



# ASSET MANAGEMENT PLAN

## Part B: Stormwater Drainage

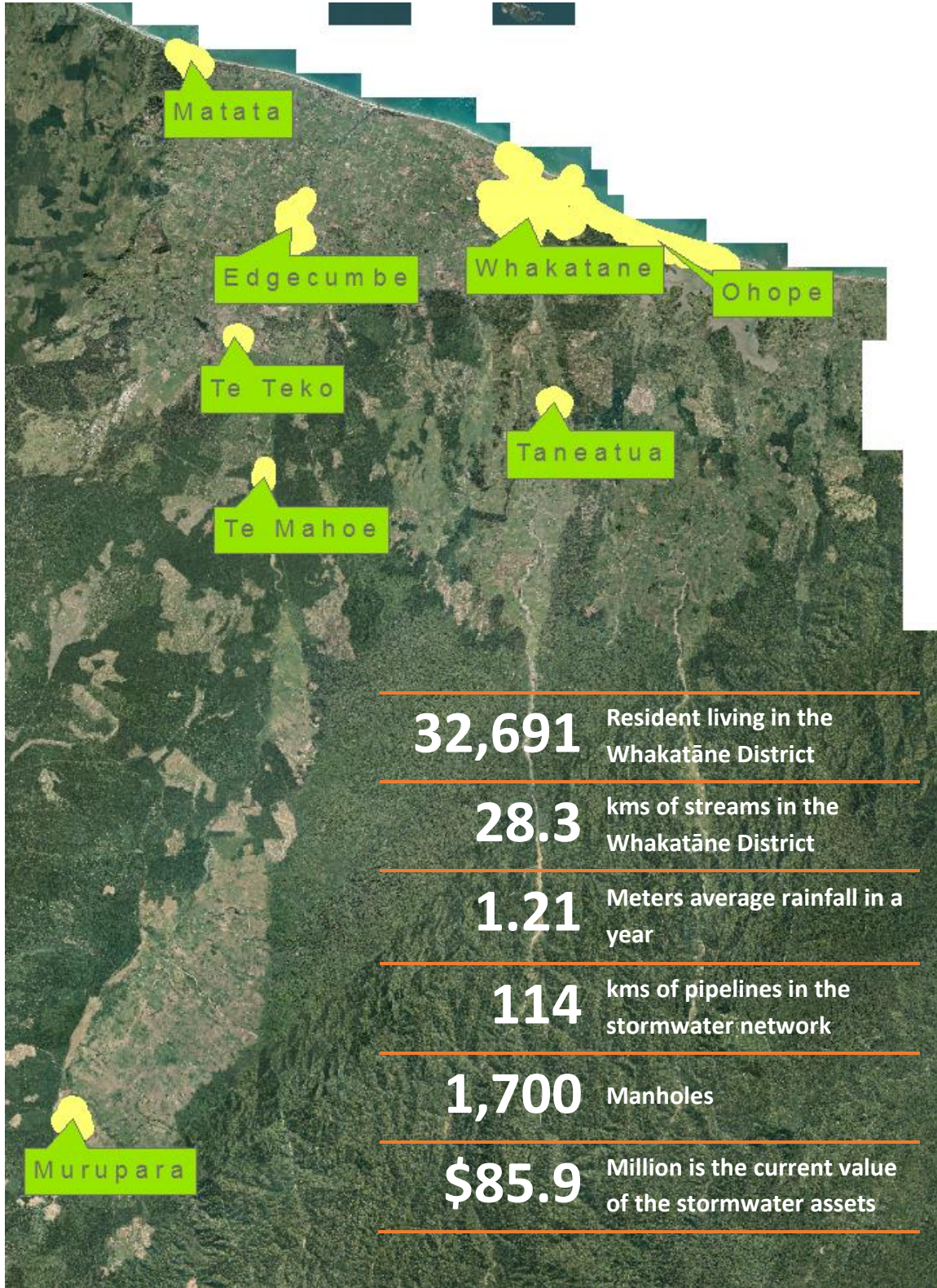
30 JUNE 2018

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## Asset Management Plan Part B – Stormwater Drainage

This Asset Management Plan provides the specific asset management information for the stormwater drainage activity, for the period 2018-2028.



## Contents

Executive Summary.....	5
1 Introduction and Strategic Context .....	8
1.1 Service/Activity Description .....	8
1.2 Key Partnerships & Stakeholders.....	10
1.3 Overview of Assets.....	10
1.4 Goals and Objectives of Asset Management .....	12
1.5 Plan Framework .....	13
1.6 Core and Advanced Asset Management.....	14
2 Asset Information .....	15
2.1 Asset Data Management.....	15
2.2 Asset Condition .....	17
2.3 Critical Asset.....	17
2.4 Asset Population .....	18
2.5 Resource Consents.....	23
3 Levels of Service (LoS).....	28
3.1 Legislative framework.....	28
3.2 Community consultation.....	32
3.3 Performance Measures.....	34
3.4 Gaps .....	38
3.5 Future.....	38
4 Growth and Demand.....	39
4.1 Population Considerations.....	40
4.2 Community Expectations .....	41
4.3 Residential & Commercial Development.....	42
4.4 Climate Change .....	43
4.5 Public & Environmental Health.....	44
4.6 Demand Management Planning .....	45
5 Lifecycle Management.....	46
5.1 Lifecycle Management – Background Data .....	47
5.2 Lifecycle Management – Managing Risk.....	47
5.3 Lifecycle Management – Operations and Maintenance.....	65
5.4 Lifecycle Management – Renewal .....	67
5.5 Lifecycle Management – Creation and Acquisition .....	67
5.6 Lifecycle Management – Disposal.....	68

5.7	Lifecycle Management – Future Improvement .....	68
6	Financial Forecasts .....	69
6.1	Financial Strategy .....	69
6.2	Key Assumptions .....	70
6.3	Capital Expenditure .....	70
6.4	Operation and Maintenance Expenditure .....	73
6.5	Revenue .....	75
7	Plan Implementation .....	76
7.1	Back to the Basic .....	76
7.2	Asset Management Improvement Process .....	76
7.3	Guideline and Standards .....	77
7.4	AMP Review and Monitoring .....	77

## Figures

<b>Figure 1: Stormwater Schemes Overview</b>	9
<b>Figure 2: Asset Management Plan Framework</b>	14
<b>Figure 3: Pipe Length, Installed Year and Valuation of Each Scheme*</b>	18
<b>Figure 4: Pipe Average Pipe Age and Remaining Life of Each Scheme*</b>	19
<b>Figure 5: Manhole Numbers, Installed Year and Valuation of Each Scheme*</b>	20
<b>Figure 6: Manhole Average Pipe Age and Remain Life of Each Scheme*</b>	20
<b>Figure 7: Stormwater Pump Station Locations</b>	20
<b>Figure 8: Open Channel in Different Schemes managed by Council*</b>	22
<b>Figure 9: Annual Residents Survey Result form 2014</b>	33
<b>Figure 10: Request for Service and Rainfall Depth*</b>	34
<b>Figure 11: Number of RFS and Percentage of Completed On Time*</b>	34
<b>Figure 12: Types of renewals based on criticality</b>	67
<b>Figure 13: Overland flow path by GIS analysis</b>	69
<b>Figure 14: Capital Expenditure Forecast in 10 Years by difference drivers</b>	71
<b>Figure 15: Operation and Maintenance Cost</b>	73
<b>Figure 16: Revenue Forecast from 2019 to 2018</b>	75

## Tables

<b>Table 1: Description of Urban Stormwater schemes</b>	9
<b>Table 2: Overview of Assets and Valuations</b>	11
<b>Table 3: Gross Replacement Values (\$) of Stormwater Asset for Each Scheme</b>	12
<b>Table 4: Customer Values and Activity Strategic Outcomes</b>	13
<b>Table 5: Stormwater Asset Quantities</b>	16
<b>Table 6: Asset confidence Ratings</b>	16
<b>Table 7: Condition and performance rating system</b>	17
<b>Table 8: Critical Asset Selection Criteria</b>	17
<b>Table 9: Stormwater Assets by District</b>	22
<b>Table 10: Stormwater Asset By Type</b>	23
<b>Table 11: Database of consents related to stormwater management activities</b>	24
<b>Table 12: Legislative requirements</b>	29
<b>Table 13: Performance Measures</b>	35
<b>Table 14: Levels of Service - Performance Measures - Environmental and Safety</b>	37
<b>Table 15: Demand Management Strategies</b>	46
<b>Table 16: Lifecycle Management Decision Criteria</b>	47
<b>Table 17: Asset Information</b>	47
<b>Table 18: Asset Management Risks - General</b>	49
<b>Table 19: Asset Management Risks – Stormwater Facilities</b>	57
<b>Table 20: Risk Action Plan</b>	62
<b>Table 21: Major Project Forecast for 10 Years</b>	71
<b>Table 22: Capital Project Forecast</b>	72
<b>Table 23: Operation Cost Details</b>	74



## Executive Summary

Stormwater is an integral part of the Three Waters business (water supply, stormwater and wastewater) that Whakatāne District Council (Council) directly influences. Council manages eight stormwater schemes which cover over 1697 hectares of land and 78% of the population in the district. Council provides a variety of infrastructure to manage stormwater within identified urban and residential areas. This infrastructure includes cesspits, manholes, underground pipes, open drains, overland flow paths, pump stations, floodgates and stormwater ponds. The stormwater systems are designed to take stormwater away from built-up urban areas and disperse it within our waterways to minimise the effects of flooding on property and the risk to human life. Council also strives to minimize the negative impact on the environment such as erosion of stop banks and the contamination of streams and rivers, etc. Council undertakes these stormwater activities because of statutory obligations, duty of care and public demand.

Council developed this Asset Management Plan (AMP) to provide and maintain efficient, reliable, safe and sustainable stormwater services. Council's stormwater activity primarily contributes to the following community outcomes:

- Reliable and Affordable Infrastructure
- Community Needs
- Valuing Our Environment

To achieve these objectives, this AMP is planned and guided under the International Infrastructure Management Manual (IIMM) 2015 which is a significant improvement from the past asset management plans.

### Key Issues:

- Population, growth and demand. The continuing growth and demand effects within the Whakatāne and Ōhope urban areas will require future upgrades to existing infrastructure. The main impacts are likely to include:
  - Increased pressure on existing Infrastructure
  - Increased operation and maintenance costs which will be reflected in property rates
  - Possible increase in the generation of contaminants such as road wash-off, and industrial run-off discharging into stormwater systems.
- Stormwater system inadequacies when faced with extreme wet weather events. In 2010, 2011, 2014 and 2017 flood and landslip events highlighted stormwater inadequacies for such events. In particular, with the 2014 flood events, water from the Wainui Te Whara catchment overflowed into the Whakatāne urban area creating a significant problem. The Edgecumbe township is prone to flooding and was seriously affected by the 2017 flood as a consequence of Rangitāiki River stopbanks breach. Since then these two particular issues have had Capital Improvements programmed and are being addressed. Various other parts of the stormwater network have deficiencies and these will be further

investigated and programs developed for upgrades and/or new capital works which will be planned in the Long Term Plan (LTP).

- Climate change. Climate change and its related impact on stormwater infrastructure is of growing concern. Council needs to get smarter in determining these implications with ongoing infrastructure renewals and upgrade requirements.
- Affordability/levels of service. Council is working with the community to determine programmes that ensure the long term sustainability of assets. Key drivers such as community health and expectations, as well as ongoing legislative responsibilities are used to assist in the prioritisation of projects.

### **Addressing Issues**

- Growth and demand issues are being addressed through demand management planning and network modeling. Council is working to improve the condition assessment data held on Three Waters related infrastructure.
- With regard to climate change, Council:
  - Monitors trends in climate change and will be reviewing the engineering standards and guidelines to cater for drought scenarios and flooding events
  - Liaises and shares information with central and regional Governments
  - Is redefining hazard zones (i.e. boundaries with waterways and the coastal boundary);
  - Provides long-term planning for low-lying communities (coastal, inner harbour, rivers, streams etc.) and infrastructure requirements as a result of increased rainfall.
- Stormwater system inadequacies and affordability issues are being addressed through projects in the LTP.

In general, the stormwater activity is driven by an increase in the levels of service to meet current planning and regulatory requirements. Approximately \$12.7 million worth of capital projects have been staged over the next ten-year period to identify and address the issues.

### **The Costs**

Over 60 capital projects have been scheduled for the next 10 years with 83% on levels of service, 14% on renewal and 3% on growth. The total value of these project is \$13.7 million.

The operational and maintenance cost scheduled for the next 10 years is \$43.3 million.

The revenue forecast for the next 10 years is \$44.8 million.

### **The context of this AMP includes:**

- Stormwater asset information is detailed in Section 2 which provides an overview of the infrastructure and how Council manages this information.

- Levels of Service are key business drivers that influence all asset management decisions. Council’s stormwater activity primarily contributes to the community outcomes and is described in Section 3 - Levels of Service.
- Planning for future growth and demand is imperative in order to provide an economically sustained pathway to meet the needs of residents and visitors in the District. The provision of the stormwater activity and its management is an essential element in the planning process. Section 4 of this AMP describes how Council manages growth and demand in stormwater activity.
- Lifecycle management in Section 5, provides the broad strategies and work programs required to achieve the goals and objectives set out in previous sections of this plan. This section provides guidance on decision making techniques that aim to provide the most effective solution in delivering of defined levels of service.
- Council recognises that this AMP is a “living” document needing continuous monitoring, changes and improvements over time. Section 7 describes the methods we will apply to achieve this.

### **The Next Steps**

Actions resulting from this AMP are:

- Recognition that the AMP is a “living” document that will be reviewed and updated on an ongoing basis
- Continually improved knowledge and detailed asset information including ongoing asset condition assessment and further collection of appropriate metadata on assets
- Alignment of the AMP with newly developed Three Waters Strategy – Stormwater Roadmap
- Development of key supporting documents to the AMP, including the Operation and Maintenance Plan, Emergency Management Plan and Infrastructure Risk Management Plan
- Obtaining feedback from our customers and the wider community, and adjusting asset management directions and levels of service as necessary
- Development of a communication plan which identifies the multiple stakeholders Council deals with
- Commitment to community engagement and education programmes



## **1 Introduction and Strategic Context**

### **1.1 Service/Activity Description**

Whakatāne District sits in the spectacular Eastern Bay of Plenty beside the Pacific Ocean. The total land area is 4,450km<sup>2</sup>. Sandy beaches are predominant along the 54 kilometres of coastline that stretches from Ōtamarākau in the west to Ōhiwa in the east. Central areas include fertile lowlands and farming areas on the Rangitāiki Plains through to Murupara. Te Urewera in the south, which makes 41% of the district, is protected native forest and is home to a rich array of flora and fauna.

Stormwater is an integral part of the Three Waters business (water supply, stormwater and wastewater) that Whakatāne District Council (Council) directly influences. Council manages eight stormwater schemes as shown in Figure 1 and described in Table 1 below. These cover over 1697 hectares of land and 78% of the population in the district. Council provides a variety of infrastructure to manage stormwater within identified urban and residential areas. This infrastructure includes cesspits, manholes, underground pipes, open drains, overland flow paths, pump stations, floodgates and stormwater ponds.

Stormwater systems are designed to take stormwater away from built-up urban areas and disperse it within our waterways to minimise the effects of flooding on property and the risk to human life. Council also strives to minimize the negative impact on the environment such as erosion of stop banks and the contamination of streams and rivers, etc. Council undertakes these stormwater activities because of statutory obligations, duty of care and public demand.

Council manages stormwater within identified urban and residential areas. Within the rural areas and the wider district, the Bay of Plenty Regional Council (BoPRC) manages all land drainage via vast network of drains and levee banks.

**Figure 1: Stormwater Schemes Overview**



**Table 1: Description of Urban Stormwater schemes**

Scheme	Description
Whakatāne	Areas east of the Whakatāne River use a combination of gravity pipe, open drain and pumped systems to discharge stormwater to the river and the Whakatāne Harbour. Coastlands and Piripai, the coastal suburb of Whakatāne, uses a piped gravity system to land soakage.
Ōhope	Piped gravity system that discharges to sea, stream and harbour outfalls.
Edgécumbe	Combination of open drains, pumped and piped gravity system which discharges stormwater to the Bay of Plenty Regional Council Rangitāiki Plains Drainage Scheme.
Matatā	Properties are able to dispose of stormwater to the roadside swales, kerbing or to stream channels that flow through the town.
Tāneatua	Piped gravity system and open drain system that discharges to the Whakatāne River via a large open detention drain and stream.
Murupara	Piped gravity system that connected to an open drain discharging into the Rangitāiki River.
Te Teko	Piped gravity system that discharges into an old river watercourse.
Te Mahoe	Piped gravity system that discharges to outfall points adjacent to the Rangitāiki River

## **1.2 Key Partnerships & Stakeholders**

There are currently no partners involved in the delivery of stormwater related services to the community. However, the possibility of shared services such as monitoring and modelling between the three Eastern Bay District Councils is reviewed on an on-going basis. The BoPRC owns and maintains the Rangitāiki Plains Drainage Scheme, rural canal systems and all stopbanks with their flood-gated outlets on the Whakatāne, Rangitāiki and Tarawera rivers. Council liaises with the BoPRC on assets, environmental management and planning levels.

### **1.2.1 Key Partnerships**

- Neighbouring District Councils
- Bay of Plenty Regional Council
- Community Groups
- Toi Te Ora Public Health and Ministry of Health
- Schools, Ministry of Education
- Department of Conservation.

### **1.2.2 Stakeholders**

- The Whakatāne District community of owners, residents and ratepayers
- Ratepayers Associations
- Iwi consultation groups
- Iwi Liaison Committee
- Emergency service providers (Police, Ambulance, Fire, Civil Defence)
- Utility companies – power, communication, gas
- Environmental groups
- Environmental and recreation interest groups
- Government agencies (Audit NZ, Ministry for the Environment, Housing NZ etc.)
- Contractors
- Professional Service Providers
- Whakatāne District Council – Councillors, committee and community Boards, CEO and Managers
- Three Waters Team
- Policy and Planning, Regulatory Services, Information Services, Human Resources, Financial and Corporate Teams

## **1.3 Overview of Assets**

Council manages eight stormwater schemes (Figure 2) which cover over 1,697 hectares of land and 78% of the population in the district. The stormwater systems include stormwater

inlets, manholes, underground pipes, open drains, overland flow paths, pump stations, floodgates and stormwater ponds.

Table 2 below provides an overview of the different types of stormwater assets managed by Council. Further details are provided in the [Asset Information](#) section.

**Table 2: Overview of Assets and Valuations**

Asset	2017 Valuation Data
Pipes (km)	113.1
Pump Stations	20
Open channels/streams (km)	28.25
Manholes	1700
Floodgates	60
Storage Ponds/Retention Dams	10

Valuation of an asset can result in more effective and sustainable decisions and improve financial efficiency. Whakatāne, the largest scheme, has the largest proportionate Optimum Replacement Costs (ORC). Other significant areas are Ōhope, Edgecumbe and Murupara. Table 3 below shows the ORC for each scheme as a proportion of the whole. Further details are provided in the [Asset Information](#) section.



**Table 3: Gross Replacement Values (\$) of Stormwater Asset for Each Scheme**

Scheme	Gross Replacement Value(\$)
Whakatane	\$61,723,703
Ohope	\$8,504,481
Edgecumbe	\$6,605,423
Murupara	\$5,077,840
Taneatua	\$1,615,567
Te Mahoe	\$1,225,636
Matata	\$299,152
Te Teko	\$274,104
Plains*	\$210,979
Unknown*	\$385,248
<b>Total</b>	<b>\$85,922,131</b>

\*Plains: Assets recorded in the asset register which are from Edgecumbe, Te Mahoe, Matatā, Te Teko

\*Unknown: Assets cannot be allocated into specific scheme due to lack of information in the asset register

Council's stormwater assets perform well during standard rainfall but some parts of the system do not meet the required levels of service during adverse weather events. Continued development within the Whakatāne township has placed additional demands upon the system. Upgrades and some new capital works are required to meet the levels of service (LoS) of some schemes. There is also increased focus on the quality of urban stormwater runoff and the impact it may have on the natural waterways it discharges into.

#### 1.4 Goals and Objectives of Asset Management

Stormwater systems are an important element in the delivery of critical quality of life services to the community. Good asset management makes an essential contribution to the governance and management of a public entity's business and is an integral part of an organisation's wider servicing and financial planning processes. It becomes more true as population growth is experienced, making more demands on public service activities.

As outlined in Strategic Environment Section within Part A of the AMP, Council's stormwater activity primarily contributes to the following community outcomes:

- Reliable and Affordable Infrastructure
- Community Needs
- Valuing Our Environment

In order to achieve these outcomes, it is important that any stormwater contracts for technical work, customer services, operational and maintenance activities are clearly linked to achieve this.

The activity strategic outcomes developed with the Levels of Service (LoS) represented in the AMP are described as follows and aligned with the Customer Values as shown in Table 4 below.

