



# Stormwater Asset Management Plan

June 2009

Ruapehu District Council

30 June 2009

# Stormwater Asset Management Plan

Prepared for

**Ruapehu District Council**

Prepared by

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**See Appendix A for Significant Updates to Asset Management Plan**

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## List of acronyms

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

AEP	Annual Exceedence Probability (e.g. 10% is once in 10 years)
AM	Asset Management
AMP	Asset Management Plan
AMS	Asset Management Systems
AC	Asbestos Cement ( <i>pipe type</i> )
Capex	Capital expenditure
CI	Cast Iron ( <i>pipe type</i> )
CS	Cast Steel ( <i>pipe type</i> )
CBD	Central Business District
CCTV	Closed Circuit Television
cfu/100ml	Coliform units per 100 millilitres ( <i>pollution measure</i> )
COs	Community Outcomes
CONC	Concrete
CLS	Concrete Lined Steel ( <i>pipe type</i> )
Dia	Diameter
DO	Dissolved Oxygen
FIS	Financial Information System
GIS	Geographical Information System (computer programme)
HDPE	High Density Polyethylene ( <i>pressure pipe type</i> )
Horizons	Horizons Regional Council
KPIs	Key Performance Indicators
LoS	Level of Service
LGA 1974	Local Government Act 1974
LGA 2002	Local Government Act 2002
LTCCP	Future Ruapehu Long Term Council Community Plan
MAV	Maximum Acceptable Value

MFE	Ministry for the Environment
NAMS	National Asset Management Steering (Group)
NRB	National Research Bureau
DWSNZ	New Zealand Drinking Water Standards 2005
NZIAS 16	New Zealand Equivalent to International Accounting Standard 16
NZFS	New Zealand Fire Service
Opex	Operational expenditure
ODM	Optimised Decision Making
PE	Polyethylene
PVC	Polyvinylchloride
RMA	Resource Management Act 1991
RDC	Ruapehu District Council
SGs	Strategic Goals
TUAC	Targeted Uniform Annual Charge
UW	United Water
URP	Usual Resident Population

# Summary

## Introduction

The vision for the District outlined in Ruapehu District Council's Long Term Council Community Plan 2006 -16 is one where core facilities, services and infrastructure keep pace with the needs of the community, the cultural diversity of the District is recognised, a sustainable environment is achieved, and a safe and healthy community with strong community networks is achieved.

The stormwater activity is an important part of achieving this vision.

The purpose of the stormwater activity is to provide efficient and safe stormwater collection and disposal in an effective and environmentally acceptable manner.

To achieve this purpose, Council manages a \$10.7 million stormwater network including pipes, manholes, inlets and outlets, watercourses, and stopbanks.

There is a strong relationship between the stormwater asset management (AM) plan with the Land and Water Regional Plan and with other Council planning documents. Council recognises and is managing increasing stakeholder expectations, localised areas of increased demand and provincial commercial limitations.

Further, Council is committed to initiatives to help manage potential negative effects associated with the stormwater activity, including property flooding, stream degradation and contamination of receiving environments.

## The services we provide

Council recognises there is a wide range of customers and stakeholders with an interest in how the stormwater activity is managed, including landowners, the resident community, visitors, iwi, environmental groups, and specific interest groups within the community and regional and central government agencies.

Council's LTCCP 2006–2016 is the primary document for determining and agreeing levels of service and costs with the community and stakeholders. Sustainable long-term management of the stormwater network will also be achieved through integration with national and regional strategies. Council aims to manage the stormwater activity to provide a safe environment for the whole community, reducing the detrimental effect of stormwater in natural environment.

Specific levels of service adopted are outlined in Section 2.5 of this AMP and include:

- Urban roads not closed for more than two hours.
- 75% of stormwater incidents for blocked drains are attended on site within 6 hours.
- 75% of stormwater service for blocked drains is restored within 2 hours.
- 50% of respondents are satisfied or very satisfied with the stormwater service provided.
- Stormwater reticulation in new developments is fully compliant with subdivision standards for design storm events.
- Meet all resource consent conditions.

Although no significant service gaps with the current LOS has been identified, it is recognised that as more studies are completed for each township capital development projects maybe required to close service gaps with flood alleviation programmes.

The planned investment in LOS driven capital for stormwater projects over the next three years is \$0.87 million.

### Managing growth and demand

The number of people that usually live in Ruapehu District is declining, with 13,572 people at the 2006 Census. However, the District is growing in other ways. It is being fuelled by tourists and non-residential owners of holiday homes.

This has an affect on the peak population growth which is expected to grow overall at 2.5% per annum. The projected peak population growth is not uniform district wide, due to the distribution of the visitor industry and holiday homes. In particular, National Park and the Ohakune areas are showing increases in peak populations at 3.5% and 1.8% per annum respectively.

With this change in District growth comes an increase in hard surfaces which places additional demand on existing stormwater assets as well as requiring new stormwater assets in newly developed urban areas. The level of surface permeability and the frequency and intensity of rainfall events are the two main parameters impacting future stormwater flows and demands. Currently, the proportion of the District that is impervious is unknown and this is recognised as a future improvement. It is acknowledged that this may increase with growth, especially in the development area of Ohakune.

\$150k has been identified as growth driven capital for stormwater projects over the next three years mainly.

### Managing risk

Risk management is an inherent part of Council's overall stormwater activity management philosophy. Risk is managed through the development and ongoing review of activity risk assessments, as well as through emergency response planning, routine inspections and maintenance response.

The risks identified through these processes are a key input into identification and prioritisation of programmes and projects. The review as part of the development of the 2008 AM plan identified the following highest stormwater risks:

- Liability from third party accident into deep open drains.
- Extensive damage to stopbanks due to earthquakes or natural hazards.
- Extensive damage to flood detention systems due to earthquakes or natural hazards.
- Extensive damage to inlets and outlets from volcanic eruption.

These risks are managed adequately with current response planning processes and capital planning for piping open drains on a case by case basis.

Although a formal criticality assessment has not been undertaken, most channels passing through urban Ohakune, in particular the Miro Street channel are unable to take additional runoff from development without causing the likelihood of flooding to existing problems.

### Lifecycle management

In order to enable the stormwater activity, Council owns and manages:

- A piped network, comprising 48.5 km pipeline including 511 manholes, and 798 sumps
- 61 km public open drains.

Council manages these assets by applying the following broad strategies:

- Operations: Council will manage the assets in a manner that minimises the long term overall total cost. Scheduled inspections and monitoring will be undertaken as justified by the consequences of failure on levels of service, costs, public health, safety or corporate image. The inspection programme will be modified as appropriate in response to unplanned maintenance trends. Competitive pricing will be ensured by using CPP contract structures and performance based term contracts where applicable.
- Maintenance: Council will maintain assets in a manner that minimises the long term overall total cost. Competitive pricing will be ensured by using CPP contract structures, term contracts, and cross TLA boundary arrangements where applicable in accordance with the National Procurement Manual intent.
  - Unplanned maintenance: A suitable level of preparedness for prompt and effective response to asset failures will be maintained by ensuring suitably trained and equipped staff to allow

prompt repair of critical assets and mitigation of any hazards. Term contracts specify response times.

- Planned maintenance: A programme of planned asset maintenance will be undertaken to minimise the risk of critical asset failure (e.g., large pipes), or where justified when considering financial, safety and social impacts. Major maintenance needs will be identified through the scheduled asset condition inspections and those generated from the investigation of customer complaints.
- Renewals: Council will rehabilitate or replace assets when justified by:
  - Risk: The risk of failure and associated financial and social impact justifies action (e.g. probable extent of damage, safety risk, community disruption).
  - Asset performance: Renewal of an asset when it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
  - Economics: When it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of renewal).
  - Efficiency: New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.

Renewals needs for key asset groups will be identified through the scheduled asset condition inspections, the investigation of customer complaints and a practical knowledge of the network. Renewals works will be prioritised and programmed in accordance with defined criteria, or in urgent cases undertaken immediately.
- Development: Development works will be planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations, including accelerated or enhanced development plans proposed by Community Boards or Ward Committees.
- Disposal: Any abandoned assets are recorded as part of the completion of new assets.

Key performance issues are:

- Asset capacity is the main performance issue for the stormwater activity.
- Most channels in urban Ohakune are unable to take additional flow. Nine problem sections of channels have works identified to improve the hydraulic performance.
- Five channels in Taumarunui have been identified with hydraulic performance issues.
- Two watercourses in Raetihi require work to improve the hydraulic performance to prevent potential flooding.

Condition and performance have been assessed formally by United Water in September 2008. The draft results are summarised below for the reticulation. The grading methodology was a 1 to 5 grading where 1 is very good and 5 is very poor. The Ohakune network has the poorest performance and condition compared to the other townships.

Stormwater System	Condition Grading	Performance Grading
National Park	3	2
Ohakune	3	4
Ohura	3	3
Owhango	3	3
Raetihi	3	3
Rangataua	2	2
Taumarunui	2	3
Waiouru	2	3

Major projects in the next three years are:

- Stormwater reticulation renewals in Ohakune, Ohura, Owhango and Raetihi at \$110k per annum.
- Open drain renewals in Ohakune, Ohura, Raetihi, Taumarunui and Waiouru at \$50k per annum.
- Piped network improvements across all townships at \$819k.

Three-year financial requirements are:

- |   |                |
|---|----------------|
| • Operations and maintenance (excluding depreciation) | \$1.1 million  |
| • Depreciation  | \$0.72 million |
| • Renewals  | \$0.48 million |
| • Capital Development (Growth)                        | \$0.15 million |
| • Capital Development (LOS)                           | \$0.87 million |

### **Sustainability in Ruapehu District**

Council manages the stormwater activity in a suitable manner across the four community well-beings.

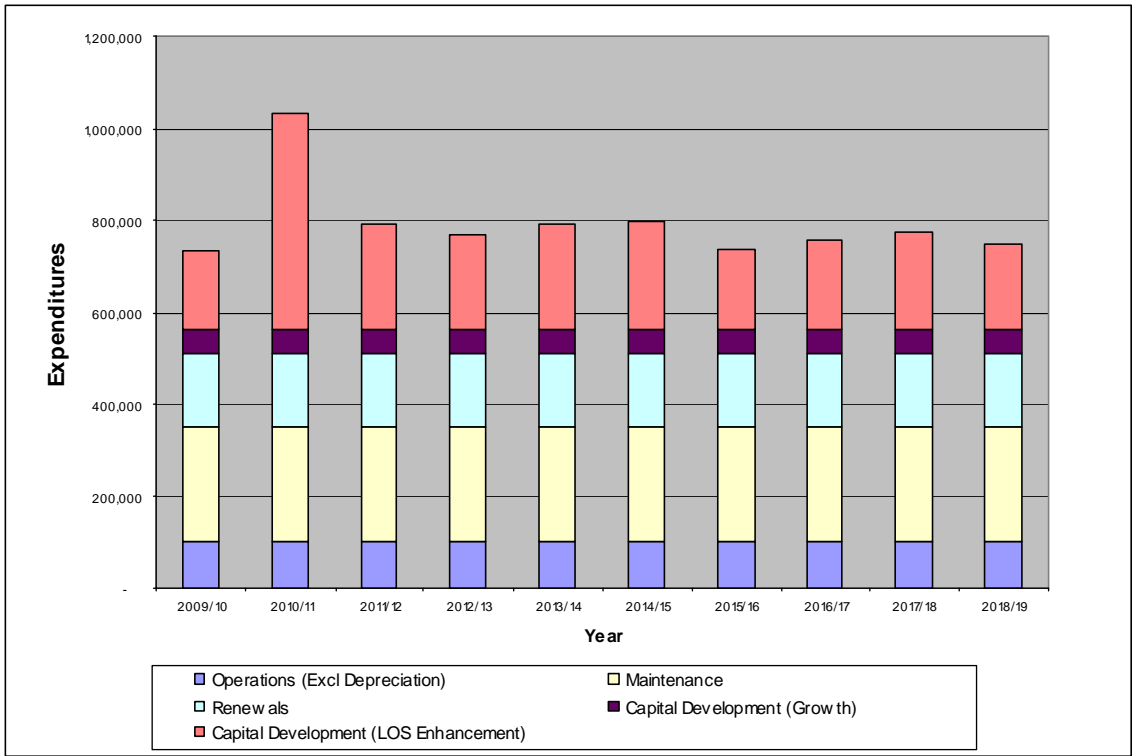
- **Social.** Stormwater systems are a central service in urbanised areas conveying runoff via watercourses and pipe systems through to outfalls into the receiving environment. These services have a major benefit to our communities by preventing flooding of property. Considerable effort is being put into ensuring that the stormwater system can deal with this.
- **Economic.** The public infrastructure is vital for the economic well-being of the District to enable business development in the community. Affordability remains one of the key issues facing Ruapehu District and Council continues to explore and implement cost effective management initiatives for the stormwater activity including the adoption of sound “best appropriate” asset management practices, balancing in-house, and outsourcing physical works and specialist advisory services, and in-house, and outsourcing physical works and specialist advisory services.
- **Environmental.** Council has adopted the community’s views on the importance of the environment within the District. All works on the network are carefully considered for environmental impact, particularly in areas of environmental significance. Managing the stormwater to minimise these adverse effects is an important aspect of the sustainable management of the networks.

The discharge of stormwater often contains significant levels of pollutants which may impact on ecosystems and bio diversity. Managing the stormwater to minimise these adverse effects is an important aspect of the sustainable management of the networks.

- **Cultural.** Reducing overflow pollution into the waterways and reducing the level of pollutants in the stormwater discharge in Ruapehu District are key initiatives for cultural sustainability. Stormwater discharges are governed by the provision of the RMA 1991. Consenting issues are critical for stormwater activity.

### **Financial summary**

The forecast expenditure requirements over the ten year planning period to continue to manage the stormwater activity sustainably are presented in the figure below.



The key trends in this financial forecast are:

- Operations and maintenance – \$3.5 million is budgeted for over the 10 year planning period for stormwater asset operations and maintenance. There is an increase in maintenance forecast from 2012/13 to allow for an anticipated contract increase.
- Renewals - \$1.6 million is budgeted for over the 10 year planning period for stormwater asset renewals. Stormwater renewals are relatively constant at around \$160k per annum and are for reticulation and open drain renewals.
- Capital development for growth – \$0.5 million is budgeted for over the 10 year planning period to address growth. This is constant at \$50k per annum for the expected new building and subdivision throughout the District.
- Capital development for level of service – \$2.3 million is budgeted for over the 10 year planning period to address identified service gaps and risk issues.

## 1.0 Introduction

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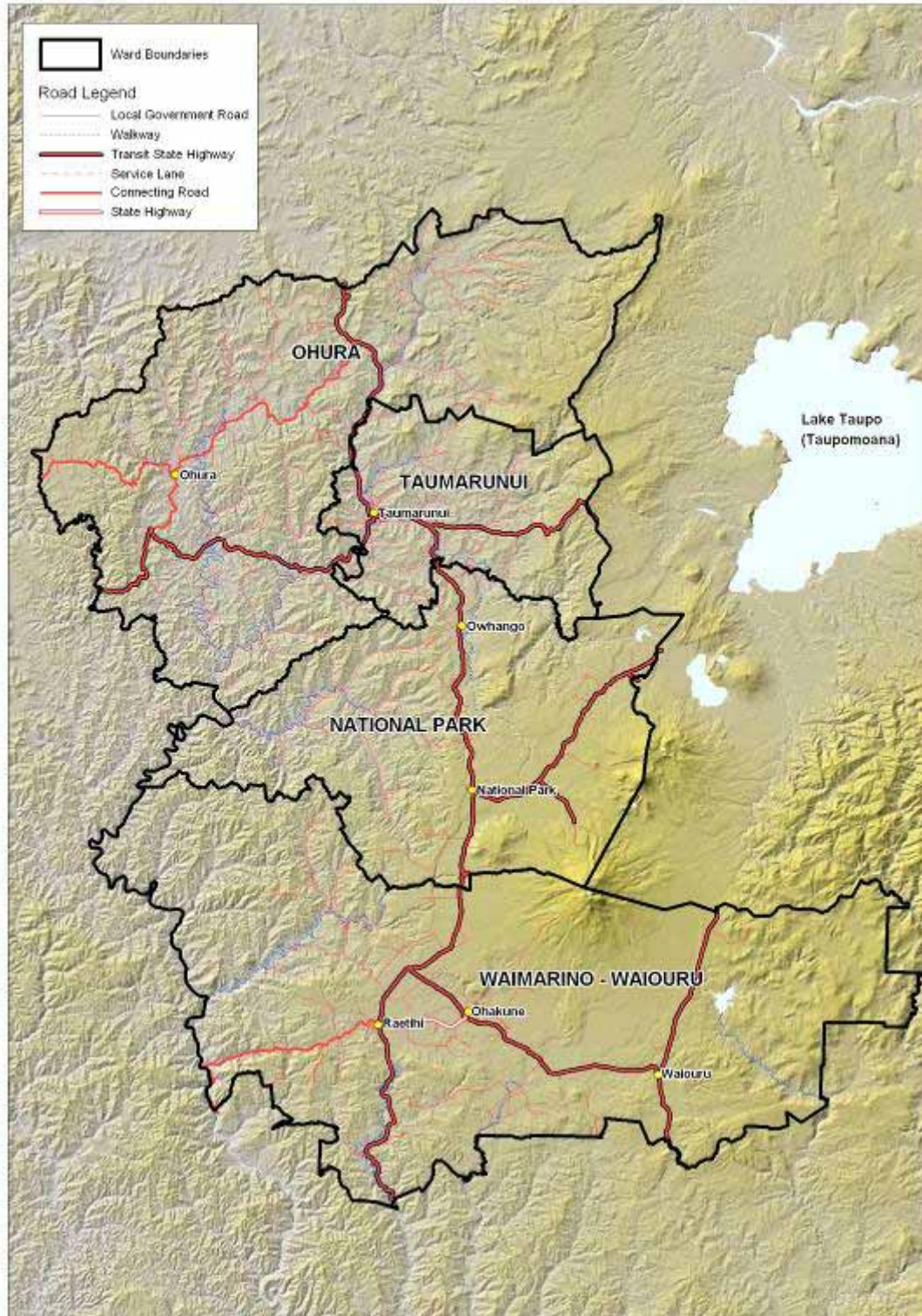
### 1.1 Background

#### 1.1.1 Ruapehu District

The Ruapehu District is a land-locked area encompassing 6,700km<sup>2</sup>, with a population of 13,572 (Statistics NZ, Census 2006). Ruapehu is one of New Zealand's largest Districts by land area but has a relatively small and dispersed population base.

