number of years however an optimised approach is required.

This section outlines the historical, current and future renewal strategies. As recognised in the aforementioned sections, there needs to be an improvement to Council's renewal practices.

4.7.1 Historic Renewals Strategy

Overview

Renewal works have been predominately focused in Thames and Coromandel since 2012; this is due to the fact that known areas of deficiency are within the stormwater networks in these townships. Work has been identified and prioritised across the district and for all asset classes via the following means:

Table 26 - Historic Renewals Strategy

Strategy	Description
Operator Knowledge	Operator knowledge has historically helped inform the renewal strategy. Their input will continue to be valuable going forward.
Problematic Materials	Within Council and some of the longstanding consultant employees (previous Council employees) there is a significant amount of network knowledge. As a result of this, a number of projects have been undertaken as they were previously areas of known deficiency from problematic materials. This has been the case predominately in Thames and Coromandel replacing sections of rubber ring jointed concrete pipe, cast iron and galvanised pipe. These projects have been a priority for some time and are continuously being undertaken.
Roading Coordination	Road renewals and re-seals are projects that occur every year on the Coromandel Peninsula. These renewal activities are planned well in advanced with a three year programme developed each year. The Water Services Team has used the road renewal and re-seal programme to direct field investigations in the stormwater assets. Each year the re-seal programme is assessed to understand what stormwater assets fall within the roadway that is proposed for renewal. Desktop analysis and field investigations are undertaken to determine if the stormwater assets are due for renewal of will be within the roadways design life. Though these methods of programming, areas of known deficiency and also unknown problem areas have been addressed and savings realised through tendering one package of works. This method of assessment will be retained. However it will be optimised to enable more long-term analysis and comparisons of both roading and water renewals.
Reactive Renewals	Reactive renewals are the result of poor asset condition and service failure. Reactive renewals have been undertaken district wide with a large portion focused in Thames. Operating in this reactive manner is not sustainable is not cost-effective and can result in higher risk of failure to meet the required service levels. It is estimated that 15% of Council's stormwater renewal budgets are assigned to reactive causes.

	Reactive renewals will always be a part of any renewals programme however, the aim is to minimise the volume of these events though sound forward planning and robust asset management.

4.7.2 Current Renewals Strategy

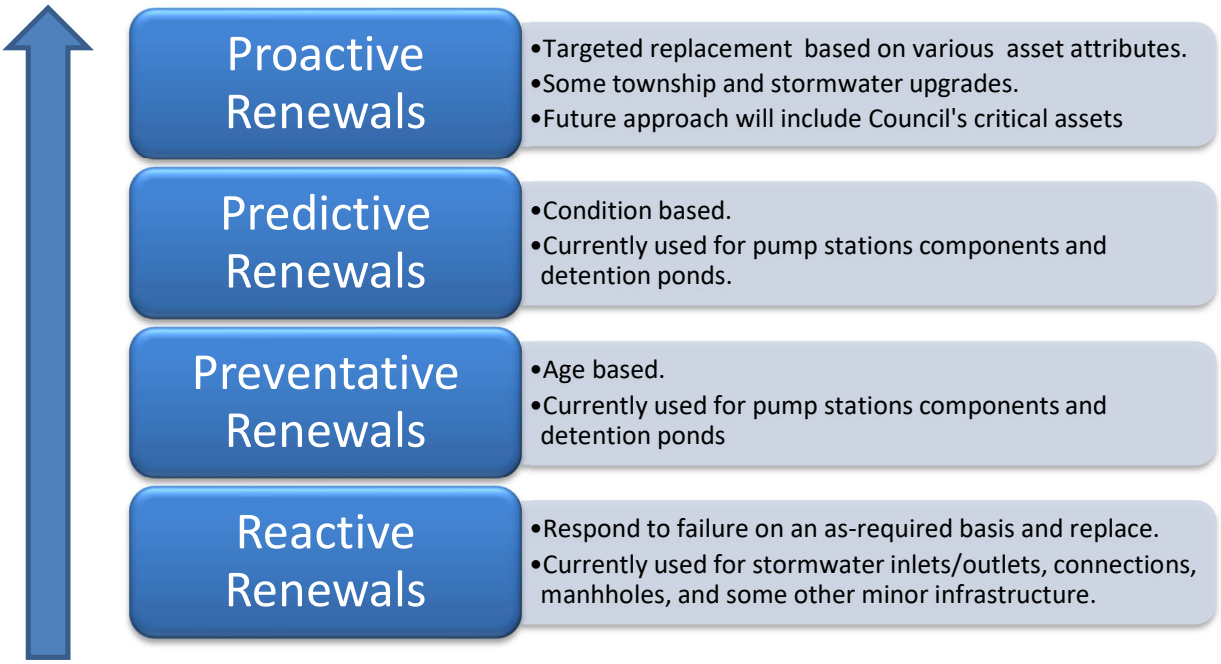
Overview

Council has a district renewal budget that is made up of both planned and reactive budgets. Council's current renewal approach is shown in Figure 14.

Council is currently proactively working towards an improved renewal strategy. A greater level of effort needs to be allocated to Asset Management activities such as, investigations, data gathering, systems integration, renewal candidate assessments, field verification and capital lead-in works. Once this work is part of business as usual, proactive renewals will increase and reactive renewals will show a steady decline.

Significant renewals will be required in Thames and other townships over the next ten years (2015-2025).

Figure 14 - Council's Current Renewal Approach



A sound stormwater renewal programme needs to be developed in accordance with the improvements identified through this plan to better inform future LTP planning process. The required renewal programme is to be based on asset needs and consider trending over the long term towards the annual depreciation and within the acceptable range of the Essential Services Benchmark (refer to Section 6.5). Asset needs to consider:

- Break history
- Asset age
- Asset condition
- Criticality
- Coordination with other programmes such as roading
- Levels of service failure
- Risk based approach

4.8 Asset Creation Strategies

Asset creation is the process driven by consumer growth or levels of service. This involves the design and construction of new assets which increase the capacity or performance of the system. Asset creation is necessary to accommodate growth or changes in levels of service or customer demand.

Council will continue to invest in stormwater infrastructure with the main drivers being:

- To meet the demands of growth by discharging stormwater from Council's customers through efficient utilisation of natural resources;
- To meet the levels of service with respect to safe and effective discharge of stormwater in every town where applicable;
- To meet legislative compliance where possible.

4.8.1 Capacity Creation

The creation of assets sometimes involves increasing the capacity from the originally installed asset. This is in relation to areas of growth and demand. Council undertakes regular population studies to identify potential areas of growth. Council also undertakes capacity assessments of all facilities to ensure there is capacity available for future demand.

Assets that require a capacity upgrade are investigated and assessed against growth and demand requirements. The level of demand placed on an asset will influence the capacity required.

4.8.2 Levels of Service

Council are at times required to create or upgrade assets due to a levels or service change which is typically influenced by a legislative change and safety requirements for above ground assets such as pump stations Council undertake regular assessments on assets that may require creation or upgrading due to a legislative change.

Health & Safety

The Council is legally required to provide the ability to discharge stormwater from its customers in a safe manner. Assets are created to comply with health and safety legislative requirements such as protective equipment. Council is required to make their pump stations safe. Health and safety improvement projects are minor.

4.9 Disposal Strategies

Disposal is any activity associated with disposal of a decommissioned asset, including sale, demolition or relocation. Asset disposal requires making the site safe, removing surplus structures, and covering the costs of any environmental remediation. These costs are generally included as part of the capital project.

The Council does not have any current intention to sell, retire, or decommission any of its major stormwater assets during the next ten year period.

Assets or asset components from pumping stations, soakage cells and pipes are often replaced as part of the business as usual. The assets are assessed and either left in the ground (pipes), recycled, dumped or repurposed. This is assessed on a case-by-case basis and is guided by Council's Finance department and in some cases, market rates for scrap metals.

When an asset is no longer in service, due to renewal or other means, the asset status is changed from active to Out of Service (dead) within Council's Asset Management System. This removes the asset from the valuation process and also where necessary, removes it from the active GIS layers. Asset disposals are identified as a required process of a capital works project closeout process

4.10 Sustainability

Stormwater activities have a significant impact on environmental and economic sustainability. These impacts and relevant mitigation measures are highlighted in Table 27.

Table 27 - Sustainability Impacts for the Stormwater Activity

Sustainability Impact	Mitigation Measures
Environmental – Decreasing stormwater discharge	Council has taken a multi-faceted approach to reducing stormwater discharge to minimise the impact on the environment including: • User pays; • Optimisation of networks in some areas;
Economic - Poor condition, performance and confidence for asset and asset components	Council's key asset management principle to meet the levels of service and manage risk while maximizing an assets' life. The stormwater activity is asset centered and therefore managing these assets and the economic implications is critical. This is managed through Council's project definition process to ensure sound business cases are prepared before implementing costly capital works with consequential opex implications.
Economic – Reuse and recycling	Thames-Coromandel District Council identifies the costs of refurbishing, recycling or reusing an asset. When an asset reaches the end of its useful life, it's identified for retirement by operations or planning staff. The planning team then assess whether it should be refurbished or kept for potential future use. This gives Council a list of spares which is monitored and capitalised by TCDC's finance department. Plastic pipes and metal pumps are assessed and where possible, reused or recycled.

5. Risk Management

5.1 Overview

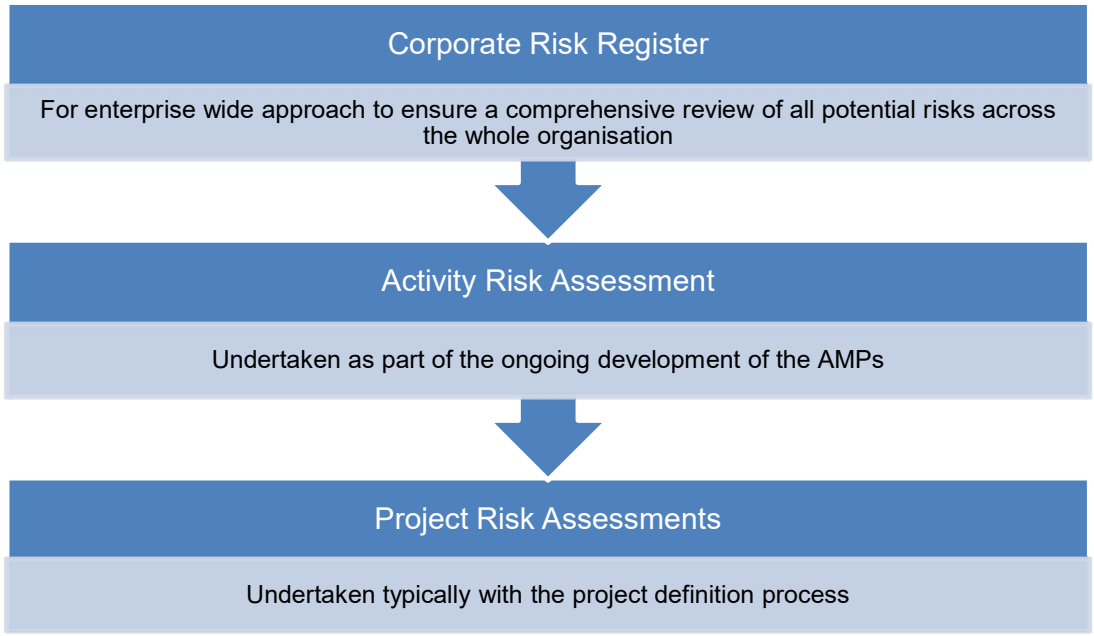
Risk management is an inherent part of Council's overall management philosophy and is incorporated in all of our stormwater practices. Risk is managed through development and ongoing review of activity risk assessments, as well as through emergency response planning, contingency planning, routine monitoring and maintenance response.

5.2 Risk Profile and Assessment

5.2.1 Risk Management Approach

Council's Risk Management Policy (February 2013) outlines its stance and approach to risk management. It gives effect to Council's objectives and commitment to risk management and outlines the rationale for managing risk, the accountabilities for risk management, how risk management performance will be measured and reported and the commitment to periodic review and improvement.

Council follows a traditional risk management approach that is underpinned by the following risk hierarchy (decreasing order):

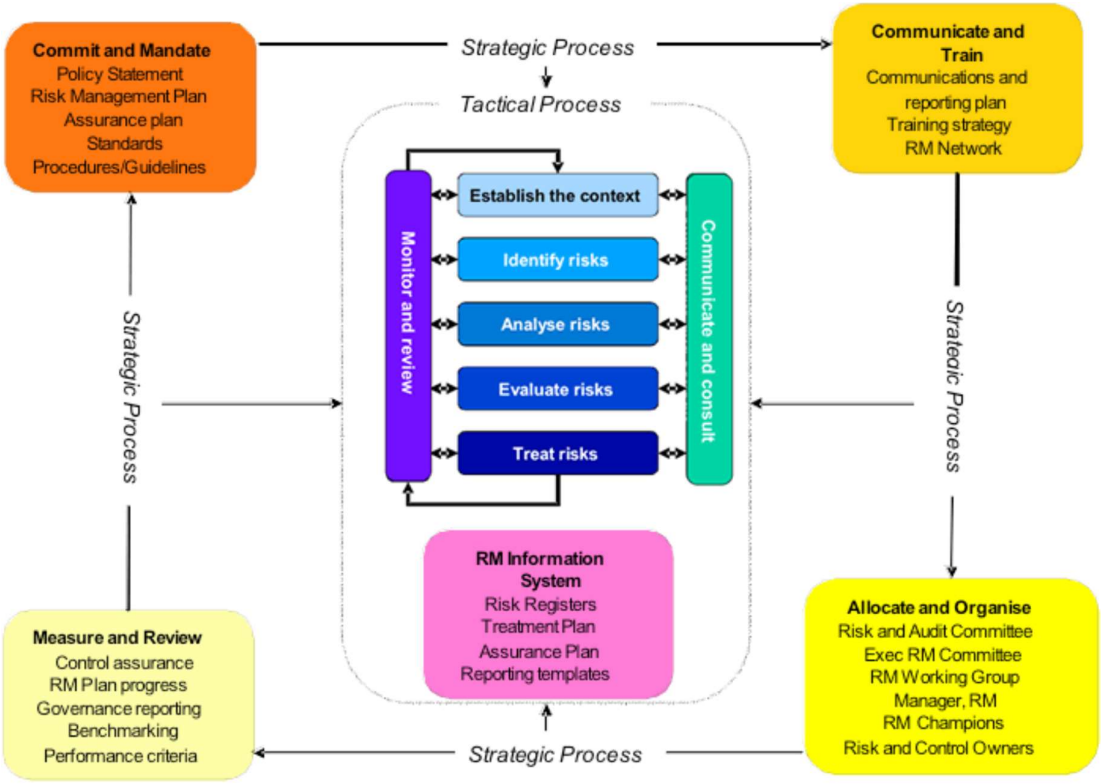


The risk management process is designed to ensure that:

- all significant risks to the community, landowners, the environment and Council are identified and understood
- the highest risks that should be addressed in the short to medium term are identified
- risk reduction treatments which best meet business needs are applied
- responsibilities for managing risk are allocated to specific staff

The risk management framework and process adopted by Council is consistent with Australian/New Zealand Standard AS/NZ ISO 31000:2009 as shown in Figure 15 which defines the generally accepted process for risk assessment and management.