**Table 4: Customer Values and Activity Strategic Outcomes**

Customer Value	Activity Strategic Outcomes (Levels of Service)
<b>Availability</b> <b>Adequacy</b> <b>Quality</b>	<ul style="list-style-type: none"> <li>▶ Provide continuous, safe, uninterrupted, cost effective and adequate stormwater systems which are accessible throughout Council’s urban and commercial areas.</li> </ul>
<b>Safety</b> <b>Environmental sustainability</b>	<ul style="list-style-type: none"> <li>▶ <b>Protection</b> of <b>public health</b> and property by the collection, transportation, appropriate treatment and disposal of stormwater run-off.</li> <li>▶ <b>Protection</b> of the <b>environment</b> by mitigating the quantity of contaminants discharged into receiving waters.</li> </ul>

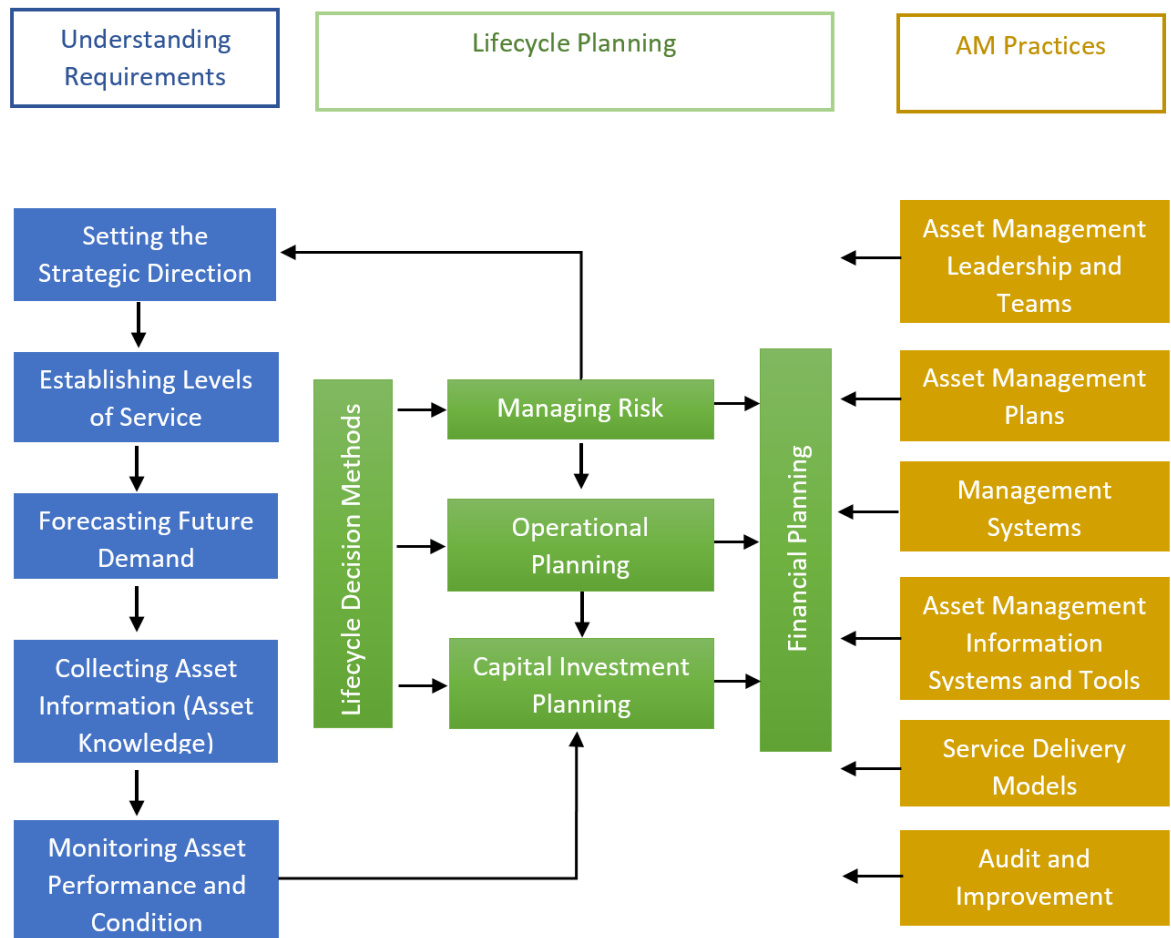
## 1.5 Plan Framework

The key elements of the plan are:

- Strategic Direction (Asset Management Plan – Part A)
- Levels of Service
- Future Demand
- Asset Knowledge
- Performance Monitoring
- Lifecycle Management
- Risk Management
- Operational Planning
- Capital Planning
- Financial Planning

Figure 2 below shows the Road Map for preparing an Asset Management Plan. (Source: International Infrastructure Management Manual 2015)

Figure 2: Asset Management Plan Framework



### 1.6 Core and Advanced Asset Management

This AMP is prepared as a “core” AMP in accordance with the International Infrastructure Management Manual. The core AMP contains approach to risk and critical assets described, top-down condition and performance assessment, future demand forecasts, description of supporting AM processes, 10 year financial forecasts, 3-yearly asset management improvement plan.

Future revisions of this AMP will move towards an “advanced” asset management plan by taking the following approaches:

- Analysis of the actual asset condition based on visual inspections and performance trends
- Additional customer engagement in setting appropriate Levels of Service (LoS) and Optimised Decision-Making (ODM)
- Incorporating Corporate Risk Management processes to major assets
- Improvement of programmes with a focus on advanced maintenance scheduling

- Incorporation of new technologies, where applicable, to deliver ODM.

## 2 Asset Information

This section provides an overview of the stormwater asset data, including how the asset information is collected, asset population, age profile, criticality, asset condition, asset valuation, etc.

### 2.1 Asset Data Management

Data is captured and stored regarding the monitoring of performance against service levels, support optimisation of asset management practices and plan for future growth.

This AMP was developed utilising Council's existing asset management system, "Hansen". Since 1 July 2017, Council has been implementing and moving towards a more robust and user-friendly Asset Management System called Xivic. As a result, significant improvements can be seen in this iteration of the Stormwater AMP.

#### 2.1.1 Asset Data Management – How data is held

Two asset systems are used to hold Three Waters asset data:

- Hansen asset management system is the primary reciprocator for asset data, which:
  - ▢ Stores physical attributes of assets
  - ▢ Stores financial information of assets
  - ▢ Stores maintenance history of assets
- GIS system is the spatial analysis system, which:
  - ▢ Shows the assets in a user friendly mapping system that can be utilised by all staff.

#### 2.1.2 Asset Data Systems – How data is updated

Data is updated in the following areas and/or from the following sources, when:

- ▢ New assets are created or vested in Council
- ▢ Assets are renewed, replaced, upgraded or decommissioned
- ▢ Data is received from field staff and work orders
- ▢ Data is received from specific investigations, such as condition assessments, CCTV inspections, data collection exercises etc.

#### 2.1.3 Asset Data Systems - How data is used

- ▢ Information is provided to customers, general public and stakeholders
- ▢ To understand the age, performance and condition of assets
- ▢ For investigation and systems analysis for capacity, growth, future renewal and upgrade programmes
- ▢ Asset valuation and insurance purposes
- ▢ For financial analysis



#### 2.1.4 Asset Data Capture Program

As with all assets, asset data capture is a critical component in improving Council’s knowledge about its assets and running its business. In 2012, Council undertook a Critical Assets Identification and Maintenance data capture programme known as ‘AICAM project’ which focused on data capture and condition assessment of critical assets in a prioritised manner. There are currently gaps in Council’s asset database whereby non-critical assets require data verified and capture. Council is undertaking on-going annual programme to close this gap.

Quantities for stormwater assets are shown in Table 5 below. It should be noted that all the following financial information is based on 30 June 2017 data.

**Table 5: Stormwater Asset Quantities**

Asset Type	Unit	Quantities
Gravity Main	Metres	113,147
Rising Main	Metres	1,321
Open Channel	Metres	28,250
Storage/Retention Pond	Each	10
Pump Station	Each	20
Resource Consent	Each	2
Manhole	Each	1,700

#### 2.1.5 Data Confidence and Reliability

Based on a recent external valuation for stormwater, the data supplied and used was given a combined rating of B – C which is a confidence level ( $\pm 25\%$ ). This rating clearly shows Council’s data within the Hansen database has anomalies and requires further attention and for this reason, Council is moving towards the new asset management system. Table 6 below shows the current asset confidence rating from the 2017 valuation. Note that in some instances 2014 valuation data had to be utilised due to missing data.

**Table 6: Asset confidence Ratings**

Asset Type	Costs/Rate	Quantity	Total Life	Remaining Life	Current Value (ODRC)
Gravity Main	B	B	A-B	B	A-B
Manholes					
Rising Main	B	B	A-B	A-B	A-B
Pump Station	C	C-D	C	C	C
Open Channel	C-D	B	A-B	A-B	B
Storage/Retention Pond	C-D	C-D	C	C	C
Resource Consent	C	C-D	C	C	B-C

## 2.2 Asset Condition

It is essential that Council has a clear knowledge of the condition of assets and how they are performing. An asset register including Condition Assessment has been developed in the new AMS to enable Council to understand future expenditure patterns and to make management decisions regarding maintenance and renewals.

The condition assessment model in Table 7 below is the basis of assessing the asset condition of the stormwater asset. Council's guideline for the asset condition assessment is based on the definition within IIMM 2015.

**Table 7: Condition and performance rating system**

Grade	Condition	Description of Condition
0	Non-Existent	Asset is abandoned, 'moth-balled', decommissioned or no longer exists as part of the network
1	Very Good	Well-maintained, sound physical condition, no work required
2	Good	Showing slight defects and deterioration, acceptable physical condition, no work required
3	Fair or Moderate	Showing minor defects and deterioration, routine maintenance required to return to acceptable LoS, short term failure unlikely.
4	Poor	Showing defects and deterioration, monitor, consider treatment and placement on renewals programme, short term failure likely.
5	Very Poor	Serious defects, failed, failure imminent or has stopped working, unsafe to operate. Asset unserviceable, replacement or renewal required within 12 months.

## 2.3 Critical Asset

Asset criticality refers to how important an asset component or asset facility is to the safe operation of the service. It is defined by the consequences that will occur if an asset or asset component fails.

In 2012, Council undertook a critical Assets Identification Collection and Maintenance data capture programme known as 'AICAM project' which focused on data capture and condition assessment of critical assets in a prioritised manner. This data is currently being transferred into Council's new AMS. The selection criteria for stormwater critical assets include size, function and associated asset criticality set out in Table 8 below.

**Table 8: Critical Asset Selection Criteria**

Asset type	Description of criteria
Pipes	>=450mmØ
Open Channels	All Open channels/streams/watercourses.
Stormwater outlets	All
Manholes	All manholes associated with critical pipes

Floodgates	All
Pump stations	All

## 2.4 Asset Population

Council manages eight stormwater schemes covering over 1,697 hectares of land and 78% of the population in the district.

### 2.4.1 Stormwater pipes

Stormwater pipes (along with culverts managed by the Roding team) form the majority of the built stormwater network. Council currently owns and operates 113.1 km of pipe network with pipes varying in size from 100mmØ to 4800mmØ. This network predominantly comprises small diameter pipes, with 83% of all pipes are less than 500mmØ in size. The Whakatāne urban area is the biggest scheme within Council’s jurisdiction and as expected, has the greatest volume and highest valuation of pipes in the district. The majority of the pipe material is concrete.

Figure 3 below shows the pipe length, installed year and valuation of each scheme.

**Figure 3: Pipe Length, Installed Year and Valuation of Each Scheme\***

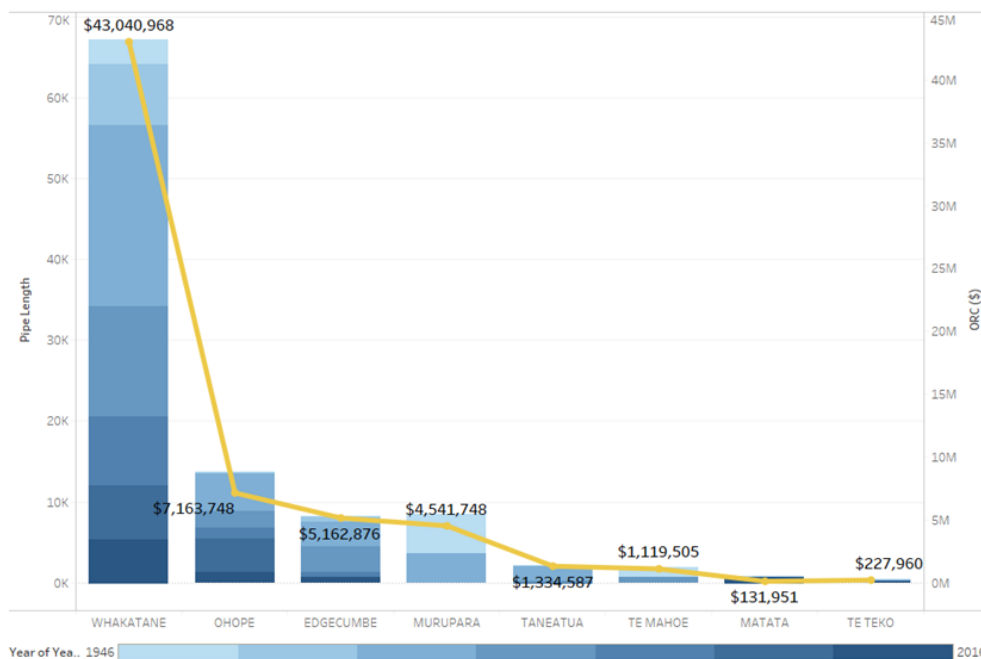


Figure 4 below shows the pipe age and remaining life within each scheme. Asset data indicates that the oldest pipes in service are within the Tāneatua scheme and the most aged network is the Murupara and Te Mahoe scheme. Except for these aged schemes, the average remaining life of the piped assets is around 43 years.

**Figure 4: Pipe Average Pipe Age and Remaining Life of Each Scheme\***



\* The unknown and Plains data are taken out in these figure

Overall, for stormwater pipe based on the recent valuation, the Optimum Replacement Cost (ORC) is \$71,957,765, the Optimum Depreciated Replacement cost (ODRC) is \$40,767,646 and the Annual Depreciation (AD) is \$899,472.

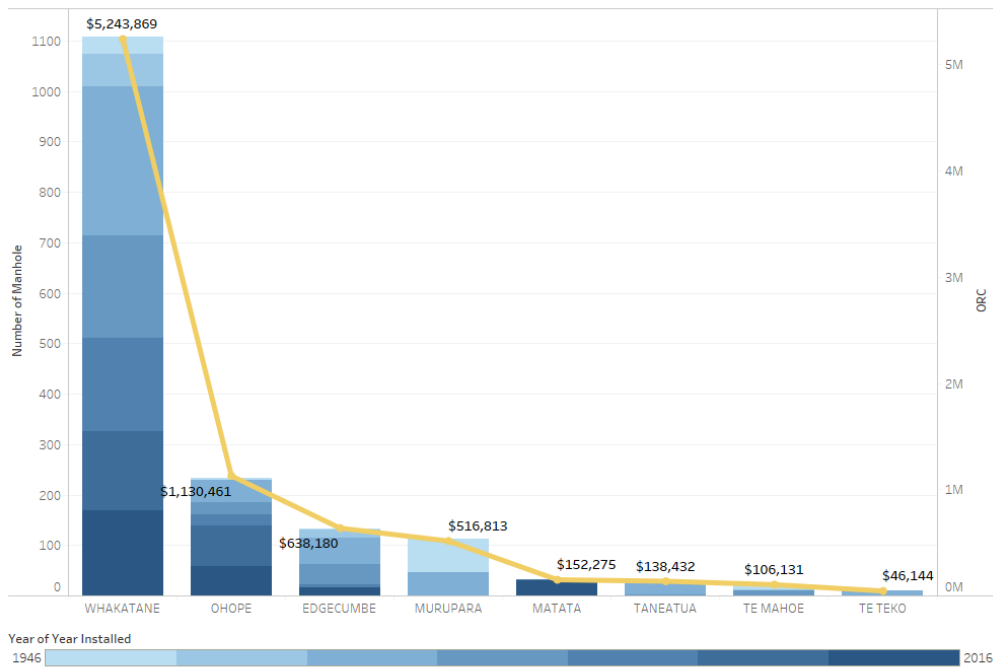
**2.4.2 Stormwater Manholes**

Council owns approximately 1,700 manhole and chambers. Manholes and chambers provide maintenance access to pipelines and are located where there is a change of diameter, direction and/or grade. Most manholes are constructed from precast reinforced concrete with cast iron covers and frames. Generally, the age of the manholes is similar to their adjoining pipes. Manhole depths vary and generally are deeper at the discharge locations. It should be noted that manhole depth and diameter data is not available for over 60% of these assets. This data gap in information will be addressed over the next 3 years.

Figure 5 below shows manhole numbers, installed year and valuation of each scheme. Figure 6 below shows manhole age and remaining life within each scheme.



**Figure 5: Manhole Numbers, Installed Year and Valuation of Each Scheme\***



**Figure 6: Manhole Average Pipe Age and Remain Life of Each Scheme\***



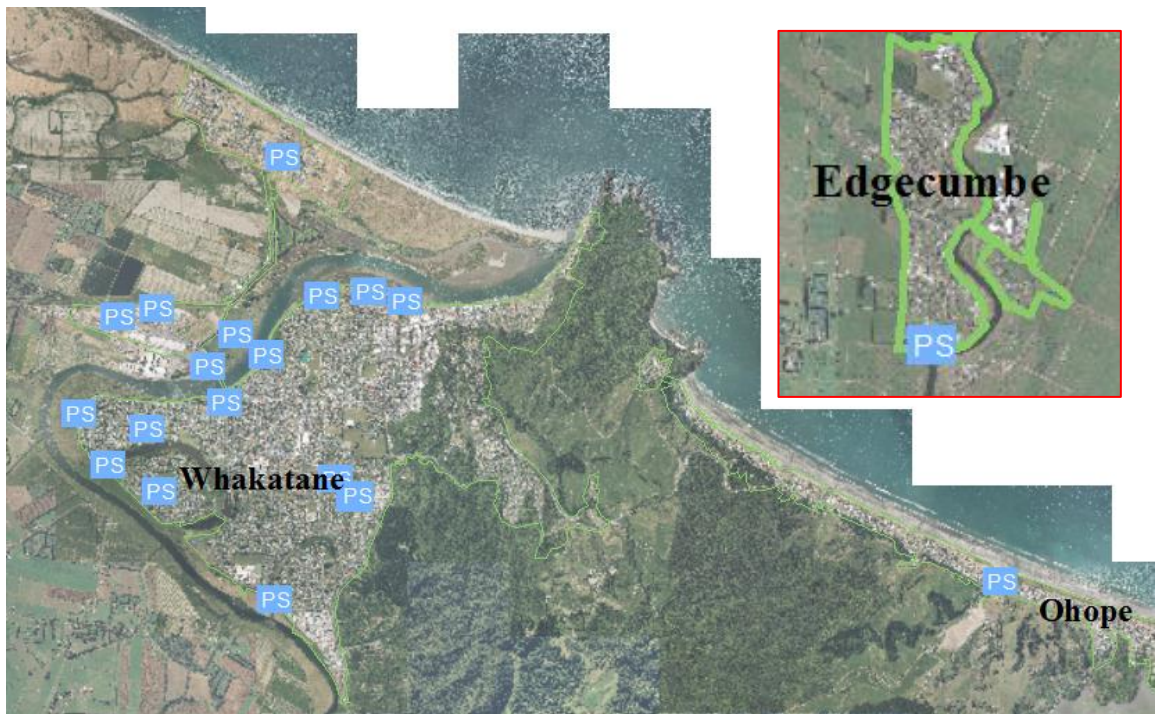
\* The unknown and Plains data are taken out in these figures

### 2.4.3 Stormwater Pump Stations

There are 20 stormwater pump stations owned, operated and managed by Council. Pump station are used to discharge stormwater into a nearby watercourse when gravity discharge is not possible. These pump stations are located within Whakatāne, Ōhope and Edgecumbe schemes. The locations of the stormwater pump stations are shown in Figure 7 below.

**Figure 7: Stormwater Pump Station Locations**

(A1223511)



#### **2.4.4 Stormwater Storage / Retention Pond**

Ponds are constructed to provide treatment, flood attenuation and/or minimise erosion and maintain stream hydrology as closely as possible to predevelopment levels. There are 10 ponds (including dry and wet ponds) operated by the Three Waters section. Stormwater ponds are in Matatā, Whakatāne and Ōhope.

#### **2.4.5 Floodgates**

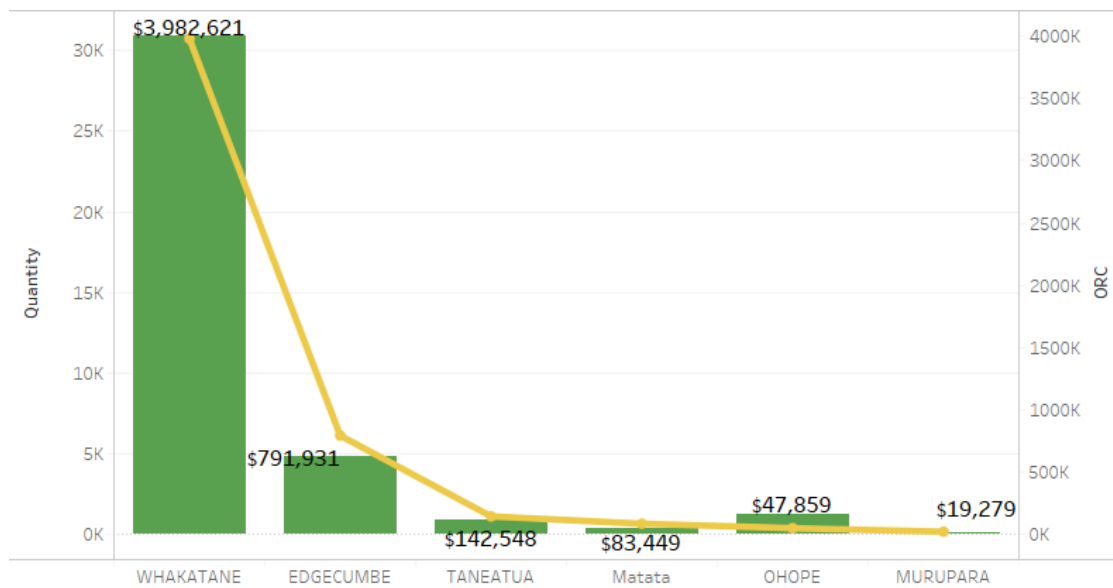
Although there are over 75 floodgates within Council Stormwater schemes, only 60 floodgates are under the control of the Three Waters section, with the remainder owned by either Council's Transport section or the BoPRC. Floodgates are regarded as critical assets and are designed to be the main defence protecting low lying land from elevated river and/or stream levels. Some floodgates have been included as components of pump stations while others are standalone assets. All floodgates have been included in the AICAM survey where their condition has been assessed. These assets are inspected periodically, prior to severe weather event notifications and after the event has passed.