The District's landscape is varied, ranging from pastoral hill country and indigenous forest to the volcanic plateau of the Desert Road and New Zealand Army (Army) land at Waiouru. In the east the District features the Tongariro National Park, which includes the mountains Tongariro, Ngauruhoe and Ruapehu and in the west, the Whanganui National Park, which accompanies much of the Whanganui River.

The District borders with Rangitikei and Wanganui Districts in the south, extends to Waitomo District in the north, stretches east to Taupo District and west to Stratford and New Plymouth Districts. Townships are scattered throughout the District. Taumarunui is a service centre for the surrounding sheep, cattle and deer farms and forestry plantations. Ohakune caters for the ski and tourist industry as well as the surrounding horticultural activity. Raetihi is a rural township servicing farming, market gardening and forestry and forms a gateway to the historical Whanganui River settlement of Pipiriki. At the southern end of the District Waiouru features the Army Base.



**Figure 1 – Map of Ruapehu District**

The Ruapehu environment is largely high quality with a relatively low number of heavy industries or high intensity residential development. The high quality of the environment makes the Ruapehu District attractive to tourists who seek to visit natural and unspoilt landscapes.

As a consequence of the small and dispersed population, large tourist industry and large land area, the District faces many challenges in meeting the current and future service expectations of residents

and tourists, in terms of Council's ability to fund the desired service levels at an affordable (sustainable) cost level.

### 1.1.2 The stormwater activity

Efficient and effective stormwater infrastructure is a key element in the sustainable and healthy development of a community. A developed network of pipes, coupled with natural watercourses provides a safe and efficient means of disposing of stormwater runoff.

A safe and efficient stormwater network is essential as the basis for protecting communities from flooding.

Through the stormwater activity, Ruapehu District Council (Council) aims to:

*"To provide for the efficient and effective management of stormwater runoff through stormwater networks whilst taking all practical steps to safeguard the value of the Ruapehu District environment".*

This Asset Management (AM) Plan demonstrates how Council will achieve this goal and associated strategic targets to directly support the achievement of Ruapehu District's community outcomes through effective sustainable management of stormwater infrastructure.

### 1.1.3 Assets which enable the stormwater activity

The stormwater activity enabling this goal is achieved through:

- A piped network including manholes, sumps, inlets and outlets.
- An open drain network.
- Flood alleviation network including stopbanks and flood detention systems.

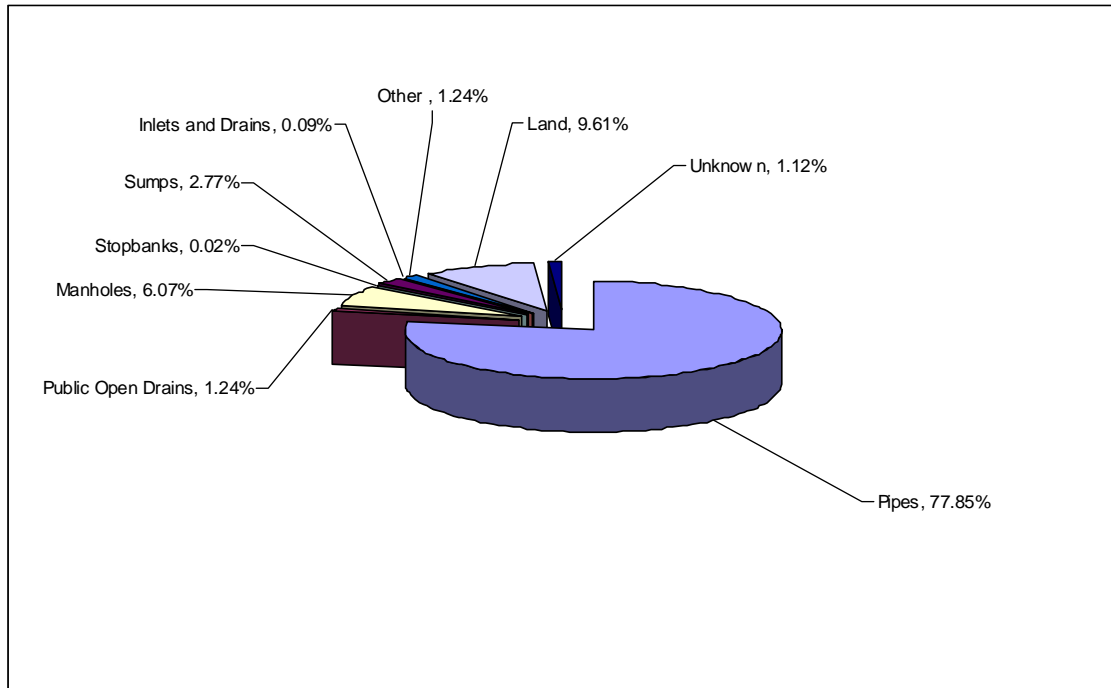
Council owns and is responsible for the management of these assets. The stormwater asset group included in this Asset Management (AM) Plan and their estimated current replacement values are summarised in Table 1. The extent and value of this infrastructure is illustrated in Figure 2. This shows that the depreciated replacement cost of the entire stormwater network in today's terms is around \$10.7 million.

Asset Group	Quantity	Depreciated Replacement Cost	
Piped Network	Pipes	48.5km	\$8,303,965.12
	Manholes	511	\$647,730.64
	Sumps	798	\$295,016.48
	Inlets and outlets	9	\$9,196.54
Open Drain Network	Public open drains	61km	\$131,949.92
Flood Alleviation Infrastructure	Stopbanks	1	\$2,439.61
Other			\$132,421
Land			\$1,025,000
Unknown			\$119,246

Asset Group	Quantity	Depreciated Replacement Cost
Total		\$10,661,965

**Table 1- Stormwater assets**

**Source: RDC Valuation dated 30 June 2008**



**Figure 2- Stormwater assets**

#### 1.1.4 Relationship with other planning documents

AM plans are a key component of the strategic planning and management of Council with strong links to other Council strategies and policies, external agency strategies and policies, and to legislation and other regulatory instruments.

AM plans are tactical plans which provide the link between community outcomes and work programmes presented in Figure 3.

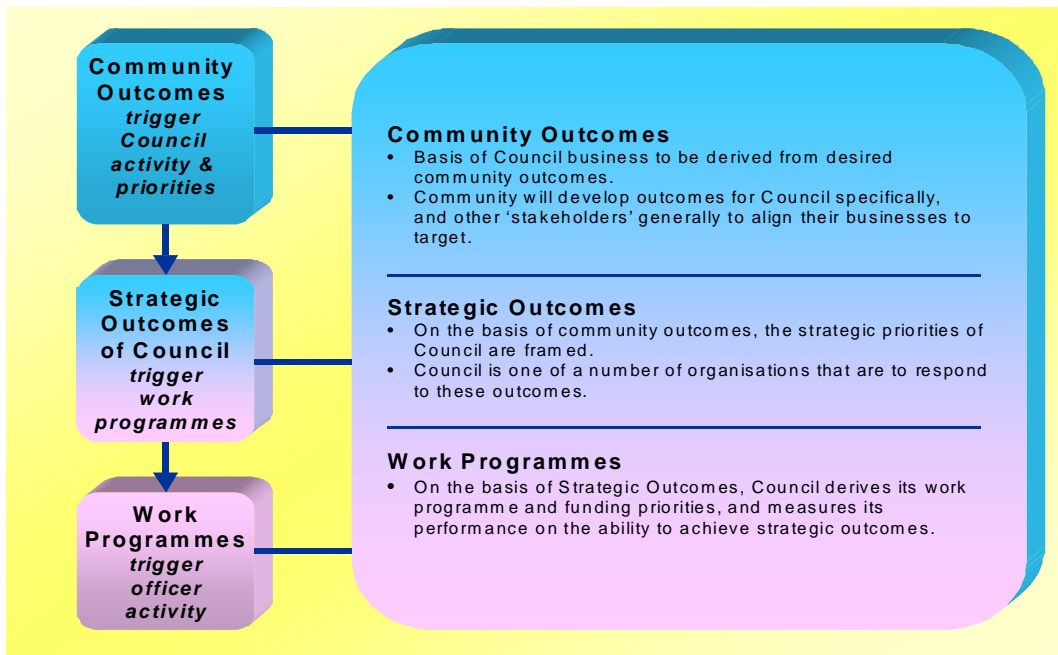


Figure 3 - Community outcomes, strategic outcomes and work programmes

Figure 4 illustrates how this AM plan fits into the overall Council planning framework. It shows that the Local Government Act (LGA) 2002 provides the primary regulatory framework for the AM plan and that this AM plan forms the basis for providing inputs for the stormwater activity into the Long Term Council Community Plan (LTCCP).

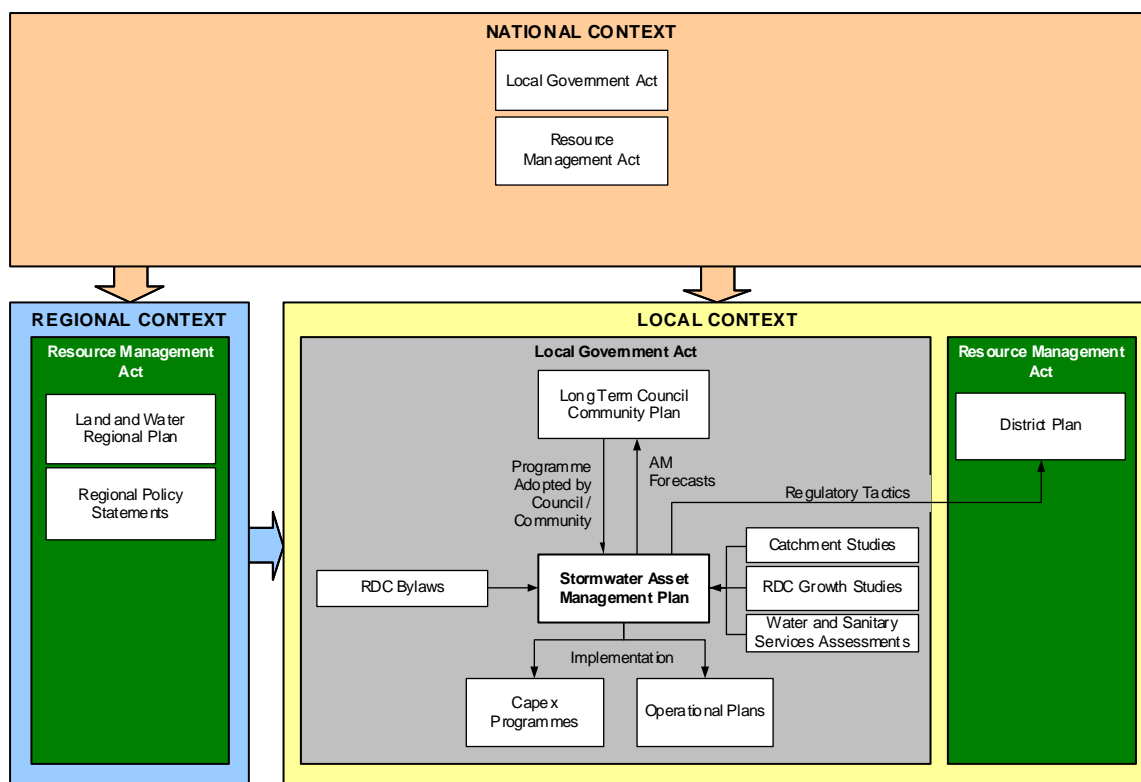


Figure 4- AM plan relationship with overall Council planning framework

The key planning documents linked with the AM plan are discussed in Table 2.

Document	Summary
<b>Regional Context</b>	
Regional Policy Statements	A key function of the Regional Council is “the establishment, implementation and review of objectives, policies and methods to achieve the integrated management of the natural and physical resources of the region”. These objectives, policies and methods are set out in the Horizons Regional Policy Statements.
Land and Water Regional Plan	This documents sets out Horizons’ rules for discharging stormwater into streams or rivers.
One Plan	Horizons have written a new plan incorporating the Regional Policy Statement and all other plans. This plan has been publically notified and is currently being submitted on by the community.
<b>Local Context</b>	
Long Term Council Community Plan	As a mandatory requirement of LGA 2002, this strategic plan must be adopted every 3 years and cover a planning period of at least 10 years. The AM plan’s financial projections are incorporated in the LTCCP. Key requirements: <ul style="list-style-type: none"> <li>• Describes the activities of Ruapehu District and its community outcomes</li> <li>• Provides integrated decision making and co-ordination of resources</li> <li>• Provides a long-term focus for Council’s decisions and activities</li> </ul>
Exceptions Annual Plan	A document produced annually to update information reported on within the LTCCP including its objectives, intended activities, performance, income and expenditure. The Exceptions Annual Plan shows how that year of the LTCCP will be funded and will provide detailed financial forecasts for the first 3 years, with summary forecasts provided for years 4 to 10.
Water and Sanitary Services Assessment	The Water and Sanitary Services Assessment (WSSA) has been completed for the Ruapehu District as part of the Local Government Act 2002. The assessments determined the impact these services have on the public health of the community.
Catchment studies	These studies provide the master plans for managing the catchment now and in the future, identify issues and take into account network capacity and performance. These are supported by hydraulic modelling.
Growth Studies	This document sets out the planning growth assumptions for the District for the development of the Long Term Plan 2009-19. It will provide consistency across all asset groups.
District Plan	This core document incorporates policies and objectives for landuse in Ruapehu District, and designations for future works incorporated in the AM Plan.

**Table 2- Key planning documents**

Legislative requirements, policies and standards driving these planning processes and documents are discussed in Section 2.3 and 5.0.

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

- LGA 2002 Schedule 10.
- Office of the Auditor General criteria for AMPs, 2006.
- International Infrastructure Management Manual 2006, published by the National Asset Management Steering Group.

The Water and Sanitary Services Assessment (WSSA) has been completed for the Ruapehu District as part of the Local Government Act 2002. The main focus for the assessment was to determine the impact these services have on the public health of the community. These are discussed in more detail in Section 4.7.

## 1.2 Community outcomes and strategic goals

### 1.2.1 Why we are involved in the stormwater activity

Council regards the stormwater activity, which enables communities to be protected from the impacts of flooding as well as protecting the environment and the general public's health by reducing the levels of stormwater pollutants discharged into the natural waters, as an essential service for the public good.

Council ownership and management of these assets is the most affordable means of achieving these activity outcomes. Council staff have the experience and skills to oversee the consulting and contracting service providers.

### 1.2.2 Community outcomes

Community outcomes are the community's overall aspirations for the District's future and drive all Council activities. Council carried out extensive community consultation in 1997 and 2005 in order to develop community outcomes for the LTCCP. This process identified 42 desired community outcomes, from which a vision for the District was developed as presented in Table 3.

Well-being	Community Outcome Statement
Economic	Ensure that core facilities, services and infrastructure keep pace with the needs of the community
Cultural	The cultural diversity of the District is recognised
Environmental	The achievement of a sustainable environment
Social	The achievement of a safe and healthy community with strong community networks

**Table 3 – District vision**

The stormwater activity primarily supports the following community outcomes:

- CO 10 Core facilities, services and infrastructure planning and provision (water, sewage, solid waste, power, roading and medical) keep pace with development.
- CO 22 An environment that has an excellent quality of water, soil and air.

- CO 23 River catchment areas and waterways are protected from erosion and pollution.
- CO 32 A community that respects and promotes understanding of the environmental values of Tangata Whenua.

These are discussed further in Section 5.0.

### **1.2.3 Strategic objectives**

Council has developed strategic objectives to target achievement of the relevant community outcomes. The strategic objectives for the stormwater activity are:

- SG 1 To provide and maintain an appropriate level of infrastructure.
- SG 2 To protect house floor boards from flooding.
- SG 3 Enhance the sustainability of social, environment, cultural and economic well beings of our communities.

These are discussed further in Section 2.0.