Figure 15: Risk Management Framework



Risk context

The following steps were undertaken to establish the context:

- the relationship between the organisation and the environment has been defined, and the organisation's strengths, weaknesses, opportunities and threats identified to provide an understanding of the 'big picture' potential risk areas and opportunities to manage these risks
- internal and external stakeholders were considered to identify the extent of consequence to be included
- the organisation's capabilities to meet the levels of service and community outcomes were identified
- broad categories for sources of risk of not achieving the levels of service and community outcomes and areas of impact were identified

There are nine areas of impact reflecting the extent of the consequences assessed.

Risk identification

Events leading to failure to achieve defined levels of service, and therefore compromising achievement of strategic goals and community outcomes have been identified as activity risks.

Risk evaluation

The matrix of consequence of impact and likelihood ratings is used to assess the level of risk, ranking events as low, moderate, high or critical risk, as set out in Council's risk management framework. Asset risks have then been compared, ranked and mitigation options assessed for all risks identified.

The full activity risk register is detailed in Appendix D – Stormwater Activity Risk Register. This shows the critical and high risks identified, the current controls and additional controls through mitigation strategies which will be implemented to result in the mitigated risk rating.

5.2.2 Mitigating Risk

Council has adopted the following broad treatment strategy for the levels of risk, presented in Table 28.

Table 28: Risk Levels and Significance

Risk Level	Significance	Level of Risk Acceptability	Extent of Management Required (e.g. Prevention, Mitigation, Reporting, Auditing)
Class 1	Low	Tolerable if improvement is uneconomic.	Low-cost prevention or mitigation where justified. Should be periodically reviewed.
Class 2	Moderate	Most likely unacceptable but may be tolerable if the cost of risk elimination or reduction is greater than the improvement gained.	Preventive measures and mitigation measures required, where practicable. Requires routine review.
Class 3	High	Unacceptable without further control or treatment. May be tolerable if the cost of elimination or reduction is significantly greater than the improvement gained.	Preventive measures are required where practicable. Mitigation measures required in all cases (included in formal emergency preparedness planning). Requires regular review.
Class 4	Critical	Intolerable. Risk reduction must be implemented.	Prevention and mitigation measures reported immediately to the Chief Executive.

5.2.3 Critical and High Risks

The activity review as part of the development of the 2015 Stormwater AMP identified the following highest risks:

Table 29: Critical and High Risk Events

Risk event	Caused by	Initial Risk
Financial implications with inaccurate asset valuation and long term planning including renewal forecasts	Asset information including condition and performance data not available or inaccurate (including vested assets)	Critical
Public safety compromised such as person falling into open manhole causing injury or death	Popping stormwater manhole	Critical
Poor asset management practices including AMP, lifecycle management plans (LCMP) etc. resulting in poor quality assets	Lack of knowledge Poor record keeping No centrally coordinated AM function	High
Flooding of many properties and roads. Severe damage to road and other infrastructure resulting from uncontrolled stormwater	Failure of stormwater system	High
Flooding of habitable floors, damage to property, road flooding, increased erosion	Overland flowpaths blocked or built over	High

5.3 Risk Management Strategies

The risks identified through these processes are a key input into identification and prioritisation of programmes and projects. Council has planned to address these five highest risk events through:

- Implement the asset management improvement programme developed with 2015 AMP; continue with regular inspections and reporting by O & M Contractor on assets; start proactively analysing and reporting on data availability; start building core asset management capability;
- Continue with good responsiveness levels of service; start undertaking root cause analysis;
- Complete the draft 2015 Stormwater AMP including LCMP; Infrastructure Group Manager to action the potential new central AM role with LTP team and Area Managers (for community spaces);
- Increase inspections; investigate flooding incidences for root causes;
- Ensure appropriate rules are included in the District Plan; increase public education about stormwater impacts.

5.4 Emergency Response Planning

There are unusual events or natural disasters that require more special attention than responding to normal faults, and cause operational strategies to change to a different mode. These strategies aim to minimise the disruption to services from events such as key staff absences, critical asset failures or widespread disasters.

Emergency management deals with the response to severe events. The Civil Defence Emergency Management (CDEM) Act 2002 stipulates that Lifeline Utilities must plan for continuity of service, be capable of managing its own response to emergencies, and establish CDEM Groups regionally. The Infrastructure Group also participates in the Waikato Lifeline Utilities Group although stormwater is not categorised as a lifeline in the CDEM Act.

Stormwater manages non-civil defence emergency events using an incident escalation process, structures, communication and reporting lines that may change as an incident escalates. The key plans for stormwater emergency response planning are:

- Council's Emergency Response Plan (2012);
- Veolia Water's (NZ) Emergency Response Plan, National Outline Plan (2013).

5.5 Business Continuity Plans

Business Continuity Plans (BCP) are developed to coordinate efforts for keeping the Council business operating through high risk events such as pandemics, staff death and terrorism as well as if a place of business such as the main office building is affected by adverse physical conditions. Events may include earthquake, storm, unhealthy building (i.e. asbestos), fire, crime, prolonged IT outage, or the death of the incumbent in a key Council role.

Council's overarching BCP was developed in 2010 for response processes to be implemented for any major interruption to business operations and service delivery. Each activity was also required to develop a BCP specific to their business operations.

5.6 Climate Change and Resilience

A key feature of climate projections within New Zealand that will have the most impact on the stormwater activity are sea level rise and rainfall pattern change.

Rainfall is the main demand driver for stormwater so changing weather patterns will directly impact the stormwater activity. A report by the Intergovernmental Panel on Climate Change concluded that the climate in the future will be one in which the hydrological cycle will in general be more intense, leading to more heavy rain events.

Guidelines issued by the MfE in 2009 set out baseline sea-level rise recommendations for local government to guide a risk assessment process The Ministry's guidelines state:

"We recommend that for planning and decision timeframes out to 2099:

1. a base value sea-level rise of 0.5m relative to the 1980-1999 average be used, along with

2. An assessment of potential consequences from a range of possible sea-level rise values. At the very least, all assessments should consider the consequences of a mean sea-level rise of at least 0.8m relative to the 1980-1999 average."

Climate change is a major management issue facing all infrastructure providers and the built environment. Sea levels are predicted to change as a result of climate change.

Changes in rainfall volumes and intensity and rise in sea levels need to be incorporated into any hydraulic modelling undertaken when assessing the existing and future performance of the stormwater network and with any new development.

The recent Canterbury earthquakes have highlighted the importance of resilient networks. Resilience is a guiding principle in the infrastructure plan, so that national infrastructure networks are able to cope with significant disruption from natural disasters and hazards and adapt to changing circumstances. This is reinforced by the vision for the 2011 National Infrastructure Plan as follows:

> "By 2030 New Zealand's infrastructure is resilient and coordinated and contributes to economic growth and increased quality of life."

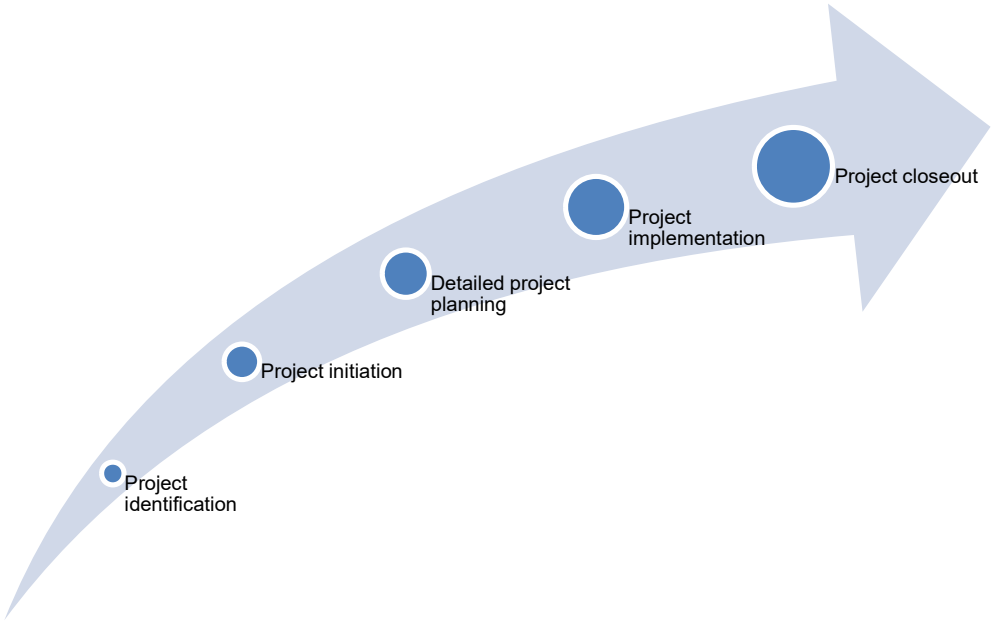
Parts of the District are low-lying coastal land that is vulnerable to some hazards, in particular storm surges, tsunamis, and flooding with major storm events. Future urban development must be located away from these natural hazards to reduce the risk to property and people.

5.7 Project definition process

Council has developed a new framework to ensure projects from conception right through to completion are more robust and better managed. The framework was implemented in 2013 to help mitigate the potential project risks of overspending or initiating projects which are not aligned with Council's strategic objective and/or do not have strong benefits.

The project definition process provides for stronger management around Council projects. The framework sets out five distinct stages of a project as shown in Figure 16.

Figure 16: Project Definition Stages



6. Financial Summary

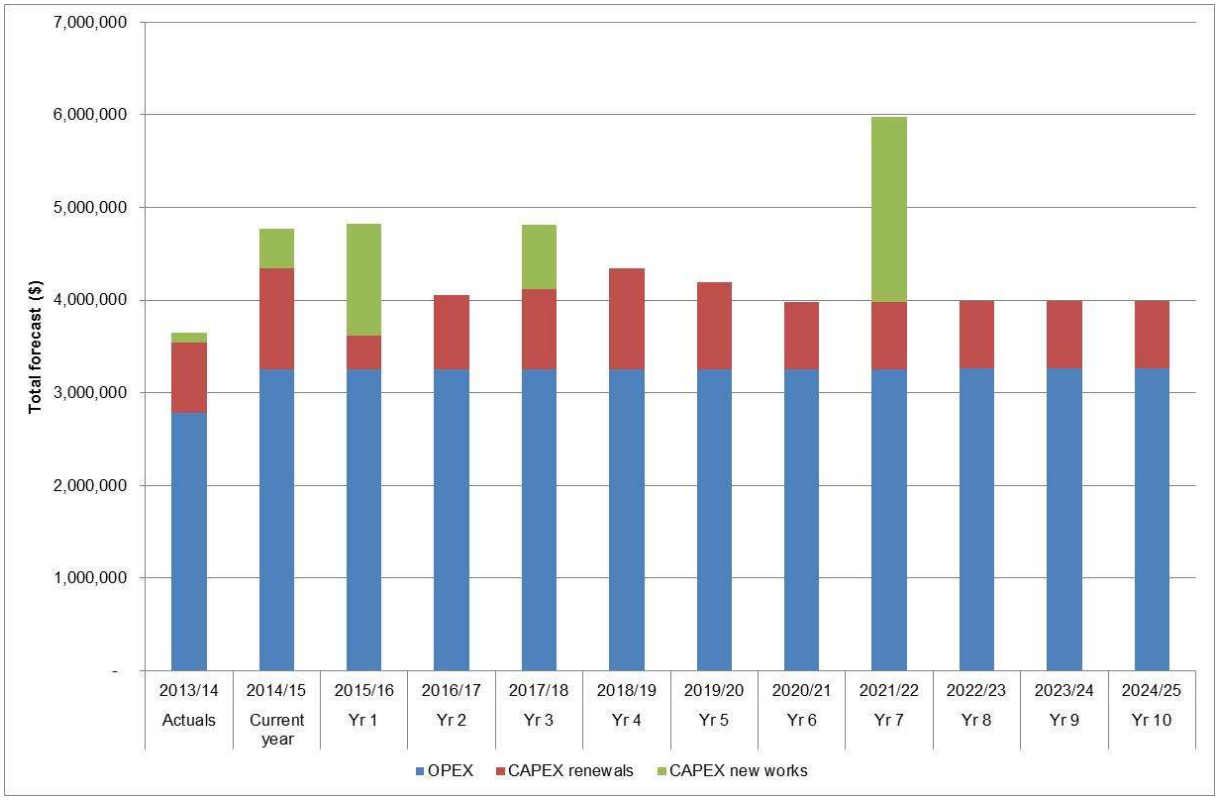
6.1 Financial Summary Overview

(Note – Financials will be amended after Council LTP budget resolutions in December 2014)

The total amount of expenditure for operations and maintenance and capital over the next 10 years is $44.2 million, as shown in Figure 17 and detailed in Table 30. This shows that the total annual costs are constant at about $4 million to $5 million per annum except for in 2021/22 with the new Kopu Pump Station. Operation expenditure is $32.6 million for the ten year total and makes up most of the total forecast at 74 per cent.