A key issue with floodgates is the build-up of debris which can cause the floodgate to fail either in a shut or open position which prevents the network operating as designed.

#### **2.4.6 Open Channels**

Open channels, including manmade (e.g. swales) and natural (e.g. streams) are integral parts of the management of stormwater runoff. Together, they form the secondary network which conveys far greater volumes of water than any pipe network. There are approximately 28,220 metres of open channel managed by Council as part of the stormwater systems. Figure 8 below shows the open channels in schemes managed by Council.

**Figure 8: Open Channel in Different Schemes managed by Council\***



\* The unknown and Plains data are taken out in these figure

#### 2.4.7 Summary of Asset Valuation

Table 9 and 10 below summarise the stormwater asset valuation report up to 30<sup>th</sup> June 2017.

**Table 9: Stormwater Assets by District**

Scheme	ORC(\$)	ODRC (\$)	AD (\$)
Whakatane	\$ 61,723,703	\$ 37,095,863	\$ 817,235
Ohope	\$ 8,504,481	\$ 5,718,627	\$ 105,940
Edgecumbe	\$ 6,605,423	\$ 3,986,162	\$ 72,949
Matata	\$ 299,152	\$ 210,412	\$ 4,202
Murupara	\$ 5,077,840	\$ 1,633,565	\$ 63,232
Taneatua	\$ 1,615,567	\$ 845,785	\$ 18,413
Te Mahoe	\$ 1,225,636	\$ 512,310	\$ 15,320
Te Teko	\$ 274,104	\$ 180,587	\$ 3,426
Plains	\$ 210,979	\$ 169,560	\$ 3,860
Unknown	\$ 385,248	\$ 290,116	\$ 7,795
<b>Total</b>	<b>\$ 85,922,131</b>	<b>\$ 50,642,986</b>	<b>\$ 1,112,372</b>

**Table 10: Stormwater Asset By Type**

Asset Type	ORC(\$)	ODRC (\$)	AD (\$)
Gravity Main	\$ 70,897,845	\$ 40,195,494	\$ 886,223
Rising Main	\$ 1,059,920	\$ 608,152	\$ 13,249
Open Channel	\$ 5,134,888	\$ 4,945,888	\$ 8,120
Storage / Retention Pond	\$ 1,048,517	\$ 913,035	\$ 5,403
Pump Station	\$ 7,719,807	\$ 3,946,191	\$ 197,407
Resource Consent	\$ 61,154	\$ 34,226	\$ 1,970
<b>Totals</b>	<b>\$ 85,922,131</b>	<b>\$ 50,642,986</b>	<b>\$ 1,112,372</b>

## 2.5 Resource Consents

Resource consents are a requirement for most stormwater management works due to the potential impact on receiving environments. It is important to capitalise and value resource consents for the network.

Table 11 below provides an overview of Council's database of consents that relate to stormwater management activities. In accordance with both Regional and District Plans, a number of requirements must be met during the life of the consent. These requirements stipulate monitoring conditions in the consent and require the consent holder to report on their compliance with those conditions.



**Table 11: Database of consents related to stormwater management activities**

Permit Number	Permit Activity Type	Permit Purpose	Permit Location	Permit Granted Date	Permit Expiry Date
20183	Discharge - Stormwater	Discharge Stormwater From A Proposed Subdivision At Mokorua, Whakatāne Into A Tributary Of The Wainui Te Whara Stream	Mokorua, Whakatāne	6/03/1975	1/10/2026
20210	Discharge - Stormwater	Discharge Stormwater From A Residential Subdivision	Taneatua Stormwater Drainage System	2/10/1975	1/10/2026
21117	Discharge - Stormwater	Discharge Stormwater From A Residential Subdivision Into Ōhiwa Harbour	Adjacent To Harbour Road Opposite Tuati Street, Ohope.	7/04/1983	1/10/2026
60171	Discharge - Stormwater	Discharge Stormwater To The Foreshore Of Ōhiwa Harbour	Ōhiwa Harbour	20/01/1999	30/12/2033
63352	Discharge - Stormwater	Discharge Storm Water To The Kopeopeo Canal	At The Hub, State Highway 30, Whakatane	26/10/2005	30/09/2030
66383	Discharge - Stormwater	Discharge Of Stormwater From The Stormwater Settlement Pond On Keepa Road, 80m North Of The Fergusson Road Intersection, To The Orini Canal.	The Stormwater System As Shown On Catchment Plan 1621/4	21/09/2010	31/08/2020
67409	Discharge - Stormwater	A) Discharge Stormwater To Water B) Discharge Stormwater In The Tarawera River Catchment	Open Drain At 98b College Road, Edgcumbe	12/03/2013	28/02/2048
21785-1	Discharge - Stormwater	To Discharge Stormwater From A Subdivision Into The Waiewe Stream	Waiewe Stream	5/12/1985	1/10/2026
21785-2	Discharge - Stormwater	A Right To Discharge Stormwater From A Subdivision Into A Gully Leading To The Wainui Te Whara Stream	Waiewe Street, Whakatane	5/12/1985	1/10/2026
24283.0.01-Dc	Discharge - Stormwater	Discharge Stormwater To The Whakatane River	Commerce Street Whakatane	10/16/1995	8/31/2004
24587.0.01-Dc	Discharge - Stormwater	Discharge Water Into Sullivan Lake	Sullivans Lake Whakatane	11/27/1996	11/30/2011

Permit Number	Permit Activity Type	Permit Purpose	Permit Location	Permit Granted Date	Permit Expiry Date
60053.0.02-Dc+	Discharge - Stormwater	Discharge Stormwater Into Awatapu Lagoon	John Laughton Place Whakatane Awatapu	10/15/1998	10/31/2008
62713.0.01-Dc+	Discharge - Stormwater	Discharge Stormwater From A Commercial Development Via A Pump Station And Controlled Outfall Structure Into The Whakatane River	The Hub State Highway 30 Whakatane	2/27/2005	6/30/2015
20319	Discharge	Discharge Water From Industrial Subdivision	Subdivision Adjacent To State Highway No. 2 At Whakatane		1/10/2026
24801	Discharge - Stormwater	Discharge Stormwater From Subdivision	Appenzell Drive, Whakatane		30/11/2011
60053	Discharge - Stormwater	Dis Stormwater Into The Awatapu Lagoon	John Laughton Place, Whakatane, Awatapu		31/10/2008
61841	Multiple Activities	A) To Dam And Divert Water In The Catchment Of The Wainui Te Whara Stream <b>B) To Discharge Stormwater To Land In Circumstances Where It May Enter The Wainui Te Whara Stream</b>	Wainui Te Whara Stream (See Map Ref)	10/12/2002	30/11/2022
62945	Multiple Activities	A) To Carry Out Small Scale Earthworks In The Riparian Management Zone <b>B) Discharge Stormwater To Land Soakage</b>	Goodwin's Landing, Waterways Drive, Ohope	22/12/2004	30/11/2039
64930	Multiple Activities	A) Undertake Earthworks In An Erosion Hazard Zone B) Remove Vegetation In An Erosion Hazard Zone C) Place And Use A Discharge Structure In The Bed Of A An Unnamed Watercourse And A Tributary Of The Mahy Stream D) Disturb The Bed Of An Unnamed Watercourse And A Tributary Of The Mahy Stream E) Divert Stormwater <b>F) Discharge Stormwater To Water</b> <b>G) Discharge Stormwater To Land</b> H) Place And Use An Energy Dissipation Structure And Extend A	Ohope West End, Escarpment	20/09/2007	30/09/2027

Permit Number	Permit Activity Type	Permit Purpose	Permit Location	Permit Granted Date	Permit Expiry Date
		Discharge Outlet On And/Or Over The Bed Of An Unnamed Tributary To Mahy Stream			
65353	Multiple Activities	A) Place And Use A Stormwater Outfall Structure And Associated Erosion Protection Works In, On, Under Or Over The Bed Of The Wainui Te Whara Stream B) Disturb The Bed Of The Wainui Te Whara Stream C) Deposit Substances In, On, Under Or Over The Bed Of The Wainui Te Whara Stream <b>D) Discharge Stormwater To The Wainui Te Whara Stream</b>	Adjacent To 35 Douglas Street, Whakatane	29/05/2008	30/04/2028
65604	Multiple Activities	A) Place, Use And Maintain A Discharge Pipe And Associated Erosion Protection Structures On The Bed Of The Whakatane River B) Temporarily Disturb The Bed Of The Whakatane River To Allow For The Placement And Maintenance Of A Discharge Pipe And Associated Erosion Protection Structures <b>C) Discharge Stormwater To The Whakatane River</b>	Whakatane River Bank, Adjacent To 2 Keepa Road, Whakatane	1/06/2010	30/04/2045
65617	Multiple Activities	A) Undertake Earthworks For; Foundations For A Pump Station, Low Level Bunds, Install A Pipe Through A Stopbank, Bury A Stormwater Line, Dig Out A Wetwall Chamber B) Install A Concrete Outlet Structure In The River Bank And Associated Erosion Protection C) Re-Grade Existing Drains D) And Divert Surface Run-Off Water <b>E) Dam And Divert Surface And Stormwater</b> <b>F) Discharge Stormwater Contaminated Water To Water.</b>	Rangitāiki Plains/Edgecumbe	22/09/2009	31/08/2044
65835	Multiple Activities	A) Install In-Stream Structures (Including Erosion Protection) B) Re-Grade Existing Drains <b>C) Divert Stormwater</b> <b>D) Discharge Stormwater To Water</b>	Rangitāiki Plains/Edgecumbe	20/01/2011	31/12/2045
66394	Multiple Activities	A) To Extend Stormwater Outfalls Structure In, On, Under Or Over Foreshore Of The Pacific Ocean	Several Locations Along Ohope Beach	29/09/2010	31/08/2020

Permit Number	Permit Activity Type	Permit Purpose	Permit Location	Permit Granted Date	Permit Expiry Date
		B) Disturb The Foreshore C) Deposit Material In, On Or Under Foreshore D) Occupy Space In The Coastal Marine Area E) Carry Out Earthworks Within 20 Metres Of Mean High Water Springs <b>F) Discharge Stormwater To The Pacific Ocean</b>			
67420	Multiple Activities	<b>A) Discharge Stormwater To Lake Sullivan</b>  B) Temporarily Take And Discharge Sediment Contaminated Water To Lake Sullivan From Dewatering Activities	Lake Sullivan	12/03/2013	28/02/2048

### **2.5.1 Comprehensive Stormwater Consent**

The BoPRC requires all Territorial Authorities to have a comprehensive stormwater consent (CSC) for all catchments. Council is working closely with the BoPRC towards delivering the CSC for the Whakatāne urban catchment over the next two years before proceeding with the remaining catchments within the next 10 years. Along with the CSCs, each catchment will have an associated Catchment Management Plan (CMP) which will identify issues within the stormwater networks and the best way of addressing these.

## **3 Levels of Service (LoS)**

LoS are key business drivers that influence all asset management decisions. Council's stormwater activity primarily contributes to the following community outcomes:

- Reliable and Affordable Infrastructure
- Community Needs
- Valuing Our Environment

The Stormwater strategic levels of service developed in the AMP are described as follows:

- Provide a quality continuous, safe, uninterrupted, cost effective and adequate urban stormwater system accessible throughout the District's urban and commercial areas.
- Protection of public health and property by the collection, transportation, appropriate treatment and disposal of stormwater run-off.
- Protection of the environment by mitigating the quantity of contaminants discharged into receiving waters.

The legislative framework also affects LoS standards. There are number of legislative mechanisms aimed to avoid and/or mitigate potential adverse environmental effects associated with stormwater management. These are set at national, regional and district levels.

Based on the contents above, Council has developed SMART (Specific, Measurable, Achievable, Relevant, Time bond) measures as described in the [Performance Measures](#) section below.

### **3.1 Legislative framework**

The following summary in Table 12 provides a general outline of applicable legislative provision.



**Table 12: Legislative requirements**

<b>National</b>	
Legislation	Requirement
The Resource Management Act 1991	<p><b>Section 5 Purpose</b> The Resource Management Act 1991 (RMA) promotes the sustainable management of natural and physical resources.</p> <p><b>Section 7 Other matters</b> This section requires that ‘all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall have particular regard to (a) kaitiakitanga (i) the effects of climate change</p> <p><b>Section 8 Treaty of Waitangi</b> This section requires ‘In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi)’.</p> <p><b>Section 31 Functions of territorial authorities under this Act</b> This section requires District Councils to be responsible for achieving integrated management of the use of land, and the associated natural and physical resources, of their District.</p> <p><b>Section 69 Rules relating to water quality and Section 70 Rules about discharges</b> Specific to the management of the nation’s water resources, Sections 69 and 70 of the RMA allow rules relating to water quality to be incorporated into a Regional Plan.</p> <p><b>Section 107 Restriction on grant of certain discharge permits</b> This section continues to impose restrictions on the granting of certain discharge permits where there are likely to be significant effects on the receiving environment without regard for Section 107(2).</p> <p><b>Application</b> The RMA specifies roles and responsibilities in terms of managing effects on the environment. In relation to Stormwater Management, the RMA would require the adverse effects associated with activities such as stormwater discharges, retention dams, pump stations and flood stop banks to be avoided, remedied or mitigated. This is imposed through Regional and District Plans. Particular regard may be given to the effects of climate change, and in particular the planning and design process for stormwater systems, in the following ways:</p> <ul style="list-style-type: none"> <li>• Consideration of resource consents and notices of requirement under the RMA. Regard should be given to the effect that climate change is likely to have on the ability of the asset to perform its purpose over its lifetime.</li> <li>• Policies that reflect the need to address the effects of climate change and provide guidance for design and planning of stormwater assets.</li> </ul> <p>Central government can further become involved with stormwater management by using tools provided for in the RMA. These include national policy statements, national environmental standards (which may set water quality standards) and government submissions on Councils’ plans.</p>

Local Government Act 2002

Specific to environmental stewardship, section 14 of the Local Government Act 2002 (LGA) includes a number of guiding principles:

- making itself aware of community views
- providing opportunities for Māori to participate in decision-making processes
- collaborating and cooperating with other local authorities as appropriate
- ensuring prudent stewardship of resources
- taking a sustainable development approach.

Councils are required to identify overall long-term priorities and to plan for the future.

The LGA outlines the responsibilities of local authorities and the decision making process for activities undertaken on behalf of their community, primarily through the requirement to adopt a Long Term Plan (LTP).

Section 125 Requirement to assess water and other sanitary services

This requires an assessment of sanitary services. The purpose of the assessment is to ensure that public health continues to be protected. This assessment must include a description of existing services in the District (both public and private), a forecast of future demand, and identification and assessment of options for meeting this demand. Details are covered in the Community Consultation and Life Cycle Management Sections.

**Bay of Plenty Regional council (BOPRC)**

Document	Requirement
Regional Natural Resources Plan	<p>The purpose of the Regional Natural Resources Plan is to promote sustainable and integrated management of land and water resources within the Bay of Plenty Region. This plan outlines the rules and regulations for earthworks and discharges. Under these rules and regulations, certain Stormwater Management related development requires Land Use Consents, such as:</p> <ul style="list-style-type: none"> <li>• earthworks</li> <li>• any proposed activity within the bed of a lake, river or stream such as the construction of structures (culverts)</li> <li>• any activity that results in discharges of stormwater containing contaminants into water or onto land.</li> </ul> <p>Land Use Consent applications will invariably include an Erosion and Sediment Control Plan. The purpose of these plans is to illustrate which erosion and sediment control measures are intended for the development.</p>
Regional Coastal Environment Plan	<p>The purpose of the Regional Coastal Environmental Plan is to promote the sustainable management of the natural and physical resources of the Bay of Plenty coastal environment. This plan outlines the rules and requirements regarding earthworks, structures and discharges to the coastal environment from Stormwater Management related development (amongst others). As such, BOPRC issues coastal permits to control such activities.</p>

Stormwater Strategy for the Bay of Plenty Region	<p>This strategy provides a framework and principles to produce localised stormwater strategies and action plans to address local stormwater issues. It seeks to ensure stormwater is managed consistently across the region, and ensure that the effects of stormwater discharges are dealt with adequately.</p>
<b>District</b>	
Document	Requirement
Whakatāne District Plan	<p>The District Plan assists Council to carry out its functions under the Resource Management Act 1991 in order to achieve the purpose of the Act to promote the sustainable management of natural and physical resources.</p> <p>In this context, the Whakatāne District Plan outlines the rules, objectives, policies and requirements for land based activities above Mean High Water Springs (MHWS). This includes earthworks and discharge structures associated with Stormwater Management related development.</p> <p>The District Plan also sets out the standards and controls for noise, hazardous substances (spill management), and contaminated land. It contains designations of land for network utility or large public works that enable works to be undertaken in accordance with the purpose of the designation.</p> <p>The District Plan acknowledges the need to develop, operate and maintain network utilities throughout the District while avoiding, remedying or mitigating the adverse effects on the environment. The impact of untreated stormwater discharges on the coastal environment is identified as a significant resource management issue in the District Plan.</p>
Bylaws	<p>Whakatāne District Council Combined Waters Bylaw 2017 incorporates Stormwater Management. The bylaw regulates and promotes efficient and safe use of water and associated land, structures and infrastructure.</p>
Reserve Management Plans	<p>Reserve Management Plans are prepared in accordance with the Reserves Act 1977 by Council Administrator for the reserve. The management plans outline the use, maintenance, protection, preservation and development of the reserve for the purposes for which it is classified.</p> <p>Where Stormwater Management assets are to be located on a reserve, regard should be given to the purpose of the reserve pursuant to the Reserves Act 1977. Regard should also be given to whether the proposed works conflict with the stated purpose of the reserve.</p>

Engineering Code of Practice	<p>The Engineering Code of Practice establishes Stormwater performance standards in the Whakatāne District, including:</p> <ul style="list-style-type: none"> <li>● A primary system capable of disposal of surface water resulting from a 10% AEP storm shall be constructed</li> <li>● A secondary flow system capable of carrying surface water resulting from a 1% AEP storm shall be constructed to ensure that such surface water shall not enter buildings</li> </ul> <p>Council is currently revising the Engineering Code of Practice and reviewing whether collaboration with other Territorial Authorities is warranted. Complete review and adoption is anticipated in mid-2020.</p>
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### 3.2 Community consultation

Council has used a variety of consultation approaches to seek public opinion and to communicate its decisions and programmes to residents in the district. Additionally, other external organisations have undertaken public surveys comparing services within various regions.

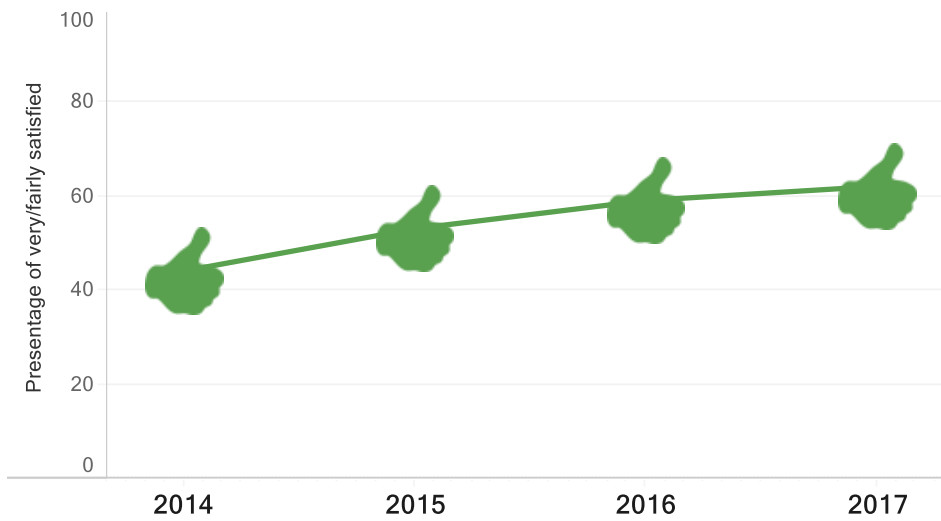
Customer research carried out which included stormwater questions includes:

- Whakatāne Te Hara
- Whakatāne District Council Annual Residents Survey
- Communitrak™ Survey 2017
- NZ Water Consumer Survey 2017
- Customer service requests and complaints
- LTP Consultation and Assessment of Water and Sanitary Services
- Consultations on the affected areas after major stormwater events

#### 3.2.1 Whakatāne District Council Annual Residents Survey

The result of the survey is shown in Figure 9 below.