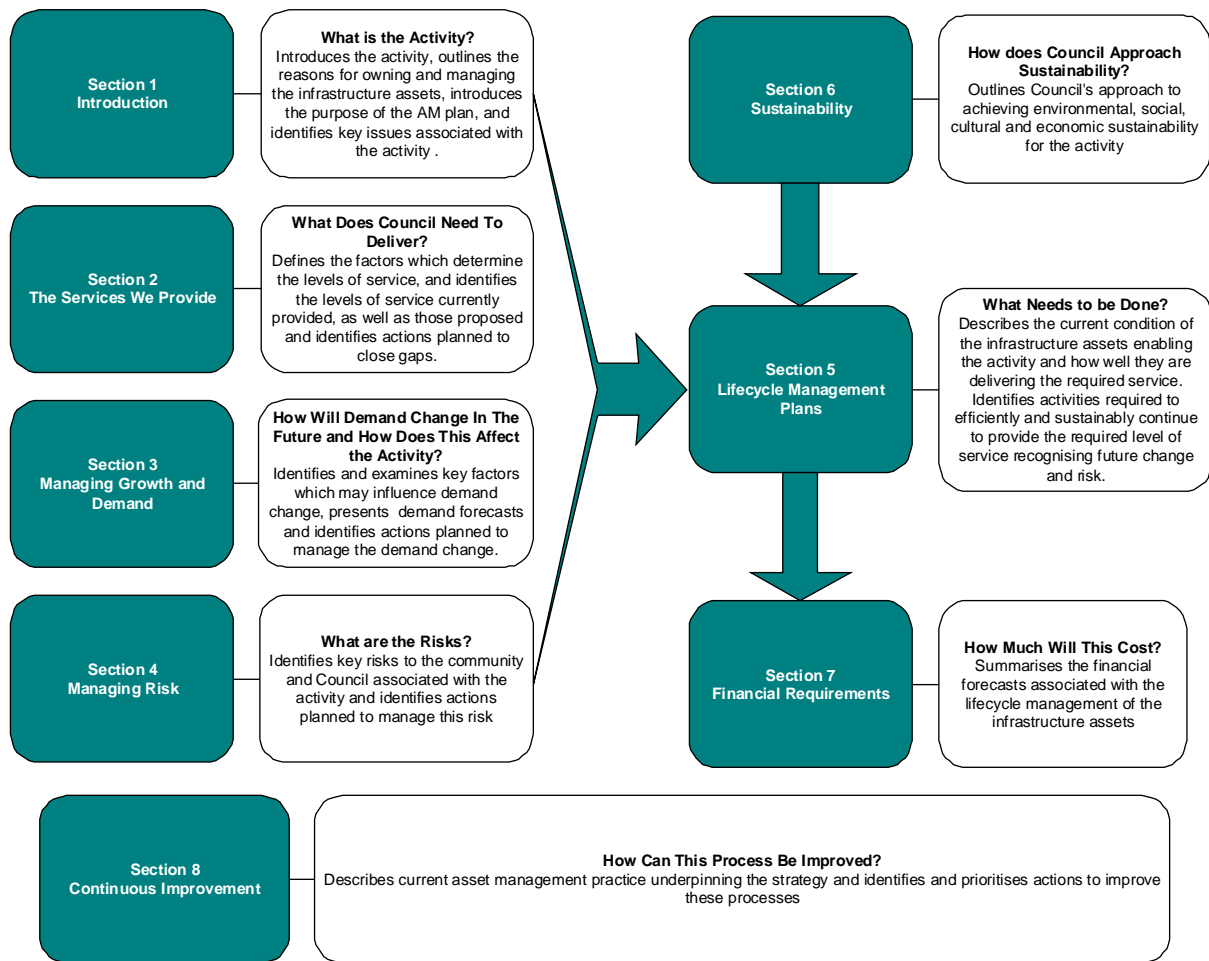
### **1.2.4 Highlights 2005-2008**

The following summarises significant capital projects undertaken and improvements made in the management of the stormwater activity between 2005 and 2008.

- Physical works highlights:
  - The Miro Street culvert in Taumarunui was completed.
  - Small flood mitigation works in Taumarunui was completed.
  - Ward Street and the Matai Street drains in Taumarunui were completed.
  - Improvements in Carroll Street East, National Park, were completed.
  - Improvements in Kirk Street and Waimarino Street, National Park, were completed.
  - Minor flood mitigation works in National Park were completed.
  - Improvements in Goldfinch to Shannon Streets, Ohakune, were completed.
  - Design was completed for stormwater improvements in Karamu Place, Ohakune.
  - Stage one stormwater improvement works in Miro Street, Ohakune, was completed.
  - Minor flood mitigation works in Ohakune were completed.
  - Development of natural watercourses in Ohakune was completed.
  - The Raetihi computer model timing was changed to meet Horizons timetable.
  - Minor flood mitigation works in Raetihi were completed.
  - The planned stormwater programme for Rangataua was completed.
- Operational and management highlights:
  - Condition and performance assessment completed of all above ground and underground stormwater assets in the eight townships by United Water.
  - Comprehensive review and update of the stormwater asset management plan including revised levels of service, demand forecasts, risk assessments and strengthened linkages between drivers and works programmes.
  - Successful awareness-raising programme to more fully involve Councillors in the asset management process, specifically covering the key principles of asset management and highlighting stormwater issues and proposed solutions.

## 1.3 Plan framework

The framework of the plan is presented in Figure 5.



**Figure 5 – AM plan framework**

This AM plan presents levels of service we propose to provide, with the identified demand changes and risks.

The AM plan is then reviewed by Council alongside AM plans for the other Council activities as part of the LTCCP/Exceptions Annual Plan process. This process considers the overall impact of the proposed programmes to deliver the defined levels of service on the Ruapehu community. This review by the elected members moderates competing priorities within the context of community affordability and may result in some projects being deferred, and some reductions to ongoing programmes.

The adopted programmes and budgets, and the implications of any changes made from the proposed AM plan are identified within Appendix A. These changes and implications will then be a key input into subsequent plan updates as indicated in Figure 6.

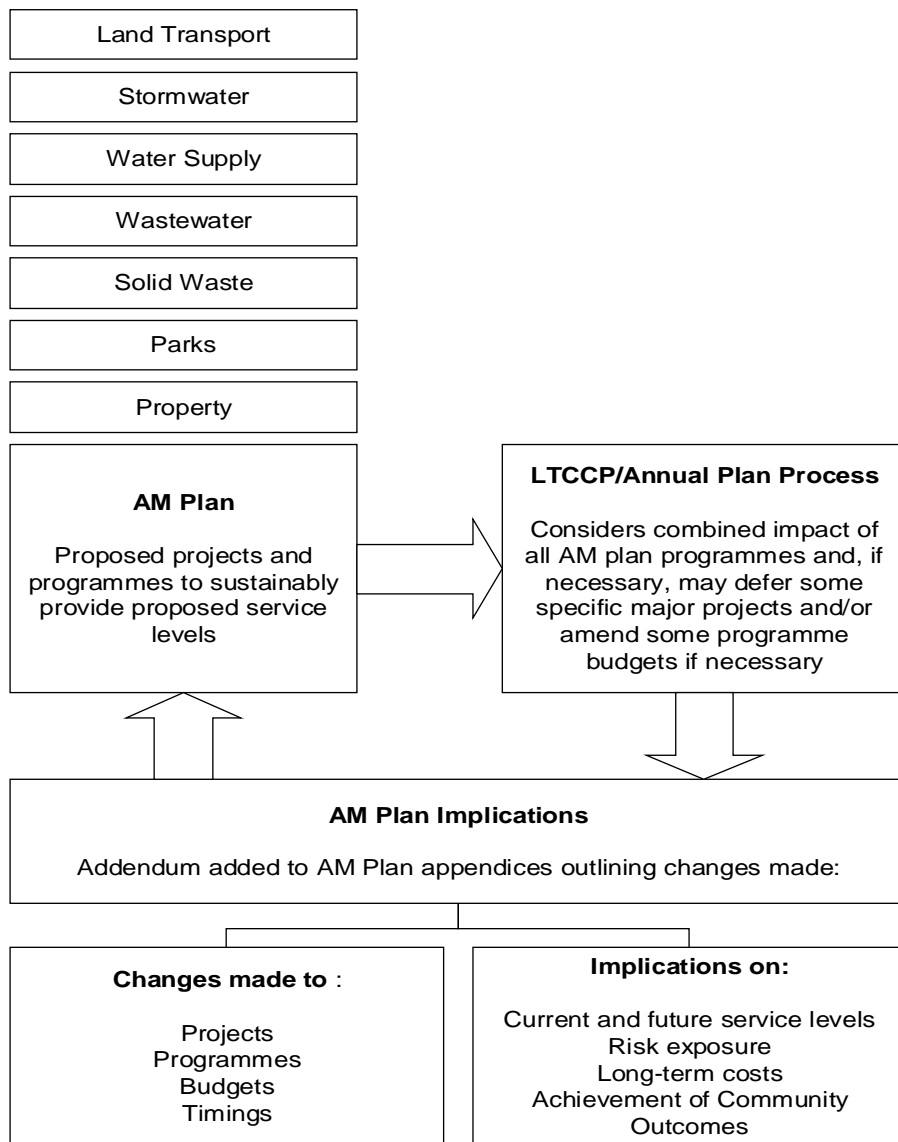


Figure 6 - AM plan and LTCCP/AP process

## 1.4 Key stormwater issues we are managing

### 1.4.1 Key issues

The key issues Council is managing as part of the stormwater activity are summarised in Table 4:

Issue	Potential impacts	Refer to
Increasing community expectations	<p>The community's expectations are increasing with regards to:</p> <ul style="list-style-type: none"> <li>• Piping open drains</li> <li>• Protection of natural waterways</li> </ul> <p>Increasing expectations may result in a gap between service level delivered and service level expected. Closing these gaps may challenge affordability.</p>	Section 2.0
Increasing legislative requirements	<p>Legislative requirements are increasing, particularly regarding transparency, and environmental and economic sustainability. Managing these increased requirements can incur additional cost.</p>	Section 2.3
Rapid development pressure in Ohakune, and National Park	<p>The rapid development in these centres can make it difficult to meet the communities and Council's best long-term interests within the timeframes desired by the developers.</p>	Section 3.0
Increasing imperviousness	<p>With development, there is greater level of imperviousness. The understanding of current and future imperviousness and the impact on stormwater network needs to be better understood.</p>	Section 3.0
Limited catchment planning	<p>There is limited catchment management planning across the District to understand network performance and capacity.</p>	Section 5.0
Contamination to waterways	<p>The regulator and the community will increase pressure to reduce the contamination of the natural waterways.</p>	Sections 5.0 and 6.0
Pressure for stormwater quality monitoring	<p>The regulator may require increased stormwater quality monitoring for Council to demonstrate its effect on the environment.</p>	Sections 5.0 and 6.0
Natural watercourses on private property in urban areas	<p>Community pressure for Council to maintain the natural watercourses on private property in urban areas.</p>	Section 5.0

**Table 4- Key issues involved with the stormwater activity**

#### **1.4.2 Potential significant negative effects**

The stormwater activity is an essential service for our community for maintaining public health and protecting the community. This activity is vital for the environmental and social well being of our community. However, there is growing recognition of the potential negative effects resulting from the stormwater activity which need to be managed. These include:

Potential Negative Impact	Mitigation
<p>Environmental. The community identified that a clean/unspoilt/scenic/beautiful natural environment was a key strength of the community during the LTCCP consultation process, and rated “an environment which has an excellent quality of water, soil and air” in the top five priority community outcomes.</p>	
<p>The potential for emissions to affect climate, and especially ‘global warming’, including the effect of certain substances on the ozone layer.</p>	<p>Council is committed to understanding the impacts of climate change on public infrastructure and mitigates this through advice from central government agencies.</p>
<p>Environmental damage during construction of new works.</p>	<p>Environmental damage is mitigated through resource consent conditions which are specified into the contact document and monitored closely during the implementation of physical works.</p>
<p>Stream degradation through intensified flows discharging from piped network.</p>	<p>Council works closely with Horizon and iwi to determine the optimal design for stormwater discharges.</p>
<p>Contaminated stormwater runoff can impact adversely on the receiving environments to which it discharges.</p>	<p>Council continues to monitor watercourse water quality in conjunction with Horizons.</p>
<p>Economic</p>	
<p>The cost of investment in infrastructure.</p>	<p>Council is committed to implementing cost-effective solutions as part of successful asset management. Levels of service have been set with consideration to community affordability and efficiencies are sought on an ongoing basis.</p>
<p>Significant costs and time to implement the upgrade and overflow reduction improvement projects.</p>	<p>Council is committed to improving the natural environment but acknowledges that it takes time to make significant improvements.</p>
<p>Significant compliance costs for developers and businesses and individual households.</p>	<p>Council is transparent with its compliance costs with the development community as practicable.</p>
<p>Social</p>	
<p>Disruption to individual property owners during new works construction.</p>	<p>Construction is undertaken in such a way as to minimise effects to property owners and to keep them fully informed of the proposed work.</p>
<p>Many properties still flooded.</p>	<p>Council is committed to reducing the number of floor boards flooded through the stormwater capital programme which reduces the property damage to our community.</p>
<p>Cultural</p>	

Potential Negative Impact	Mitigation
Contamination of the receiving environments unacceptable to iwi.	Council is committed to improving the receiving environment through regular communication with iwi and capital works programmes to discharge appropriately. Careful management of the waterways improves the natural environment.

**Table 5 Potential significant negative impacts**

## 2.0 The services we provide

Council recognises there is a wide range of customers and stakeholders with an interest in how the stormwater activity is managed, including landowners, the resident community, visitors, iwi, environmental groups, and specific interest groups within the community and regional and central government agencies.

Council's LTCCP 2006–2016 is the primary document for determining and agreeing levels of service and costs with the community and stakeholders. Sustainable long-term management of the stormwater network will also be achieved through integration with national and regional strategies.

Council aims to manage the stormwater activity to provide a safe environment for the whole community, reducing the detrimental effect of stormwater in natural environment.

Specific levels of service adopted are outlined in Section 2.5 of this AMP and include:

- Urban roads not closed for more than two hours.
- 75% of stormwater incidents for blocked drains are attended on site within 6 hours.
- 75% of stormwater service for blocked drains is restored within 2 hours.
- 50% of respondents are satisfied or very satisfied with the stormwater service provided.
- Stormwater reticulation in new developments is fully compliant with subdivision standards for design storm events.
- Meet all resource consent conditions.

Although no significant service gaps with the current LOS has been identified, it is recognised that as more studies are completed for each township capital development projects maybe required to close service gaps with flood alleviation programmes.

The planned investment in LOS projects over the next three years is \$0.87 million.

### 2.1 Our customers and stakeholders

#### 2.1.1 Our customers and stakeholders

Table 6 lists the customers and the main stakeholders in the District's stormwater activity.

Customers	External Stakeholders	Internal Stakeholders
<ul style="list-style-type: none"> <li>Residential, industrial and commercial stormwater service users</li> <li>The community – citizens and ratepayers, businesses and industry</li> <li>Landowners</li> <li>Visitors to the District</li> </ul>	<ul style="list-style-type: none"> <li>Government agencies, including: <ul style="list-style-type: none"> <li>Local Government NZ</li> <li>Office of the Auditor General</li> <li>Civil Defence and Emergency Management</li> <li>Ministry for the Environment</li> <li>NZ Transport Agency</li> <li>KiwiRail</li> </ul> </li> <li>Horizons Manawatu-Wanganui Regional Council</li> <li>Iwi</li> <li>Environmental groups</li> <li>Consultants and contractors</li> <li>Developers</li> <li>Neighbouring District Councils</li> </ul>	<ul style="list-style-type: none"> <li>Councillors and management team</li> <li>Community boards</li> <li>Corporate, Finance and Planning</li> <li>Transport, Wastewater and Water Supply activity managers</li> <li>Community Development</li> <li>Recreation and Community Facilities</li> <li>IT Manager</li> </ul>

**Table 6 – Key stakeholders**

RDC's stormwater activity has close relationships with the stormwater assets of NZ Transport Agency and KiwiRail as these stormwater assets are intrinsically entwined. Stronger relationships need to be built with these two government agencies.

There is also a close relationship with Horizons regarding the flooding capacity of natural streams. Coordination and maintenance programmes are key.

### **2.1.2 Engaging our customers and stakeholders**

The LGA 2002 requires Council to consult with affected and interested parties in making decisions. Before implementing level of service changes, options analysis and the selection of the best practicable and preferred options must be done using a coherent and transparent process.

Council ensures that all interested stakeholders listed above have an opportunity to influence the level of service decisions by:

- Making this stormwater AM plan available on Council's website.
- Engagement with key stakeholders throughout the development of the Stormwater Programme, including involvement in identifying and prioritising works needs and option selection.
- Undertaking periodic focus group consultation as part of the LTCCP development.
- Public opportunity to provide submissions on strategic targets through Council's LTCCP process.
- Consulting with affected persons on specific projects (as required by the RMA 2001).

- Carrying out periodic levels of service surveys and three-yearly residents surveys to monitor customer satisfaction.
- Monitoring and analysing requests for service from customers recorded within HEAT, Councils customer service request system.

Focus group studies, levels of service surveys and resident surveys are discussed below.

### **Focus group studies**

Council undertook a Future Ruapehu Community Outcomes process in 2004-05. This process highlighted that the community feels that roads are an essential infrastructure for the community and for economic development, and that it is essential for roads to be maintained at the present levels of service.