The expenditure forecasts do not identify required operational and maintenance expenditure and renewal expenditure shortfalls. Unless the shortfall in asset renewals is addressed, Council can expect an increase in unexpected asset failures and systems outages. Addressing the funding shortfall will pose significant challenges for the organisation.

Figure 17: Summary of Total Ten Year Expenditure Forecast (as at 18 December 2014)



The implications of deferring asset renewals is that there is likely to be more asset and service failures which may impact on reactive maintenance and associated operational expenditure in future years.

Table 30: Summary of Total 10 Year Expenditure Forecast (as at 18 December 2014)

District Wide for activity	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
OPEX	2,783,658	3,256,876	3,256,876	3,256,876	3,256,876	3,256,876	3,256,876	3,256,876	3,256,876	3,266,876	3,266,876	3,266,876	32,598,762
CAPEX renewals	763,361	1,088,899	360,895	793,970	866,149	1,082,686	938,328	721,791	721,791	721,791	721,791	721,791	7,650,982
CAPEX new works	101,634	425,000	1,203,075	-	685,410	-	-	-	2,000,000	-	-	-	3,888,485
Total	**3,648,653**	**4,770,775**	**4,820,847**	**4,050,846**	**4,808,435**	**4,339,562**	**4,195,204**	**3,978,667**	**5,978,667**	**3,988,667**	**3,988,667**	**3,988,667**	**44,138,229**

6.2 Expenditure Categories

Expenditure types are defined and reported as follows:

- Operating and Maintenance expenditure is used to fund the ongoing day to day activities and services of the Council. It is expensed (not capitalised) work that continues the provision of services provided by assets, and the recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the asset's useful life
- Capital expenditure is used to replace existing deteriorated assets or components of assets to restore their remaining life and service potential.

The Council has three categories of capital expenditure spread across its activities:

- Renewals – Defined as Expenditure on an existing asset, which returns the service potential or the life of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time.
- Increased Level of Service (ILOS) – Defined as capital expenditure that increases the service level delivered by the asset.
- Additional Capacity (AC) – Defined as capital expenditure that is required to provide additional capacity in whole or part under Council's Development Contributions Policy necessary to accommodate growth. It is the capitalised works that add new or enlarged existing assets to increase the capacity to cater for further growth in demand.

6.3 Operational Expenditure Summary

The recommended ten year operational expenditure forecast is shown in Table 31 with $32.6 million forecast over the next ten years. It is not clear whether this amount is sufficient to maintain the current service levels, however the forecast is constrained by the budget and available funds. Further work is required to determine the required operational and maintenance expenditure required for the system. *Figure 18* shows the breakdown by activity for 2014/15. This shows that depreciation is 41 per cent of the total operations and maintenance expenditure, followed by interest at 13 per cent. The annual operational expenditure is constant at $3.3 million per annum.

Table 31: Summary of Planned Operational Expenditure (as at 18 December 2014)

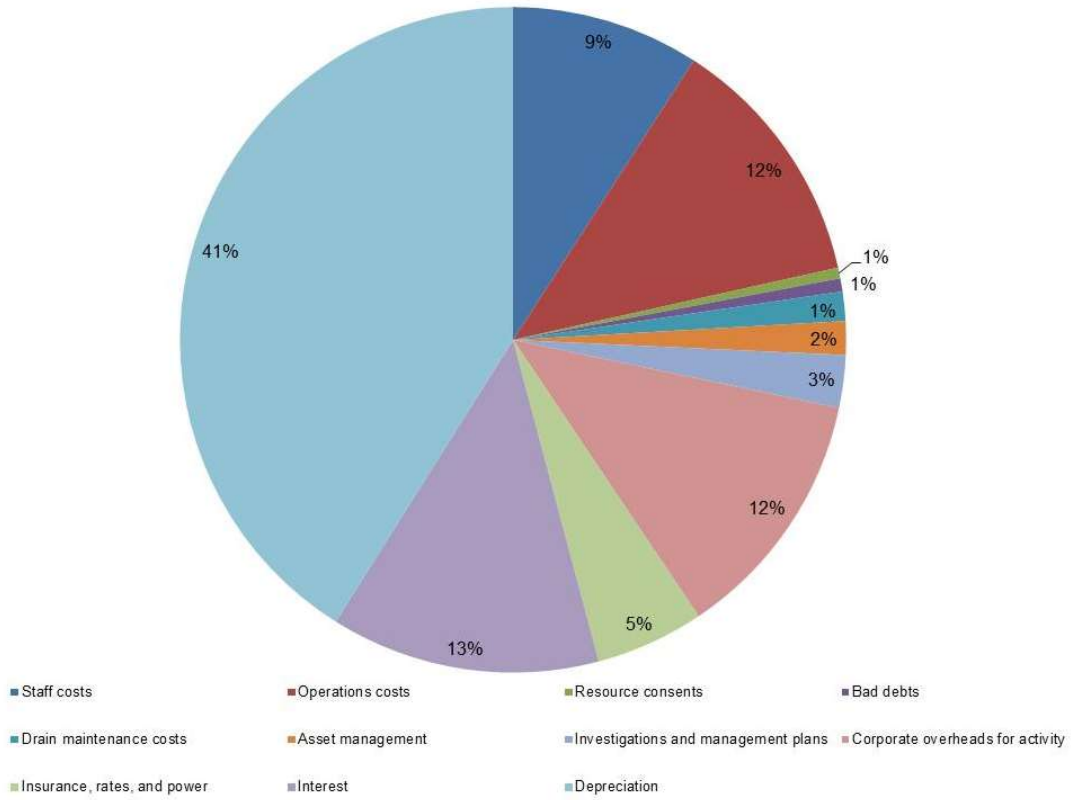
Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs	281,499	297,462	297,462	297,462	297,462	297,462	297,462	297,462	297,462	297,462	297,462	297,462	**2,974,620**
Operations costs	389,955	403,187	403,187	403,187	403,187	403,187	403,187	403,187	403,187	413,187	413,187	413,187	**4,061,870**
Resource consents	23,845	17,054	17,054	17,054	17,054	17,054	17,054	17,054	17,054	17,054	17,054	17,054	**170,540**
Bad debts	25,414	20,708	20,708	20,708	20,708	20,708	20,708	20,708	20,708	20,708	20,708	20,708	**207,080**
Direct asset costs													
Drain maintenance costs	20,457	46,365	46,365	46,365	46,365	46,365	46,365	46,365	46,365	46,365	46,365	46,365	**463,650**
Asset management	28,822	53,163	53,163	53,163	53,163	53,163	53,163	53,163	53,163	53,163	53,163	53,163	**531,630**
Investigations and management plans	37,030	83,000	83,000	83,000	83,000	83,000	83,000	83,000	83,000	83,000	83,000	83,000	**830,000**
Indirect activity costs													
Corporate overheads for activity	308,136	401,131	401,131	401,131	401,131	401,131	401,131	401,131	401,131	401,131	401,131	401,131	**4,011,310**
Insurance, rates, and power	156,934	171,378	171,378	171,378	171,378	171,378	171,378	171,378	171,378	171,378	171,378	171,378	**1,713,780**
Interest	169,344	425,982	425,982	425,982	425,982	425,982	425,982	425,982	425,982	425,982	425,982	425,982	**4,259,820**
Depreciation	1,342,223	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	1,337,446	**13,374,461**
TOTAL	**2,783,658**	**3,256,876**	**3,256,876**	**3,256,876**	**3,256,876**	**3,256,876**	**3,256,876**	**3,256,876**	**3,256,876**	**3,266,876**	**3,266,876**	**3,266,876**	**32,598,762**

Depreciation will increase as a result of the new and expanded assets being proposed in Table 32. The increase in the asset base by approximately $3.9 million over ten years will result in increased depreciation in excess of $300,000 at the end of the ten year period.

The opex detail by each township and land drainage area is provided in Appendix C.

Note that there may be minor differences in the ten year totals due to rounding of numbers.

Figure 18: Stormwater Opex Breakdown for 2014/15 Annual Plan Budget (Revised)



Notes on the operational expenditure are:

- For the purposes of this AMP analysis, an estimated consequential opex and depreciation for new Kopu Pump Station has been made
- Robust business cases for new works need to consider whole of life costs as a standard practice
- The operations and maintenance forecasts are based on the existing levels of service but these still needs to be monitored actual against target (refer to Section 2.6 and **Error! Reference source not found.**). The operations and maintenance forecasts need to be reviewed regularly to ensure the service requirements are being met.
- Vested assets are expected to be from less than 100 lot subdivisions so operational impacts in future years are excluded as not considered significant for the period of this AMP.
- No stormwater ponds from development are expected for the AMP period

6.4 Capital Expenditure Summary

There is a total of $11.5 million for capital expenditure for the next ten years as shown in Table 32. It is estimated that 66 per cent of the capital expenditure is for renewals. The ten year renewal average is $765k per annum. There is a large drop in renewals in 2015/16 to $361k to focus more on planning and investigations and to reset the renewal programme. There are three Kopu LOS projects at about $3.2 million in total to address flood inundation in an industrial area. The Sarah Avenue LOS project is to resolve habitable floor flooding in a low lying residential area.

Table 32: Summary of Planned Capital Expenditure (as at 18 December 2014)

		Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
Capital Expenditure Forecast													
Renewals- district wide	763,361	1,088,899	360,895	793,970	866,149	1,082,686	938,328	721,791	721,791	721,791	721,791	721,791	**7,650,982**
New works growth	21,307		0	0	0	0	0	0	0	0	0	0	**0**
New works LOS- flood protection	80,327	425,000											
Kopu Stormwater Land Purchase			500,000	-	-	-	-	-	-	-	-	-	**500,000**
Kopu Stormwater Detention			-	-	685,410	-	-	-	-	-	-	-	**685,410**
Kopu Stormwater Pumpstation			-	-	-	-	-	-	2,000,000	-	-	-	**2,000,000**
Whitianga Sarah Ave			703,075	-	-	-	-	-	-	-	-	-	**703,075**
TOTAL	**864,996**	**1,513,899**	**1,563,970**	**793,970**	**1,551,559**	**1,082,686**	**938,328**	**721,791**	**2,721,791**	**721,791**	**721,791**	**721,791**	**11,539,467**

Notes on the capital expenditure are:

- District renewals includes all asset classes i.e. reticulation and pump stations. This is recognised as an AM improvement that the renewal forecasts are to be broken down by major asset class as good practice
- Pipelines consist about 99 per cent of the ten year renewal total and plant about 1 per cent.
- No growth driven projects identified for the period of this SWAMP (from 2015/16)
- All LOS capex projects are for resolving flood inundation
- No allowance has been made for potential habitable flood flooding (i.e. no modelling results). Actual incidences are investigated on a case by case basis and capex projects are approved through the Annual Plan process.
- Renewals are age based using candidate projects from Loftus system as a starting point; the list is modified to meet budget envelopes set at 50 per cent (refer to Section 6.5)
- Note that there may be minor differences in the ten year totals due to rounding of numbers.

6.5 Implications of Meeting Budget Limitations

The optimised stormwater capital forecast has been developed on the following basis:

- renewals are prioritised at 50 per cent of the asset requirement from Loftus system outputs as shown in Figure 19
- LOS expenditure for flood protection programmes is based on actual flooding incidences and is unconstrained

Figure 19: Constrained Stormwater Renewal Budget

Note that constrained budget is the draft LTP budget as at 14 November 2014 and excludes consent renewals.

A sound stormwater renewal programme needs to be developed in accordance with the improvements identified with this plan to better inform future LTP planning process. The required renewal programme based on asset needs as well as considering the following:

- Trending over the long term towards the annual depreciation amount of $1.3 million per annum (currently a shortfall $249k compared with $1.1 million in 2014/15 Annual Plan budget). Over the 10 year period there is a $5.7 million renewals backlog or approximately $570,000 shortfall in renewals expenditure per year.

- Within the acceptable range of the Essential Services Benchmark (refer to Section 2.6), and the current performance for the 2013/14 year:
    - Essential Services Benchmark = capital expenditure/depreciation
    - $763,361/$1,337,446 = 57%
    - Therefore the benchmark was not met for the 2013/14 year (target >100%)

The implications of meeting budgets limitations including justification for the expenditure forecast and consequences if the budget is reduced are summarised in Table 33.

Table 33: Justification for Expenditure Forecast

Expenditure Programme	Justification	Consequences if budget reduced
Opex	To meet LOS for resolving flood inundation	Increased risk of safety issues with reduced service
	O & M contract costs tested with the market	Increased risk of property damage and potential loss of life with reduced flood protection
	To respond to the impact of flood events	
Capex renewals	Adequate renewals to optimise life of assets	Increase in infrastructure backlog that may never be addressed adequately
	Adequate service levels for flood protection	Increased risk of property damage and potential loss of life with reduced flood protection
Capex new works	Kopu industrial area important for District's economy and need adequate access to properties	Increased risk that businesses in Kopu industrial area may leave as access issue with flooding and potential insurance claims;
	To resolve 8 at risk habitable floors (8 modelled and 2 reported) in a low lying land in Sarah Ave that suffers from flooding and high tides impacts	8 habitable floors continue to flood and may be safety issues as well as insurance claims

6.6 Financial Policies and Funding

Stormwater activities will be funded in accordance with the financial policies of Council as indicated in .

Table *34*.