**Figure 9: Annual Residents Survey Result form 2014**



The results of the survey show that the percentage of residents who are very/fairly satisfied is increasing every year although it's still one of the least satisfied services provided by Council.

Stormwater system performances are largely relative to the rainfall amount and intensity. Whakatāne District experienced very wet weather in April 2014 (284.5mm rainfall), March (264.5 mm rainfall) 2017 and April (389mm rainfall) 2017. The number of residents satisfied with the stormwater service has been increasing over the last four years with the percentage who are satisfied highest in 2017.

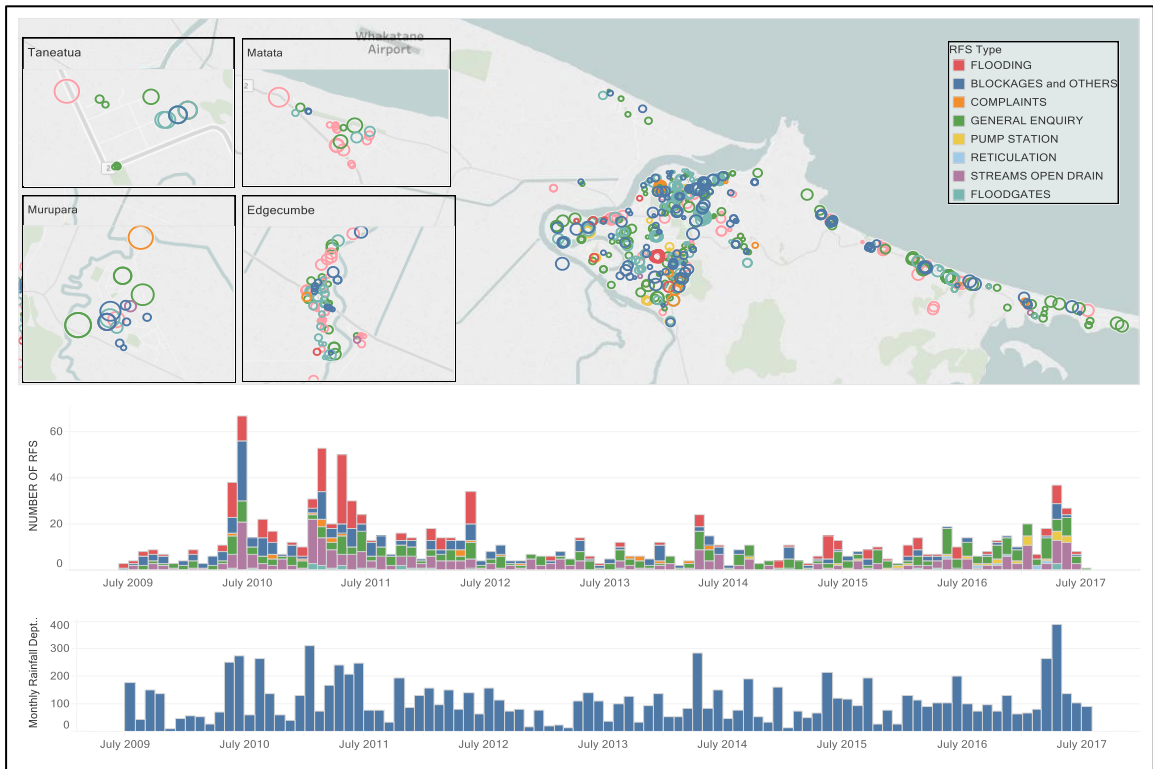
**3.2.2 Customer Service Request and Complaints**

Council operates a Customer Service Call Centre. All Requests for Service (RFS) are collected and recorded in Council's Ozone system which has been operating since 2009.

The diagram in Figure 10 below shows all the stormwater RFS's since records were kept, excluding any related to a minor inconvenience of surface flooding on roadways. The information is across the whole District and has been broken down into the various stormwater types of requests. Also shown are records of monthly rainfall for the same timeline.

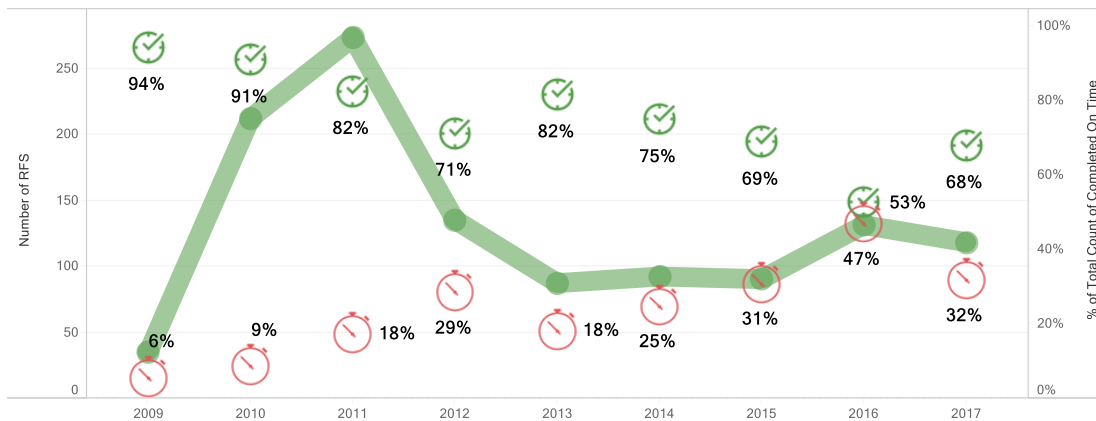


**Figure 10: Request for Service and Rainfall Depth\***



The number of RFS from July 2009 to July 2017 and the percentage of resolved within the target timeframe are shown in Figure 11 below.

**Figure 11: Number of RFS and Percentage of Completed On Time\***



*\*Surface flooding on the roadways did not take into account in this analysis*

### 3.3 Performance Measures

Performance measures are used to indicate how Council is delivering levels of service. Two key performance measures Council aims to achieve related to the stormwater service are:

1. Provide a quality, continuous, safe, uninterrupted, cost effective and adequate urban stormwater system accessible throughout the district’s urban and commercial areas.
2. Protection of public health and property by the collection, transportation, appropriate treatment and disposal of stormwater run-off and the protection of the environment by mitigating the quantity of contaminants discharged into the receiving waters.

These measures can be further broken down into either customer or technical performances which are described as:

- Customer performance measure, which is the service the customer receives.
- Technical performance measure, which measures the service that the organization provides (and which may use technical indicators of performance such as the condition of the asset).

Council’s Performance measures are shown below in Tables 13 and 14.

**Table 13: Performance Measures**

Customer Value	The core customer values this service aims to provide are:				
	<ul style="list-style-type: none"> <li>• Availability</li> <li>• Adequacy</li> <li>• Accessibility</li> <li>• Quality</li> <li>• Reliability</li> </ul>				
Customer Measures	<ol style="list-style-type: none"> <li>(1) Customer Service Index (CSI) - satisfaction with the overall effectiveness of the stormwater systems</li> <li>(2) The number of complaints received about the performance of stormwater system per 1000 properties connected to the stormwater system</li> <li>(3) Number of houses and other habitable buildings flooded from 1 in 100 year (1% AEP) rain event (per 1000 properties connected)</li> <li>(4) The median response time to attend a flooding event, measured from the time of receiving the notification of flooding to the time service personnel reach the site is 3hrs **</li> <li>(5) The percentage of customer request to respond to flooding event within the target timeframe **</li> </ol>				
Targets	Current performance	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-10 target 2021-28
(1)	62%	CSI of	CSI of	CSI of	CSI of
(2)	7.33	25	25	20	20
(3)	N/A	15	15	10	10
(4)	N/A	3hrs	3hrs	3hrs	3hrs
(5)	N/A*	80% of the time*	80% of the time*	80% of the time*	80% of the time*

Technical Measures	<ul style="list-style-type: none"> <li>(1) Capital/renewal works to be constructed in compliance with Council's Engineering Code of Practice and Guidelines</li> <li>(2) Modelling of Whakatāne, Ōhope and Edgecumbe stormwater catchments</li> <li>(3) Capital and renewal projects are identified through modelling and implemented as per LTP works programme</li> <li>(4) Undertake CCTV of the existing pipe network (proactively reducing the likelihood of blockages and pipe failures)</li> <li>(5) Compliance with the Maintenance contracts including: <ul style="list-style-type: none"> <li>a. Annual inspection and maintenance programme – floodgates, outlets, open drains, manholes</li> <li>b. Pre and post event check of floodgates, screens, pump stations (critical assets)</li> <li>c. Programmed maintenance of open drains.</li> </ul> </li> <li>(6) Review subdivision applications and promote use of alternative discharge options and site retention where appropriate</li> </ul>				
Targets	Current performance	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-10 target 2021-28
(1)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
(2)	80%	90%	90%	90%	100%
(3)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
(4)	None	Whakatāne 1%, Edgecumbe 1%, Ōhope 1%	Whakatāne 2%, Edgecumbe 2%, Ōhope 2%	Whakatāne 3%, Edgecumbe 3%, Ōhope 3%	Whakatāne 5%, Edgecumbe 5%, Ōhope 5%
(5)	90% compliance	90% compliance	90% compliance	95% compliance	100% compliance
(6)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
How we will achieve this Level of Service	<ul style="list-style-type: none"> <li>(1) Implementing LTP works programme</li> <li>(2) Monthly meetings with Depot to review performance</li> <li>(3) Annual audit of tendering processes</li> </ul>				
How we will measure if target is achieved	<ul style="list-style-type: none"> <li>(1) Annual reporting</li> <li>(2) Reporting to Projects and Services Committee</li> <li>(3) Updating the models and analysing flooding patterns</li> <li>(4) Monthly and annual works and financial reporting by Depot</li> </ul>				

N/A- Not applicable for 2017/18 as there were no flooding events\*

\*The DIA requires results for this measure to be presented according to the following definitions:

'**Flooding event**' – an overflowing of stormwater from a territorial authority's stormwater system that enters a habitable floor  
'**Stormwater system**' – the pipes and infrastructure (excluding roads) that collect and manage rainwater run-off from the point of connection to the point of discharge.

More information about these events can be found in Whakatāne District Council Annual Report 2017/18.

\*\*Mandatory measure set by Department of Internal Affairs (DIA).

**Table 14: Levels of Service - Performance Measures - Environmental and Safety**

Customer Value	The core customer values this service aims to provide are: <ul style="list-style-type: none"> <li>• Environmental sustainability</li> <li>• Safety</li> </ul>				
Customer Measures	(1) Number of injury incidents reported as a result of poorly maintained stormwater system (2) Number of abatement notices received annually (3) Number of infringement notices received annually (4) Number of enforcement orders received annually (5) Number of convictions annually				
Targets	Current performance	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-10 target 2021-28
(1)	Zero Incidents	Zero Incidents	Zero Incidents	Zero Incidents	Zero Incidents
(2)	Zero	Zero	Zero	Zero	Zero
(3)	Zero	Zero	Zero	Zero	Zero
(4)	Zero	Zero	Zero	Zero	Zero
(5)	Zero	Zero	Zero	Zero	Zero
Technical Measures	(1) Compliance with Health and Safety Plans in Contracts (Contractor Safety) (2) Report on accidents/incidents to manager (3) Compliance with network maintenance & routine inspections (i.e. pump stations, hazards such as restrictions) (4) Compliance with Resource Consents for operations and discharge (5) Preparing catchment management plans for major catchments				
Targets	Current performance	Year 1 target 2018/19	Year 2 target 2019/20	Year 3 target 2020/21	Years 4-10 target 2021-28
(1)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
(2)	Within 12 hours	Within 12 hours	Within 12 hours	Within 12 hours	Within 12 hours
(3)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
(4)	100% compliance	100% compliance	100% compliance	100% compliance	100% compliance
(5)	0	0	0	Whakatāne and Ōhope	Edgecumbe, Matatā, Tāneatua, Te Teko, Te

					Mahoe and Murupara
How we will achieve this Level of Service	(1) Enforcing and compliance of Health and safety provisions in contracts	(2) Obtaining comprehensive resource consents from Regional Council for major catchments			
How we will measure if target is achieved	(1) Review and update Risk within the AMP annually	(2) Reporting from BoPRC	(3) Annual reporting by Asset Manager		

### 3.4 Gaps

The performance targets in this AMP are generally set to increase LoS in some areas. Customer research and Council's service records indicate there remains a level of dissatisfaction with stormwater service in parts of the scheme.

Key issues are listed below:

- Some pipes are under-capacity to convey stormwater to pump stations or discharge points in extreme wet weather events
- Pumping capacity is inadequate to prevent flooding of houses during extreme wet weather events
- There is a limited understanding and lack of knowledge regarding 'as built' data for some stormwater assets
- Some assets are ageing and need replacement
- Stormwater quality in relation to its receiving environment will be the main emphasis of the discharge consent
- Some overland flow paths on private properties have been restricted and/or have had structures built on them thus reducing or eliminating the natural flow path
- Catchment in north-western Edgecumbe is prone to flooding in excess of 2% AEP in storm events
- Natural hazards causing damage to stormwater infrastructure and threatening homes in particular within the Matatā scheme
- River flooding is a high risk for some schemes with Whakatāne, Edgecumbe, Tāneatua and Te Teko all susceptible.
- Some rural residential areas largely rely on open drains to prevent flooding and these open drains are managed by the BoPRC.

### 3.5 Future

The purpose of good asset management is to provide the desired LoS through the management of assets in the most cost-effect manner for existing and future customers.



Although some LoS are determined by legislation, community consultation is the most important element in establishing LoS. Stormwater assets typically have long lives and Council needs to consider the sustainability of these assets into the future, particularly as decisions made today will have an effect on future customers. The use of Annual Residents Surveys continues to provide useful data of customer expectations and perceptions of Council and its activities.

#### **4 Growth and Demand**

Part A of the AMP outlines the growth projections for the District. Planning for future growth and demand is imperative in order to provide an economically sustained pathway to meeting the needs of residents, businesses and visitors in the District. The provision of the stormwater activity and its management is an essential element in the planning process.

Council is currently preparing a Growth Strategy and once completed, it will provide direction regarding growth and demand effects. It is anticipated that the major growth areas will be within Whakatāne and Ōhope townships which are likely to require upgrades to stormwater infrastructure.

The key demand drivers that are relevant to the stormwater activity include:

- ▣ Population Considerations
- ▣ Community Expectations
- ▣ Residential and Commercial Development
- ▣ Climate Change
- ▣ Public and Environmental Health.

The main impacts are likely to include:

- ▣ Increased pressure on existing infrastructure due to an increase in impermeable areas such as carparks and large roofs which collect runoff, thereby increasing the amount of runoff and the speed at which it enters manmade or natural stormwater systems.
- ▣ Increased pressure on existing infrastructure resulting from climate change (more wet weather, extreme storm event and rising sea levels)
- ▣ A requirement for robust asset data and network modelling to assist in decision making
- ▣ An increase in the number of assets vested in Council
- ▣ Increased maintenance, operations and depreciation costs for residents
- ▣ An increase in the generation of other contaminants e.g. industrial discharge in the stormwater.

## **4.1 Population Considerations**

### **4.1.1 Population Trend**

Whakatāne District consists of a number of urban communities that vary in population and projections. The predicted population trends show a static population with indications of population decline after 2030. However, this decline is not uniform across the District with some areas, primarily within Whakatāne and Ōhope, expecting growth. Although decline is largely expected in some rural areas, that decline in population does not translate into a decline in stormwater demand.

### **4.1.2 Population Profiles**

The increasing age of the population together with the less than average incomes across the district create a challenge in the ability of people to pay for services. This could mean that the community prefers a reduced levels of service in lieu of rate rises, which would ultimately reduce demand for services. However, this is the least likely scenario for stormwater services as recent flooding events indicate there is a willingness for additional spending on stormwater infrastructure to reduce issues.

### **4.1.3 Impacts on the Stormwater Activity**

In addition to potential residential development areas within Whakatāne, there is pressure to develop the Huna and Shaw Road areas which are currently outside Council's Stormwater schemes. Close liaison with the BoPRC will need to be undertaken to do so.

### **4.1.4 Management Strategies**

As the population grows in Whakatāne and Ōhope, there will be an ongoing need to address stormwater management issues. In future, with the development of catchment management plans, there will be a need to get smarter in developing drainage systems that treat stormwater prior to discharge. In some of the smaller rural areas, Council is already investigating options for upgrading and/or providing stormwater infrastructure. Council is also working on identifying and/or protecting designate overland flow paths as these flow paths are critical in protecting properties during very large rainfall events.

One strategy is utilising 2D modelling software which covers the pipe network areas of Apanui, Hinemoa and Whakatāne South catchments and will indicate potential shortfalls in stormwater infrastructure.

Another strategy is looking at the potential for alternative drainage systems. Initial investigations are focusing on the use of swales, utilising the groundwater table by recharging and the use of on-site detention techniques.

The use of CCTV inspections is proposed to help reconcile the accuracy of some asset data as well as to identify the condition of the assets, thus allowing for a timely upgrade and/or renewals to be programmed.

## 4.2 Community Expectations

### 4.2.1 *Desirable Levels of Service*

Through the LTP consultation and customer feedback processes, the community has identified the following main outcomes that relate to stormwater:

- Clean protected environment
- Environmentally responsible development
- High-quality affordable infrastructure
- Healthy people and quality housing.

Information is gathered from customers regarding their expectations on the effectiveness of the delivery and costs associated with stormwater services. This information is collected via a number of mechanisms that include:

- A Customer Survey
- Submissions on the Annual Plan and Long term plan (LTP)
- Analysis of customer calls
- Community consultation
- Analysis of facilities use.

Recent submissions on the LTP and specific consultation around Awatapu, Apanui Catchment, Alexander Avenue, Douglas Street areas and Ōtarawairere, show that the community is generally concerned about localised flooding and hazard mitigation (more specific details are in the [Community Consultation](#) section).

Of the three waters, stormwater accounted for the majority of submissions regarding the Water and Sanitary Assessments.

The community expects public and private property to be protected; the large number of submissions around flooding concerns and extending reticulation indicates this. In addition, a number of residents raised concerns about paying for upgrades, i.e. the belief that only those benefiting directly should pay. However, a holistic District-wide approach may best suit our community.

Submissions were also received from the Bay of Plenty District Health Board requesting: more monitoring of stormwater quality; incorporation of low impact design in newly developed areas; and the design of assets that perform in the event of climate change.

Because water based activities form a large element of the 'Whakatāne lifestyle', the community also expects the waterways and beaches to be protected from pollution. This is therefore an important consideration with regard to the impacts of service operation on LoS.

Balancing community expectations with what the community are able/ happy to pay for is a challenge. The imbalance of wealth and expectations across the district is evident and needs to be managed.

#### **4.2.2 Impacts on the Stormwater Activity**

The LTP is the key document that Council and the community have to define which Council projects are planned with regard to stormwater activity and when they will be undertaken. Council strives to achieve a balance between economic development and the community's expectation for neutral effects on the natural environment.

Community expectations are related to the delivery and overall quality of the stormwater service. A harmonious relationship between these expectations and service delivery can alleviate issues at critical planning stages.

The key issue for Council is the gap between expectations of stormwater service delivery and the ability/willingness of the community to pay. This is also exacerbated by the different economic levels between townships and schemes. Generally, the more affluent an area is, the higher the expectations.

#### **4.2.3 Management Strategy**

Council and community have identified the following community management requirements to be achieved:

- Decision making processes shall be transparent, open and inclusive.
- Council, the community and Maori to work in partnership.
- Impacts due to infill developments and new developments shall be largely managed through resource consents and the building consent processes by way of providing on-site stormwater attenuation and employing other latest proven technologies.

Ongoing investigations e.g. network modelling, routine maintenance, funding applications, continued communication and consultation with the local residents, etc., are all tools that can be combined to align community expectations with levels of service.

### **4.3 Residential & Commercial Development**

As the population grows in urban areas, new residential and commercial developments create additional impermeable surfaces which increase instant stormwater runoff and peaking flows. Infill developments in built-up areas and new developments impact on the existing infrastructure by exacerbating existing flooding issues.

#### **4.3.1 Impacts on the stormwater activity**

The main stormwater schemes in the District are within the townships of Whakatāne, Ōhope, Edgecumbe and Murupara. Of these, the main growth and demand effects are likely to occur in Whakatāne and Ōhope where upgrades and additional infrastructure to accommodate will be required as a result of residential growth and to meet LoS. Some of the smaller schemes with existing flooding issues will likely need upgrades to infrastructure to meet existing LoS.

In general terms, the impacts on the activity as a whole are:

- Urbanisation (kerb and channel, drainage, crossings)

- An increase in the volume of traffic (resulting in an increase in vehicle related contaminants into stormwater runoff)
- An increase in impermeable areas (e.g. carparks, large roofs, less green space, etc.), which channel runoff and increase the speed of runoff entering manmade or natural stormwater systems
- An increase in the number of assets vested in Council
- An increase in the generation of other potential contaminants e.g. industrial discharges
- An increase in associated operational and maintenance costs.

#### **4.3.2 Management Strategy**

The impacts of residential and commercial development are being addressed through demand management, planning and network modelling activities which include:

- Monitoring of new developments via resource consenting
- Redefining hazard zones (e.g. boundaries with waterways and any major overland flow path/s)
- Undertaking long-term planning for low-lying communities and infrastructure requirements as a result of increased flow.