During the LTCCP consultation process, the community identified that a clean/unspoilt/scenic/beautiful natural environment was a key strength of the community. The community prioritised the community outcomes as part of this process. The values identified in these priority ratings reflect the importance the community places on the welfare of the community and environment, with an understanding that adequate infrastructure, coupled with effective and transparent management, are essential for the successful achievement of these outcomes.

### **Levels of service surveys**

RDC undertook community consultation over a series of workshops to develop community outcomes from September 2004 to May 2005. This consultation process identified the following key issues for stormwater:

- Development should be on a user-pays basis.
- Some landowners do not maintain private drains causing downstream issues.
- Education as to private drain owners' requirements.

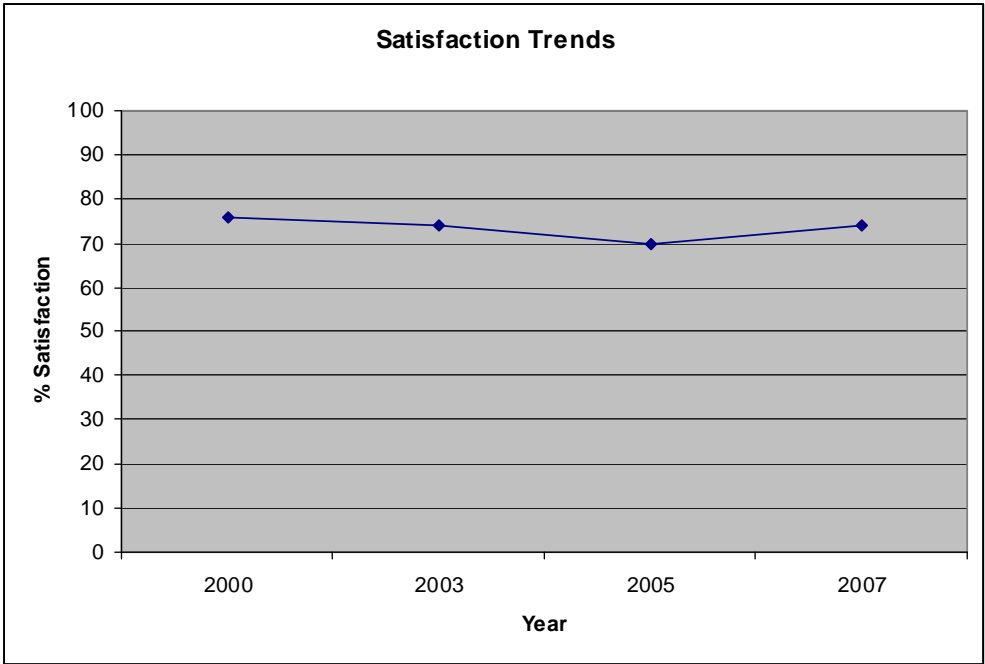
This consultation process also identified the following preferences for the LOS for the stormwater activity:

- Existing level of service was generally preferred.
- Current maintenance levels were not satisfactory.
- Education requirement as to what should go into stormwater drains.

Council undertook specific levels of service surveys in 2007 for the solid waste, land transport and parks and reserves activities.

### **Resident surveys**

Figure 7 indicates that residents are generally satisfied with the provision of stormwater service provided. There is a general good satisfaction with ratings consistently over 70%.



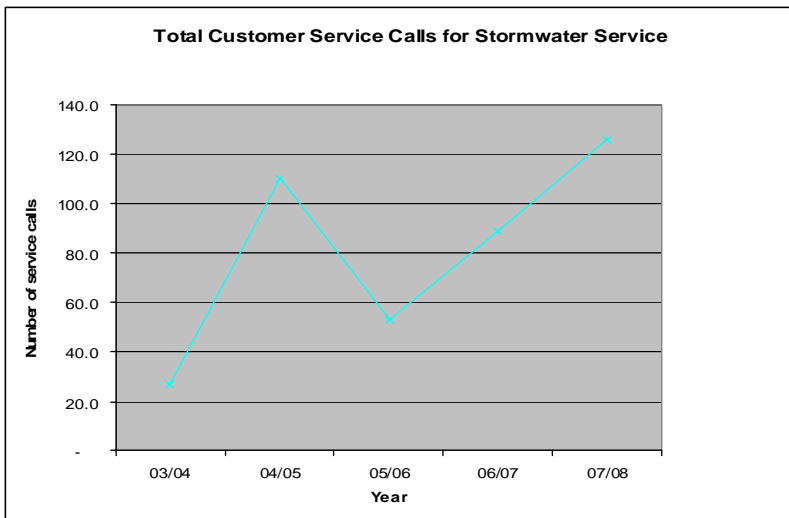
**Figure 7 – Resident satisfaction ratings**

Dissatisfaction has increased slightly to 24% in 2007 from 20% in 2005. Although the satisfaction level is at a reasonable rating, RDC still wish to improve this to over 80%.

Dissatisfaction results are also compared with a peer group for services provided. This is useful to understand where RDC sits relatively to other similar organisations to see if there are any significant gaps in service from a customer view point. The dissatisfaction resident rating for the stormwater service of the peer group is 19%. This is relatively less than the 24% for RDC dissatisfaction resident rating.

**Customer service data analysis**

Analysis of the service call data captured within the Customer Request System known as HEAT for the stormwater service since 2003/04 indicates that the total service calls received is trending upwards as presented in Figure 8. This is still at relatively low levels compared with other services such as transport and water supply.



**Figure 8 - Service call trends for stormwater**

An analysis of groups of service calls indicates that the number of faults associated with blockages from storms and other storm faults are increasing as shown in Figure 9. These generate the most service calls each year, and comprise 37% and 53% of the service calls respectively for the last five years. There needs to be better understanding of the underlying causes of the other storm calls fault to examine if there is any issue to be resolved.

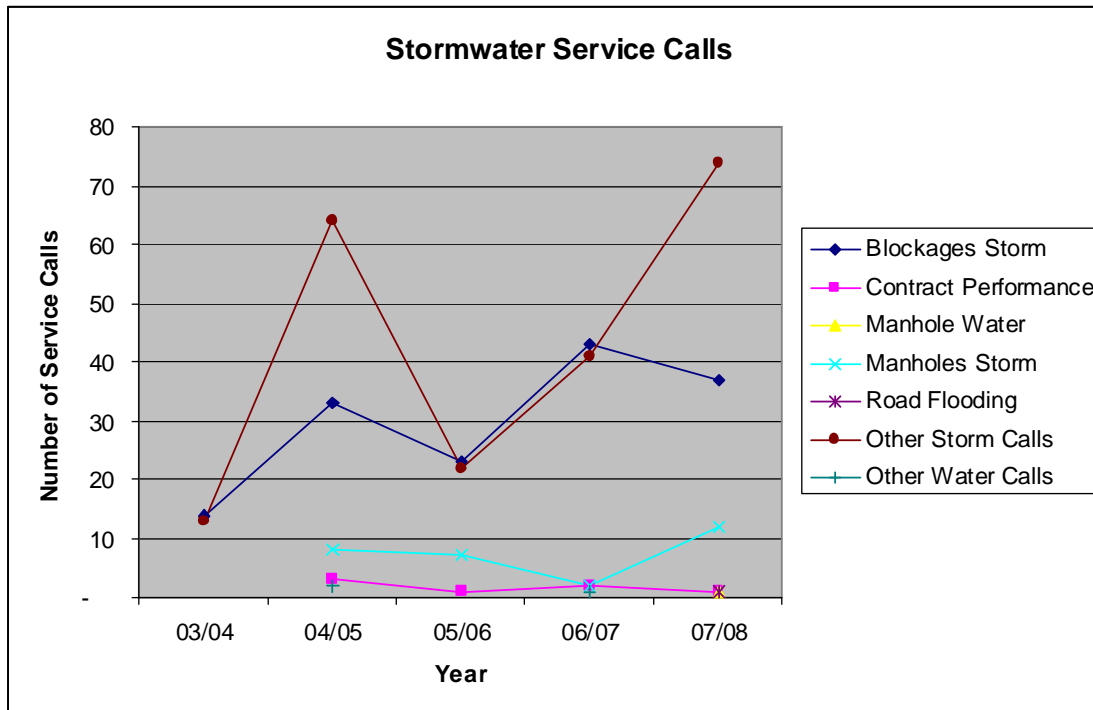


Figure 9 -Service call totals for stormwater

### Contractor surveys

The Facilities Management Contractor, United Water, has also undertaken regular customer satisfaction surveys since 2003. Customers are surveyed for their perception of the water service provided and their perception of the contractor's customer service and maintenance activities.

Figure 10 shows customer satisfaction with the stormwater service, and the contractor's timeliness to site since 2003. The survey results indicate that stormwater satisfaction with the service provided has increased greatly from 2003. The contractor's responsiveness to site is very high at over 90%.

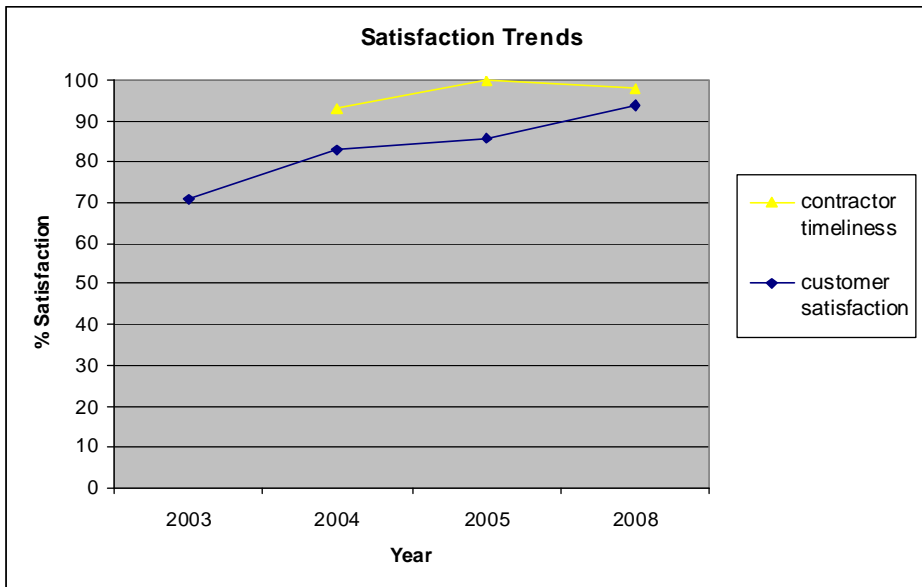


Figure 10 – Customer satisfaction rating from United Water’s survey

## 2.2 From community outcomes to AM plan tactical goals

### 2.2.1 Community outcomes

The stormwater activity primarily supports the following community outcomes:

- CO 10 Core facilities, services and infrastructure planning and provision (water, sewerage, solid waste, power, roading and medical) keep pace with development.
- CO 22 An environment which has an excellent quality of water, soil and air.
- CO 23 River catchment areas and waterways are protected from erosion and pollution.
- CO 32 A Community that respects and promotes understanding of the environmental values of Tangata Whenua.

Therefore, management of the stormwater activity is likely to be driven by themes of:

- Promoting environmental sustainability by minimising the impact of the community’s activities and lifestyle on the natural environment.
- Ensuring safe and reliable usage of our stormwater assets.
- Efficient operation and management of our stormwater assets.
- Maintain on ongoing relationship with iwi with regard to protecting the environment.

These themes have been developed into strategic goals discussed below.

### 2.2.2 Strategic goals

Council has developed its strategic goals and works priorities with reference to the District’s community outcomes, as well as national and regional priorities and objectives.

The stormwater activity is largely driven by the regulator’s regional plans. Horizons are responsible for the regulation of the discharge of contaminants into air, water or land. The discharge of stormwater into a natural watercourse falls within the definition of a discharge of a contaminant to water.

Therefore Council may only discharge its stormwater into streams or rivers if it is allowed to by a Rule in a Regional Plan or by Resource Consent.

Horizons Land and Water Regional Plan describes the “discharges of stormwater to water” as a permitted activity, providing certain conditions are met. RDC’s strategy is to comply with all the conditions so not to require specific resource consents.

**Strategic Goal 1: To provide and maintain an appropriate level of infrastructure.**

Damage to property due to flooding can occur during storm events. Council’s current LOS is to provide a stormwater network that protects properties during a storm event on 10% (one in ten year storm) Annual Exceedence Probability (AEP) in developed areas, and in accordance with NZS 4404:2004 for new subdivisions.

**Strategic Goal 2: To protect house floor boards from flooding.**

Community public health can be detrimentally affected by the flooding of roads (increasing the risk of road accidents occurring), or ponding of stormwater (that in turn may become stagnant and negatively impact on public health). Council’s goal is to ensure appropriate stormwater drainage is in place to remove this risk to public health.

**Strategic Goal 3: Enhance the sustainability of social, environment, cultural and economic well beings of our communities.**

Council considers that it is essential to adopt a network approach for the stormwater drainage in each of the urban communities to ensure the agreed LOS is achieved. Council also considers that some of the significant watercourses form an integral part of this network and need to be developed and maintained by Council.

The Ruapehu Community has given direction that the water quality of streams and rivers is to be protected and enhanced. Council must ensure that stormwater run-of is disposed in a way that minimises the impact on the receiving environment.

Many cultures hold a spiritual belief in the environment, which will vary across and between different cultures. Groups may also have beliefs about the ‘right way’ to behave in relation to the environment and whether or not there is an obvious physical outcome from their actions.

## 2.3 Legislative requirements

The key legislation, policy and planning documents affecting the levels of service provided by the land stormwater activity are:

Local Government Act. Section 10 of the LGA states the purpose of Local Government as being:

- a) To enable democratic local decision-making and action by, and on behalf of, communities: and
- b) To promote the social, economic, environmental and cultural well being of communities, in the present and for the future.

These statements carry a key theme that runs through the LGA as a whole. Local government must take into account and should promote the following ideas through all decisions, actions and strategies of the local authority:

- Democracy
- Effectiveness
- Local decision-making and accountability
- Community well-being

This AM plan demonstrates Council’s approach to these ideas as follows:

- Democracy – Council provides opportunities for the community to participate in Council’s decision-making by requesting submissions on the strategic direction of Council’s AM plans as part of the LTCCP process.

- Effectiveness - Effective local government relies on information as the basis of good decision-making and accountability. Council is committed to monitoring and continuously improving the information that this plan is based on and the processes and frameworks which guide decision making.
- Local decision-making and accountability - Council promotes local decision-making by requesting submissions on the strategic direction of asset management plans as part of the LTCCP process, as well as through consultation on work programmes and individual projects as discussed in Section 2.1.2. Outcomes from these consultations are combined with asset knowledge and engineering best practice to produce management plans for Council's assets that are sustainable, appropriate and acceptable to the Ruapehu Community.
- Community well-being - Council promotes community well-being through the achievement of desired community outcomes. Council's asset management plans demonstrate how Council's activities directly support the achievement of these outcomes.

Schedule 10 requires that Council's LTCCP contains information on the assessment and management of the AM implications of changes in demand or service levels. This means that local authorities should disclose:

- Whether they intend to change the service levels for an asset over the life of the plan;
- What they expect will happen either to demand for the service and/or consumption of the service; and
- Demonstrate how risks are to be managed.

Resource Management Act. The RMA 1991 is an established planning framework covering land designation processes and resource consents for activities that affect the environment. Horizons is responsible for monitoring compliance with the environmental provisions of this Act that relate to earthworks, sediment control, work within watercourses etc.

Office of the Auditor General Criteria for AM Plans. The stormwater network is significant as defined in Council's Significance Policy, due to its complexity, asset value and risk to the community. This service is expected to deliver this essential service in perpetuity and the asset is maintained and replaced as required to enable this. For significant services, the Office of the Auditor General defines a higher level of customer consultation. This includes evaluating level of service options, and undertaking consultation on level of service options with the community and other relevant stakeholders. Customer consultation is undertaken as detailed in Section 2.1.2.

Other legislation relevant to the stormwater activity includes:

- Civil Defence Emergency Management Act 2002: requires lifeline utilities (such as a road network) to function at the fullest possible extent during and after an emergency and to have plans for such functioning.
- Health and Safety in Employment Act 1992: requires the provision of safe work places for all activities by Council staff and contractors and the maintenance of an audit trail to demonstrate compliance.
- Public Works Act 1981: grants power to acquire land for public works.
- Health Act 1956: requires Council to provide 'sanitary works' which includes drainage works for all lands, buildings, and pipes used in connection with any such works.
- Building Act 2004: Council is responsible for producing PIMs (Project Information Memoranda) and LIMs (Land Information Memoranda). Information on drainage plans, flood records, maintenance history, notices, and correspondence should be included in these memoranda. Council may reject a building consent where there is a risk of flooding or no approved outfall.
- Land Drainage Act 1908: All drains and watercourses under the control of Council must be constructed and maintained so as not to be a nuisance or injurious to health, and properly cleared, cleaned and maintained.
- Soil Conservation and Rivers Control Act 1941: Requires Council to 'minimise and prevent damage by floods and erosion'.