Table 34: Funding Strategy for Stormwater Activity

Programme	Funding mechanism
Operational	Funded through a mix of targeted rates and general rates for stormwater services
	Targeted rates for land drainage (generally no capital expenditure)
Renewal	Provided through a mix of targeted rates and general rates and depreciation reserves
LOS	Loan funded
Growth	Recovered through development contributions

6.7 Asset Values and Depreciation

The value of the stormwater assets is shown in

Table *35*.

Table 35: Stormwater asset valuation summary
Source: Council's Fixed Asset Register (as at 30 June 2014)

Asset	Book value	Annual depreciation
Pipelines	$85,487,805	$1,245,918
Plant (i.e. pump stations and detention ponds)	$2,421,210	$91,529
Total	**$87,909,015**	**$1,337,446**

The asset lives used for the valuation are:

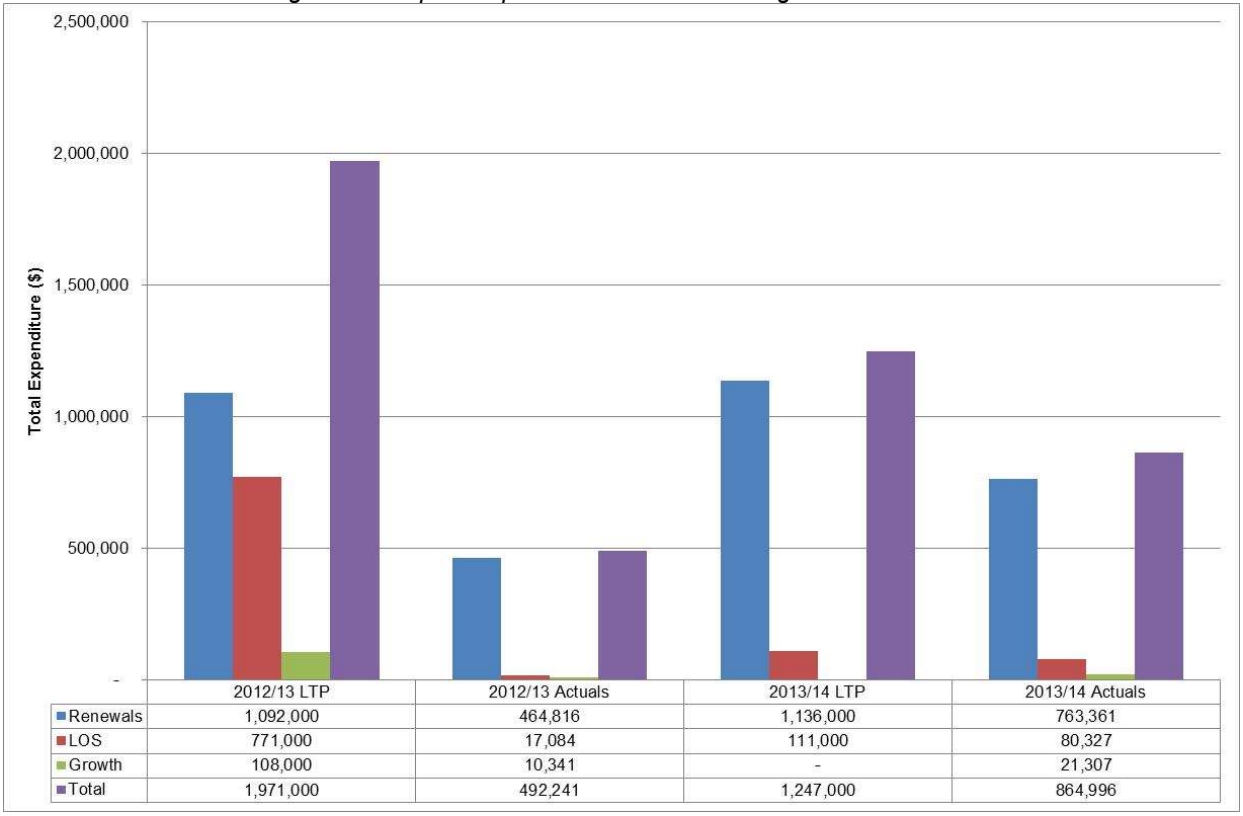
- 60 years for asbestos concrete pipes
- 100 years for concrete pipes
- 80 years for catchpits
- 80 years for manholes
- 80 years for culvert pipes
- 25 years for pumps

6.8 Financial Performance

The actual achievements against the 2012 LTP forecasts for the stormwater capital programme are presented in Figure 20 for 2012/13 and 2013/14 years. This shows 25 per cent of the capital programmes was delivered in the 2012/13 year and 69 per cent in the 2013/14 year. This was mainly due to the existing delivery method unable to meet programme targets. Several projects were reassessed and the scale and solution changed. Specific commentary on significant project variances is outlined in

Table 36.

Figure 20: Capital Expenditure Performance against 2012 LTP



	2012/13 LTP	2012/13 Actuals	2013/14 LTP	2013/14 Actuals
Renewals	1,092,000	464,816	1,136,000	763,361
LOS	771,000	17,084	111,000	80,327
Growth	108,000	10,341	-	21,307
Total	1,971,000	492,241	1,247,000	864,996

Source: Council's finance reports (JDE system, 3 December 2014)

The key variances for the stormwater capital programme for 2013/14 are summarised in

Table *36*.

Table 36: Stormwater Capital Variance Summary for 2013/14

Capital Programme	Comments on Variances
Whitianga Renewals	Reduced project scope to cover reactive works only on existing assets while effort is put into asset planning to set the programme.
Pauanui Renewals	The project was reassessed and rescoped on best way to achieve the stream protection /armouring during high flows due to the complexity around the stream works. Works were rescheduled for the summer of the 2014/2015.
Tairua Outfall Upgrades	Previous stormwater outfall works were unconsented with Waikato Regional Council. The project rectified these issues but less project costs than estimated.
Whangamata Improvements	The amount of works was scaled down in line with a revised stormwater ponding assessment.

Council has reviewed its delivery method and will use the next couple of years for resetting the capital programme before implementing extensive physical works. The focus will be on data gathering, investigations and analysis prior to implementation phase.

6.9 Assumptions and Confidence Levels

6.9.1 Financial Assumptions

The financial assumptions upon which the financial needs are based include the following:

- Financials are in today's dollars
- Based on information available and provided by Council's Three Waters and Finance Teams using LTP budgets as at 14 November 2014
- Operational expenditure are based on revised 2014/15 Annual Plan Budget and uninflated (as at 14 November 2014)
- Depreciation has only been accounted in future years for significant new works
- The order of priority or call on funds by Council is generally:
    - Operations and Maintenance
    - Renewals
    - New works for increased service level improvement
    - New works for growth

6.9.2 Confidence of Financial Forecasts

Considering the assumptions made in deriving the future financial needs of the service and asset needs and the historical levels of expenditure for the activity, the reliability of the financial forecast to deliver the current level of service is assessed as follows:

Table 37: Confidence in Financial Forecasts

Information type	Degree of confidence	Comments
Expenditure projections	Low to medium	The projections are largely based on historical operational budgets and project definition for significant capital works. Renewals are age based not condition at this stage. There is a moderate degree of confidence that the projections are based on appropriate budgeting and approval processes and represents the best available information.
Asset values	Medium to high	Asset values are based on the audited book value of assets as at 30 June 2014. The asset registers are complete.
Depreciation	Medium	The assessment of useful lives and the calculation of depreciation expense are undertaken on an annual basis.
Funding sources	Medium to high	Most capital expenditure will be funded by borrowings / general rates for stormwater and targeted rates for land drainage. The proportion of development contribution funding has been assessed in accordance with the Council's contributions policy and associated cost allocation methodologies.

7. Plan Improvement and Monitoring

7.1 Overview

7.1.1 Asset Management Commitment

A key feature in Council's asset management framework is to continue to improve asset management practices, processes and tools. This is essential to ensure the asset system and services are effectively managed. Through the initiatives presented in this section, Council is committed to appropriate asset management practices. This practice is being developed in keeping with the NAMS practice as presented in their suite of asset management publications including the 2011 IIMM. Council is committed to delivering the most appropriate levels of service balanced with affordability and good industry practice.

7.1.2 Core & Advanced Asset Management

Council is committed to meeting core AM status for the stormwater activity. This is the most appropriate status for the scale, value and risk for this activity. As an improvement item, the stormwater activity will have a goal of reaching advanced asset management.

7.1.3 Key Improvements

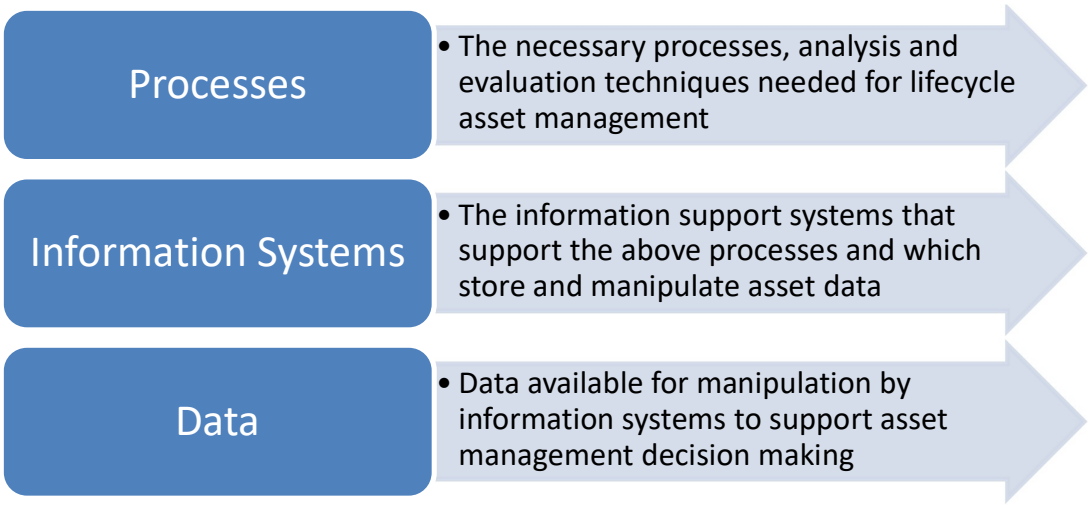
The improvement opportunities described in this section have been identified throughout the development of this AMP. The most significant gaps were found in asset management practices, data and operations and maintenance strategies.
The main improvement objectives to be achieved in the next three years due to their priority and importance for achieving core asset management and for the stormwater activity include:

- Complete asset condition and performance assessments for all above-ground assets;
- Complete asset criticality assets for both above and below ground assets;
- Complete a strategy to mitigate risks around data accuracy and completeness;

7.2 Asset Management Practices

This section discusses the status of Council's current asset management practices and identifies practices the organisation wishes to use. The key asset management practices needed to support good asset management plans can be grouped into three broad areas:

Figure 21 - Asset Management Practice Areas



It is recognised that a formal asset management practices review has not been undertaken for the 2015 AMP so the improvements are based on the opportunities identified through the plan development only. It is proposed to undertake a practices review along with the water supply, wastewater and solid waste asset groups in the short to medium term. A formal practices review will help prioritise initiatives through a gap analysis across the whole business, and to identify and prioritise asset management improvements.

7.2.1 Data

Data quality is important for end users so that they can have confidence in making an analysis using that data. The inventory completeness for stormwater asset group is based on data condition and is mostly complete for below ground assets and in some areas for above ground assets.

Collecting good asset data as plant is installed will support better asset valuations and aged based renewal modelling.

Table 38 - Above Ground Asset Class Inventory Completeness and Accuracy

Asset Class	Inventory Data Completeness (%)			Inventory Data Accuracy		
	Measure	Age	Condition	Measure	Age	Condition
Stormwater Pump Stations	100%	100%	100%	Reliable	Reliable	Reliable
Detention Ponds	100%	0%	0%	Reliable	Unreliable	Unreliable
Soakage Cells	100%	0%	0%	Reliable	Unreliable	Unreliable

Source: Veolia Water's 2011 asset condition and performance assessment and Council's Loftus database (as of November 2014).

Table 39 - Below Ground Asset Class Inventory Completeness and Accuracy

Asset Class	Inventory Data Completeness (%)			Inventory Data Accuracy		
	Measure	Age	Condition	Measure	Age	Condition
Manholes	100%	89%	26%	Reliable	Reliable	Unreliable

Source: Veolia Water's 2011 asset condition and performance assessment and Council's Loftus database (as of November 2014).

Operational Data

Council's contractors are obligated to report operational data from Council's water, wastewater and stormwater activities on a monthly basis. This data is accumulated through sampling, inspection and electronic recording through Council's telemetry network (SCADA). This is used mainly for drinking-water quality standards and compliance with resource consent requirements.

Asset Confidence

Asset confidence is an important determinant for Council's asset renewal and investigation programmes. The confidence of the water supply assets is assessed based on information relating to the asset. The confidence rating framework (in accordance with the 2011 IIMM) is used to determine the confidence in the asset. The application of asset management planning requires the collection of data from many sources and of varying

quality. For example, there is a great deal of valuable knowledge and information held by operating staff which may not be captured. Alternatively, surveys and investigations on some assets may have generated detailed reports which are available for inclusion in the asset management system.

The confidence of the above ground assets is based on the 2011 asset condition assessment completed by an external contractor. There is little information regarding below ground assets. Data from operational activities is recorded on as-builts. This gives reliable data regarding the particular asset. However this is not set up as a functional aspect inside Council's asset management system.

Newly created assets have been assigned an unknown value. A condition value will be assigned after a formal condition assessment has been undertaken.

Above Ground Assets

Table 40 shows above ground asset confidence. The majority of above ground assets (64%) have an unknown confidence rating. A percentage (36%) has an uncertain rating. The large unknown rating is attributed to other above ground assets within Council's AMS that have no confidence rating associated.