#### **4.4 Climate Change**

The March 2004 amendments to the RMA 1991 require all Councils to consider the effects of climate change. This is backed by conclusive national and international evidence that the climate is changing resulting in rising sea levels and increases in weather extremes such as “weather bombs” (increased frequency of El Nino conditions). As a result, there will be more storms and intense rainfall events, flooding and drought, all of which will impact on river and seawater quality and quantity and how the community interacts with the physical environment.

The Whakatāne District has more recently been affected by severe flooding in 2004, 2005, 2010, 2014 and 2017. Mitigation works are currently under investigation and being planned for affected communities, including Matatā, Edgcumbe, Apanui, and Ohope.

Council is working in conjunction with the BoPRC to look at flooding and the minimum building platform levels required within some lower lying areas. There are National and Regional Studies underway and guidelines are being developed which require the effects of climate change to be taken into account when modelling future scenarios.

##### **4.4.1 Impacts on the Stormwater Activity**

The main effects on the Stormwater activity during any particular severe storm event would be flooding of the reticulation system, retention ponds and the possibility of damage to critical structures. The increase in frequency of these events would impact on the water table in terms of quantity and quality.



These impacts in turn, can have serious deleterious effects on economic, social and environmental values of the community.

Computer modelling will be a required tool into the future, to determine the future capacity requirements of the network in catering for agreed LoS. These models take into account climate change factors. Council has developed a base model for the Whakatāne stormwater system.

The outcome of computer model scenarios may lead to increases capital, operational and maintenance expenditure, which will directly affect residents' contributions to rates.

#### **4.4.2 Management Strategies**

Climate Change and its related impacts cannot be avoided. Therefore, factoring in future climate change events is an essential task for Council with regard to long-term land use planning, hazard mapping, Civil Defence planning and determining the infrastructure requirements moving forward to ensure communities expectations are met with regard to well-being for all and safe and reliable services.

Within the Whakatāne urban area, the areas identified for potential future development are generally flat and low lying. The BoPRC and Council are reviewing their long term requirements of the stormwater disposal system and what flood protection these will provide. Additionally, Council has embarked on a study to determine the required floor levels for any future housing developments. This will be based on the fact that some existing areas may be below present flood levels as set by the BoPRC and these areas may require a 'retreat' methodology.

Council is also undertaking a study to assess the impact of developments on stormwater runoff based on growth scenarios, included in the residential growth strategy. This study will assess the different permeability factors.

#### **4.5 Public & Environmental Health**

Urbanisation and increasing population densities have led to an increased need for stormwater services, added demand for stormwater collection and have placed pressure on the existing infrastructure.

##### **4.5.1 Impacts on the Stormwater Activity**

The monitoring of growth and the ability of the stormwater systems to cope with the growth is essential to ensure sufficient capacity within the stormwater system. If the existing systems are under capacity, stormwater will overflow, flooding streets and potentially homes. In addition, it is likely that excess stormwater may enter low-lying wastewater systems which could also fail and therefore pose a potential risk to the public and the environment.

The presence of contaminated stormwater overflowing onto the streets and properties carries the risk of infection to those that come in contact with the stormwater, and if untreated, will pollute the environment.

#### **4.5.2 Management Strategies**

- Growth and demand must be carefully monitored and planning undertaken to control the potential situation. System capacity upgrades should be prioritised.
- Council is reviewing a developer contribution policy that may require developers who place increased demand on the infrastructure to make a contribution towards upgrading the existing infrastructure.
- Regionally, resource consent conditions require constant monitoring of discharge quality to ensure environmental values are not compromised in any way. The key to safeguarding environmental health is through the use of Best Management Practices (BMP's), monitoring, regulations and education
- New developments need to meet and/or exceed Council Engineering Standards with resource consents.
- Beach water quality should be monitored to inform and protect public health and safety.
- Industries that produces hazardous substances and/or contaminants will be required to treat stormwater onsite or discharge via approved tradewaste to the wastewater network
- Undertaking an education campaign to advise residents around what can enter the system.

#### **4.6 Demand Management Planning**

The objective of demand management planning is to actively educate and seek to modify customer demands for services in order that Council can maximise the utilisation of existing assets and/or reduce and/or defer the need for the construction of new assets. The use of demand modelling tools is essential for future scenario planning and some examples of new and improved services to meet customer demand include:

- Environmental controls
- Environmentally sensitive design
- Developing use of on-site storage systems
- Research of alternatives to 'hard' engineering options
- Use of GIS to maintain up-to-date details of the stormwater network
- Investigation into non-asset solutions.

##### **4.6.1 Management Strategies**

Demand management strategies provide alternatives to the creation of new assets in order to meet demand and to modify customer demands so that the utilisation of existing assets is maximised thus deferring and/or reduced the need for capital investment.

Demand management is practiced continuously to maintain total demand at reasonable and sustainable levels. The key components of demand management when promoted as a package or strategy can dramatically reduce the demand on the network. The key components with examples are listed in Table 15 below:

**Table 15: Demand Management Strategies**

Demand Component	Strategy
Legislation/Regulation	<ul style="list-style-type: none"> <li>▶ Development of Sanitary Assessments</li> <li>▶ Development of Stormwater Management Plans</li> <li>▶ Compliance with resource consents and, in the future, the Comprehensive Stormwater Consent</li> </ul>
Education	<ul style="list-style-type: none"> <li>▶ Education on the relationship between what goes down the drain and how this affects the quality of the receiving environment</li> </ul>
Operation	<ul style="list-style-type: none"> <li>▶ Regularly CCTV mains and inspect property connections for blockages and remedy.</li> <li>▶ Works programmes for renewals, upgrades and new works</li> <li>▶ Undertake optimisation review of existing reticulation network</li> <li>▶ Ongoing up-to-date stormwater models incorporating climate change and growth</li> <li>▶ Setting design levels of service and consulting with the community</li> <li>▶ Identification of Flood Protection areas and delineation of hazard zones</li> </ul>
Demand Substitution	<ul style="list-style-type: none"> <li>▶ Promote stormwater use for gardens, use of rain gardens, swales to mitigate and treat runoff</li> </ul>

In addition to the above, new technologies can be effective in reducing impacts of growth and demand and the associated costs. These include:

- ✓ New materials become available which provide for a longer life of the assets
- ✓ New and enhanced construction/rehabilitation methods deliver cost savings for renewal projects as well as time savings
- ✓ New treatment systems achieve high quality water discharged to rivers and streams at reasonable costs.

## 5 Lifecycle Management

This Lifecycle Management section outlines the broad strategies and work programs required to achieve the goals and objectives set out in previous sections of this plan. This section provides guidance on decision techniques that aim to provide the most effective solution to delivering defined objectives.

The lifecycle decision methods are described in Part A of this AMP. The stormwater system lifecycle decisions making uses methods that balance performance, risk and cost, which is a principle of ISO 55001.

Table 16 below outlines the decision criteria used when making lifecycle management decisions.

**Table 16: Lifecycle Management Decision Criteria**

	Decision Criteria
Performance	Community satisfaction, asset output, Levels of Services, etc.
Risk	Risk to the asset user, risk of failure, risk of service interruption, safety risk, reputation, etc.
Cost	Cost of ownership, operations and maintenance cost, financial return, net present value, etc.

## 5.1 Lifecycle Management – Background Data

Further to the asset information, as described in the [Asset Information](#) section of this document, other key information is shown in Table 17 below:

**Table 17: Asset Information**

Asset Type	Unit	Quantities	Average Age (year)	Valuation (ORC)
Gravity Main	m	113,147	36.6	\$70.90 million
Rising Main	m	1,321	28.1	\$1.06 million
Open Channel	m	28,250	NA	\$5.13 million
Storage/Retention Pond	Each	10	29.2	\$1.05 million
Pump Station	Each	20	23.5	\$7.72 million
Resource Consent	Each	2	NA	\$0.06 million

## 5.2 Lifecycle Management – Managing Risk

Part A of the AMP details Council’s approach to risk management while this section covers the specific risk management implemented by Council and how these apply to the current and future stormwater activities.

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

### 5.2.1 Key Risks

The District needs to understand the nature and possible consequences of the risks posed by hazards in order to ensure these risks are managed to acceptable levels. Council has highlighted a number of key risk areas across the activity including:

-  Flooding to houses, commercial building, roads and community facilities etc.

- ❏ Assets failures/interruptions due to lack of maintenance, lack of planning and/or nature hazards (including climate change) etc.
- ❏ Legislation/Policy change e.g. stormwater discharge quality
- ❏ Lack of resources and knowledge.

### 5.2.2 Risk Register

The risk registers provided in the Tables 18 and 19 below for the current and future stormwater activities of Council have been developed in consultation with key staff and the operations manager. Risk factors in the risk register were evaluated by the methods described in Part A of the AMP.

**Table 18: Asset Management Risks - General**

Asset Management Risks – General													
Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
STR01	<b>Lack of resources</b> – the ability to attract key staff and or retain skilled staff	Operational Financial	1	4	4	<ul style="list-style-type: none"> <li>▶ District promotion (lifestyle)</li> <li>▶ Dedicated HR staff</li> <li>▶ Recruitment consultancy used (senior staff)</li> <li>▶ Benchmarked salary levels (confirm with HR)</li> <li>▶ Office accommodation/layout has been reviewed. Believed to have enough space for the future</li> </ul>	Good	4	2	8	<ul style="list-style-type: none"> <li>▶ HR Manager</li> <li>▶ Three Waters Operational Manager</li> <li>▶ General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▶ Look at review of recruitment policy (current lack of policies)</li> <li>▶ Family/Lifestyle friendly policies</li> <li>▶ Look at improving career development Draft policy/programme</li> <li>▶ Review salary levels and incentives</li> <li>▶ Implement the Performance Development system.</li> </ul>	
STR02	<b>Knowledge management</b> – inability to retain knowledge or have sufficient systems in place to manage	Financial Operational	4	4	16	<ul style="list-style-type: none"> <li>▶ Asset changes/updates – Information currently provided by contractors</li> </ul>	Good	4	3	12	<ul style="list-style-type: none"> <li>▶ HR Manager</li> <li>▶ Three Waters Assets and</li> </ul>	<ul style="list-style-type: none"> <li>▶ Develop a process to ensure that knowledge is transferred, stored and</li> </ul>	



Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
	data/information, especially regarding asset performance and condition. Loss of institutional knowledge. IT failure.					<ul style="list-style-type: none"> <li>▶ Condition surveys undertaken</li> <li>▶ IT practices (backup, virus, security etc.)</li> <li>▶ Asset management systems (e.g. Xivic)</li> <li>▶ Responsibilities defined</li> </ul>					<ul style="list-style-type: none"> <li>▶ Planning Manager</li> <li>▶ General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▶ accessible. Define champions and successors.</li> <li>▶ Suitable training for staff</li> <li>▶ Protocols for update and ongoing auditing</li> <li>▶ Customisation of Asset Management systems to meet needs</li> <li>▶ Development of Staff Retention Policy</li> </ul>	
STR03	<b>Project Management</b> – projects inadequately scoped, budgeted, managed and documented, and reviewed, inadequate consultation with owners, resource consent issues etc resulting in time & cost, loss of image and other impacts.	Operational Financial Reputation/ Image Health and Safety	4	4	16	<ul style="list-style-type: none"> <li>▶ Project management training for key staff</li> <li>▶ Dedicated in-house Project Management team for larger projects</li> <li>▶ Annual Plan/LTP Process (is the initial consultation)</li> <li>▶ Use of consultants</li> <li>▶ Media communication plan</li> <li>▶ Appropriate resources (e.g. software/information systems)</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>▶ HR Manager</li> <li>▶ Three Waters Project Delivery Manager</li> <li>▶ Three Waters Assets Engineer</li> </ul>	<ul style="list-style-type: none"> <li>▶ Ensure adequate (quality) training for key staff as appropriate to roles and responsibilities</li> <li>▶ Initial project information better communicated</li> <li>▶ Improve project closure/reviews</li> <li>▶ Define accountabilities and map organisation wide impacts and priorities</li> </ul>	

Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
STR04	<b>Maintenance and Operations Contract Management</b> – unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image Health and Safety	4	4	16	<ul style="list-style-type: none"> <li>▶ Contract procurement process in place</li> <li>▶ Contract conditions (KPI's, penalties)</li> <li>▶ Financial reporting</li> <li>▶ Contracts Procedure Manual</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Operations Team Leaders</li> </ul>	<ul style="list-style-type: none"> <li>▶ Further improve Auditing and Reporting (including performance)</li> <li>▶ Contract review and improvement</li> </ul>	
STR05	<b>Capital Works Contract Management</b> – unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image	4	4	16	<ul style="list-style-type: none"> <li>▶ Standard Capital Works Contracts</li> <li>▶ Approved design and specification by owner</li> <li>▶ Contract conditions (KPI's, penalties)</li> <li>▶ Financial reporting</li> </ul>	Good	3	3	9	<ul style="list-style-type: none"> <li>▶ Three Waters Project Delivery Manager</li> <li>▶ Three Waters Assets Engineer</li> </ul>	<ul style="list-style-type: none"> <li>▶ Further improve Auditing and Reporting (including performance)</li> <li>▶ Contract review and improvement</li> </ul>	
STR06	<b>Asset Management</b> – not up to date, or insufficient quality of process and output.	Operational Legislative Financial	4	3	12	<ul style="list-style-type: none"> <li>▶ Asset Management processes and practices</li> <li>▶ Asset Management Plan - Improvement Plan being undertaken</li> <li>▶ Asset Management System Implementation</li> <li>▶ Improve Data Capture processes</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Three Waters Assets Engineer</li> </ul>	<ul style="list-style-type: none"> <li>▶ Asset Management Plan - Improvement Plan</li> <li>▶ Continuing Staff Development</li> <li>▶ On-going external review</li> <li>▶ On-going budget provision</li> <li>▶ Increase IT resources</li> <li>▶ Better data capture through business as usual activities</li> </ul>	

Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
STR07	<b>Inadequate condition/performance assessments</b> – lack of reliable data for renewals/replacements and valuations.	Operational Financial	4	4	16	<ul style="list-style-type: none"> <li>▶ Internal and external feedback</li> <li>▶ Pipe condition assessments (sampling)</li> <li>▶ Pump station assessments</li> <li>▶ Asset Management System Implementation</li> <li>▶ Resource - Asset Engineers employed</li> <li>▶ On-going data collection programme</li> </ul>	Fair	3	2	6	<ul style="list-style-type: none"> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Three Waters Assets Engineer</li> </ul>	<ul style="list-style-type: none"> <li>▶ Continual assessments</li> <li>▶ Improve asset management system</li> <li>▶ Continue Staff training</li> <li>▶ Develop condition assessment programme</li> <li>▶ Develop a process to ensure that knowledge is transferred, stored and accessible.</li> </ul>	
STR08	<b>Compliance with Legislation and legal requirements</b> – inability or failure to comply with consents, statute and national standards. Increase in requirements.	Legislative Financial Reputation/ Image	4	3	12	<ul style="list-style-type: none"> <li>▶ Compliance with resource consents, RMA, subsidy requirements</li> <li>▶ Contract conditions</li> <li>▶ Staff training and development</li> <li>▶ Feedback from BOPRC</li> <li>▶ Use of external advice/resources</li> <li>▶ Monitoring of expiring consents and identifying new consents to be</li> </ul>	Good	4	2	8	<ul style="list-style-type: none"> <li>▶ General Manager</li> <li>▶ Infrastructure Manager</li> <li>▶ Three Waters</li> </ul>	<ul style="list-style-type: none"> <li>▶ Key staff to keep updated on current legislation</li> <li>▶ Regular communications to staff</li> <li>▶ Development of Council procedures</li> <li>▶ Communicating effects of legislative change to Council/LTP process</li> <li>▶ Develop programme for internal audit</li> </ul>	

Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
						improved (define responsibilities)							
STR09	<b>Public Health and Safety</b> – accidents causing injury and or damage to Whakatane residents/visitors/or property resulting in claims and or negative publicity (e.g. falls and trips over protruding assets).	Health and Safety Reputation/Image Financial	4	3	12	<ul style="list-style-type: none"> <li>▶ Fencing</li> <li>▶ Signage</li> <li>▶ Design and location</li> <li>▶ Safety inspections</li> <li>▶ RFS feedback</li> <li>▶ LTP Consultation</li> <li>▶ Compliance with legislation and standards</li> </ul>	Good	4	2	8	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Three Waters Assets Engineer</li> </ul>	<ul style="list-style-type: none"> <li>▶ On-going review of Council's liability and H &amp; S policy.</li> <li>▶ Other community consultation</li> </ul>	
STR10	<b>Extreme Natural Hazards</b> – (landslips/ earthquake/ tsunami/ volcanic/ major storm event) causing damage to assets and or hindering development.	Environmental Health and Safety Operational Financial	5	3	15	<ul style="list-style-type: none"> <li>▶ Emergency Response Plan – Network inspection and hazard identification</li> <li>▶ Civil Defence Plan</li> <li>▶ Critical Assets Identified</li> <li>▶ Suppliers and Contractors identified and list is maintained</li> <li>▶ Engineering Code of Practice</li> <li>▶ Building code/standards</li> </ul>	Fair	3	4	12	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>▶ Liaise with Regional agencies to identify hazards and ensure emergency response mechanisms are in place in the event of a hazard occurring</li> </ul>	

Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
						<ul style="list-style-type: none"> <li>Utilities membership - Bay of Plenty 'Lifelines' group</li> </ul>							
STR11	<b>Technology</b> – inability to track technology, engineering developments/techniques, local and national trends and to utilise where relevant.	Operational	3	2	6	<ul style="list-style-type: none"> <li>Local government networking</li> <li>Staff development and training</li> <li>Use of external advice/resources</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> <li>Three Waters Assets and Planning Manager</li> <li>General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>IT Policy/ IT Roadmap</li> <li>Further staff development and training</li> </ul>	
STR12	<b>Possible Political Interference</b> , or inability of elected members to fulfill roles and responsibilities or disregard for community views.	Operational Reputation/Image	3	5	15	<ul style="list-style-type: none"> <li>Councillors roles well defined and implemented</li> <li>Legislative requirements/ LTP process</li> <li>Reports to Council and Community boards</li> <li>Councillor induction/handbook</li> </ul>	Good	2	4	8	<ul style="list-style-type: none"> <li>Chief Executive</li> <li>General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Improved communication to Council</li> <li>Manage process through CE</li> </ul>	

Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
STR13	<b>External Economic Influences (Cost Escalations)</b> – terrorism, rising costs (e.g. fuel), pandemic, worldwide incidents.	Economic Financial	3	2	6	<ul style="list-style-type: none"> <li>▶ Local government networking</li> <li>▶ Responding to national directives</li> <li>▶ Monitoring world events and reacting</li> </ul>	Fair	3	3	9	<ul style="list-style-type: none"> <li>▶ General Manager Infrastructure</li> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Track national and global trends.</li> <li>▶ Monitor economic developments and liaise with central government.</li> </ul>	
STR14	<b>Decrease in Funding</b> – Both internal and external sources of funding. Risk of not applying for funding on time or not identifying potential areas where funding is required.	Operational Financial Reputation/ Image	4	2	8	<ul style="list-style-type: none"> <li>▶ Asset management process</li> <li>▶ Monitor other funding opportunities</li> <li>▶ Prioritising projects/ LTP process</li> <li>▶ Liaising with other Councils</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>▶ General Manager Infrastructure</li> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Maintain and manage clear lines of communication with key external agencies</li> <li>▶ Forecast likely scenarios regarding effects of budget changes</li> <li>▶ Using sustainable practices</li> <li>▶ Increasing efficiency</li> <li>▶ Rationalise spending</li> </ul>	



Asset Management Risks – General

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)			Net Risk (Considering measures in place)			Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor	Description	Effectiveness	Consequence	Likelihood	Factor			
STR15	<b>Inadequate Planning for Growth</b> – resulting in under-capacity infrastructure.	Operational Financial Reputation/ Image	4	3	12	<ul style="list-style-type: none"> <li>▶ Subdivision/ Development control</li> <li>▶ District plan provisions</li> <li>▶ Growth Strategy</li> <li>▶ Asset Management Planning</li> <li>▶ Network modelling</li> <li>▶ Stormwater Catchment Plans</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Director for Environment and Policy</li> </ul>	<ul style="list-style-type: none"> <li>▶ Further development of Growth Strategy and Development Contributions Policy</li> <li>▶ Further develop network models and strategies to respond to growth</li> </ul>	
STR16	<b>Increased Rainfall Intensity and Frequency</b> – causing flooding, unpredictable weather events, global warming.	Operational Financial	4	3	12	<ul style="list-style-type: none"> <li>▶ Reviewing of rainfall intensity history (figures used in design)</li> </ul>	Fair	3	3	9	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Monitor trends</li> <li>▶ Plan for over design events</li> <li>▶ Used climate/revised rainfall figures</li> <li>▶ Consider changing rainfall patterns in future capital works programmes</li> </ul>	