## 2.4 Industry standards and guidelines

The primary documents that guide service standards for the stormwater activity are as follows:

- RDC policies and bylaws including the Development Contribution Policy.
- Standards Association of New Zealand: provides a range of standards covering required or recommended practice and which may impact directly on assets or management of contracts, e.g. the NZS4404 Code of Practice for Urban Subdivision provides a range of stormwater standards.
- Public Health and Safety Bylaw 2006
- Other Policies - policies relevant to but not actually forming part of the stormwater policies:
  - Tenders Policy
  - Funding Policy
  - Delegations Policy

The main risks in not complying with these standards are:

- Properties could be flooded
- Health and safety issues with flooding and overflow pollution
- Damage from contamination to the receiving environment, and poor quality assets from development.

## 2.5 Levels of service we provide

The current LOS has been developed over time based on customer preferences, legislative requirements, and industry guidelines.

Most stormwater capital projects to date have been renewal or meeting LOS, with no development driven projects identified in past AMPs. Council operates several programmes that assist in these improvements including:

- Flood mitigation programme
- Culvert renewal programme
- Natural watercourse development programme
- Pipe replacement programmes.

The levels of service we provide are presented in the following tables.

Core Value: Quality

Key Community Outcomes:

CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development.

CO 22 - An environment which has an excellent quality of water, soil and air.

CO 23 - River catchment areas and waterways are protected from erosion and pollution.

Strategic Goal 1: **To provide and maintain an appropriate level of infrastructure**

Level of Service	Performance Measure	Past performance	Future Year Targets				
		07/08	09/10	10/11	11/12	12/18	
Natural urban watercourses and storm water networks are maintained as part of the stormwater disposal network so that no storm events of less than 10% AEP produce in urban areas.	Urban roads are not closed for more than two hours.	100%	95%	95%	100%	100%	
Stormwater networks are maintained to an acceptable standard	Results of a customer survey to be that the percentage of respondents who are satisfied or very satisfied with the Levels of Service (measured annually).	TBC	70%	70%	70%	75%	
Stormwater networks are maintained to an acceptable standard.	Percentage of stormwater blocked drain incidents attended on site within 2 hours.	97%	75%	75%	75%	75%	
	Percentage of stormwater service for blocked drains restored within 6 hours.	100%	50%	50%	50%	50%	

Table 7 - Levels of service – Quality

Core Value: Safety

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Key Community Outcomes:

CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development.

CO 22 - An environment which has an excellent quality of water, soil and air.

CO 23 - River catchment areas and waterways are protected from erosion and pollution.

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Strategic Goal 2: To protect house floor boards from flooding.

Level of Service	Performance Measure	Past performance	Future Year Targets			
		07/08	09/10	10/11	11/12	12/18
Flood protection for the community.	Stormwater reticulation in new developments is fully compliant with subdivision standards for design storm events.	NA	100%	100%	100%	100%

Table 8- Levels of service – Safety

## Core Value: Sustainability

---

### Key Community Outcomes:

CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development.

CO 22 - An environment which has an excellent quality of water, soil and air.

CO 23 - River catchment areas and waterways are protected from erosion and pollution.

CO 32- A community that respects and promotes understanding of the environmental values of Tangata Whenua.

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### Strategic Goal 3: **Enhance the sustainability of social, environment, cultural and economic well beings of our communities.**

Level of Service	Performance Measure	Past performance	Future Year Targets			
		07/08	09/10	10/11	11/12	12/18
The effects of the stormwater activity on the environment are minimised.	All resource consent conditions are met.	100%	80%	80%	80%	80%
Sustainable Budget requirement	Expenditure within a percentage of budget (measured annually).	+3%	5%	5%	5%	5%

**Table 9 - Levels of service – Sustainability**

Stormwater is also recognised as having a direct impact on sustainability in Ruapehu. Currently RDC does not have any sustainability goals, although they acknowledge these will be developed in future through central government guidelines. This is discussed further in Section 6.0 Sustainability.

## **2.6 Closing identified service gaps**

Table 7 to Table 9 demonstrate that there are no significant service gaps with the current LOS. However, a new LOS of habitable floor flooding for new developments has been added as this is a measure of a well performing stormwater network. RDC also wishes to ensure that new assets are not created in known problem areas.

It is recognised that as studies are completed for each township, service gaps will be identified and this will generate future capital works. The next Plan will consolidate this information and develop a flood alleviation programme. The planned expenditure for LOS projects over the next three years is \$0.87 million.

## **2.7 Expected changes**

The levels of service tables presented in Section 2.5 indicate that service levels Council provides are anticipated to increase with regards to:

- Reduction in the number of habitable floors flooded.

## **2.8 Future improvements**

The following high priority improvements have been identified that will contribute to the robustness of the service level review processes described in this section, which include:

- Consider a LOS survey for the stormwater activity on current and future LOS (similar to the 2007 survey for transport and solid waste).

## 3.0 Managing growth and demand

The number of people that usually live in Ruapehu District is declining, with 13,572 people at the 2006 Census. However, the District is growing in other ways. It is being fuelled by tourists and non-residential owners of holiday homes.

This has an affect on the peak population growth which is expected to grow overall at 2.5% per annum. The projected peak population growth is not uniform district wide, due to the distribution of the visitor industry and holiday homes. In particular, National Park and the Ohakune areas are showing increases in peak populations at 3.5% and 1.8% per annum respectively.

With this change in District growth comes an increase in hard surfaces which places additional demand on existing stormwater assets as well as requiring new stormwater assets in newly developed urban areas. The level of surface permeability and the frequency and intensity of rainfall events are the two main parameters impacting future stormwater flows and demands. Currently, the proportion of the District that is impervious is unknown and this is recognised as a future improvement. It is acknowledged that this may increase with growth, especially in the development area of Ohakune.

\$150k has been identified as growth driven capital for stormwater projects over the next three years mainly.

### 3.1 Growth and demand trends

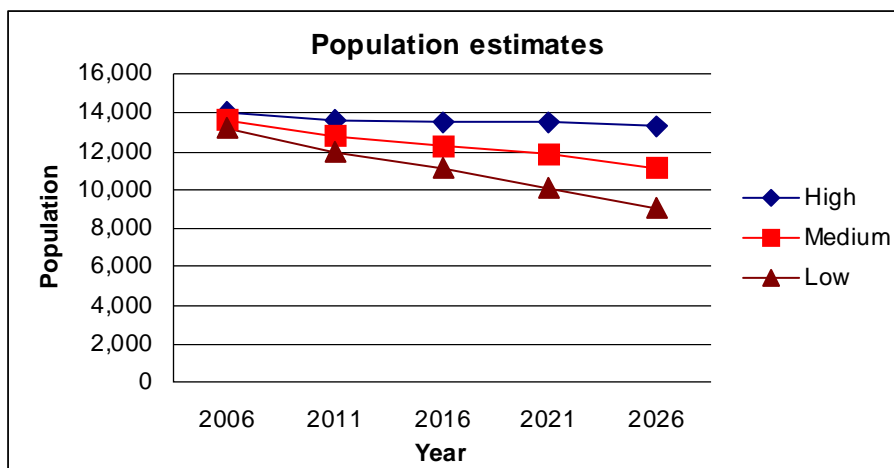
#### 3.1.1 Growth and demand drivers

Future demand for stormwater services is driven by:

- Level of surface permeability;
- Frequency and intensity of rainfall events.

#### 3.1.2 Population and demographic patterns

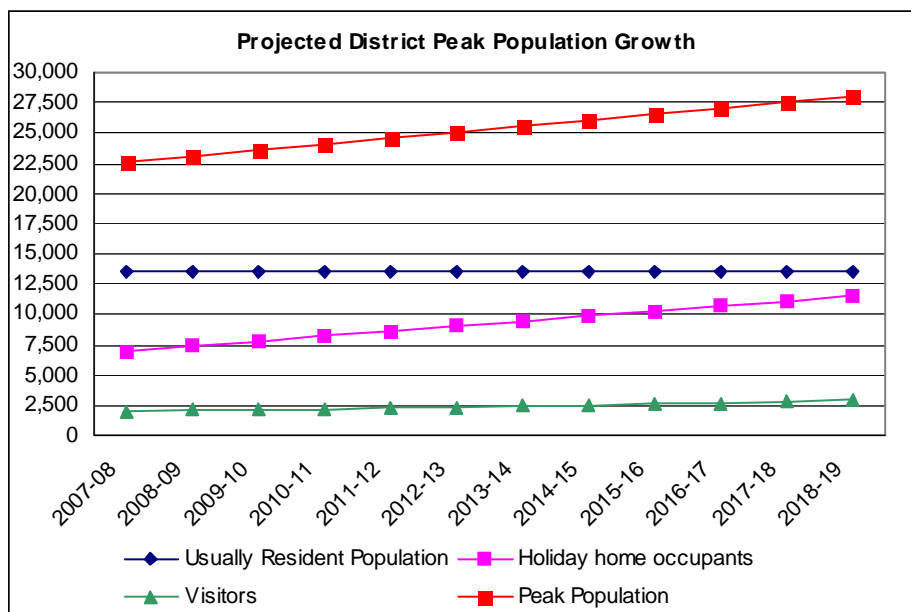
The Usual Resident Population (URP) of Ruapehu District has been trending downwards over the years. 13,572 people usually live in the District at the 2006 census, a decrease of 726 people since the 2001 census, or 5%. Census projections indicate that the URP of Ruapehu District is expected to continue to decline as shown in Figure 11. The prediction is based on comparing trends from the 1996 Census with data from the 2001 and 2006 Census.



**Figure 11 - Usual resident population estimates**

However, The URP does not take into account those who own homes in the area and visit for prolonged stretches of time, but are not counted as part of the URP. The population also increases during the winter season as seasonal workers move into the District. Growth is expected to occur from development in Ohakune and its surrounding areas, as well as in National Park and Taumarunui. This District growth is fuelled by the increasing number of visitors, including tourists, but especially by non-residential owners of holiday homes.

Taking into account the growth in the non resident home owners and the visitor industry as discussed in the following sections along with the declining URP, the peak population for the District is forecast to grow at an overall rate of 2.5% per annum as presented in Figure 12.



**Figure 12– Projected district peak population growth**

The projected peak population growth is not uniform district wide due to the distribution of the visitor industry and holiday homes. In particular, National Park and the Ohakune area are showing increases in peak populations at 3.5% and 1.8% per annum respectively. However, the peak population for the remainder of the District is static.

### 3.1.3 New holiday homes and subdivisional activity

#### Holiday homes

People are buying holiday homes in the Ruapehu District to escape from their busy city lifestyles. Over a third of the entire District houses are owned by people living out of the area. Holiday homes are one of the main contributors to growth in the District. Council conducted a survey of non-resident holiday home owners in January and February 2008 to gain an understanding of the impact this group has on the District. This provided valuable data on the visiting trends of these ratepayers who are not accounted for in either URP or visitor statistics. It was found that an average of 965 extra people were in the District every day. Analysis indicates that the number of holiday house residents in Ohakune and National Park is more than the number of the usually resident population as indicated in Figure 13.

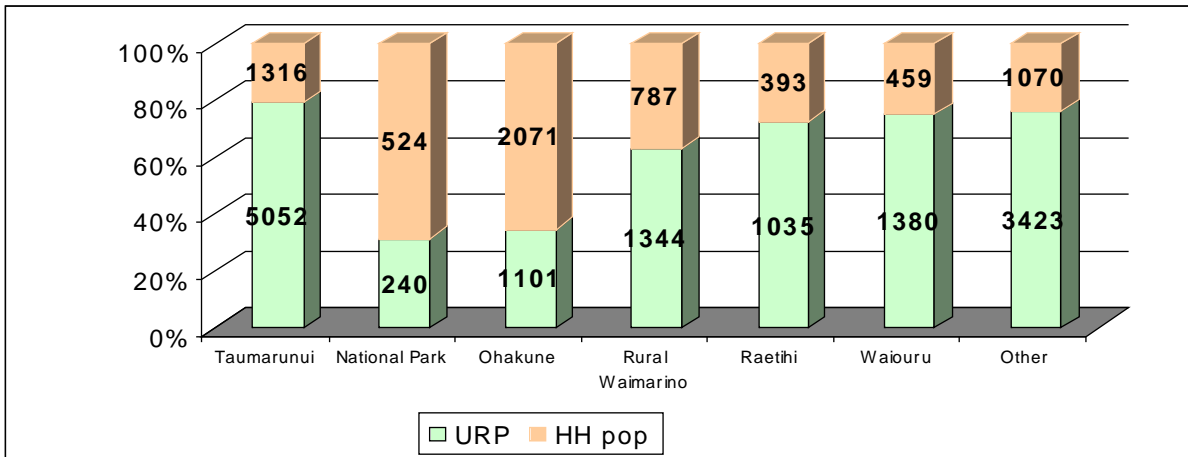


Figure 13– Peak population summary

The assumed projected growth in holiday homes is 100 homes per annum district wide based on actual figures from the 2006 Census data and historic property development, as shown in Figure 14. This also shows that the concentration of holiday homes varies across the District. This has been accounted for in projections by applying a north-south<sup>1</sup> split based on actual numbers of holiday homes as at 2007.

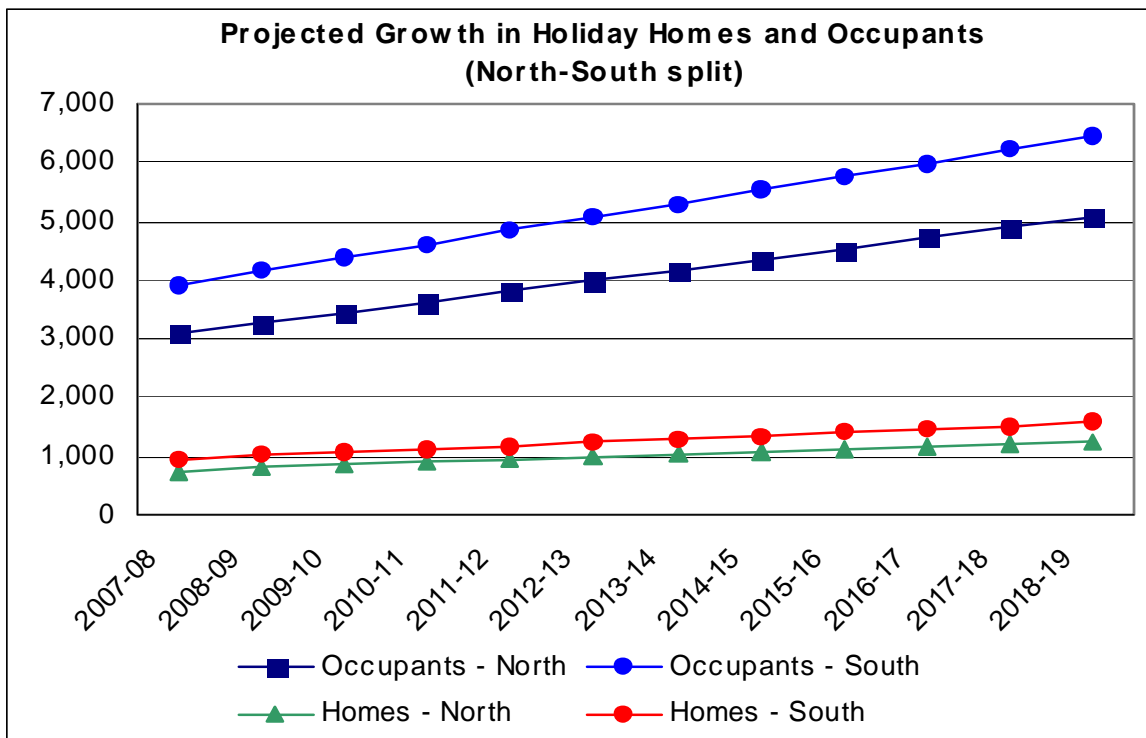


Figure 14 - Projected growth in holiday homes

### New Dwellings

There have been 381 new dwellings since 1997 as shown in Figure 15. This represents an increase of 6% in total numbers of dwelling in the District since 2001 (1.0% per year). The number of new

<sup>1</sup> For these purposes 'North' consists of Taumarunui, National Park and 'Other', totalling a portion of 44% while the remainder is 'South' and equates to 56%.

dwellings translates directly into an increase in infrastructure needs. For stormwater, this indirectly relates with an increase in hard surfaces.

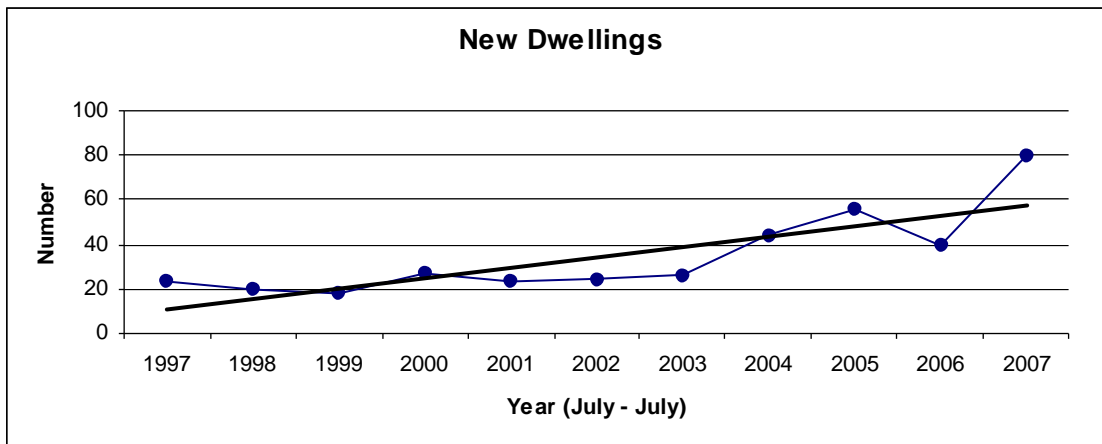


Figure 15 – Historical new dwelling numbers

The following specific areas have been identified as being likely to show significant subdivisional activity, including holiday home development, during this ten-year planning period:

- Ohakune
- National Park
- Taumarunui
- Horopito

### 3.1.4 The Tourism Industry

The tourism industry is a significant contributor to the economic well-being of the community. Ruapehu District has become an attractive holiday destination to both local and international visitors.