Table 40 - District Confidence Data for Above Ground Asset Class

Above Ground Asset Class	Asset Confidence					Total
	E	D	C	B	A	(No)
Stormwater Pump Stations	0	0	4	0	0	4
Detention Ponds	2	0	0	0	0	2
Soakage Cells	4	0	0	0	0	4
Other Above Ground Assets	1	0	0	0	0	1
Total	**7**	**0**	**4**	**0**	**0**	**11**
%	**64%**	**0%**	**36%**	**0%**	**0%**	**100%**

Note: A – Highly Reliable, B - Reliable, C - Uncertain, D – Very Uncertain, E - Unknown

Source: Veolia Water's 2011 asset condition and performance assessment and Council's Loftus Database (as of November 2014).

Below Ground Assets

The majority of Council's below ground assets including inlets, manholes and stormwater mains have an unknown confidence rating. This is due to the Council's Loftus Database not storing the confidence rating of the assets

7.2.2 Process

The two key asset management processes for stormwater activity are:

- The management of asset data for sound practices as well as for valuation process to record the additions and deletions from the asset inventory;
- The project definition process to ensure robust projects are managed and delivered.

7.2.3 Systems

Information systems are essential for storing and analysing asset information to make good asset management decisions. The main asset management information systems used for the stormwater activity are summarised in Table 41.

Table 41 - Information Systems' Purpose and Status

Information System	Purpose	Status
Infor Pathway	Customer enquiries / requests /complaints	No changes proposed at this time.
	Water billing	No changes proposed at this time.
CSVue	Environmental management	This is a proprietary system of Andrew Stewart Ltd. No changes proposed at this stage.
Microsoft Excel	Demand forecasting and management	No changes proposed at this time.
H20 Map SWMM & WATER	Network modelling	No changes proposed at this time.
JDE	Financial information	No changes proposed at this stage.
HMS Loftus	Asset information	Council is considering moving towards another AMS product.
MapInfo	Geographic information	Council is considering moving towards another GIS product.
Track24	Capital works programme	Council is changing to manual excel spreadsheets.
Technology One	Document management system (ECM)	No changes proposed at this time.
Supervisory Control and Data Acquisition (SCADA) system	Monitoring water data	No changes proposed at this time.

Source: Council's Software Systems

Asset Management System Loftus Outputs

Loftus HMS is currently TCDC's asset management system (AMS) for water supply, wastewater and stormwater assets. This system was introduced as a cost-effective method to collect, manage and analyse Council's asset data. Data from paper records were digitised into Council's AMS through a geographic information system (GIS).

Due to poor records and insufficient data, Council's records are not complete with respect to some areas within the stormwater activity. Council currently undertakes basic asset management activities; however to enable comprehensive and sustainable long term decisions to be made through an AMS, improvements to asset data will need to be undertaken.

An audit and review of the AMS is currently underway. The review is assessing the level of data currently held, what needs improvement and the means of undertaking the asset management assessment. This also includes a review of the software currently utilised and proposed improvements or replacements.

7.3 Three Year Improvement Plan

Key improvement programmes and associated projects have been developed through a review of the gaps in developing this draft AMP and issues identified. The three year improvement programme is summarised in Table 42.

Table 42 - Improvement Plan Summary Programme

AM Improvement Area	Action	Indicative Timeframe	Priority	Responsibility
Asset Data	Assess the asset condition of unknown below and above ground assets assessment	2017/18	Low-Medium	Water Services Engineer
	Assess the asset performance of below ground assets assessment	2017/18	Low-Medium	Water Services Engineer
	Assess the asset confidence of both below and above ground assets assessment	2017/18	Low-Medium	Water Services Engineer
	Age assessments of both above and below ground assets	2017/18	Low-Medium	Water Services Engineer
Renewal planning	The renewal forecasts to be broken down by major asset class network and pump stations as good practice.	2015/16	High	Asset Data Team
	Move towards condition based renewal planning as good practice.	2015/16	High	Asset Data Team
Asset Data Practices	Complete a formal asset management practice review of stormwater activity.	2014/15	Medium-High	Asset Data Team
Asset Performance	Decrease number of stormwater overflows and blockages through a robust clearing and jetting programme.	2015/16	High	Water Services Engineer
	Implement inflow & infiltration reduction programme in all townships on the district.	2017/18	High	Water Services Engineer
Systems Improvement	AMS register review and practice improvement.	2015/16	Medium	Asset Data Team
	Data accuracy/completeness assessment.	2017/18	High	Asset Data Team
	Complete a formal asset management practice review of stormwater activity.	2014/15	Medium-High	Asset Data Team
Asset Management Plans	Complete comprehensive scheme summaries for townships.	2015/16	Low-Medium	Water Services Engineer
Hydraulic Modelling	Complete hydraulic modelling for townships with no model and	2017/18	Low-Medium	

	update older models to be in line with climate change.			
Financial management	Regularly review the operations and maintenance forecasts to ensure the service requirements are being met.	2015/16	High	Water Services Engineer
	Start tracking maintenance costs in future years to understand the impact of deferred renewals.	2015/16	High	Water Services Engineer

7.4 Improvement Monitoring

The AMP is a living document and needs to be kept current and relevant. It is recognised that prioritises will change which makes review activities even more important to ensure this plan is a live document. The following review activities will be undertaken.

Table 43 - Monitoring and Review of Improvement Programme

Frequency	Review Task	Action	KPI	Report Name	Audience
Three yearly	AMP Development	Formal adoption of the plan by Council	100% Achievement	Council AMP Report	Council and Audit New Zealand
Annually	AMP Review (internal)	Revise plan annually to incorporate new knowledge from the AM improvement programme	100% Achievement	Internal Report	Infrastructure Group Management
Three Yearly	AMP Peer Review	The plan will be formally reviewed three yearly to assess adequacy and effectiveness.	100% Achievement	External Consultant Report	Infrastructure Group management, LTP team, and Audit New Zealand
Annually	Monitoring and Reporting	The KPIs identified in this table will be monitored and reported on annually through Business Plans.	100% Achievement	Business Plan Report	Infrastructure Group management and LTP team
Quarterly	Implementation of the Improvement Programme	Tracking the progress of implementing the improvement programme quarterly particularly projects in the short term improvement programme.	100% Achievement	Quarterly Reports	Infrastructure Group management and LTP team

Appendix A - Glossary

Table 44 - Acronym Glossary

Acronym	Definition
AC	Additional Capacity
ACO	Asbestos Concrete
AEE	Assessment of Environmental Effects
AMS	Asset Management System
BCP	Business Continuity Plans
CAPEX	Capital Works Expenditure
CCTV	Closed Circuit Television
CMA	Coastal Marine Area
CILT	Coromandel Independent Living Trust
DoC	Department of Conservation
DWSNZ	Drinking Water Standards for New Zealand
ECM	Enterprise Content Management System
ETS	Climate Change (Emissions Trading) Amendment Act 2008
FAR	Fixed Asset Register
GIS	Geographic Information System
HSNO Act	Hazardous Substances and New Organisms Act 1996
I&I	Inflow & Infiltration
IIMM	International Infrastructure Management Manual
ILOS	Increased Level of Service
LGA	Local Government Act
LOS	Level of Service
LTP	Long Term Plan
M^3	Cubic Metre
1 cubic metre	Equals 1,000 Litres
MfE	Ministry for the Environment
MRI	Magnetic resonance imaging
NAMS	New Zealand Asset Management Support
NES	National Environmental Standards
OPEX	Operating Expenditure
PE	Polyethylene
PHRMP	Public Health Risk Management Plan
PRV	Pressure reducing valve
PVC	Polyvinyl chloride
RFS	Request for Service
RMA	Resource Management Act
SCADA	Supervisory control and data acquisition
TCDC	Thames Coromandel District Council
WINZ	Water Information New Zealand
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

Appendix B – Detailed Levels of Service Table

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target	2016/17 Target	2017/18 Target	2018/19 to 2024/25 target	Measurement procedure	Comments
A liveable district *- providing infrastructure to help build healthy communities*	Safety-flood protection	To provide stormwater services to protect habitable areas from flooding	The number of flooding events that occur in Council's district (for serviced areas)	Mandatory	*0*	*0*	*0*	0	0	0	Through 6 rain gauges across the District	
			For each flooding event, the number of habitable floors affected (per 1,000 connections to Council's stormwater system)	Mandatory	*0.1*	*0*	*<1*	*<1*	*<1*	*<1*	Incidences recorded through Pathways	
A prosperous district *- maximising economic opportunities from the Peninsula's natural setting*	Quality-reliability	To provide reliable stormwater networks	The number of complaints received by Council about the performance of its stormwater system (per 1,000 connections to Council's stormwater system)	Mandatory	*Not measured*	*Not measured*	≤5	≤5	≤5	≤5	RFS through Pathways	
			Number of blockages per 100km of stormwater pipeline per year	Technical LOS	*Not measured*	*Not measured*	TBC	TBC	TBC	TBC	Spreadsheet from contractor's records	Good industry practice as a measure of network reliability

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target	2016/17 Target	2017/18 Target	2018/19 to 2024/25 target	Measurement procedure	Comments
			Percentage of stormwater network in satisfactory condition (condition grades 1,2 or 3)	Technical LOS	*Not measured*	*Not measured*	TBC	TBC	TBC	TBC	IIMM condition grading where 1 is very good and 5 is very poor; CCTV surveys	Assume low level of condition info available for sw condition
		Land drainage schemes in Matatoki and Wharepoa are maintained to reduce the impact of flooding on farm properties	Percentage of requests for maintenance of land drains actioned within 10 working days	Customer LOS	*Not measured*	*Not measured*	TBC	TBC	TBC	TBC	RFS through Pathways	Existing performance measure but 100% too high
	Responsiveness	To provide prompt responses for service	The median response time to attend a flooding event, measured from the time Council receives notification to the time that service personnel reach the site	Mandatory	*Not measured*	*Not measured*	≤180 minutes	≤180 minutes	≤180 minutes	≤180 minutes	RFS through Pathways	TCDC to confirm target and align with maintenance contract
			Percentage of stormwater manhole-popping requests attended and made safe within 2 hours	Customer LOS	*Not measured*	*Not measured*	TBC	TBC	TBC	TBC	RFS through Pathways	Added in by CA; good industry practice

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target	2016/17 Target	2017/18 Target	2018/19 to 2024/25 target	Measurement procedure	Comments
A clean and green district	Sustainable - Environmental performance	To provide stormwater services that do not negatively impact on public health or the natural environment in line with regulatory and legislative requirements	Compliance with Council's resource consents for discharge from its stormwater system measured by number of abatement notices, infringement notices, enforcement orders or convictions received by Council in relation to those resource consents	Mandatory	Not measured	Not measured	Number of abatement notices = 0 Number of infringement notices = 0 Number of enforcement orders = 0 Number of successful prosecutions = 0 Total for all enforcement actions = 0	Number of abatement notices = 0 Number of infringement notices = 0 Number of enforcement orders = 0 Number of successful prosecutions = 0 Total for all enforcement actions = 0	Number of abatement notices = 0 Number of infringement notices = 0 Number of enforcement orders = 0 Number of successful prosecutions = 0 Total for all enforcement actions = 0	Number of abatement notices = 0 Number of infringement notices = 0 Number of enforcement orders = 0 Number of successful prosecutions = 0 Total for all enforcement actions = 0	Measured by EW and is audited and reported annually.	
- providing for our unique environment to be protected												

Council Outcomes	Key service attribute	Customer LOS	Performance measure	Performance measure type	Current LOS Performance for 2013/14	Current Year 2014/15 Target	2015/16 Target	2016/17 Target	2017/18 Target	2018/19 to 2024/25 target	Measurement procedure	Comments
A liveable district - *providing infrastructure to help build healthy communities*	Sustainable -Cost Effectiveness	Sustainable management of the stormwater asset renewals	Rate of annual asset renewal measured by essential services benchmark *(how much of asset stock being replaced each year)*	Technical LOS	NA	>100%	>100%	>100%	>100%	>100%	performance = capital expenditure/ depreciation; Actual renewals for each asset class from Annual Reports; depn from latest asset valuation	Only for appendix not in main AMP body; required under LG Financial Reporting and Prudence Regulations 2014

Notes:

1. TCDC Three Waters team to set targets for future years
2. The following LOS have been deleted:
   - A reduction in the number of blockages per town (replaced with similar PM above).
   - A reduction in power usage by 10% by 2025 (not relevant for sw)
   - Improve asset and SCADA data accuracy and confidence in relation to the stormwater activity by 2017.(not relevant for sw)
   - All properties within the defined activities' Area of Service maps will have the ability to connect to the stormwater system
3. Department of Internal Affairs definitions for mandatory measures:
   - Habitable floor refers to a floor of a building (including a basement) but does not include ancillary structures such as stand-alone garden sheds or garages.
   - A flooding event means an overflow of stormwater from the stormwater system that enters a habitable floor.