Table 19: Asset Management Risks – Stormwater Facilities

Asset Management Risks – Stormwater Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)	Net Risk (Considering measures in place)				Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor		Effectiveness	Consequence	Likelihood	Factor		
STR17	<b>Flooding</b> due to under capacity network elements.	Health and Safety Reputation/ Image Operational Financial	4	4	16	<ul style="list-style-type: none"> <li>▶ Engineering Code of Practice</li> <li>▶ District plan</li> <li>▶ RFS feedback</li> <li>▶ SWCMP including modelling (in progress)</li> <li>▶ Overland flow modelling</li> <li>▶ High Intensity Rain Design System (HIRDS) data</li> <li>▶ Upgrade programme</li> </ul>	Fair	3	3	9	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Development and Compliance manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Complete Stormwater Catchment Management Plans (SWCMP's)</li> <li>▶ Undertake Stormwater Catchment Management Plans (SWCMP's) for smaller catchments</li> <li>▶ Continue to review levels of service. Review RFS and plan capital works.</li> <li>▶ Update capital works programme through LTP and annual plan</li> </ul>
STR18	<b>Flooding</b> due to extreme weather events.	Health and Safety Reputation/ Image Operational Financial	4	4	16	<ul style="list-style-type: none"> <li>▶ Engineering Code of Practice</li> <li>▶ Emergency response plan</li> <li>▶ RFS feedback</li> <li>▶ Maintenance Contracts</li> <li>▶ SWCMP including modelling</li> </ul>	Fair	3	3	9	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Continue to review Levels of Service and RFS data</li> <li>▶ Update capital works plan through LTP and annual plan</li> <li>▶ Community Education/Awareness</li> <li>▶ Create tight building/development</li> </ul>

Asset Management Risks – Stormwater Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)	Net Risk (Considering measures in place)				Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor		Description	Effectiveness	Consequence	Likelihood		
						<ul style="list-style-type: none"> <li>Overland flow modelling (in progress)</li> <li>High Intensity Rain Design System (HIRDS) data</li> <li>Civil Defence</li> </ul>					<ul style="list-style-type: none"> <li>General Manager Infrastructure</li> </ul>	controls in areas identified to be prone to overland flow
STR19	<b>Silt/sediment and debris</b> blocking catchpits and manholes, inlets/outlets and roadside drains reducing capacity and causing flooding.	Operational Reputation/ Image Health and Safety Environmental	3	4	12	<ul style="list-style-type: none"> <li>RFS feedback</li> <li>Control over contractors performance</li> </ul>	Good	3	3	9	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> </ul>	<ul style="list-style-type: none"> <li>Identification of areas with problem vegetation and sediment deposition</li> <li>Ongoing review of Levels of Service. Review RFS and plan improvement works as appropriate</li> <li>Community Education/Awareness</li> </ul>
STR20	<b>Breaks and blockages in the pipe network</b> caused by tree roots, pipe decay, geological failure or poor construction.	Operational Reputation/ Image Health and Safety Financial	3	4	12	<ul style="list-style-type: none"> <li>RFS feedback</li> <li>Subdivision/ Development Controls</li> <li>Capital works programme</li> <li>Urban street tree strategy</li> </ul>	Good	2	3	6	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> </ul>	<ul style="list-style-type: none"> <li>Continue to review maintenance Strategy</li> <li>Proactive CCTV investigations to determine condition and performance of pipe network</li> </ul>

Asset Management Risks – Stormwater Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)	Net Risk (Considering measures in place)				Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor		Effectiveness	Consequence	Likelihood	Factor		
						<ul style="list-style-type: none"> <li>▶ CCTV inspections</li> </ul>						<ul style="list-style-type: none"> <li>▶ Plan capital replacements as necessary</li> </ul>
STR21	<p><b>Contamination</b> affecting receiving waters caused by lack of effective source controls &amp; lack of maintenance (landfill, physical works, fuel).</p>	<p>Operational Environmental Health and Safety Legislative</p>	4	4	16	<ul style="list-style-type: none"> <li>▶ RFS feedback</li> <li>▶ Control of contractors performance</li> <li>▶ District Plan provisions</li> <li>▶ Resource consent compliance and monitoring</li> <li>▶ Monitoring of trade waste</li> <li>▶ Pollution hotline operated by Bay of Plenty Regional Council</li> </ul>	Fair	3	3	9	<ul style="list-style-type: none"> <li>▶ Three Waters Operational Manager</li> </ul>	<ul style="list-style-type: none"> <li>▶ Retrospective 'pickup' of old developments</li> <li>▶ Comprehensive Catchment Consent (in draft at present)</li> <li>▶ Enforcement</li> <li>▶ Education programme</li> </ul>

Asset Management Risks – Stormwater Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)	Net Risk (Considering measures in place)				Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor		Effectiveness	Consequence	Likelihood	Factor		
STR22	Lost assets (e.g. manholes, outlets) caused by new sealing, development works, lack of information.	Operational	2	3	6	<ul style="list-style-type: none"> <li>Awareness in roading contract</li> <li>Inspections and maintenance</li> <li>GIS/Xivic updates</li> </ul>	Fair	2	2	4	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> <li>Three Waters Assets and Planning Manager</li> <li>Transport Manager</li> </ul>	<ul style="list-style-type: none"> <li>Further improve process and recording of asset data</li> <li>Liase and work closely with Transportation team</li> </ul>
STR23	Erosion and scour caused by inappropriate outfalls (urban only).	Environmental Operational Reputation/ Image	3	3	9	<ul style="list-style-type: none"> <li>Engineering Code of Practice</li> <li>RFS feedback</li> <li>Resource consent conditions and compliance</li> </ul>	Good	2	2	4	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> <li>Three Waters Assets and Planning Manager</li> </ul>	<ul style="list-style-type: none"> <li>Implement annual inspections</li> <li>Plan capital works programme</li> </ul>

Asset Management Risks – Stormwater Facilities

Risk Reference	Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable	Risk Type	Gross Risk (No effective measures in place)			Current Practice/Strategy (Avoidance and mitigation measures)	Net Risk (Considering measures in place)				Person(s) Responsible	Management Options
			Consequence	Likelihood	Factor		Effectiveness	Consequence	Likelihood	Factor		
STR24	<b>Handover of assets</b> - low quality assets being handed over from developers and/or contractors.	Operational Financial Reputation/ Image	4	5	20	<ul style="list-style-type: none"> <li>Engineering Code of Practice</li> <li>Robust project completion reporting</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>Three Waters Operational Manager</li> <li>Three Waters Assets and Planning Manager</li> <li>Three Waters QA officer</li> </ul>	<ul style="list-style-type: none"> <li>Approved contractors</li> <li>Improve monitoring and inspections</li> <li>Improved enforcement of Engineering Code of Practice</li> <li>Improved consent and asset vesting process</li> </ul>
STR25	<b>No reticulated network in existing areas</b> – flooding, ponding, downstream effects.	Operational Environmental Health and Safety Reputation/ Image	4	2	8	<ul style="list-style-type: none"> <li>LTP process and consultation</li> <li>RFS feedback</li> <li>Catchment/ network modelling</li> <li>Soakage pits</li> <li>Identify known problem area or hotspots</li> </ul>	Good	3	2	6	<ul style="list-style-type: none"> <li>Three Waters Assets and Planning Manager</li> <li>General Manager Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Prioritised funding</li> <li>Public consultation</li> </ul>

#### 5.2.4 Risk Action Plan

The Table below is compiled from the Risk Register and highlights the most significant Net risks faced by the Stormwater activity. The main risks are listed in order of severity (Net risk) as assigned in consultation with key Council officers.

Table 20: Risk Action Plan

Risk Reference	Risk Descriptor	Risk Type	Net Risk	Action	Responsibility	Timeframes
STR02	<b>Knowledge management</b> – inability to retain knowledge or have sufficient systems in place to manage data/information, especially regarding asset performance and condition. Loss of institutional knowledge. IT failure.	Financial Operational	12	<ul style="list-style-type: none"> <li>▶ Develop a process to ensure that knowledge is transferred, stored and accessible. Define champions and successors.</li> <li>▶ Suitable training for staff</li> <li>▶ Protocols for update and ongoing auditing</li> <li>▶ Customisation of Asset Management systems to meet needs</li> <li>▶ Development of Staff Retention Policy</li> </ul>	<ul style="list-style-type: none"> <li>▶ HR Manager</li> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ General Manager Infrastructure</li> </ul>	▶ Ongoing
STR10	<b>Extreme Natural Hazards</b> – (landslips/ earthquake/ tsunami/ volcanic/ major storm event) causing damage to assets and or hindering development.	Environmental Health and Safety Operational Financial	12	<ul style="list-style-type: none"> <li>▶ Liaise with Regional agencies to identify hazards and ensure emergency response mechanisms are in place in the event of a hazard occurring</li> </ul>	<ul style="list-style-type: none"> <li>▶ Three Waters Assets and Planning Manager</li> <li>▶ Three Waters Operational Manager</li> <li>▶ General Manager Infrastructure</li> </ul>	▶ Ongoing
STR05	<b>Capital Works Contract Management</b> – unsatisfactory resulting in unnecessary or excessive costs and/or insufficient output or quality. Poor Contractor performance.	Operational Financial Reputation/ Image	9	<ul style="list-style-type: none"> <li>▶ Contract procedures manual (needs to be finalised - currently in draft format) (including closure/ review)</li> <li>▶ Further improve Auditing and Reporting (including performance)</li> <li>▶ Contract review and improvement</li> </ul>	<ul style="list-style-type: none"> <li>▶ Three Waters Project Delivery Manager</li> </ul>	▶ Ongoing
STR13	<b>External Economic Influences (Cost Escalations)</b> – terrorism, rising costs (e.g. fuel), pandemic, worldwide incidents.	Economic Financial	9	<ul style="list-style-type: none"> <li>▶ Track national and global trends. Monitor key economic developments and liaise with central government.</li> </ul>	<ul style="list-style-type: none"> <li>▶ General Manager Infrastructure</li> <li>▶ Three Waters Project Delivery Manager</li> </ul>	▶ Ongoing



Risk Reference	Risk Descriptor	Risk Type	Net Risk	Action	Responsibility	Timeframes
STR16	<b>Increased Rainfall Intensity and Frequency</b> – causing flooding, unpredictable weather events, global warming.	Operational Financial	9	<ul style="list-style-type: none"> <li>Monitor trends</li> <li>Plan for over design events</li> <li>Used climate/revised rainfall figures</li> <li>Consider changing rainfall patterns in future capital works programmes</li> </ul>	Three Waters Assets and Planning Manager	Climate change rainfall figures used
STR17	<b>Flooding</b> due to under capacity network elements.	Health and Safety Reputation/Image Operational Financial	9	<ul style="list-style-type: none"> <li>Complete Stormwater Catchment Management Plans (SWCMP's)</li> <li>Undertake Stormwater Catchment Management Plans (SWCMP's) for smaller catchments</li> <li>Continue to review levels of service. Review RFS and plan capital works.</li> <li>Update capital works programme through LTP and annual plan</li> </ul>	Three Waters Assets and Planning Manager General manager Infrastructure	Ongoing Ongoing
STR18	<b>Flooding</b> due to extreme weather events.	Health and Safety Reputation/Image Operational Financial	9	<ul style="list-style-type: none"> <li>Continue to review Levels of Service and RFS data</li> <li>Update capital works plan through LTP and annual plan</li> <li>Community Education/ Awareness</li> <li>Create tight building/development controls in areas identified to be prone to overland flow</li> </ul>	General Manager Infrastructure Three Waters Assets and Planning Manager Three Waters Operational Manager	Ongoing Ongoing Ongoing
STR19	<b>Silt/sediment and debris</b> blocking catchpits and manholes, inlets/outlets and roadside drains reducing capacity and causing flooding.	Operational Reputation/Image Health and Safety Environmental	9	<ul style="list-style-type: none"> <li>Identification of areas with problem vegetation and sediment deposition</li> <li>Ongoing review of Levels of Service. Review RFS and plan improvement works as appropriate</li> <li>Community Education/ Awareness</li> </ul>	Three Waters Operational Manager	Ongoing Ongoing Ongoing
STR21	<b>Contamination</b> affecting receiving waters caused by lack of effective source controls & lack of maintenance (landfill, physical works, fuel).	Operational Environmental Health and Safety Legislative	9	<ul style="list-style-type: none"> <li>Retrospective 'pickup' of old developments</li> <li>Comprehensive Catchment Consent (in draft at present)</li> <li>Enforcement</li> <li>Education programme</li> </ul>	Three Waters Assets and Planning Manager Three Waters Operational Manager Three Waters	Ongoing Ongoing Ongoing

Risk Reference	Risk Descriptor	Risk Type	Net Risk	Action	Responsibility	Timeframes
					<ul style="list-style-type: none"> <li>WDC Communications section</li> </ul>	
STR01	<b>Lack of resources</b> – the ability to attract key staff and or retain skilled staff	Operational Financial	8	<ul style="list-style-type: none"> <li>Look at review of recruitment policy (current lack of policies) Family/Lifestyle friendly policies</li> <li>Look at improving career development Draft policy/programme</li> <li>Review salary levels and incentives</li> <li>Implement the Performance Development system.</li> </ul>	<ul style="list-style-type: none"> <li>HR Manager</li> <li>Three Waters Assets and Planning Manager</li> <li>Three Waters Operational Manager</li> <li>General Manager Infrastructure</li> </ul>	
STR08	<b>Compliance with Legislation and legal requirements</b> – inability or failure to comply with consents, statute and national standards. Increase in requirements.	Legislative Financial Reputation/ Image	8	<ul style="list-style-type: none"> <li>Key staff to keep updated on current legislation</li> <li>Regular communications to staff</li> <li>Development of Council procedures</li> <li>Develop programme for internal audit</li> </ul>	<ul style="list-style-type: none"> <li>Three Waters Assets and Planning Manager</li> <li>Three Waters Operational Manager</li> <li>General Manager Infrastructure</li> </ul>	Ongoing
STR09	<b>Public Health and Safety</b> – accidents causing injury and or damage to Whakatane residents/visitors/or property resulting in claims and or negative publicity (e.g. falls and trips over protruding assets).	Health and Safety Reputation/ Image Financial	8	<ul style="list-style-type: none"> <li>On-going review of Council's liability and H &amp; S policy.</li> <li>Other community consultation</li> </ul>	<ul style="list-style-type: none"> <li>Three Waters Assets and Planning Manager</li> <li>Three Waters Operational Manager</li> <li>Three Waters Project Delivery Manager</li> </ul>	Ongoing
STR12	<b>Possible Political Interference</b> , or inability of elected members to fulfil roles and responsibilities or disregard for community views.	Operational Reputation/ Image	8	<ul style="list-style-type: none"> <li>Improved communication to Council</li> <li>Manage process through CE</li> </ul>	<ul style="list-style-type: none"> <li>Chief Executive</li> <li>General Manager Infrastructure</li> </ul>	Ongoing

### 5.3 Lifecycle Management – Operations and Maintenance

Operational and maintenance plans document how the assets will be operated on a day to day basis, including instances where portions of the asset fail, by carrying out activities that are aimed at keeping the asset in service and meeting asset management objectives.

#### 5.3.1 Operational Objectives and Performance Measures

In section 3 [Levels of Service](#), the LoS framework shows a hierarchy of objectives from organisation objectives, AM objectives, levels of service through to operational and technical objectives.

#### 5.3.2 Routine Maintenance Plan

Maintenance includes unplanned (reactive), planned (proactive) and recurring (cyclic) maintenance work activities.

##### **Reactive (unplanned) maintenance**

Reactive maintenance is response to service requests and public complaints. The urgency of the response required depends on the risk associated with the request or complaint and is defined through the Level of Service. Response time for urgent and routine requests is specified in the Levels of Service.

Examples of reactive maintenance activities include:

- Clearing blockages to restore the free flow of stormwater runoff through the network
- Fixing missing/loose manhole covers
- Post response investigations to establish the extent of the problem following service restoration.

Urgent responses to service request are required when public health and safety may be endangered.

##### **Preventive maintenance**

Preventive maintenance works include works carried out to a predetermined schedule or planned in association with other works and repair work that is identified and managed through a maintenance management system. Preventive maintenance activities include:

- High risk asset inspection and cleaning at specified frequencies, such as stormwater pump stations, stormwater outlets and stormwater drains in flood prone areas.
- Critical hot spot inspections before heavy rain, when heavy rain warnings are received from the meteorological service. Hot spots include critical inlets and outlets and known areas of flooding and surcharging.
- Inspection of river outfalls.
- Routine inspection and cleaning, and the annual detail inspections of pump stations.
- Vegetation control on the stopbank of a stream or open drain.

- Undertaking manhole repairs including the replacement of missing or damaged manhole frames and covers.

### **Cyclic Maintenance**

Cyclic maintenance is the replacement of lower value components/sub-components of assets that is undertaken on a regular cycle. This work generally falls below the capital replacement threshold.

Currently Council does not have a fully developed computer based maintenance management system, however, a comprehensive CMMS is planned to be implemented within the next 18 months.

Council's Operational Team conduct regular programmed inspections and maintenance for non-pipeline stormwater assets and open drains/streams. Detailed checklists are completed during inspections, covering areas such as: security, workplace safety, building and grounds maintenance and the condition of assets. The activities are as listed above in this section.

Maintenance of mechanical, electrical and telemetry/communication assets is carried out by Council's Operational Team and its contractors on a routine basis, with the condition of assets recorded during this process.

### **5.3.3 Stormwater Catchment Management Plan**

The purpose of the catchment management plan is to provide a comprehensive and integrated approach to the planning and management of stormwater runoff and the associated stormwater infrastructure within the urban catchment area. The Stormwater Strategy for the Bay of Plenty Region assists the region's local authorities by providing a framework for producing localised stormwater strategies, CMP and advice for obtaining Comprehensive Stormwater Consents. Council is initially developing a CMP for the Whakatāne Scheme and will then develop the CMPs for the other schemes.

Through the CMP and SCS process, Council plans to achieve the following key outcomes:

1. Reduce the risks and mitigate the effects of stormwater flooding on the urban built environment to help protect the health and safety of people and their property. The built environment includes private and public property and infrastructure including roads and the sewerage network.
2. Minimise the rate of urban stormwater discharge to waterways where appropriate, realistic and cost effective.
3. Avoid, remedy or mitigate any adverse effects of stormwater discharges on rivers, streams, wetlands and aquatic ecosystems.
4. Ensure stormwater discharge does not degrade the water quality in the receiving environments.
5. Streamline and simplify the administration of and compliance with consents for stormwater discharge.

#### 5.4 Lifecycle Management – Renewal

Asset are generally renewed when they are no longer able to perform their duty due to structural defects and/or performance failures. Renewals are works to replace existing assets or facilities with assets or facilities of equivalent capacity or performance capability and include replacement and rehabilitation.

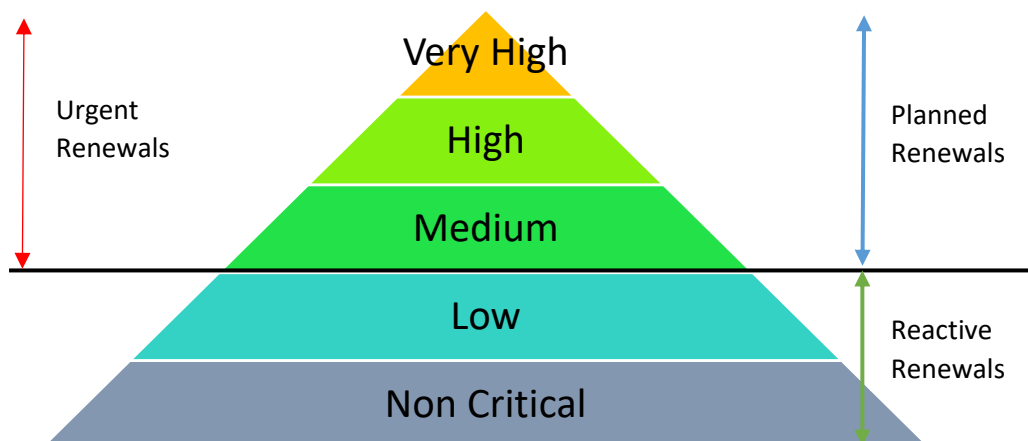
Asset renewals are not targeted at increasing the level of service or at increasing the capacity of an asset to meet growing demand. However, integrating renewal planning with improvement works (new capital works) planning provides cost optimisation opportunities.

Council is looking at improving the way assets are defined for inclusion into the asset renewal programme and will be adopting the following approach:

- The base life of the assets – from Asset Management Systems
- The maintenance history and expenditure – from Asset Management Systems and Council’s RFS system, this may include unforeseen reactive urgent renewals
- Condition assessment of the assets – routine inspections, pipe sampling, visual inspection and etc.
- Risks based approach – criticality of the asset, public safety
- External factors – Three party works within the same asset corridor, regulatory requirements (i.e. safety), operating environment, construction defects, aggressive soil/environment and etc.

Figure 12 below shows an example of renewal priorities based on criticality

**Figure 12: Types of renewals based on criticality**



#### 5.5 Lifecycle Management – Creation and Acquisition

Most of the new stormwater assets are created by third parties, mainly developers, and handed over or vested to Council to manage. Generally, public stormwater assets outside the road corridor are vested with the Three Waters team while those in the road corridor remain with Roding Department. Council has indirect input to this process through the

preparation of stormwater design standards, Engineering Code of Practice, and construction, operations and maintenance guides for stormwater asset.

Council will also drive new works to accommodate LoS, changes in demand, customer expectations or growth. Asset creation involves the design and construction of new assets to increase the capacity or performance of the system. Design and construction will be outsourced, tendered and procured according to Council's policies. At the completion of the project, asset data and as-built information will be handed to the Three Waters Asset Team to update the asset register.

## **5.6 Lifecycle Management – Disposal**

Disposal includes any activity associated with disposal of a decommissioned asset including its sale, demolition or relocation. Currently there are no stormwater assets earmarked for decommissioning and/or disposal.

Council disposes of an asset when it becomes uneconomical to maintain and/or replace.