The numbers of visitors swells during the ski season, with a peak in September, as shown in Figure 16. Overall for the period 1999 to 2007, the average growth rate has been 46%. The March quarter also shows a large increase (49%) since 1999, showing that summer visitors are also increasing. For the year ended December 2006, Ruapehu District attracted 386,458 overnight visitors. Annual growth in the visitor industry since 1999 has been at an average of 5%.

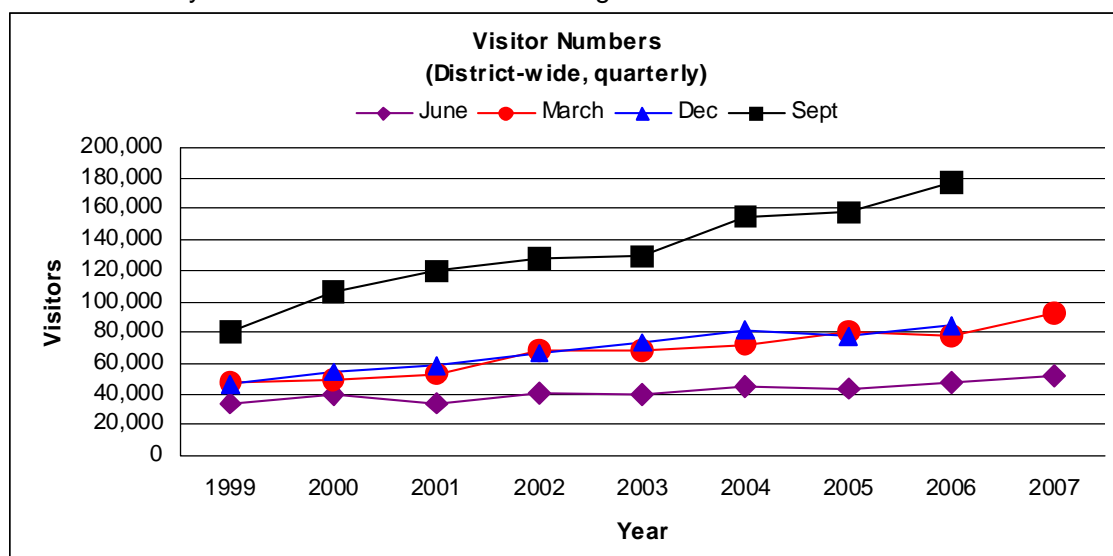


Figure 16 – Historical visitor numbers

Indications are that tourism is likely to be strong for the foreseeable future. Economic development through tourism growth is a key aspect to obtaining funding from Central Government for upgrading of a number of important tourist routes in the District, and the Townships of National Park, Ohakune and Raetihi.

### 3.2 Impacts of changing demand on the stormwater activity

With this change in District growth comes an increase in hard surfaces (driveways, buildings and roads etc.) which places additional demand on existing stormwater assets as well as requiring new stormwater assets/solutions in newly developed urban areas. This is different from other Council services as stormwater is not directly influenced by population growth, or consumed.

The level of surface permeability and the frequency and intensity of rainfall events are the two main parameters impacting future stormwater flows and demands and are discussed below.

- **Projected Changes to Surface Impermeability**

Currently, the proportion of the District that is impervious is unknown and this is recognised as a future improvement. It is acknowledged that this will increase with growth, especially in the development areas of National Park village and Ohakune.

- **Projected Changes to Rainfall Frequency and Intensity**

Annual rainfall varies across the District and is typically in small isolated weather bombs. These high intensity rainfalls are not always measured by the weather sites.

RDC has received information about the work of the Intergovernmental Panel on Climate Change (IPCC) – a World Meteorological Office and United Nations organisation. IPCC has now released its fourth comprehensive assessment of climate change. Some key findings for New Zealand include:

- Impacts due to extreme weather events are likely to increase, becoming more frequent and more intense.
- In general, the climate is expected to get wetter in the West and drier in the East.
- Water security problems are very likely to increase in parts of eastern New Zealand, with projected increases in the frequency and severity of droughts.
- Coastal communities are very likely to have increased risk from sea-level rise, and increases in the severity and frequency of storms and coastal flooding.
- For the first 1-2°C global temperature increase, benefits are likely in some areas e.g. improved agricultural, horticultural and forestry productivity, reduced winter illness, reduced winter energy demand, and increased hydroelectric potential.
- Scope for adaption is large in most sectors and we must start preparing and adapting now.
- A portfolio of adaption and mitigation measures has the potential to reduce the risks of climate change impacts.
- Residual risks are likely for many natural ecosystems, water, coasts, built infrastructure.
- The resilience of some communities may be lower than others and adaption measures need to be managed well.

The Ministry for the Environment recently released the second edition of the manual entitled 'Climate Change Effects and Impact Assessment: A Guidance Manual for Local Government in New Zealand', which incorporates findings from IPCC and NIWA. An extract from the manual in Table 10 shows the links between climate influences and the possible impacts on stormwater components.

Affected Assets or Activities	Key Climate Influences	Possible Effects
Reticulation	Increased rainfall	Increased frequency and/or volume of system flooding. Increased peak flows in streams and related erosion. Groundwater level changes. Changing flood plains and greater likelihood of damage to properties and infrastructure.
Stopbanks	Sea-level rise	

**Table 10 - Effect on climate change on stormwater assets**

Natural resources that could be affected by climate change and which will have an impact on stormwater are shown in Table 11.

Natural Resource	Key Climate Influences	Impacts of Climate Change
Rivers	Rainfall	River flows likely to, on average, increase in the west and decrease in the east of New Zealand.  More intense precipitation events would increase flooding (by 2070 this could range from no change, up to a fourfold increase in the frequency of heavy rainfall events).  Less water for irrigation in northern and eastern areas.  Increased problems with water quality.
Drainage	Rainfall	Increased frequency of intense rainfall events could occur throughout New Zealand, which would lead to increased surface flooding and stormwater flows, and increased frequency of groundwater level changes.
Coastal areas	Sea-level rise, storm frequency and intensity, wave climate,	Effects of sea-level rise and other changes will vary regionally and locally.  Coastal erosion is likely to be accelerated in areas it is already occurring. Erosion may become a problem over time in coastal areas that are presently either stable or are

Natural Resource	Key Climate Influences	Impacts of Climate Change
	sediment supply	advancing.

**Table 11- Effect of climate change on stormwater related natural resources**

The impact of climate change to rainfall intensity in Ruapehu District and the affect on catchment management planning still needs to be understood and this is recognised as a future improvement.

### 3.3 Demand assumptions and projections

The following growth assumptions have been made for the growth projections:

- URP is static or 0%. Ruapehu is not expecting any major increases or decreases in the usual resident population.
- There will be growth of 100 holiday homes per annum district wide, with assumed average occupancy of 4.1 people. It is presumed occupancy will be running at 100% capacity in the September quarter, 50% in December and March quarter and 30% in the June quarter.
- Visitor numbers are expected to continue to increase on a yearly basis at a rate of 3.4%.
- Peak population growth is 2.5% overall. The peak population of National Park is increasing at 3.5% per annum and at 1.8% per annum in Ohakune.
- New dwellings and the number of rateable units will increase by 1.5% per annum.
- The overall growth demand assumption is 2 % increase per annum.

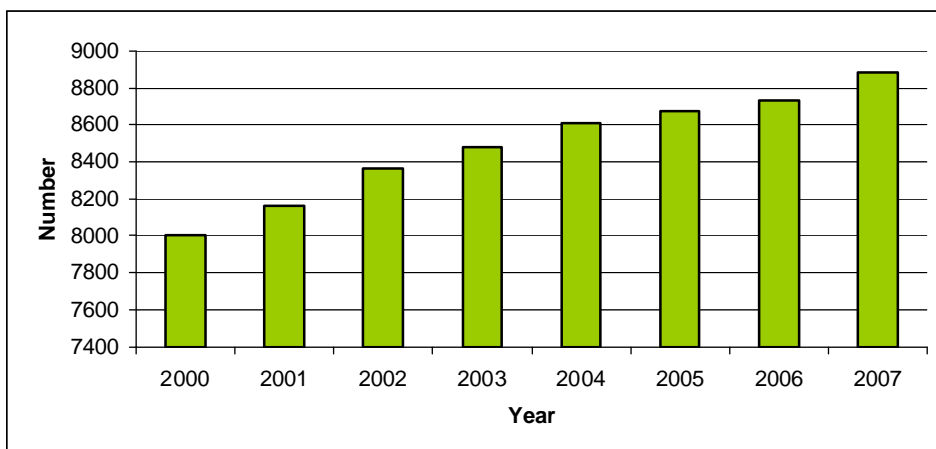
The key demand assumptions are:

- Development will occur in accordance with the Growth Planning Assumptions prepared for the 2008 AMPs and the Future Ruapehu Long Term Plan 2009.
- Infrastructure can be built to cater for infill and redevelopment in existing urban areas and greenfield development in new areas.
- Climate Change will impact rainfall intensities.

The key demand risk assumption is:

- Growth does not occur in accordance with the documented Growth Planning Assumptions.

The number of Rateable Units in the District is an important indicator for future planning purposes. This is particularly so for the Ruapehu District because there is a large proportion of holiday homes in the District. The number of rateable units has been rising steadily since 2000 as shown in Figure Figure 17. The change in the number of units between July 2000 and July 2007 was an increase 878 rating units, a rise of 10% over this period, which averages out to 1.2% per year.



**Figure 17- Historical rateable unit number**

The planning purposes a 1.5% increase is projected in rateable units. This will directly cause an increase in stormwater runoff. It is assumed that new dwellings will have 60% site coverage.

## **3.4 Meeting growth and changing demand needs**

### **3.4.1 Demand management**

RDC currently does not have a formal demand management plan in place for managing stormwater.

Other mechanisms for managing demand on the stormwater network and the receiving environment include:

- Development contributions to fund new development/growth related capital expenditure (although there has been no projected identified in the past).
- Public co-operation; encouraging the use of pervious paving or other sustainable stormwater practices.
- District Plan provisions governing stormwater management including implementing planning controls to limit future development in known problem area that are too expensive to solve.
- Education by promoting environmental awareness and the effects of activities such as car washing, where contaminants may enter the stormwater system through sumps.
- Demand substitution – implementing integrated solutions through:
  - maximising the use and benefits of natural catchment areas, including soakage and storage/attenuation potential
  - exploring opportunities to reduce stormwater run-off through re-vegetation programmes, the use of porous pavements and infiltration drainage (soakage)
  - exploring opportunities to reduce stormwater run-off through capture of run-off from roofs for re-use as a non-drinking water source.

### **3.4.2 Capital development**

The cost of upgrading the stormwater infrastructure over the next three years to cater for growth is \$150k. This has been identified with the development of this Plan. However, this may change with the changes on growth trends detailed in Section 3.1. This new planning information now needs to be considered with future catchment management planning and this may generate growth driven stormwater capital projects.

There is an expectation that open drains will be filled in and hard surfaces will cause greater runoff from the developed sections. Growth occurs across the District in urban and rural areas. It is difficult to predict where the growth will occur exactly so \$50k per annum has been allowed for the next ten years.

### **3.4.3 Changes in technology and design**

New technology and design needs to be considered in most asset management plans. These are discussed in this section in relation to stormwater retention, technology and education. In many situations technology is a source of future cost savings, increased service and stormwater quality.

Examples of stormwater system technology and design improvements that RDC may consider include:

- Closed Circuit Television (CCTV) monitoring of stormwater pipelines.
- Computer modelling of pipelines and drains to highlight upgrading requirements and achieve a consistent flood and drainage level of service across Ruapehu.
- Promotion of a stormwater action hierarchy of 'education – enhancement – enforcement' to improve stormwater discharge quality to Ruapehu District's streams and rivers.
- Provide one to one education and follow up audits of local business' operational regimes and treatment structures, particularly in town centres and industrial zones.
- Restore the habitat in local drainage reserves by clearing weed infestations from drains and river banks.
- Upgrade road sumps at litter 'hotspots' to include in-sump filters to enhance stormwater quality, and provide information for education initiatives.

### 3.5 Future improvements

The following improvements have been identified as contributors to the robustness of the growth and demand forecasting, and management processes.

These include:

- Establish the level of imperviousness for the whole district, particularly in the development area of Ohakune.
- Consider the sensitivity of current and future modelled flooding against recent rainfall findings by NIWA (affects of climate change).
- Develop a stormwater demand management plan taking into consideration best practice in the industry and adapting this for Ruapehu's needs.

## 4.0 Managing risks

Risk management is an inherent part of Council's overall stormwater activity management philosophy. Risk is managed through the development and ongoing review of activity risk assessments, as well as through emergency response planning, routine inspections and maintenance response.

The risks identified through these processes are a key input into identification and prioritisation of programmes and projects. The review as part of the development of the 2008 AM plan identified the following highest stormwater risks:

- Liability from third party accident into deep open drains.
- Extensive damage to stopbanks due to earthquakes or natural hazards.
- Extensive damage to flood detention systems due to earthquakes or natural hazards.
- Extensive damage to inlets and outlets from volcanic eruption.

These risks are managed adequately with current response planning processes and capital planning for piping open drains on a case by case basis.

Although a formal criticality assessment has not been undertaken, most channels passing through urban Ohakune, in particular the Miro Street channel are unable to take additional runoff from development without causing the likelihood of flooding to existing problems.

### 4.1 Introduction

Council strives to manage risk in a responsible manner to enable business objectives to be consistently met recognising social, cultural, environmental and economic impacts of its activities. Council is in the process of developing a formal risk management policy and a corporate risk management framework, underpinned by the following lower-level risk assessments:

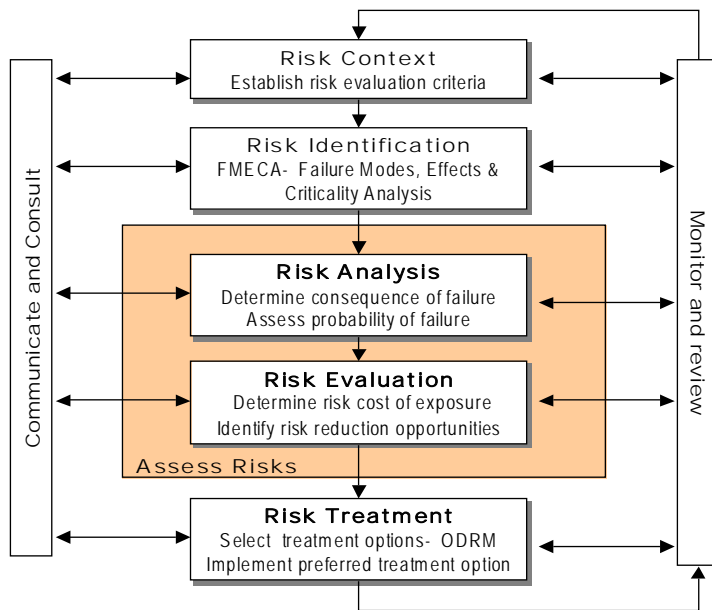
- Activity risk assessments, undertaken as part of the ongoing development of the AM plans.
- Risk assessments undertaken as part of emergency response planning procedures.
- Risk assessments undertaken as part of the Water and Sanitary Services Assessments.
- Risk assessments undertaken as part of the water supply Public Health Risk Management Plan.

This section covers the management of risks associated with the stormwater activity, referred to above as an activity risk assessment.

The risk management process is designed to ensure that:

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

The risk management process adopted by Council is consistent with Australian/New Zealand Standard AS/NZ 4360 (see Figure 18), which defines the generally accepted process for risk assessment and management.



**Figure 18—Risk management process**

## 4.2 Risk management process

### 4.2.1 Risk context

The following steps were undertaken to establish the context:

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

Areas of impact, reflecting the extent of the consequences assessed are:

- Corporate Image and Reputation
- Public Safety & Health
- Environmental
- Loss of Service and Community Effects/Costs
- Loss of Revenue or Business Costs

### 4.2.2 Risk identification

Events leading to failure to achieve defined levels of service, and therefore compromising achievement of strategic goals and community outcomes have been identified. These risks, the related consequences and adopted risk reduction treatments are presented in the risk register attached as Appendix E.

### Critical assets

Although a formal criticality assessment has not been undertaken, the following assets have been identified as critical, with a greater level of management applied to them:

- Miro Street channel between Park Avenue and Lee Street, Ohakune – this channel is full and is unable to take any further increases without causing the likelihood of flooding.
- Most channels passing through urban Ohakune, excluding Mangawhero and Mangateitei, are unable to take additional runoff from development without causing the likelihood of flooding.