Appendix C – Detailed Capital Expenditure

Thames opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	**644,010**
Operations costs (includes retic maintenance)		100,644	100,644	100,644	100,644	100,644	100,644	100,644	100,644	110,644	110,644	110,644	**1,036,440**
Resource consents		4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	**40,000**
Bad debts		7,546	7,546	7,546	7,546	7,546	7,546	7,546	7,546	7,546	7,546	7,546	**75,460**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs		8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	**80,000**
Asset management		8,617	8,617	8,617	8,617	8,617	8,617	8,617	8,617	8,617	8,617	8,617	**86,170**
Investigations and management plans		23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	23,000	**230,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		67,338	67,338	67,338	67,338	67,338	67,338	67,338	67,338	67,338	67,338	67,338	**673,380**
Insurance, rates, and power		60,793	60,793	60,793	60,793	60,793	60,793	60,793	60,793	60,793	60,793	60,793	**607,930**
Interest		329,812	329,812	329,812	329,812	329,812	329,812	329,812	329,812	329,812	329,812	329,812	**3,298,120**
Depreciation		433,796	433,796	433,796	433,796	433,796	433,796	433,796	433,796	458,796	458,796	458,796	**4,412,963**
TOTAL		**1,107,947**	**1,107,947**	**1,107,947**	**1,107,947**	**1,107,947**	**1,107,947**	**1,107,947**	**1,107,947**	**1,142,947**	**1,142,947**	**1,142,947**	**11,184,473**

Coromandel opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	**326,350**
Operations costs (includes retic maintenance)		16,133	16,133	16,133	16,133	16,133	16,133	16,133	16,133	16,133	16,133	16,133	**161,330**
Resource consents		2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	**25,000**
Bad debts		1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	1,371	**13,710**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs			0	0	0	0	0	0	0	0	0	0	**0**
Asset management		5,461	5,461	5,461	5,461	5,461	5,461	5,461	5,461	5,461	5,461	5,461	**54,610**
Investigations and management plans		8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	**80,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		45,801	45,801	45,801	45,801	45,801	45,801	45,801	45,801	45,801	45,801	45,801	**458,010**
Insurance, rates, and power		7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957	7,957	**79,570**
Interest		3,862	3,862	3,862	3,862	3,862	3,862	3,862	3,862	3,862	3,862	3,862	**38,618**
Depreciation		62,942	62,942	62,942	62,942	62,942	62,942	62,942	62,942	62,942	62,942	62,942	**629,425**
TOTAL		**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**186,662**	**1,866,622**

Mercury Bay opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		70,755	70,755	70,755	70,755	70,755	70,755	70,755	70,755	70,755	70,755	70,755	**707,550**
Operations costs (includes retic maintenance)		180,228	180,228	180,228	180,228	180,228	180,228	180,228	180,228	180,228	180,228	180,228	**1,802,280**
Resource consents		5,273	5,273	5,273	5,273	5,273	5,273	5,273	5,273	5,273	5,273	5,273	**52,730**
Bad debts		5,747	5,747	5,747	5,747	5,747	5,747	5,747	5,747	5,747	5,747	5,747	**57,470**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	**100,000**
Asset management		20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	**200,000**
Investigations and management plans		28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	**280,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		106,296	106,296	106,296	106,296	106,296	106,296	106,296	106,296	106,296	106,296	106,296	**1,062,960**
Insurance, rates, and power		67,989	67,989	67,989	67,989	67,989	67,989	67,989	67,989	67,989	67,989	67,989	**679,890**
Interest		53,123	53,123	53,123	53,123	53,123	53,123	53,123	53,123	53,123	53,123	53,123	**531,227**
Depreciation		499,684	499,684	499,684	499,684	499,684	499,684	499,684	499,684	499,684	499,684	499,684	**4,996,838**
TOTAL		**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**1,047,095**	**10,470,946**

Tairua opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	**326,350**
Operations costs (includes retic maintenance)		26,597	26,597	26,597	26,597	26,597	26,597	26,597	26,597	26,597	26,597	26,597	**265,970**
Resource consents		2,553	2,553	2,553	2,553	2,553	2,553	2,553	2,553	2,553	2,553	2,553	**25,530**
Bad debts		1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	1,578	**15,780**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs			0	0	0	0	0	0	0	0	0	0	**0**
Asset management		5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	5,556	**55,560**
Investigations and management plans		8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	**80,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		48,894	48,894	48,894	48,894	48,894	48,894	48,894	48,894	48,894	48,894	48,894	**488,940**
Insurance, rates, and power		7,925	7,925	7,925	7,925	7,925	7,925	7,925	7,925	7,925	7,925	7,925	**79,250**
Interest		27,182	27,182	27,182	27,182	27,182	27,182	27,182	27,182	27,182	27,182	27,182	**271,822**
Depreciation		77,078	77,078	77,078	77,078	77,078	77,078	77,078	77,078	77,078	77,078	77,078	**770,779**
TOTAL		**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**237,998**	**2,379,981**

Pauanui opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	32,635	**326,350**
Operations costs (includes retic maintenance)		38,901	38,901	38,901	38,901	38,901	38,901	38,901	38,901	38,901	38,901	38,901	**389,010**
Resource consents		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	**10,000**
Bad debts		1,564	1,564	1,564	1,564	1,564	1,564	1,564	1,564	1,564	1,564	1,564	**15,640**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs			0	0	0	0	0	0	0	0	0	0	**0**
Asset management		5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	5,882	**58,820**
Investigations and management plans		8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	**80,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		54,094	54,094	54,094	54,094	54,094	54,094	54,094	54,094	54,094	54,094	54,094	**540,940**
Insurance, rates, and power		9,729	9,729	9,729	9,729	9,729	9,729	9,729	9,729	9,729	9,729	9,729	**97,290**
Interest		255	255	255	255	255	255	255	255	255	255	255	**2,545**
Depreciation		86,871	86,871	86,871	86,871	86,871	86,871	86,871	86,871	86,871	86,871	86,871	**868,706**
TOTAL		**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	**238,930**	2,389,302

Whangamata opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	64,401	**644,010**
Operations costs (includes retic maintenance)		40,684	40,684	40,684	40,684	40,684	40,684	40,684	40,684	40,684	40,684	40,684	**406,840**
Resource consents		1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	1,728	**17,280**
Bad debts		2,794	2,794	2,794	2,794	2,794	2,794	2,794	2,794	2,794	2,794	2,794	**27,940**
Direct asset costs			0	0	0	0	0	0	0	0	0	0	**0**
Drain maintenance costs			0	0	0	0	0	0	0	0	0	0	**0**
Asset management		7,647	7,647	7,647	7,647	7,647	7,647	7,647	7,647	7,647	7,647	7,647	**76,470**
Investigations and management plans		8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	**80,000**
Indirect activity costs			0	0	0	0	0	0	0	0	0	0	**0**
Corporate overheads for activity		71,686	71,686	71,686	71,686	71,686	71,686	71,686	71,686	71,686	71,686	71,686	**716,860**
Insurance, rates, and power		16,985	16,985	16,985	16,985	16,985	16,985	16,985	16,985	16,985	16,985	16,985	**169,850**
Interest		11,749	11,749	11,749	11,749	11,749	11,749	11,749	11,749	11,749	11,749	11,749	**117,488**
Depreciation		177,075	177,075	177,075	177,075	177,075	177,075	177,075	177,075	177,075	177,075	177,075	**1,770,750**
TOTAL		**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	**402,749**	4,027,488

Land drainage Hikitaia opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		0	0	0	0	0	0	0	0	0	0	0	**0**
Operations costs (includes retic maintenance)													
Resource consents													
Bad debts		51	51	51	51	51	51	51	51	51	51	51	**510**
Direct asset costs													
Drain maintenance costs		11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	**111,000**
Asset management													
Investigations and management plans													
Indirect activity costs													
Corporate overheads for activity		3,175	3,175	3,175	3,175	3,175	3,175	3,175	3,175	3,175	3,175	3,175	**31,750**
Insurance, rates, and power													
Interest													
Depreciation													
TOTAL		**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**14,326**	**143,260**

Land drainage Matatoki opex

Opex Summary	Actuals	Current year	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10	10 Yr Total
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	
O & M Expenditure Forecast													
Direct activity costs													
Staff costs		0	0	0	0	0	0	0	0	0	0	0	**0**
Operations costs (includes retic maintenance)													
Resource consents													
Bad debts		57	57	57	57	57	57	57	57	57	57	57	**570**
Direct asset costs													
Drain maintenance costs		17,265	17,265	17,265	17,265	17,265	17,265	17,265	17,265	17,265	17,265	17,265	**172,650**
Asset management													
Investigations and management plans													
Indirect activity costs													
Corporate overheads for activity		3,847	3,847	3,847	3,847	3,847	3,847	3,847	3,847	3,847	3,847	3,847	**38,470**
Insurance, rates, and power													
Interest													
Depreciation													
TOTAL		**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**21,169**	**211,690**

Appendix D – Stormwater Activity Risk Register

Asset Management Area	Risk	Cause	Gross Risk Analysis				Controls (any existing policy, procedures, etc)	Mitigation Strategies	Status update	Overall Residual Risk Analysis				How will Risk and Control be Monitored			
			Likelihood	Impact/ Consequence	Gross Risk	Risk Assessment				Likelihood	Impact	Residual Risk	Risk Assessment	Department	Owner	Frequency of review	Date updated
AM Practices	Poor asset management practices including AMP, lifecycle management plans (LCMP) etc resulting in poor quality assets	Lack of knowledge; Poor record keeping; No centrally coordinated AM function	4	3	12	High	The 2015 Stormwater AMP contains LCMP consistent with good industry practice	Survey for asset groups with missing inventory data; Develop AM improvement plan; Develop staff AM capability	Complete the draft 2015 Stormwater AMP including LCMP; Infrastructure Group Manager to action the potential new central AM role with LTP team and Area Managers (for community spaces)	3	2	6	Moderate	Infrastructure Group	Water Services Manager	Biannually	
	Financial implications with inaccurate asset valuation and long term planning including renewal forecasts. Reduction in asset performance. Unfavourable Audit NZ report for asset management and LTP. Inappropriate funding. Lack of optimised decision-making. Unexpected asset failure causing service failure or disruption.	Asset information including condition and performance data not available or inaccurate (including vested assets)	4	4	16	Critical	Asset management improvement programme developed with 2015 AMP; Regular inspections and reporting by O & M Contractor on assets	Data availability proactively analysed and reported on; Asset management data exchange process for vested assets and Council's capex projects; Asset data audits; Asset management tools; Build core asset management capability.	Implement the asset management improvement programme developed with 2015 AMP; Continue with regular inspections and reporting by O & M Contractor on assets; Start proactively analysing and reporting on data availability; Start building core asset management capability.	4	3	12	High	Infrastructure Group	Water Services Manager	Monthly	
AMPs	Overall asset life and condition is compromised due to limited maintenance and renewal programmes	Limited condition assessments to date; Limited funding for maintenance and renewals at asset component level	4	3	12	High	The 2015 Stormwater AMP will identify the required levels of investment to maintain asset condition; Potential implications of funding shortfalls to be identified in the 2015 AMP	Review asset condition asesessment programme including frequency and asset value and risk; Ongoing review of investment needs related to asset condition; Provision of adequate budget to maintain and renew at asset component level	Complete the draft 2015 Stormwater AMP including improvement programme; Undertake asset condition asesessment programme	3	2	6	Moderate	Infrastructure Group	Water Services Manager	Biannually	
Assets	Unexpected failure of critical assets	Incomplete knowledge of condition and remaining life of critical infrastructure; Insufficent renewal and maintenance funding	3	2	6	Moderate	Routine inspections of assets by O & M contractor; Potential implications of funding shortfalls to be identified in this AMP	Start monitoring the condition of all critical assets; Review inspection frequencies to align with criticality; Identify funding needs to maintain levels of service	Start monitoring the condition of all critical assets	3	2	6	Moderate	Infrastructure Group	Water Services Manager	Biannually	
	Water pollution resulting in negative Council image, environmental degradation and potentially cleanup costs	Runoff, spills and unauthorised waste discharges into stormwater system	3	3	9	Moderate	Emergency response to service requests by O & M contractor; Education for the community; Existing trade waste programme; Pollution control plans for developments	Educate the community on acceptable drainage management; Increase trade waste programme to being more proactive including inspections for high risk sites	Increase trade waste inspections for high risk sites	3	2	6	Moderate	Infrastructure Group	Water Services Manager	Biannually	
	Flooding of many properties and roads. Severe damage to road and other infrastructure resulting from uncontrolled stormwater.	Failure of stormwater system	4	3	12	High	Regular inspections; Emergency response to service requests by O & M contractor	Increase inspections; Investigate flooding incidences for root causes	Increase inspections; Investigate flooding incidences for root causes	3	3	9	Moderate	Infrastructure Group	Water Services Manager	Quarterly	

Asset Management Area	Risk	Cause	Gross Risk Analysis				Controls (any existing policy, procedures, etc)	Mitigation Strategies	Status update	Overall Residual Risk Analysis				How will Risk and Control be Monitored			
			Likelihood	Impact/ Consequence	Gross Risk	Risk Assessment				Likelihood	Impact	Residual Risk	Risk Assessment	Department	Owner	Frequency of review	Date updated
Assets	Public safety compromised such as person falling into open manhole causing injury or death.	Popping stormwater manhole	4	5	20	Critical	Emergency response to service requests by O & M contractor	Identified repeatedly popping manholes fitted with safety device; Undertake root cause analysis of sites with repeatedly popping manholes; Find long term solution rather than short term fix (ie symptom).	Continue with good responsiveness levels of service; Start undertaking root cause analysis.	3	5	15	High	Infrastructure Group	Water Services Manager	Monthly	
	Flooding of habitable floors, damage to property, road flooding, increased erosion.	Overland flowpaths blocked or built over.	3	4	12	High	Infrastructure Group inputs into Council planning processes and consent applications; District Plan provisions; Good practice guides for stormwater management; Council's 2013 Engineering Code of Practice	Ensure approriate controls/rules are included in the District Plan; Increase awareness and training of Council's regulatory department to reduce non-compliance; Increase public education to improve awareness and impacts.	Ensure appropriate rules are included in the District Plan; Increase public education about stormwater impacts	3	3	9	Moderate	Infrastructure Group	Water Services Manager	Biannually	
	Damage to buildings and property; Injury or loss of life; Council liable for damages; Unplanned remedial costs to Council; Loss of land; Increased staff resourcing required; Negative Council image.	Land instability as a result of stormwater flows (from public system)	3	3	9	Moderate	Building Act requirements; Consenting process; Council's 2013 Engineering Code of Practice; Council public records through GIS; Capital works and renewal programmes; Inspections (reactive only).	Staff training and education; District Plan requirements; Proactive inspection of public pipes for asset condition identified as potentially causing slips; Catchment management process; Proactive inspection of all outfalls in Coastal Marine Areas.	Continue with regulatory planning processes; Undertake proactive inspection of all outfalls	2	3	6	Moderate	Infrastructure Group	Water Services Manager	Biannually	
	Potential for increased flood vulnerability for Council to resolve that is costly and complex to rectify.	Development still occurring in floodplains.	3	4	12	High	Infrastructure Group inputs into Council planning processes and consent applications; District Plan provisions; Good practice guides for stormwater management; Council's 2013 Engineering Code of Practice	Ensure approriate controls/rules are included in the District Plan; Increase awareness and training of Council's regulatory department to reduce non-compliance	Continue with inputs to planning processes and monitor.	3	4	12	High	Infrastructure Group	Water Services Manager	Quarterly	
	Public safety compromised, such as, person falling into stormwater manhole or pump station causing injury or death.	Stormwater manhole or pump station lid left off by contractor staff.	2	5	10	High	Contract Quality Plan and Work Procedures; Urgent priority to respond to request; Good processes for dealing with open manholes.	Reinforce health and safety requirements and consequences.	Continue to reinforce health and safety requirements and consequences; Continue with good responsiveness levels of service	1	5	5	High	Infrastructure Group	Water Services Manager	Quarterly	
	Public safety compromised, such as, person falling into stormwater inlet/outlet as dark, slippery or no safety rail causing injury or death.	Dark, slippery or no safety rail on stormwater inlet/outlet	2	5	10	High	Urgent priority to respond to request.	Review safety in design for inherently high risk stormwater assets including inlets and outlets; Start to inspect high risk assets	Start to inspect high risk assets and assess as necessary; Case by case basis approach.	1	5	5	High	Infrastructure Group	Water Services Manager	Quarterly	
Assets	Public safety compromised such as person falling into pond with no fencing causing injury or death.	Pond has no fencing	2	5	10	High	Urgent priority to respond to request; Public education on safety.	Review safety in design for inherently high risk stormwater assets including ponds; Investigate fencing for some deep ponds; Consider perimeter planting and benching to reduce risk; Develop policy on fencing; H&S review of SW ponds	Review safety in design for inherently high risk stormwater assets including ponds; Consider perimeter planting and benching to reduce risk on a case by case basis; H&S review of SW ponds	1	5	5	High	Infrastructure Group	Water Services Manager	Quarterly	