Generally, due to cost, decommissioned stormwater pipelines are left in the ground. The pipe is normally plugged at either end with concrete and filled with a slurry mixture. In some situations, a stormwater pipe maybe crushed and the area backfilled and in extreme situations the pipe will be exhumed and the ground completely filled with the surface area reinstated. Often there are costs associated with decommissioning and disposal of stormwater assets.

## **5.7 Lifecycle Management – Future Improvement**


This AMP is prepared as a 'core' AMP, meaning that assumptions are used, asset data have been graded for confidence and the past asset management system has gaps associated with asset data. Future revisions of the AMP will move towards 'intermediate to advance' asset management practices to optimised Lifecycle Management.

Over the course of the next two years, the new asset management system will be sufficiently populated to allow for renewals modelling to be undertaken as part of the renewals planning process. The projected 10-year renewal expenditure will be improved as data confidence, accuracy and asset condition assessments update asset data. Current budgets may be adequate to maintain the current levels of service. As better asset data and the management of the data becomes available, confidence will build and budgets will require modification to meet future renewal programme requirements.

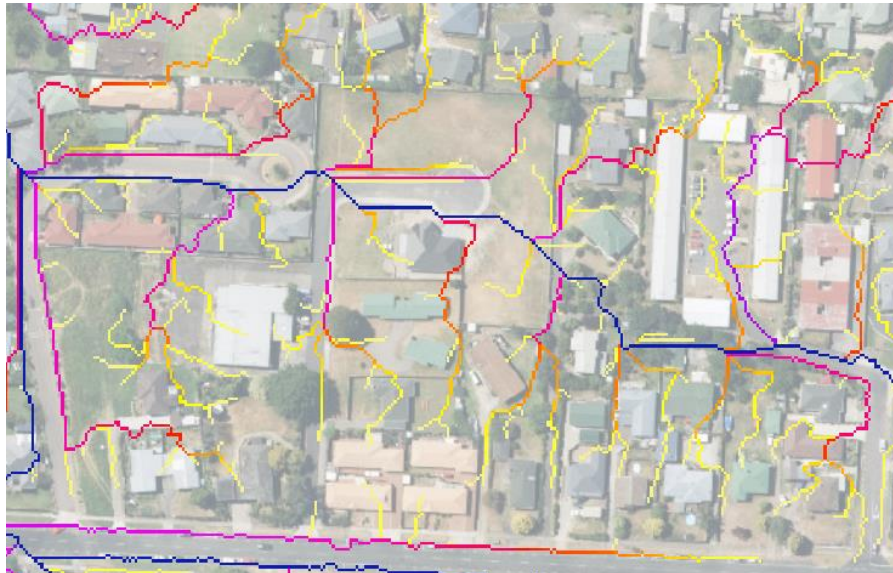
There are no formal Operation and Maintenance Plans for day to day lifecycle management although a number of procedures exist within Council. Council is working towards utilising the new AMS incorporating a maintenance management system which is expected to be implemented over the next 2 years.


Increasingly low impact design stormwater infrastructure is being incorporated into the street corridors to manage stormwater runoff and any contamination. The growth in incorporating this type of infrastructure will require additional renewals planning and funding in future years.

To reduce a large future cost, Council is discussing the following strategies with stakeholders and effected parties:

-  Placing greater reliance on natural assets like streams and overland flow paths to convey most of the stormwater, in order to reduce the need for hard infrastructure and large storage detention devices. Figure 13 below shows that overland flow path identified using GIS analysis

**Figure 13: Overland flow path by GIS analysis**



-  Improving Council’s education programme to bridge the gap in community understanding and engagement with our natural stormwater management direction.

## 6 Financial Forecasts

To undertake a sustainable, long-term approach to asset management, it is essential to prepare long-term financial forecasts. This section sets out financial forecasts put forward in the LTP (2018-2028) for stormwater activity.

### 6.1 Financial Strategy

This AMP provides the substantiation for budget forecasts put forward in the LTP (2018-2028) for stormwater asset management. Council is going to:

- Implement an improvement approach to asset management planning in the short term. Improvement plans are included in each AMP and any improvement project will be monitored quarterly as part of Council’s performance reporting system.
- Prepare, maintain and periodically review an AMP outlining sustainable long-term asset management strategies. The AMP’s are considered living documents are a integral part of 3 Waters daily activity with a full review occurring on a three-yearly timeframe well in advance of the LTP. AMP maybe reissued outside programmed timeline if significant issues have arisen.



- Report variations in the adopted annual plan budgets against the original asset management plan forecasts and explain the level of service implications of any budget variations.

## 6.2 Key Assumptions

This section outlines the key assumptions made in presenting the information contained in this AMP and in preparing forecasts of required operating expenditure, capital expenditure, asset values and depreciation expenses. It is presented so that readers understand of the level of confidence in the data behind the financial forecasts.

The following assumptions have been made in preparing the 10-year expenditure forecasts:

- Asset information is as complete as possible at 30<sup>th</sup> June 2017. This is based on the GIS and historical Hansen asset data.
- Only stormwater assets managed by Three Waters have been valued. Note that assets such as cesspits and public soakholes are part of the Transportation asset.
- The determination of asset replacement value, depreciated value and renewal projections are based on the valuation data as at 30 June 2017.
- All projected expenditure is stated in 2017-18 dollar values, with no allowance made for inflation.
- Operation costs are largely based on historical expenditure.
- Maintenance and operations allocations are based on maintaining current service levels.
- The data confidence for the stormwater asset types is described in Table 6 in the [Data Confidence and Reliability](#) section.

## 6.3 Capital Expenditure

Figure 14 and Table 21 below show the capital expenditure forecast in the next 10 years. The expenditure forecast in these is detailed in Table 22 below.

Figure 14: Capital Expenditure Forecast in 10 Years by difference drivers

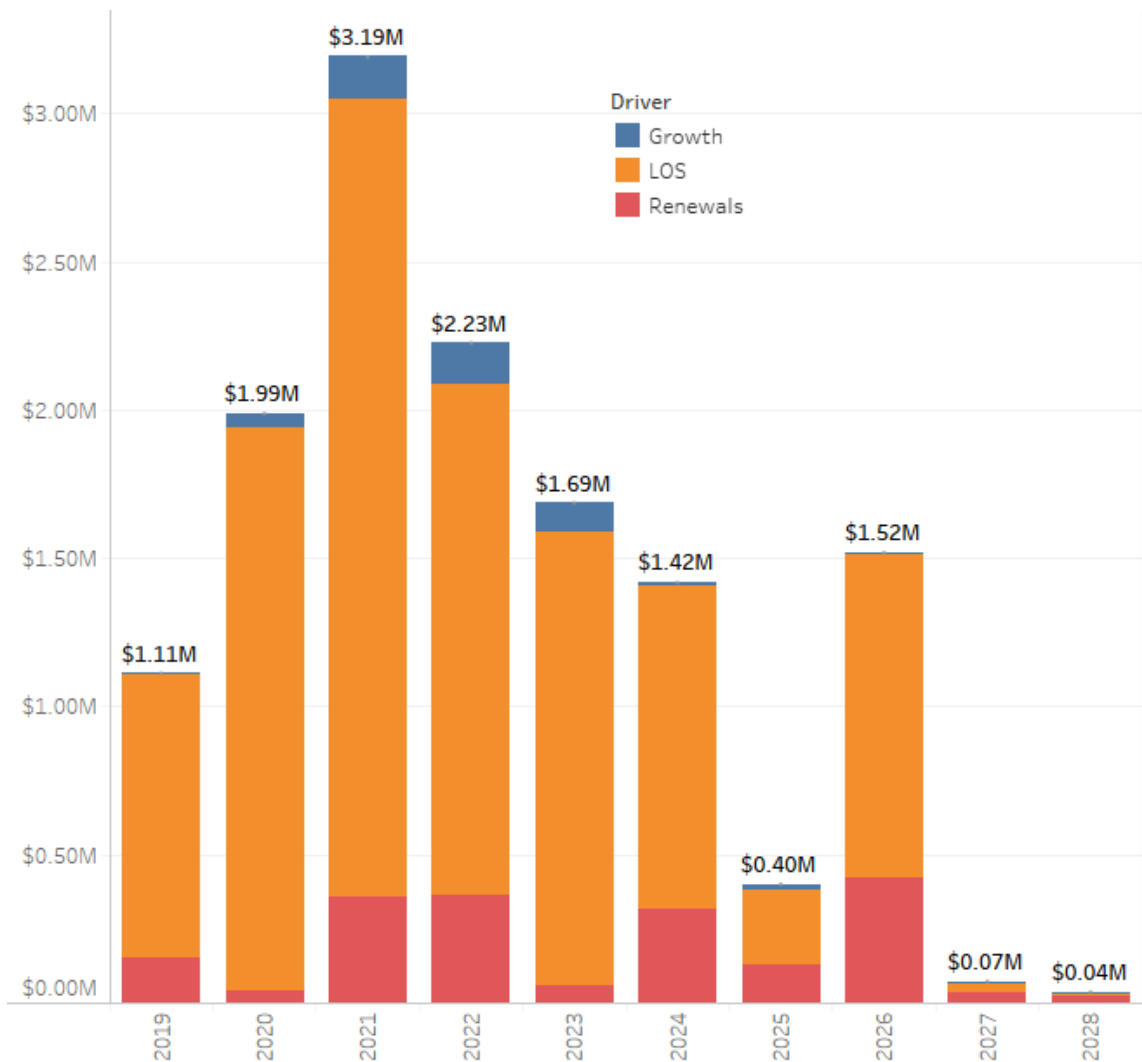


Table 21: Major Project Forecast for 10 Years

Group Project	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Gran..	F
WHK SW - Hinemoa PS & Pipes			\$1.05M	\$1.40M	\$1.32M						\$3.78M	
WHK SW - Pipe Upgrades		\$0.05M	\$0.79M		\$0.06M	\$0.85M		\$1.48M			\$3.23M	
Comprehensive Stormwater Consent	\$0.26M	\$0.31M	\$0.32M	\$0.18M	\$0.07M	\$0.03M	\$0.10M				\$1.27M	
WHK SW - Upgrade St Joseph PS	\$0.05M	\$0.51M	\$0.53M								\$1.09M	
Capital Upgrades from Comprehensive Mana..			\$0.21M	\$0.46M	\$0.08M	\$0.11M	\$0.17M				\$1.04M	
Modelling	\$0.13M	\$0.05M	\$0.22M		\$0.15M	\$0.32M					\$0.86M	
WHK SW - Henderson St SW Improvement	\$0.05M	\$0.77M									\$0.82M	
Risk Assessment	\$0.18M	\$0.23M									\$0.41M	
Reticulation System Renewal	\$0.08M		\$0.05M	\$0.07M		\$0.03M	\$0.04M	\$0.04M	\$0.04M	\$0.04M	\$0.02M	\$0.36M
OHOPE SW - Maraetotara stream	\$0.20M	\$0.00M	\$0.03M	\$0.00M	\$0.00M	\$0.03M	\$0.00M	\$0.00M	\$0.03M	\$0.00M	\$0.29M	
Others	\$0.08M	\$0.02M	\$0.00M	\$0.01M		\$0.03M	\$0.08M				\$0.21M	
OHOPE SW Upgrades		\$0.05M		\$0.11M							\$0.16M	
Whakatane SW Barry Avenue SW	\$0.10M										\$0.10M	
Condition Assessment			\$0.01M			\$0.02M	\$0.00M		\$0.00M	\$0.01M	\$0.05M	

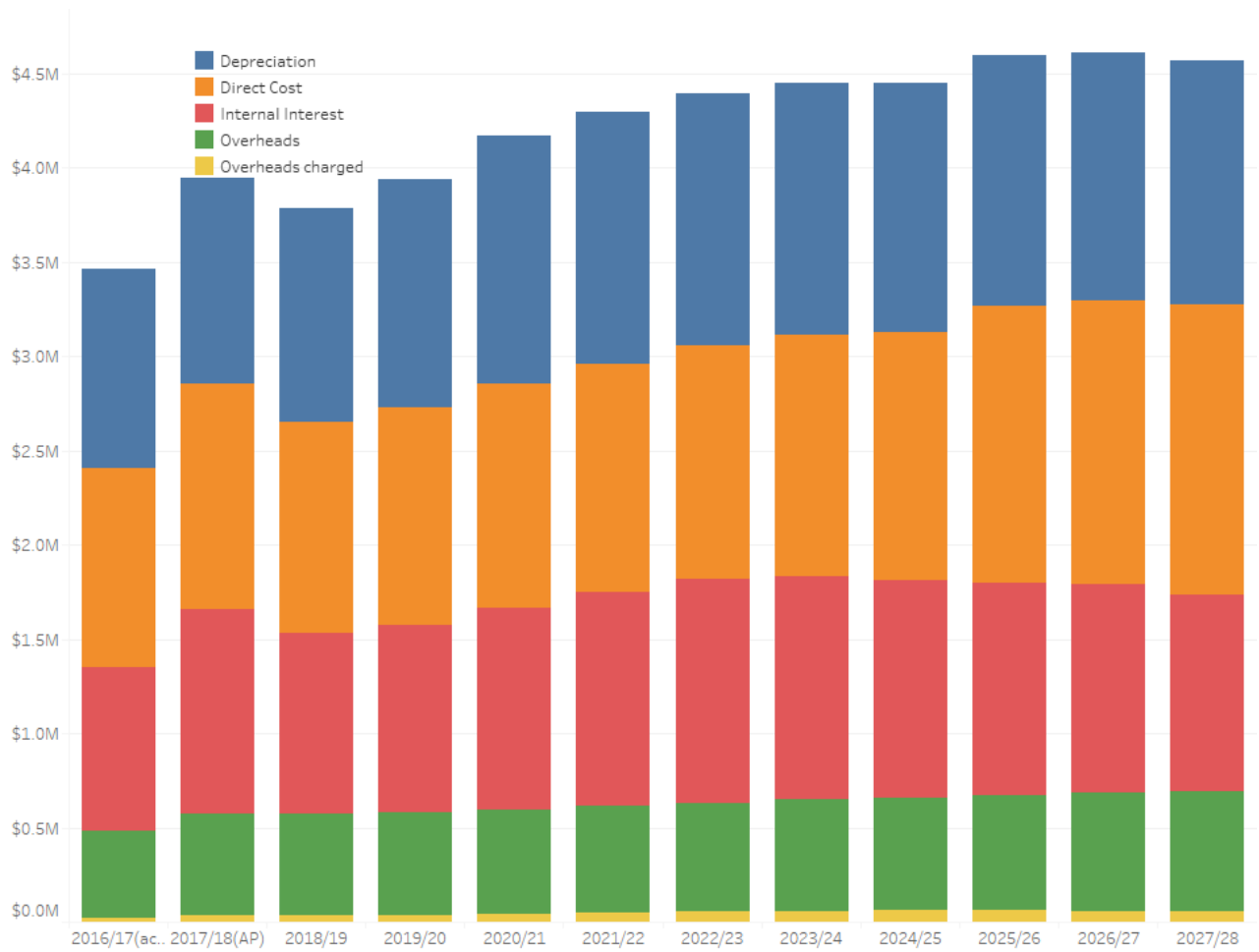
**Table 22: Capital Project Forecast**

Activity	Project Name	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Grand T..	
Edgcumbe	Reticulation system manholes & - Capital expendi..	\$10K						\$12K			\$6K	\$28K	
	Edgcumbe drains - renewals fl - Capital expendit..	\$15K					\$6K			\$6K		\$27K	
	Edge SW - PS Component Replace - Capital expen..	\$5K			\$5K				\$6K			\$6K	\$22K
	Edge SW - Stormwater Study - Capital expenditure						\$28K					\$28K	
	SW 2 Data Verification - data capture - Condition ..						\$5K				\$5K	\$10K	
	SW 3.2 & 5 Modelling			\$84K		\$33K	\$34K					\$151K	
	SW 6 Edgcumbe Stormwater Consent			\$126K								\$126K	
	SW 7 Capital Upgrades from Comprehensive Man..						\$57K	\$116K				\$172K	
	SW 9 Comprehensive Management Plan Develop..					\$33K						\$33K	
Matata Land Drainage	SW 13 & 14 Risk Assessment and Implementation		\$62K									\$62K	
	Reticulation system manholes & - Capital expendi..	\$5K						\$12K			\$12K	\$29K	
	SW 2 Data Verification - data capture - Condition ..						\$5K				\$5K	\$10K	
	SW 3.2 & 5 Modelling		\$46K			\$33K	\$34K					\$113K	
	SW 6 Matata Stormwater Consent		\$154K									\$154K	
Murupara Land Drainage	SW 7 Capital Upgrades from Comprehensive Man..				\$162K							\$162K	
	SW 9 Comprehensive Management Plan Develop..			\$32K								\$32K	
	Reticulation system manholes & pipes renewals				\$5K							\$5K	
	SW 2 Data Verification - data capture - Condition ..			\$4K						\$5K		\$9K	
	SW 3.2 & 5 Modelling			\$47K		\$33K	\$34K					\$114K	
Ohope	SW 6 Murupara Stormwater Consent			\$126K								\$126K	
	SW 7 Capital Upgrades from Comprehensive Man..						\$57K					\$57K	
	SW 9 Catchment Management Plan Development						\$34K					\$34K	
	OHOPE SW - Maraetotara Stream - Capital expen..	\$200K										\$200K	
	Reticulation system manholes & - Capital expendi..	\$5K			\$11K				\$12K			\$28K	
	OHOPE SW - Maraetotara stream	\$1K	\$1K	\$26K	\$1K	\$1K	\$28K	\$1K	\$1K	\$30K	\$1K	\$93K	
	Flap Gates				\$10K							\$10K	
	Ohope Otaraire SW 6 Stormwater Consent		\$154K									\$154K	
	OHOPE SW Upgrades - Capital expenditure		\$51K		\$108K							\$159K	
Taneatua	Risk Assessment and Implementation		\$62K									\$62K	
	SW 2 Data Verification - data capture - Condition ..			\$4K				\$5K				\$9K	
	SW 3.2 & 5 Modelling			\$84K		\$55K	\$57K					\$196K	
	SW 7 Capital Upgrades from Comprehensive Man..				\$81K	\$83K						\$164K	
	SW 9 Comprehensive Management Plan Develop..				\$32K							\$32K	
	Reticulation system manholes & - Capital expendi..	\$5K										\$5K	
	SW 6 Taneatua Stormwater Consent				\$75K							\$75K	
	SW 7 Capital Upgrades from Comprehensive Man..							\$58K				\$58K	
	SW 9 Catchment Management Plan Development							\$35K				\$35K	
Te Mahoe Land Drainage	SW 2 Data Verification - data capture - Condition ..						\$5K					\$5K	
	SW 6 Te Mahoe Stormwater Consent					\$39K						\$39K	
	SW 9 Catchment Management Plan Development							\$35K				\$35K	
	Te Mahoe reticulation system manholes & pipes r..							\$6K				\$6K	
Te Teko Land Drainage	SW 2 Data Verification - data capture - Condition ..						\$5K					\$5K	
	SW 6 Te Teko Stormwater Consent				\$75K							\$75K	
	SW 9 Catchment Management Plan Development							\$35K				\$35K	
	Te Teko reticulation system manholes & pipes ren..							\$6K				\$6K	
Whakatane	Whakatane SW 6 Comprehensive R - Capital expe..	\$257K										\$257K	
	Risk Assessment and Implementa - Capital expen..	\$180K	\$103K									\$283K	
	SW 3.2 & 5 Modelling - Capital expenditure	\$125K					\$158K					\$283K	
	Whakatane SW Barry Avenue SW u - Capital expe..	\$100K										\$100K	
	SW 2 Data Verification - data - Capital expenditure	\$75K		\$4K				\$5K				\$84K	
	Reticulation system manholes & - Capital expendi..	\$30K		\$21K	\$11K				\$24K			\$86K	
	WHK SW - Upgrade St Joseph PS - Capital expendi..	\$50K	\$514K	\$526K								\$1,090K	
	WHK SW - Henderson St SW Impro - Capital expen..	\$50K	\$771K									\$821K	
	Electrical and minor replacements			\$26K			\$28K			\$30K		\$85K	
	Flap/Flood Gates		\$21K					\$71K				\$92K	
	SW 7 Capital Upgrades from Comprehensive Man..			\$210K	\$215K							\$426K	
	Whakatane SW 9 Comprehensive Management Pl..			\$32K								\$32K	
	WHK SW - Hinemoa PS & Pipes - Capital expenditu..			\$1,052K	\$1,400K	\$1,324K						\$3,776K	
	WHK SW - Pipe Upgrades - Capital expenditure		\$51K	\$789K		\$55K	\$848K		\$1,484K			\$3,227K	
	WHK SW Pump Replacements - Capital expenditure				\$38K							\$38K	

### 6.4 Operation and Maintenance Expenditure

Figure below shows the operation and maintenance expenditure for last financial year (actual), current financial year (current annual plan) and the forecast for the next 10 years. The details in Figure 15 are explained in Table 23 below.