The development of a formal criticality assessment has been identified as a future improvement.

#### 4.2.3 Risk analysis

Risk severity has been assessed as the product of consequence and likelihood. The impact and likelihood ratings used are defined in Appendix D.

#### 4.2.4 Risk evaluation

The matrix of consequence of failure and likelihood ratings shown in Appendix D is used to assess the level of risk, ranking events as low, moderate, high or extreme risk, as indicated below. Asset risks have then been compared, ranked and mitigation options assessed for all high and extreme risks identified. Council has adopted the following broad treatment strategy for the levels of risk:

Risk Severity		Treatment Strategy
<b>E</b>	Extreme	Immediate action required to reduce risk
<b>H</b>	High	Treatment options must be reviewed and additional action taken to manage risk
<b>M</b>	Moderate	Management responsibility must be specified
<b>L</b>	Low	Manage by routine procedures

Table 12- Risk evaluation and treatment strategy summary

#### 4.2.5 Risk treatment

Options for mitigating risks Council considers to reduce the cause, probability or impact of failure, are; Options for mitigating risks considered to reduce the cause, probability or impact of failure, are:

- Do nothing - accept the risk.
- Management strategies- implement enhanced strategies for demand management, contingency planning, quality processes, staff training, data analysis and reporting, reduce the target service standard, etc.
- Operational strategies- actions to reduce peak demand or stresses on the asset, operator training, documentation of operational procedures, etc.
- Maintenance strategies- modify the maintenance regime to make the asset more reliable or to extend its life.
- Asset renewal strategies- rehabilitation or replace assets to maintain service levels.
- Development strategies- investment to create a new asset or augment an existing asset:
- Asset Disposal / Rationalisation- divestment of assets surplus to needs because a service is determined to be a non-core activity or assets can be reconfigured to better meets business needs.

## 4.3 Mitigating risks

### 4.3.1 Extreme and high risks

High risks identified are summarised in Table 13. Actions to mitigate these risks are presented in the far-right column. There were no extreme risks identified.

Community Outcome	Core Value	Strategic Outcome	LOS Failure Indicator	Asset Group	Asset Sub-Group	Caused By	Risk Severity	Controls	
								Existing	To Develop
CO 10 CO 22 CO 23	Safety	To maintain public health.	Flooding, slips	Open Drain Network	Public open drains	Liability from third party accident into open drain	H	Capital works planning and programme	
CO 10 CO 22 CO 23	Quality	To provide and maintain an appropriate level of infrastructure	Unavailability of urban roads, flooding	Flood Alleviation Infrastructure	Stopbanks	Extensive damage (earthquake or other natural hazard)	H	Response planning	
					Flood detention systems	Extensive damage (earthquake or other natural hazard)	H	Response planning	
CO 10 CO 22 CO 23 CO 32	Sustainability	Enhance the sustainability of social, environment, cultural and economic well beings of our communities.	Pollution incidents, breaches of discharge consent conditions, illnesses, and environmental damage	Piped Network	Inlets and outlets	Volcanic eruption	H	Response planning	

Table 13- Extreme and high risk summary

### 4.3.2 High consequence events

Table 14 lists all the identified risks with a Significant to Catastrophic impact should it occur. Response planning has been undertaken for some of these risks, and limited capacity planning has been undertaken for the remaining risks. Catchment studies and LIDAR mapping have been identified as controls to develop in future.

Community Outcome	Core Value	Strategic Outcome	LOS Failure Indicator	Asset Group	Asset Sub-Group	Caused By
CO 10 CO 22 CO 23	Safety	To maintain public health.	Flooding, slips	Piped network	Piped network- critical pipes	Rainfall event exceeds design storm (extreme)
					Piped network- non critical pipes	Rainfall event exceeds design storm (extreme)
				Open Drain Network	Public open drains	Rainfall event exceeds design capacity (extreme)
				Private Open Drains in Urban Area	Public open drains	Rainfall event exceeds design capacity (extreme)
				Flood Alleviation Infrastructure	Stopbanks	Rainfall event exceeds design capacity (extreme)
CO 10 CO 22 CO 23	Quality	To provide and maintain an appropriate level of infrastructure.	Unavailability of urban roads, flooding	Flood Alleviation Infrastructure	Stopbanks	Extensive damage (earthquake or other natural hazard)
CO 10 CO 22 CO 23 CO 32	Sustainability	Enhance the sustainability of social, environment, cultural and economic well beings of our communities	Pollution incidents, breaches of discharge consent conditions, illnesses, and environmental damage	Piped network	Inlets and outlets	Volcanic eruption
	Supporting Management Practices	Inefficient management of assets, significant asset or service failure occurs with no management plan	Inefficient management of assets, significant asset or service failure occurs with no management plan	All	All	Risk analysis and management is not comprehensive

Table 14 – High consequence risk summary

### 4.4 Other risk assessments

Council has undertaken the following more detailed risk assessments and issues analysis:

- Detailed investigations undertaken on critical or problem assets, such as National Park Village capacity study, and Ohakune Stormwater Investigation.
- Emergency response planning.

### 4.5 Climate change

The assessment of climate change on the stormwater activity is discussed in Section 3.4. The impact of climate change to rainfall intensity in Ruapehu District and the affect on catchment planning is recognised as a future improvement.

### 4.6 Emergency response planning

Emergency management deals with the response to severe events. The Civil Defence Emergency Management (CDEM) Act 2002 stipulates that Lifeline Utilities must plan for continuity of service, be capable of managing its own response to emergencies, and establish CDEM Groups across regions consistently.

There is an Emergency Response Plan for water supply, wastewater and stormwater services and it is updated annually. There is also a dedicated Council emergency management resource to coordinate these activities across Council and with neighbouring Councils and with Horizons Regional Council.

RDC also participates in the Manawatu Wanganui Regional Lifelines Group. A Civil Defence Emergency Management Group Plan has been prepared and it identified the natural hazards for the region, the likelihood and the consequences, and assigned responsibilities.

#### **4.7 Water and Sanitary Services Assessment**

A risk analysis of stormwater services was completed as part of the Water Sanitary Services Assessment process in 2005. The risk assessment considered risks, the impact on public health and the environment of those risks. Each risk was assessed for impact (on a 3 to 7 level scale), and probability of the risk event occurring (on a level -3 to 1 scale). A total score was calculated by adding the impacts and probability scores. Total scores 5 or greater were considered major risk that needed to be considered for risk management action.

Only one risk was evaluated with total score of 5 or greater, for unguarded access to large culverts. This risk is being managed through maintenance programmes detailed in Section 5.0, Lifecycle Management Plans.

Overall the assessment found that the water and sanitary services adequately met the present needs of the community, and that there are measures in place to meet forecasted future demands.

The key issues identified for stormwater include:

- No significant public health issues identified as limited reticulated stormwater infrastructure.
- Community desired to enclose and piped open drains.
- The effect of stormwater discharge of sediments, debris and waste on the natural environment.

#### **4.8 Future improvement**

Opportunities to improve the way we manage our risks for the stormwater activity include:

- Undertake a formal criticality assessment of the stormwater network.

## 5.0 Lifecycle management plans

In order to enable the stormwater activity, Council owns and manages:

- A piped network, comprising 48.5km pipeline including 511 manholes, and 798 sumps.
- 61km public open drains.

Council manages these assets by applying the following broad strategies:

- Operations: Council will manage the assets in a manner that minimises the long term overall total cost. Scheduled inspections and monitoring will be undertaken as justified by the consequences of failure on levels of service, costs, public health, safety or corporate image. The inspection programme will be modified as appropriate in response to unplanned maintenance trends. Competitive pricing will be ensured by using CPP contract structures and performance based term contracts where applicable.
- Maintenance: Council will maintain assets in a manner that minimises the long term overall total cost. Competitive pricing will be ensured by using CPP contract structures, term contracts, and cross TLA boundary arrangements where applicable in accordance with the National Procurement Manual intent.
  - Unplanned maintenance: A suitable level of preparedness for prompt and effective response to asset failures will be maintained by ensuring suitably trained and equipped staff to allow prompt repair of critical assets and mitigation of any hazards. Term contracts specify response times.
  - Planned maintenance: A programme of planned asset maintenance will be undertaken to minimise the risk of critical asset failure (e.g., large pipes), or where justified when considering financial, safety and social impacts. Major maintenance needs will be identified through the scheduled asset condition inspections and those generated from the investigation of customer complaints.
- Renewals: Council will rehabilitate or replace assets when justified by:
  - Risk: The risk of failure and associated financial and social impact justifies action (e.g. probable extent of damage, safety risk, community disruption).
  - Asset performance: Renewal of an asset when it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
  - Economics: When it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of renewal).
  - Efficiency: New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.

Renewals needs for key asset groups will be identified through the scheduled asset condition inspections, the investigation of customer complaints and a practical knowledge of the network. Renewals works will be prioritised and programmed in accordance with defined criteria, or in urgent cases undertaken immediately.

- Development: Development works will be planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations, including accelerated or enhanced development plans proposed by Community Boards or Ward Committees.

Disposal: Any abandoned assets are recorded as part of the completion of new assets.

Key performance issues are:

- Asset capacity is the main performance issue for the stormwater activity.
- Most channels in urban Ohakune are unable to take additional flow. Nine problem sections of channels have works identified to improve the hydraulic performance.
- Five channels in Taumarunui have been identified with hydraulic performance issues.
- Two watercourses in Raetihi require work to improve the hydraulic performance to prevent potential flooding.

Condition and performance have been assessed formally by United Water in September 2008. The draft results are summarised below for the reticulation. The grading methodology was a 1 to 5 grading where 1 is very good and 5 is very poor. The Ohakune network has the poorest performance and condition compared to the other townships.

<b>Stormwater System</b>	<b>Condition Grading</b>	<b>Performance Grading</b>
National Park	3	2
Ohakune	3	4
Ohura	3	3
Owhango	3	3
Raetihi	3	3
Rangataua	2	2
Taumarunui	2	3
Waiouru	2	3

Major projects in the next three years are:

- Stormwater reticulation renewals in Ohakune, Ohura, Owhango and Raetihi at \$110k per annum.
- Open drain renewals in Ohakune, Ohura, Raetihi, Taumarunui and Waiouru at \$50k per annum.
- Piped network improvements across all townships at \$819k.

Three-year financial requirements are:

- Operations and maintenance (excluding depreciation)      \$1.1 million
- Depreciation      \$0.72 million
- Renewals      \$0.48 million
- Capital Development (Growth)      \$0.15 million
- Capital Development (LOS)      \$0.87 million

## 5.1 Introduction

This section describes the stormwater assets and their performance and condition. It presents the lifecycle management strategies and programmes used by Council to manage the service level requirements (Section 2.0), demand change (Section 3.0) and risk exposure (Section 4.0) associated with the stormwater activity for the next 10 years.

The lifecycle management plans for each of the 8 townships are detailed in the following sections. The asset breakdown and value for each township are summarised in Table 15.

Section	Asset Group		Quantity	Depreciated Replacement Cost
Section 5.2, National Park	Piped Network	Pipes	3km	\$798,444
		Manholes	29	\$61,904
		Sumps	32	\$21,589
		Inlets and outlets	3	\$3,127
	Open Drain Network	Public open drains	2.7km	\$,7019
Section 5.3, Ohakune	Piped Network	Pipes	10.2km	\$2,728,550
		Manholes	103	\$196,890
		Sumps	194	\$124,664
		Inlets and outlets	1	\$1,350
	Open Drain Network	Public open drains	13.7km	\$31,105
Section 5.4, Ohura	Piped Network	Pipes	779m	\$251,997
	Open Drain Network	Public open drains	6.7km	\$15,017
Section 5.5, Owhango	Piped Network	Pipes	155m	\$18,352
	Open Drain Network	Public open drains	2km	\$4,438
Section 5.6, Raetihi,	Piped Network	Pipes	3.8km	\$867,154
		Manholes	14	\$26,153
		Sumps	45	\$31,667
	Open Drain Network	Public open drains	6km	\$13,613
Section 5.7, Rangataua	Piped Network	Pipes	1.6km	\$369,173
		Manholes	16	\$32,816
		Sumps	6	\$4,225

Section	Asset Group		Quantity	Depreciated Replacement Cost
Section 5.8, Taumarunui	Open Drain Network	Public open drains	2.6km	\$6,029
		Pipes	27.8km	\$3,097,481
	Piped Network	Manholes	340	\$318,634
		Sumps	494	\$105,491
		Inlets and outlets	5	\$4,719
Section 5.9, Waiouru	Open Drain Network	Public open drains	27.5km	\$54,727
	Flood Alleviation Infrastructure	Stopbanks	1	\$2,439
	Piped Network	Pipes	1.3 km	\$172,813
Land	Piped Network	Manholes	9	\$11,332
		Sumps	27	\$7,378
Unknown				\$1,025,000
Other				\$119,246
Total Pipelines			48.5km	\$132,421
Total				\$10,666,965

Table 15- Stormwater asset groups

Source: RDC Valuation dated 30 June 2008 from BizeAsset

### 5.1.1 Lifecycle activities

The lifecycle management strategies are divided into the following five work categories:

- **Asset Operations:** The active process of utilising an asset, which will consume resources such as manpower, energy and materials. Operations include asset management planning activities, routine inspections and testing to monitor asset condition and identify the need for maintenance and repair work, and customer service activities.
- **Asset Maintenance:** The on-going day-to-day work activity required to keep assets serviceable and prevent premature deterioration or failure. Two categories of maintenance are carried out:
  - **Unplanned Maintenance:** Work carried out in response to reported problems or defects (e.g. repair of blocked inlet).
  - **Planned Maintenance:** Work carried out to a predetermined schedule (e.g. vegetation control in channels) or programmed as a result of identified needs
- **Asset Renewal:** Major work that restores an asset to its original capacity or the required condition.

- **Asset Development:** This section of the plan covers tactics for the creation of new assets or works which upgrade or improve an existing asset beyond its existing capacity or performance in response to changes in supply needs or customer expectations.
- **Asset Disposal:** Disposal is any of the activities associated with the disposal of a decommissioned asset. Assets may become surplus to requirements for any of the following reasons:
  - Under utilisation.
  - Obsolescence.
  - Provision exceeds required level of service.
  - Asset no longer provides the service or fulfils the purpose for which it was intended.
  - Uneconomic to upgrade or operate.
  - Policy change.
  - Service provided by other means (e.g. private sector involvement).
  - Potential risk of ownership (safety, financial, environmental, legal, social, vandalism).

### **5.1.2 Asset management strategies**

Council has adopted the following asset management policy and strategy to provide a framework for guiding and integrating asset management practice within the Council.

#### **Asset management policy**

The asset management policy states the overall intention and direction of asset management as:

- The discipline of asset management will be directed to the achievement of the Council's Community Outcomes and strategic goals as stated in the Long Term Council Community Plan.
- Asset management will be applied to the long term stewardship of assets, with planning undertaken for a minimum horizon of 10 years.
- Asset management will be focused on delivering the required level of service to existing and future customers in the most cost-effective way.
- Applicable legislation, regulatory and statutory requirements will be complied with.
- A robust risk management approach consistent with the corporate risk management framework will underpin all asset management activities.
- The outputs of the asset management process will be endorsed by senior management and the Council.
- The outputs of the asset management process will be communicated to relevant employees and third parties to ensure they are aware of their asset management responsibilities.
- The asset management plan will be available to all stakeholders.
- The asset management plan will be reviewed periodically to ensure it remains relevant and consistent with the Long Term Council Community Plan.
- Council is committed to the continuous improvement of asset management activities to achieve an alignment between the quality of asset management and the nature and scale of Council's assets and operations.

#### **Asset management strategy**

The asset management strategy to meet policy and planning objectives is:

Levels of service	To formally review levels of service at least every three years. Engagement with the community on satisfaction with the levels of service provided and improvements desired will be undertaken periodically. Consultation on options will be undertaken for specific projects. The level of service reviews will inform the levels of service adopted by the Council.
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Demand forecasting and management	<p>To invest in works for growth in a timely way.</p> <p>To review demand forecasts annually based on analysis of population and economic growth projections, social and demographic data, technological advances and other relevant data.</p> <p>Demand management options will also be considered when planning to meet growth.</p>
Asset service potential	To maintain the current service potential of the asset through an appropriate level of maintenance and renewal works.
Risk management	<p>Manage risk exposure through:</p> <ul style="list-style-type: none"> <li>• A three-yearly review of the risk management plan and implementing risk mitigation measures where risk exposure is incompatible with corporate risk policy.</li> <li>• Undertaking performance and condition monitoring of critical assets</li> </ul>
Operational	Service agreements with contractors will contain performance measures consistent with AM and activity KPIs to achieve alignment from operational level to the LTCCP
Information and systems	<p>Data collection programmes (condition, asset performance, registers and service performance) will be closely aligned to the nature and scale of the assets and to tracking achievement of service targets.</p> <p>Asset management system functionality will be developed to meet the requirements of core asset management planning and specific business needs.</p>
Organisational	To embed asset management capability and practices throughout the organisation.
AM plan	<p>The AM plan will be developed as a 'living' document and reviewed on a regular basis to ensure alignment with current Council, organisational and asset management policy.</p> <p>AM Plans will be subject to formal adoption by the Council</p>
Continuous improvement	Improvement of AM practices, processes, systems and plans will be undertaken in accordance with the improvement plan which will be reviewed annually.