Appendix E – Asset Listing

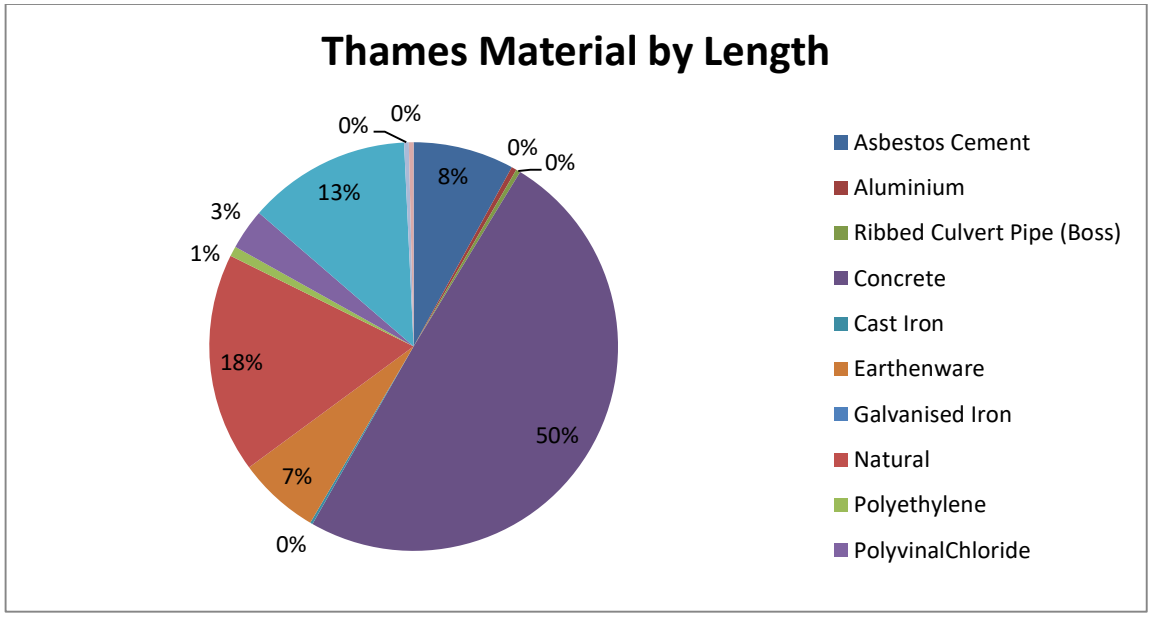
Table 45 - Asset Listing (as of November 2014)

Location	Asset Type	Asset Name	Asset ID
Cooks Beach	Detention Pond	SW DETENTION POND	
Cooks Beach	Detention Pond	SW DETENTION POND	
Coromandel	Other	EDWARD STREET SW ENERGY DISSIPATOR	
Tairua	Soakage Cell	HYDROCELL STORMWATER DETENTION AND SOAKAGE SYSTEM	
Thames	Stormwater Pump Station	FERGUSSON DRIVE PUMP STATION SWPS10601	SWPS10601
Thames	Stormwater Pump Station	RICHMOND STREET PUMP STATION SWPS10602	SWPS10602
Whangamata	Soakage Cell	AQUACELL STORAGE PITS	0
Whangamata	Stormwater Pump Station	OTAHU ROAD PUMP STATION SWPS55301	SWPS55301
Whangamata	Soakage Cell	DRAINAGE SOAKAGE PITS	0
Whangamata	Soakage Cell	TYRE PIT STORAGE	0
Whitianga	Stormwater Pump Station	JACKMAN AVENUE PUMP STATION SWPS33801	SWPS33801

Source: Council's Loftus Database (as of November 2014)

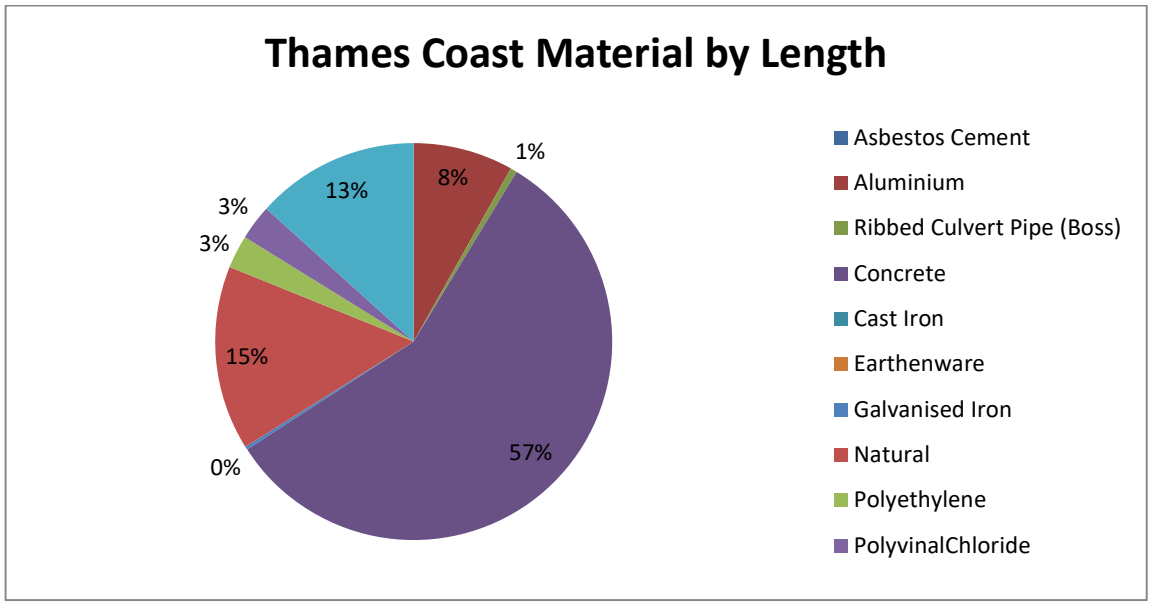
Appendix F – Township's Material by Length Graphs