**Figure 15: Operation and Maintenance Cost**



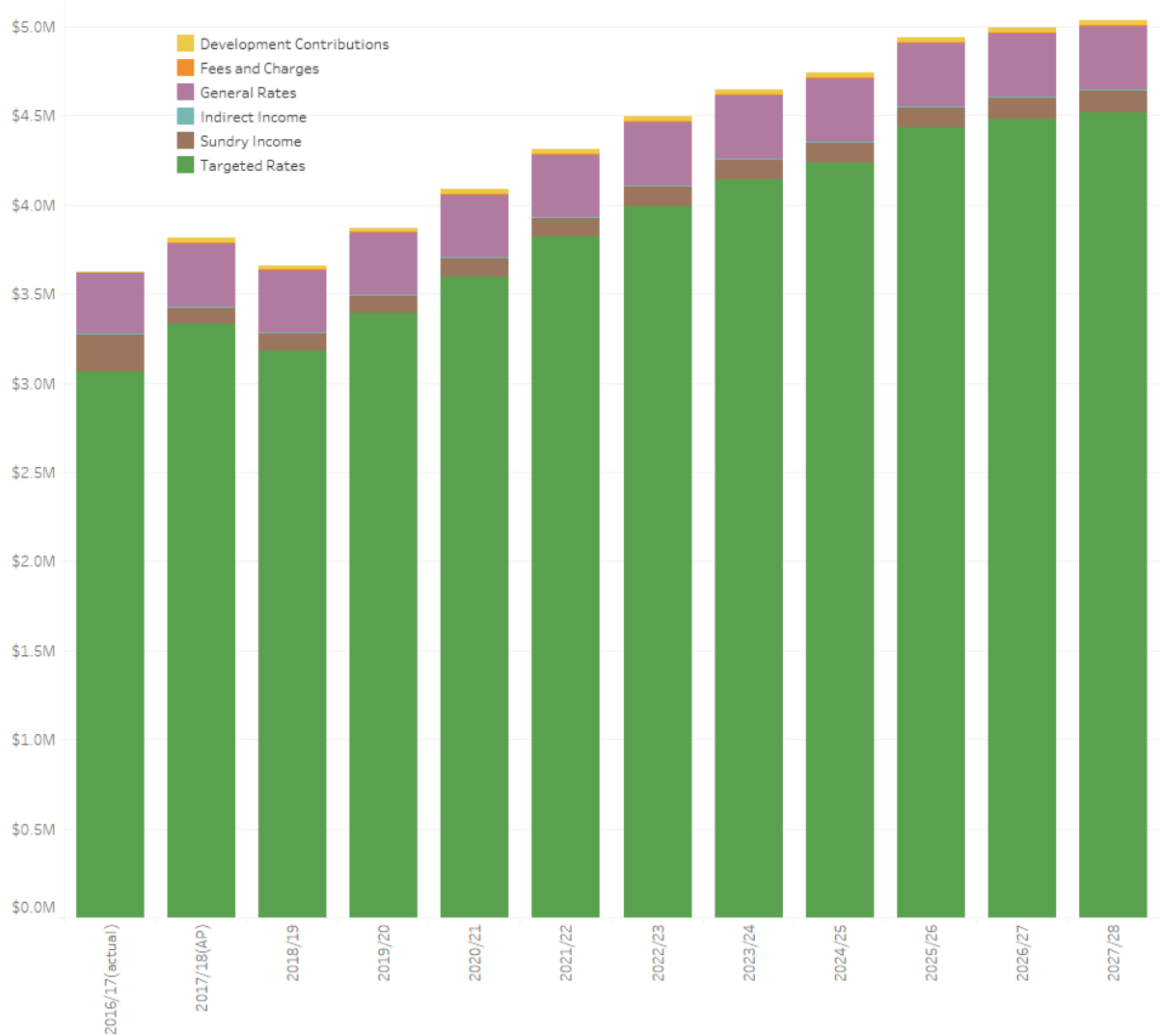
**Table 23: Operation Cost Details**

PostCodes	2016/17(act..	2017/18(AP)	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
4600 - Depreciation (Corp)	\$1,058.04K	\$1,090.11K	\$0.00K	\$13.11K	\$49.55K	\$83.29K	\$103.59K	\$203.16K	\$230.03K	\$253.53K	\$366.21K	\$378.21K
4601 - Depreciation Forecast	\$0.00K	\$0.00K	\$1,134.95K	\$1,201.42K	\$1,267.75K	\$1,254.86K	\$1,227.45K	\$1,132.64K	\$1,092.15K	\$1,078.90K	\$949.44K	\$922.15K
4602 - Depn (Zero Corp Deprec)	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
5002 - Overheads-Depreciation IT	\$33.24K	\$39.21K	\$59.32K	\$58.73K	\$61.70K	\$86.45K	\$99.99K	\$104.32K	\$110.21K	\$115.59K	\$98.66K	\$87.27K
5007 - Overheads-DepreciationCorp..	\$63.51K	\$63.02K	\$66.64K	\$69.17K	\$73.30K	\$74.88K	\$76.44K	\$76.60K	\$78.20K	\$79.86K	\$81.59K	\$83.33K
5009 - Overheads-DepreciationReco..	-\$96.75K	-\$102.22K	-\$125.96K	-\$127.90K	-\$135.00K	-\$161.33K	-\$176.43K	-\$180.92K	-\$188.40K	-\$195.45K	-\$180.25K	-\$170.60K
5011 - Ovh Depn Recharged SW Ad..	\$9.56K	\$16.64K	\$19.61K	\$19.52K	\$20.61K	\$28.26K	\$32.45K	\$33.74K	\$35.59K	\$37.28K	\$32.11K	\$28.65K
5012 - OvhDepnRechgd - OBU SW A..	\$14.32K	\$14.87K	\$18.48K	\$18.84K	\$19.88K	\$23.13K	\$25.02K	\$25.58K	\$26.56K	\$27.49K	\$25.75K	\$24.67K
5870 - Interest - Internal Borrowing	\$865.26K	\$1,041.86K	\$955.90K	\$993.55K	\$1,069.52K	\$1,135.37K	\$1,185.23K	\$1,185.13K	\$1,154.47K	\$1,125.55K	\$1,103.15K	\$1,043.60K
5871 - Interest 2018 - Int Borrowing	\$0.00K	\$45.33K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3010 - Advertising	\$0.00K	\$0.10K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3060 - Catering and Venue Hire	\$0.26K	\$0.00K	\$0.48K	\$0.41K	\$0.42K	\$0.43K	\$0.44K	\$0.45K	\$0.46K	\$0.47K	\$0.49K	\$0.50K
3070 - Chemicals	\$0.00K	\$0.20K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3080 - Cleaning	\$0.04K	\$0.00K	\$0.12K	\$0.10K	\$0.11K	\$0.11K	\$0.11K	\$0.11K	\$0.12K	\$0.12K	\$0.12K	\$0.12K
3120 - Consultants	\$140.59K	\$5.70K	\$28.50K	\$32.38K	\$38.40K	\$39.31K	\$43.57K	\$41.25K	\$42.27K	\$46.89K	\$44.42K	\$45.59K
3140 - Contracts	\$45.67K	\$110.42K	\$21.12K	\$34.05K	\$34.85K	\$36.21K	\$37.09K	\$38.00K	\$38.94K	\$158.73K	\$162.74K	\$167.02K
3150 - Contributions	\$16.60K	\$20.50K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3175 - Datran	\$10.05K	\$8.00K	\$12.40K	\$12.75K	\$13.04K	\$13.35K	\$13.68K	\$14.01K	\$14.36K	\$14.72K	\$15.09K	\$15.49K
3178 - DCST Reallocated-3 Waters	\$213.68K	\$242.32K	\$247.15K	\$254.01K	\$261.19K	\$268.58K	\$276.02K	\$283.68K	\$291.39K	\$299.32K	\$307.31K	\$315.56K
3179 - DCST Reallocated-Stormwtr..	\$141.65K	\$145.42K	\$40.27K	\$40.99K	\$41.71K	\$42.47K	\$43.24K	\$44.05K	\$44.87K	\$164.43K	\$168.29K	\$172.39K
3183 - DCST Recovered from Operat..	-\$1,443.01K	-\$1,539.66K	-\$1,929.62K	-\$1,957.12K	-\$2,030.29K	-\$2,056.96K	-\$2,111.03K	-\$2,189.75K	-\$2,217.05K	-\$2,393.80K	-\$2,479.92K	-\$2,512.55K
3191 - DCST Reallocated - Mowing	\$10.67K	\$16.68K	\$15.94K	\$16.13K	\$16.40K	\$16.73K	\$17.13K	\$17.43K	\$17.72K	\$18.13K	\$18.37K	\$16.66K
3192 - DCST Reallocated-3W Capt W..	\$0.00K	\$0.00K	\$20.91K	\$18.61K	\$18.92K	\$19.26K	\$19.60K	\$19.95K	\$20.31K	\$20.69K	\$21.06K	\$21.46K
3193 - DCST Reallocated-3W Asset..	\$0.00K	\$0.00K	\$60.31K	\$60.40K	\$65.50K	\$62.28K	\$63.76K	\$69.29K	\$65.82K	\$67.46K	\$73.39K	\$69.70K
3210 - Electricity	\$114.69K	\$138.50K	\$195.00K	\$200.46K	\$205.14K	\$210.02K	\$215.09K	\$220.35K	\$225.81K	\$231.47K	\$237.32K	\$243.56K
3230 - Equipment & Materials	\$23.42K	\$21.70K	\$39.40K	\$31.56K	\$31.35K	\$33.49K	\$33.09K	\$34.01K	\$36.36K	\$35.97K	\$37.00K	\$39.59K
3235 - Loose Tools	\$8.10K	\$4.50K	\$7.20K	\$6.68K	\$6.84K	\$7.00K	\$7.17K	\$7.35K	\$7.53K	\$7.72K	\$7.91K	\$8.12K
3320 - General Expenses	\$10.76K	\$121.50K	\$11.75K	\$12.08K	\$12.36K	\$12.65K	\$12.96K	\$13.28K	\$13.61K	\$14.54K	\$14.91K	\$15.30K
3332 - Health and Safety	\$6.78K	\$0.00K	\$7.50K	\$7.71K	\$7.89K	\$8.08K	\$8.27K	\$8.48K	\$8.69K	\$8.90K	\$9.13K	\$9.37K
3350 - Insurances	\$99.31K	\$178.51K	\$196.43K	\$216.08K	\$235.72K	\$255.36K	\$275.01K	\$294.65K	\$314.29K	\$333.94K	\$353.58K	\$373.22K
3400 - Legal Costs	\$2.97K	\$5.00K	\$10.00K	\$5.14K	\$2.63K	\$2.76K	\$2.83K	\$2.90K	\$2.97K	\$3.04K	\$3.12K	\$3.21K
3410 - Licensing Fees	\$4.42K	\$0.00K	\$21.00K	\$21.59K	\$22.09K	\$22.62K	\$23.16K	\$23.73K	\$24.32K	\$24.93K	\$25.56K	\$26.23K
3440 - Maintenance and Repairs	\$160.36K	\$130.00K	\$238.50K	\$244.15K	\$251.43K	\$256.33K	\$263.62K	\$269.51K	\$277.34K	\$283.10K	\$291.47K	\$297.89K
3465 - Mileage Charges	\$0.29K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3590 - Printing and Stationery	\$0.04K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3680 - Rates Paid	\$94.49K	\$96.23K	\$98.57K	\$101.33K	\$103.70K	\$106.16K	\$108.73K	\$111.39K	\$114.15K	\$117.01K	\$119.96K	\$123.12K
3710 - Recoverable Expenses	\$59.68K	\$100.00K	\$100.00K	\$102.80K	\$105.20K	\$107.70K	\$110.30K	\$113.00K	\$115.80K	\$118.70K	\$121.70K	\$124.90K
3800 - Resource Consents	\$4.43K	\$21.50K	\$9.00K	\$6.68K	\$6.84K	\$9.15K	\$9.38K	\$12.43K	\$12.74K	\$13.06K	\$13.39K	\$13.74K
3830 - Salaries and Wages	\$951.01K	\$1,045.60K	\$1,346.08K	\$1,367.62K	\$1,390.50K	\$1,414.73K	\$1,438.96K	\$1,464.53K	\$1,490.11K	\$1,517.03K	\$1,543.95K	\$1,572.22K
3832 - Casual staff/students/overti..	\$314.37K	\$250.00K	\$195.00K	\$200.46K	\$205.14K	\$210.02K	\$215.09K	\$220.35K	\$225.81K	\$231.47K	\$237.32K	\$243.56K
3840 - Security	\$0.03K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3870 - Staff Welfare	\$0.17K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3880 - Training & Professional Develo	\$17.29K	\$38.00K	\$76.00K	\$62.71K	\$64.17K	\$65.70K	\$67.28K	\$68.93K	\$70.64K	\$72.41K	\$74.24K	\$76.19K
3885 - Travel - staff training	\$0.01K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
3890 - Staff Uniforms	\$7.47K	\$5.25K	\$9.00K	\$9.25K	\$9.47K	\$9.69K	\$9.93K	\$10.17K	\$10.42K	\$10.68K	\$10.95K	\$11.24K
3900 - Subscriptions	\$0.12K	\$0.00K	\$0.90K	\$0.93K	\$0.95K	\$0.97K	\$0.99K	\$1.02K	\$1.04K	\$1.07K	\$1.10K	\$1.12K
3970 - Telephones and Tolls	\$10.52K	\$8.40K	\$11.20K	\$11.51K	\$11.78K	\$12.06K	\$12.35K	\$12.66K	\$12.97K	\$13.29K	\$13.63K	\$13.99K
3975 - Mobile Phones Purchased	\$5.03K	\$1.50K	\$4.00K	\$2.06K	\$2.15K	\$2.21K	\$2.26K	\$2.32K	\$2.37K	\$2.43K	\$2.49K	\$2.55K
3980 - Travel & Accomodation	\$0.00K	\$0.40K	\$3.40K	\$3.50K	\$3.58K	\$3.66K	\$3.75K	\$3.84K	\$3.94K	\$4.04K	\$4.14K	\$4.25K
4000 - Valuation Expenses	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$26.30K	\$0.00K	\$0.00K	\$28.25K	\$0.00K	\$0.00K	\$30.43K	\$0.00K
4010 - Vandalism	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K	\$0.00K
4030 - Waste Disposal - Bins	\$0.56K	\$0.00K	\$0.60K	\$0.62K	\$0.63K	\$0.65K	\$0.66K	\$0.68K	\$0.69K	\$0.71K	\$0.73K	\$0.75K
4050 - Water Purchases	\$1.48K	\$1.15K	\$0.50K	\$0.51K	\$0.53K	\$0.54K	\$0.55K	\$0.57K	\$0.58K	\$0.59K	\$0.61K	\$0.62K
4070 - Water Sampling	\$22.06K	\$17.00K	\$25.00K	\$22.62K	\$17.88K	\$18.31K	\$18.75K	\$19.21K	\$19.69K	\$20.18K	\$20.69K	\$21.23K
5015 - Overheads-Communication	\$18.05K	\$18.41K	\$19.67K	\$19.31K	\$19.66K	\$20.05K	\$20.40K	\$20.78K	\$21.19K	\$21.58K	\$21.97K	\$22.40K
5026 - Overheads - Risk & Performa..	\$16.00K	\$16.89K	\$20.08K	\$21.06K	\$21.43K	\$21.82K	\$22.22K	\$22.65K	\$23.07K	\$23.51K	\$23.96K	\$24.44K
5030 - Overheads-Customer Services	\$8.15K	\$8.27K	\$8.67K	\$8.81K	\$8.96K	\$9.12K	\$9.28K	\$9.45K	\$9.62K	\$9.80K	\$9.98K	\$10.17K
5045 - Overheads - Infrastructure	\$21.57K	\$21.89K	\$21.20K	\$21.06K	\$21.42K	\$21.80K	\$22.18K	\$22.58K	\$22.99K	\$23.41K	\$23.83K	\$23.81K
5060 - Overheads-Executive Support	\$29.65K	\$33.45K	\$31.15K	\$31.68K	\$32.23K	\$32.82K	\$33.41K	\$34.03K	\$34.65K	\$35.31K	\$35.97K	\$36.65K
5070 - Overheads-Financial Services	\$51.04K	\$68.59K	\$59.58K	\$61.47K	\$67.36K	\$64.34K	\$65.82K	\$72.56K	\$68.89K	\$70.49K	\$77.64K	\$73.63K
5075 - Overheads-Rates&WaterPro..	\$135.60K	\$132.15K	\$119.30K	\$124.83K	\$127.18K	\$129.66K	\$132.22K	\$134.91K	\$137.60K	\$140.41K	\$143.31K	\$146.23K
5080 - Overheads-Human Resources	\$121.77K	\$132.89K	\$160.54K	\$162.45K	\$165.05K	\$168.06K	\$171.11K	\$174.33K	\$177.55K	\$180.92K	\$184.35K	\$188.04K
5082 - Overheads-Human Resources	\$0.00K	\$0.00K	\$4.55K	\$4.62K	\$4.70K	\$4.78K	\$4.87K	\$4.95K	\$5.04K	\$5.13K	\$5.22K	\$5.32K
5089 - Overheads-Contract Manage..	\$1.62K	\$0.00K	\$0.41K	\$0.41K	\$0.42K	\$0.43K	\$0.44K	\$0.44K	\$0.45K	\$0.46K	\$0.47K	\$0.48K
5091 - Overheads-Production Servic..	\$281.34K	\$263.65K	\$335.27K	\$328.87K	\$333.18K	\$334.02K	\$338.82K	\$344.88K	\$351.00K	\$359.62K	\$368.53K	\$378.98K
5092 - Overheads-Location Services	\$39.47K	\$52.47K	\$44.04K	\$45.60K	\$46.40K	\$47.25K	\$48.33K	\$50.76K	\$51.70K	\$54.67K	\$55.71K	\$56.79K
5104 - Overhead -Records Managem..	\$47.66K	\$50.69K	\$48.41K	\$47.24K	\$47.38K	\$47.60K	\$48.28K	\$48.24K	\$49.15K	\$49.17K	\$49.97K	\$50.64K
5108 - Overheads-Civic Centre	\$36.97K	\$52.32K	\$58.81K	\$64.11K	\$65.07K	\$66.21K	\$67.65K	\$68.46K	\$69.50K	\$70.79K	\$71.77K	\$72.83K
5109 - Overheads-Murupara Offices	\$6.19K	\$8.16K	\$8.79K	\$9.38K	\$9.59K	\$9.80K	\$10.03K	\$10.26K	\$10.49K	\$10.73K	\$10.98K	\$11.23K
5118 - Overheads-Museum Building	\$3.68K	\$4.85K	\$8.04K	\$11.47K	\$11.55K	\$11.73K	\$12.02K	\$12.06K	\$12.21K	\$12.47K	\$12.54K	\$12.70K
5133 - Overhead -3 Waters	\$40.30K	\$51.41K	\$49.24K	\$50.84K	\$51.70K	\$52.61K	\$53.53K	\$54.49K	\$55.44K	\$56.45K	\$57.47K	\$58.40K
5135 - Overheads-Vehicles (LTP)	\$75.52K	\$77.26K	\$100.55K	\$103.04K	\$105.53K	\$108.27K	\$111.10K	\$114.03K	\$116.95K	\$119.97K	\$123.07K	\$126.18K

## 6.5 Revenue

The revenue for past and current year plus forecast for 2019 through to 2028 are shown in Figure 16.

**Figure 16: Revenue Forecast from 2019 to 2018**





## 7 Plan Implementation

Council recognises that this AMP is a “living” document in need of constant monitoring, change and improvement.

### 7.1 Back to the Basic

The goal of asset management is:

*To meet a required level of service, in the most cost effective manner, through the management of assets for present and future customers.*

To achieve this goal, Council needs to be clear on the appropriate scope of the asset management system and set a clear path towards the end goal. Council is the service provider for the stormwater function and its primary goal is meeting customer’s requirements in a sustainable manner. Asset management principles include recognising the need for collaboration with multiple stakeholders, keeping a strong commitment to community engagement and providing educational material.

### 7.2 Asset Management Improvement Process

The past versions of the asset management plan have been treated as ‘shelf documents’ which are deliverable every three years. As a result of a fundamental mindset change within Council, this AMP is based on a “living asset management document” which will be continually updated with record changes, improvements and achievements.

Council has adopted a strategic management approach to improvement planning, developing AMPs, implementing improvement processes and associated practices. This AMP is integral to that approach, quantifying current business practice and measuring progress toward an identified future position. The AMP includes:

- The cycle of asset management plan monitoring, review, revision and audit to improve the effectiveness of AMP outputs and compliance with audit criteria, legislative requirements and best appropriate practice
- The definition of service standards reflecting community outcomes through public consultation. The AMP is used to identify service level options and costs, and the delivery of these services.
- Identification and prioritisation of ways to cost-effectively improve the quality of the AMP, and therefore decision making and service delivery.
- Indicative time-scales, priorities, human and financial resources required to achieve Asset Management planning objectives.

The development of this AMP is based on existing levels of service, the best available past asset information and the knowledge of Council’s staff. It is intended that the development of this plan is part of an ongoing process and that the document will be reviewed and updated as asset data verification becomes available and on a regularly basis. This review process



involves using improved knowledge of customer expectations (community consultation) and information from Asset Management Systems and databases. This will enable Council to optimise decision-making, review outputs, develop strategies, improve risk management and extend the planning horizon.

### **7.3 Guideline and Standards**

This AMP has referred to the International Infrastructure Management Manual – International Edition 2015. Council will monitor the application of ISO 55000 over the coming years and may use as a guidance of best practice in the future.

### **7.4 AMP Review and Monitoring**

This AMP will continue to be developed over time to incorporate future advance asset management techniques, make use of improved data collection and management system, respond to legislative and policy changes, and address evolving issues. To date this document has not been reviewed. A review for compliance with the requirements of the relevant legislation, especially the LGA 2002 shall be a primary improvement item.