Figure 22 - Thames Material by Length



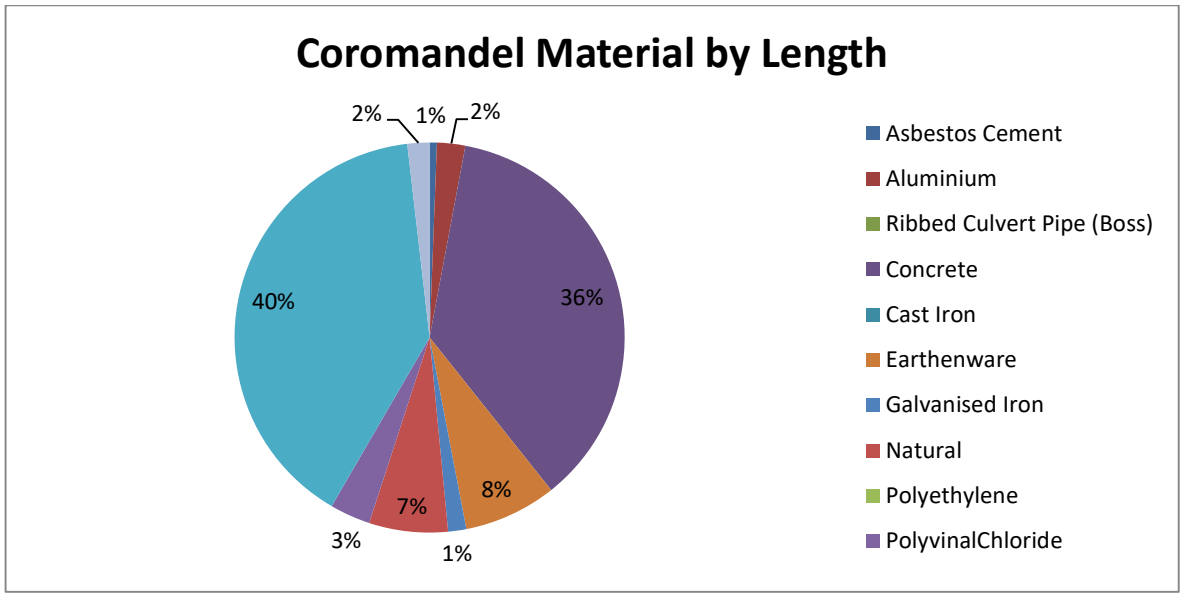
Source: Council's Loftus Database

Figure 23 - Thames Coast Material by Length



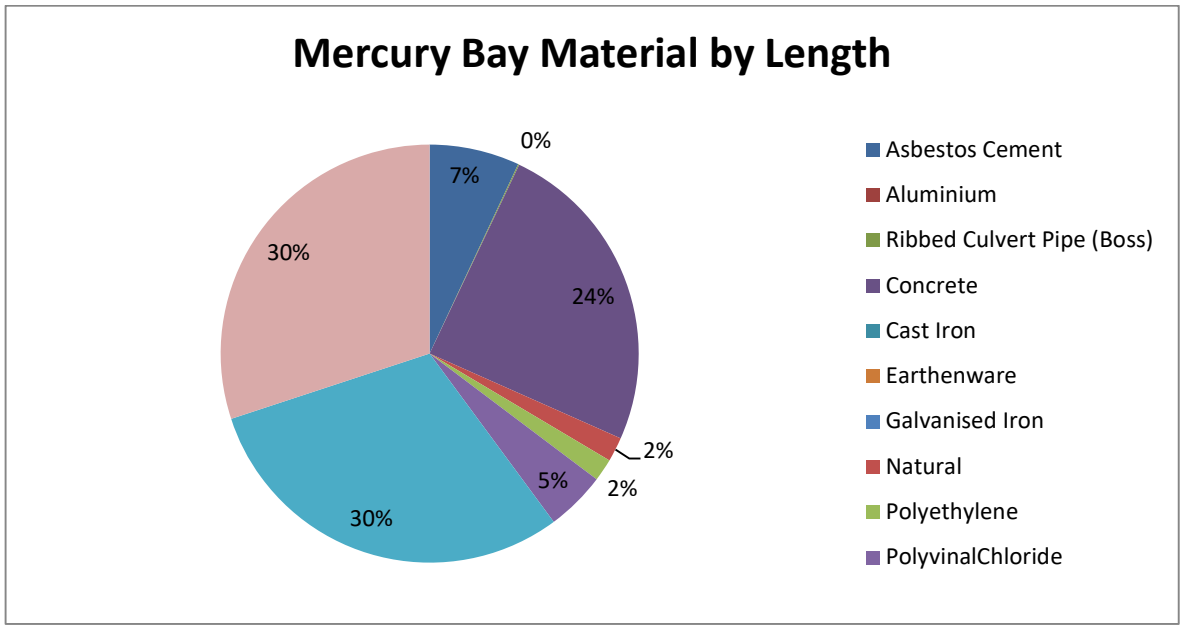
Source: Council's Loftus Database

Figure 24 - Coromandel Material by Length



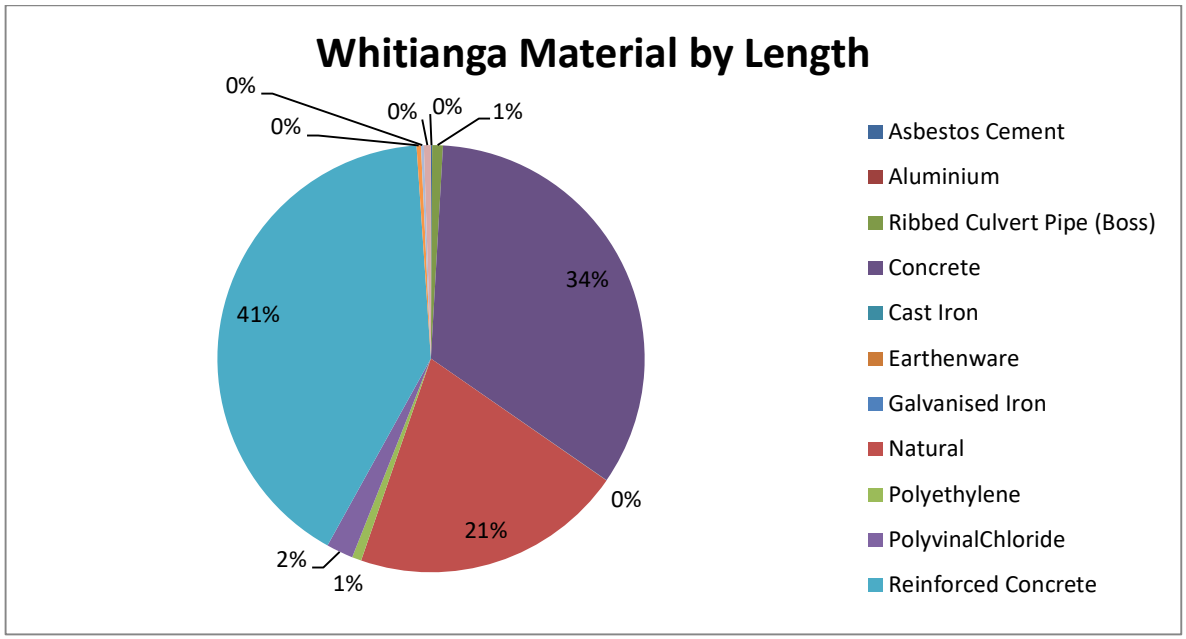
Source: Council's Loftus Database

Figure 25 - Mercury Bay Material by Length



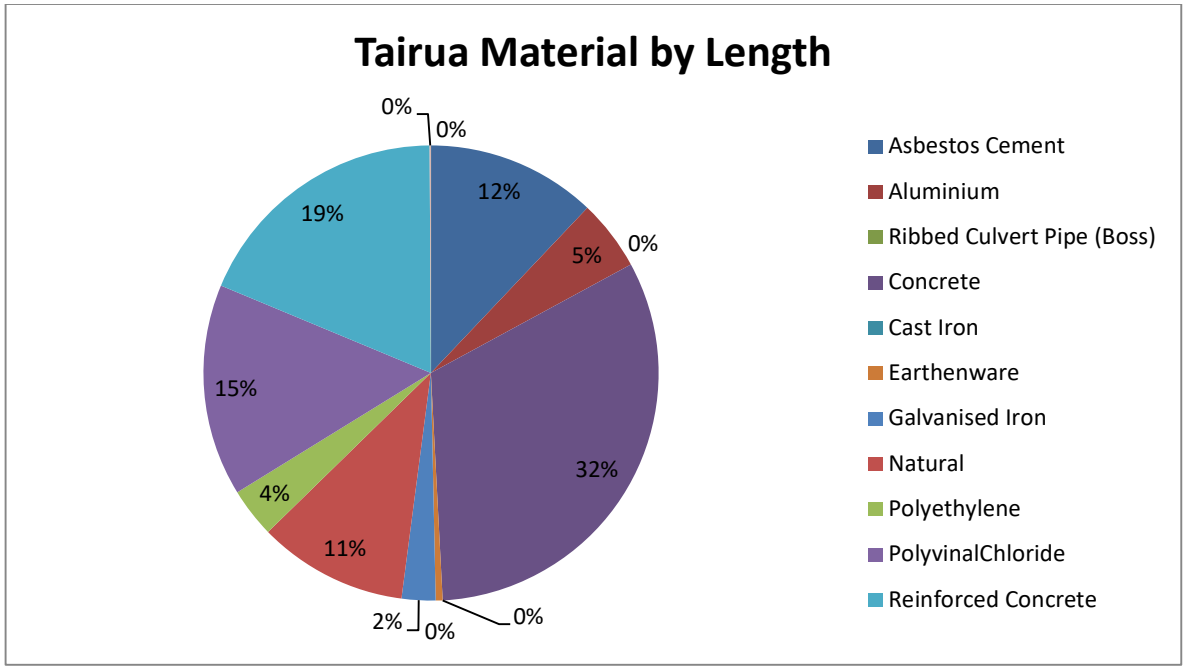
Source: Council's Loftus Database

Figure 26 - Whitianga Material by Length



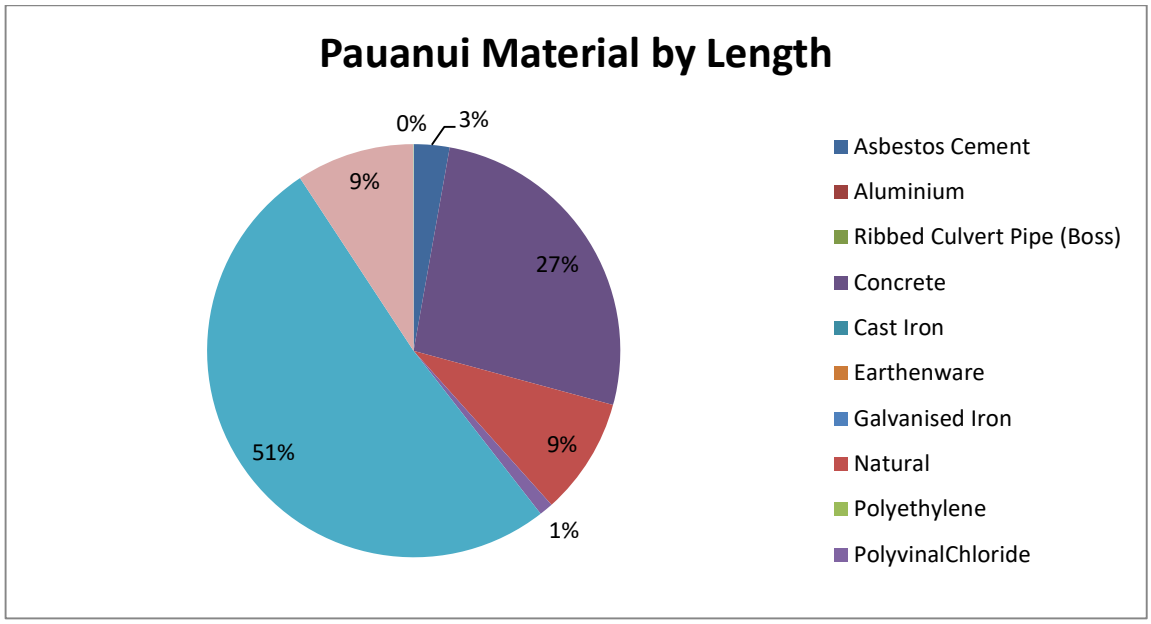
Source: Council's Loftus Database

Figure 27 - Tairua Material by Length



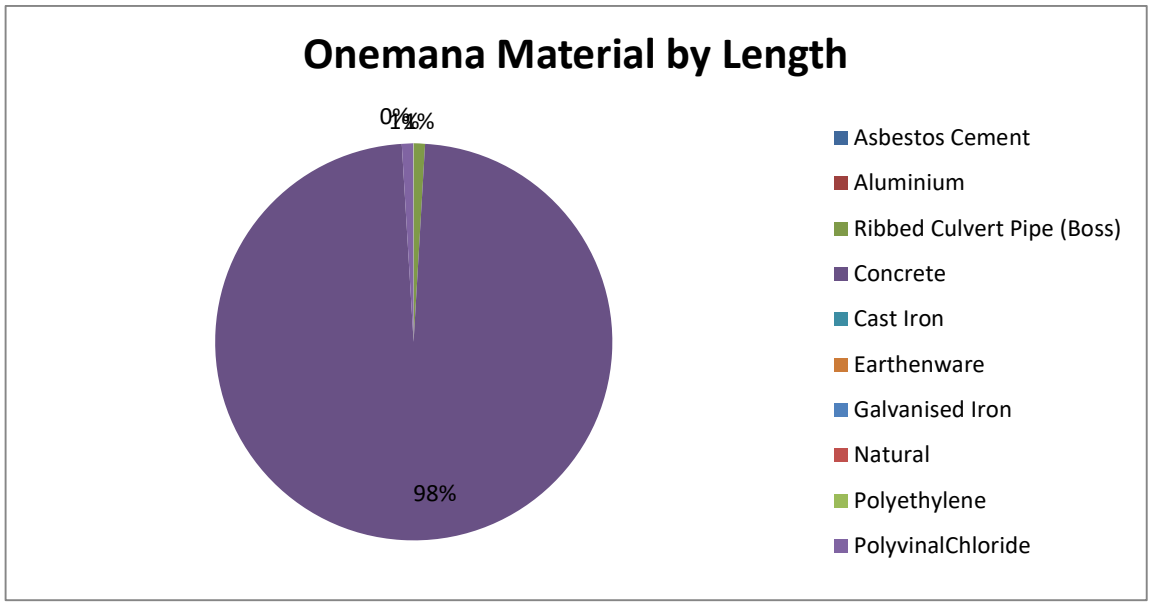
Source: Council's Loftus Database

Figure 28 - Pauanui Material by Length



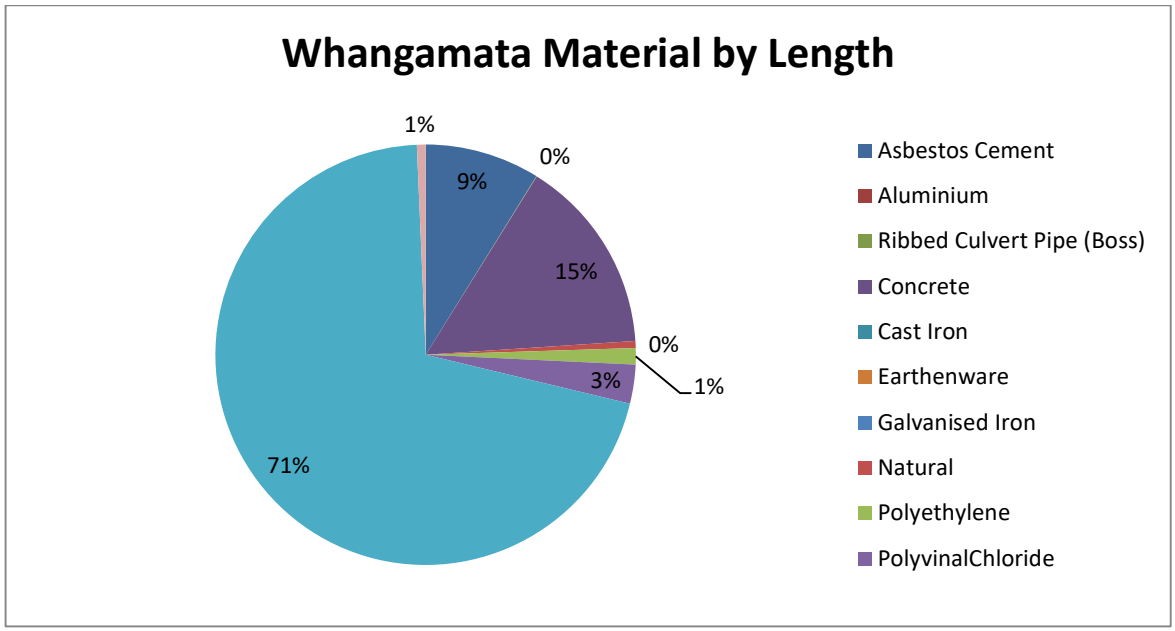
Source: Council's Loftus Database

Figure 29 - Onemana Material by Length



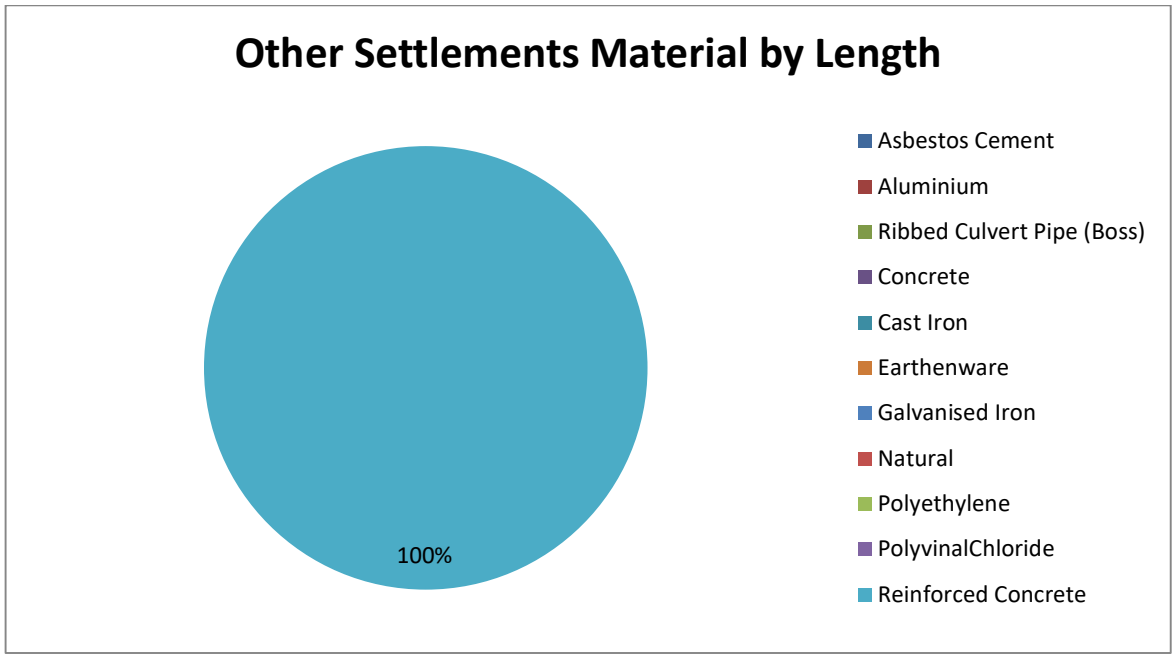
Source: Council's Loftus Database

Figure 30 - Whangamata Material by Length



Source: Council's Loftus Database

Figure 31 - Other Settlements Material by Length



Source: Council's Loftus Database