### 5.1.3 General lifecycle management strategies

#### Overview

Council maintains ownership and responsibility for managing the stormwater activity and the associated infrastructure. Consultants are used to provide specific expertise and assistance as required. Council engages a network consultant to provide the day to day management of the network, including asset information capture, recommendations for strategies, programmes, projects and expenditure, and management of maintenance and capital development contracts.

All work is carried out using contracts let in accordance with competitive pricing procedures (CPP), on a performance basis wherever possible. Contractors are required to programme and report comprehensively on the execution of the works. The contract documents specify technical standards required and defines response times and cyclic inspection periods.

All renewals and capital works are implemented through individual project contracts. Current maintenance and renewals term contracts are listed in Table 16.

Contract Name	Contractor	Term (Years)	Completion
---------------	------------	--------------	------------

			Date
District Stormwater Maintenance	United Water	4	2012

**Table 16- Schedule of general stormwater contracts**

United Water is a Facilities Management Contractor that provides most of the services for stormwater for RDC, more than just the maintenance and operational activities.

Professional services are obtained from a mixture of consultants and internal resources.

Operations and maintenance strategies

The following general operations and maintenance strategies are applied to the stormwater assets:

- **Operations:** Council will manage the assets in a manner that minimises the long term overall total cost. Scheduled inspections will be undertaken as justified by the consequences of failure on levels of service, costs, public health, safety or corporate image. The inspection programme will be modified as appropriate in response to unplanned maintenance trends. Competitive pricing will be ensured by using CPP contract structures and performance based term contracts where applicable.
 

Asset monitoring processes include inspection of the stormwater system, cleaning of stormwater catchpits and spraying of stormwater drains. Customer enquiries and complaints are recorded on the "Asset Development - Customer Services Enquiries" database, summarising data on the date, time, details, responsibility and action taken.
- **Maintenance:** Council will maintain assets in a manner that minimises the long term overall total cost. Competitive pricing will be ensured by using CPP contract structures and term contracts where applicable.
  - **Unplanned maintenance:** A suitable level of preparedness for prompt and effective response to asset failures will be maintained by ensuring suitably trained and equipped staff to allow prompt repair of critical assets and mitigation of any hazards. Term contracts specify response times.
  - **Planned maintenance:** A programme of planned asset maintenance will be undertaken to minimise the risk of critical asset failure (e.g., inspection of the stormwater system), or where justified when considering financial, safety and social impacts (e.g., spraying of stormwater drains). Major maintenance needs will be identified through the scheduled asset condition inspections and those generated from the investigation of customer complaints.

### **Renewals strategies**

Council will rehabilitate or replace assets when justified by:

- **Risk:** The risk of failure and associated financial and social impact justifies action (e.g. probable extent of damage, safety risk, community disruption).
- **Asset performance:** Renewal of an asset when it fails to meet the required level of service. Non-performing assets are identified by the monitoring of asset reliability, efficiency and quality during routine inspections and operational activity. Indicators of non-performing assets include repeated and/or premature asset failure, inefficient energy consumption, and inappropriate or obsolete components.
- **Economics:** When it is no longer economic to continue repairing the asset (i.e. the annual cost of repairs exceeds the annualised cost of renewal).
- **Efficiency:** New technology and management practices relating to increased efficiencies and savings will be actively researched, evaluated and, where applicable, implemented.

Renewals needs for key asset groups will be identified through the scheduled asset condition assessments and the investigation of customer complaints. Renewals works will be prioritised and programmed in accordance with the following criteria, or in urgent cases undertaken immediately.

- Public safety risk;

- Criticality of assets to network operation;
- Criticality of assets to achievement of service standards and community outcomes;
- Financial risk of deferring work;
- Intensity of usage;
- Environmental risk;
- Political preference.

Renewal works identified in accordance with the renewal strategies may be deferred if the cost is beyond the community's ability to fund it. This can occur when higher priority works are required on other infrastructure assets, there are short-term peaks in expenditure or if an inadequate rating base exists.

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

A register of all deferred works will be maintained, the total value of which will be recognised in the financial reporting.

### **Development Strategies**

Development works will be planned in response to identified service gaps, growth and demand issues, risk issues and economic considerations.

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

- The contribution the new or improved assets will make to the current and anticipated future levels of service and community outcomes;
- The risks and benefits anticipated to be made from the investment;
- The risks faced by not proceeding with the development works. These could include safety risks, social risks and political risks;
- Ability and willingness of the community to fund the works;
- Future operating and maintenance cost implications.

Significant development works will be prioritised and programmed with contributions from:

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

### **Disposal Strategies**

Asset disposal processes will comply with Council's project completion process. Any abandoned assets are recorded as part of the completion of new assets.

#### **5.1.4 General standards and specifications used**

Council comply with the following standards and legislation when maintaining, operating, renewing and developing the stormwater assets:

- This AM plan;
- Resource Management Act 1991;
- Building Act 2004;

- NZS4404 Code of Practice for Urban Subdivision.
- Relevant Technical Standards;
- Manufacturer's Specifications;
- Emergency management plans;
- Health and Safety in Employment Act;

These standards and legislation is discussed in more detail in Section 2.3 and 2.4.

### **5.1.5 Asset description overview**

The stormwater network is made up of 48.5 km of pipeline in length as shown in Table 15. An overview by township is shown in Table 17 which included a lot of unknown pipe which is likely to be open drains. A summary breakdown is provided for each township in the following Sections 5.2 to 5.9. Most pipes are 40 to 50 years old as shown in Figure 19. The pipe material for over half of the network is unknown, with concrete the main pipe material for known materials as illustrated in Figure 20.

Asset Type	Stormwater --all communities												
	Diameter(mm)	AC	CONC	CONC Twin	GEW	HDPE	Novaflow	PVC	RCRRJ	STEEL	Unknown	uPVC	TOTAL
Reticulation	0		36								48,666		48,701
	100		15		41		-	45		20		41	162
	150	102	902		498			48				844	2,395
	160						34						34
	175		1										1
	200	66	44							462		236	808
	225		13,616		123			17		357	120	26	14,259
	230		25										25
	250		5									187	192
	255		36										36
	280									7			7
	300	141	11,747		94	30		20	47	131	156	236	12,602
	370		24										24
	375		3,965										3,965
	450		5,454	24									5,478
	475		17										17
	500									28			28
	600		3,478							5			3,483
	650		64										64
	675		22										22
	700		24										24
	750		1,050									55	1,105
	825		45										45
	875		19										19
	900		966										966
	1000									28			28
	1200		160										160
1500		33										33	
1800		138										138	
Unknown		1,698	-	-	-	-	-	-	6	18,561	5	20,270	
<b>TOTAL</b>	<b>310</b>	<b>43,585</b>	<b>24</b>	<b>756</b>	<b>30</b>	<b>34</b>	<b>129</b>	<b>47</b>	<b>1,044</b>	<b>67,502</b>	<b>1,630</b>	<b>115,092</b>	

Table 17 – Stormwater reticulation overview

Data source: BizeAsset June 2008

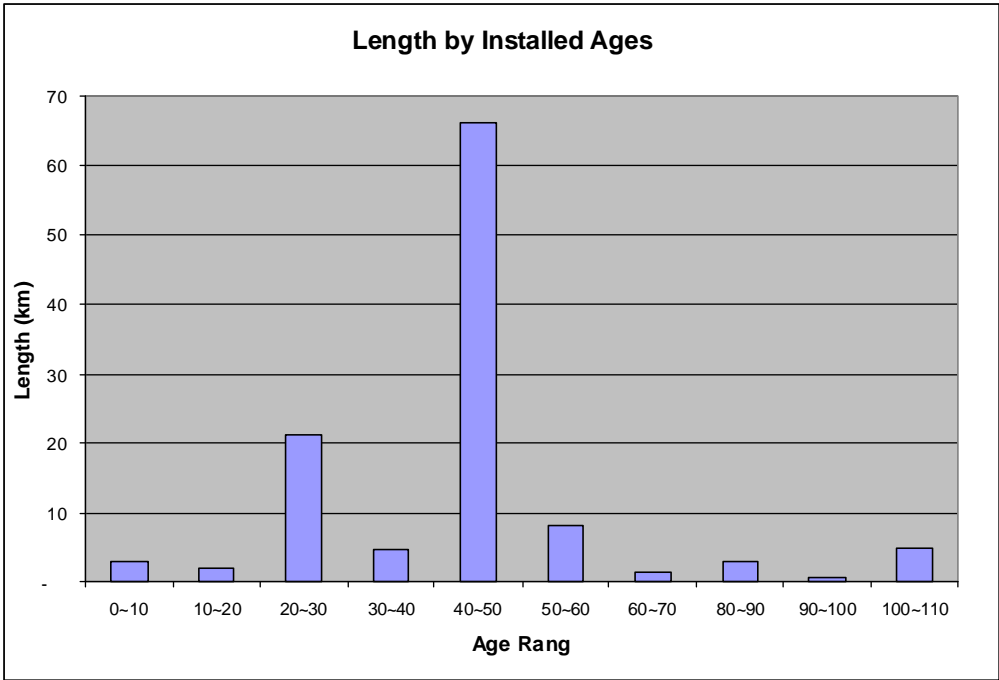


Figure 19 – Overview of stormwater pipe age

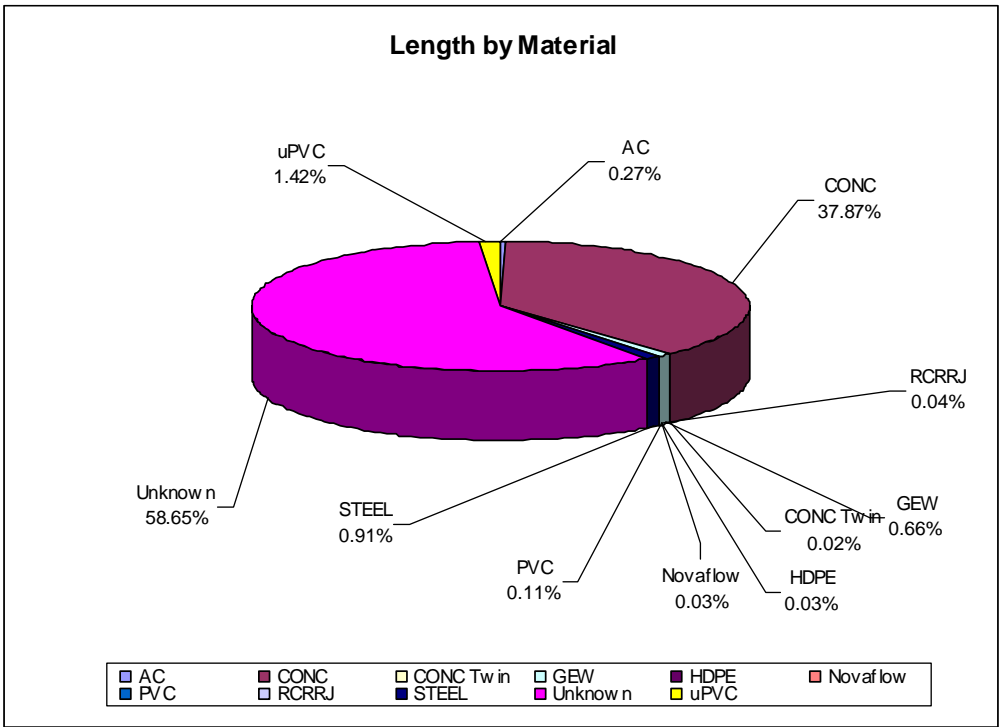


Figure 20 - Stormwater pipe material

5.1.6 Asset capacity and performance

Condition and performance assessment

A formal condition assessment was completed in 2003 by the Facilities Management Contractor for the above ground assets. The condition and performance gradings were assessed from comprehensive on-site inspections of aboveground assets, desktop studies, and operator knowledge

and data analysis. The grading methodology was a 1 to 5 grading where 1 is very good and 5 is very poor.

The stormwater system was assessed again in September 2008 for condition and performance but with a focus on below ground assets. The assessments also provide potential projects that have fed into the capital programme. The results of the Condition Assessments of the stormwater systems in the townships is summarised in Table 18 and discussed further in Sections 5.2 to 5.9.

It is proposed to assess condition on a three yearly cycle rather than five yearly to get a better understanding of the network performance and condition. System understanding to date has been based on visual and operational experience. It is planned to improve the knowledge of the network through targeted CCTV inspections. These have been identified as a future improvement in Section

Stormwater System	Condition Grading	Performance Grading
National Park	3	2
Ohakune	3	4
Ohura	3	3
Owhango	3	3
Raetihi	3	3
Rangataua	2	2
Taumarunui	2	3
Waiouru	2	3

**Table 18 - Summary of the 2008 performance and condition grading**

#### Asset capacity

Conveying the stormwater flows or quantity is important for the stormwater activity to protect the community from floor board and urban road flooding. Some capacity studies have been completed to date particularly in Ohakune. Asset capacity studies have been identified as a future improvement in Section 8.0. The focus in the next three years is to survey the Taumarunui network to gather asset information including lid and invert levels, as inputs into capacity studies.

Horizons are undertaking a LIDAR study of Ohakune and Taumarunui and this will provide better understanding of these catchments, along with the specific studies and investigations undertaken by RDC. In addition Council is funding the collection of Raetihi, Rangataua and Owhango LIDAR information.

It is likely in future that peak flows from new sections may be retained with on site detention tanks and detention dams in the catchment. This solution will reduce the impact of the additional flows from growth.

#### Asset ownership

There are some joint drainage assets with Horizons and the ownership is not always clear, particularly the stopbank in Ohakune and the rockwall in Taumarunui. It is proposed that Horizons take over the ownership of these assets for better river control and management.

There is a mixture of private and public drains in the District, and the exact ownership and responsibility is still being understood. RDC currently maintains the public drainage system only.

## 5.2 National Park

### 5.2.1 Asset description

#### Description

National Park Township is a popular ski town so is experiencing growth with a peak population growth at 3.5% per year, and visitors at 5% per year, as described in Section 3.0.

National Park Township is serviced by a combination of open public drains and a number of separate reticulated systems, consisting of pipe work and manholes with kerbside sumps. The reticulated stormwater system is relatively new.

There is around 6km of stormwater pipeline in length in National Park as shown in Table 19. Most pipes are 300mm in diameter and the predominant known pipe material is concrete.

Asset Type	Stormwater--National Park				
	Diameter(mm)	CONC	STEEL	Unknown	TOTAL
Reticulation	0			3,040	3,040
	225	437			437
	300	641	11		652
	375	127			127
	450	338			338
	500		28		28
	600	31			31
	825	9			9
	900	338			338
	Unknown	31		962	993
	TOTAL	1,952	39	4,002	5,993

Table 19 – Stormwater reticulation summary for National Park

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 3, or moderate for the National Park stormwater network. The network has performed well since it was installed. The principal problem affecting the performance of this stormwater drainage is the level of debris within the roadside kerb which is washed onto the stormwater sump grate, causing it to become blocked.

A capacity study was completed in 2004 and many of the improvements are already completed or underway, with the remaining works programmed with this Plan.

#### Condition

The reticulation condition has been assessed at a grade of 2, or good, for the National Park stormwater network.

#### Critical assets

No critical assets have been identified in the National Park stormwater network.

### 5.2.2 Operations and maintenance plan

Council aims to manage the stormwater systems to deliver the levels of service defined in Section 2.0 in the most cost effective way over the long term. The main focus for the operations and maintenance of the stormwater networks in Ruapehu District is maintaining the capacity of the natural watercourses which collect and convey stormwater run off from private properties, Council's stormwater systems and the Land Transport network.

Operating and maintaining the stormwater system overall in the District include the following activities:

- Normal routine maintenance to ensure that drains including natural watercourses are kept open and functioning.
- Replace any broken pipes, inlets, flumes or manholes.
- Repair any scouring due to flooding or malfunctioning of a stormwater drain.
- Spraying of stormwater drains annually.
- Cleaning of stormwater catchpits annually.
- Inspection of the stormwater system monthly.

### Short term forecast operations and maintenance needs

Table 20 presents the forecast short-term operations and maintenance requirements for the National Park stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>17,243</b>	<b>17,243</b>	<b>17,243</b>
Revenue	1,000	1,000	1,000
Revenue (connections)	1,000	1,000	1,000
Corporate Overheads	1,000	1,000	1,000
Insurances	1,000	1,000	1,000
Rates	-	-	-
Operating Expenses	7,243	7,243	7,243
Support	7,243	7,243	7,243
Depreciation	8,000	8,000	8,000
<b>Maintenance</b>	<b>16,391</b>	<b>16,391</b>	<b>16,391</b>
Maintenance Contracts	16,391	16,391	16,391
Piped Network	396	396	396
Maintenance of Piped Systems	396	396	396
Open Drain Network	1,692	1,692	1,692
Maintenance of Open Channels	828	828	828
Maintaining of Watercourses 1	864	864	864
Maintaining of Watercourses 2	-	-	-
All Other Maintenance Expenses	14,303	14,303	14,303
All Other Maintenance Day Works	5,932	5,932	5,932
Contract Lump Sum professional services	8,371	8,371	8,371

Table 20– Short-term operations and maintenance needs for National Park

There is little or no backlog of routine maintenance.

#### 5.2.3 Renewals plan

There is no short term renewals needs identified in National Park.

#### 5.2.4 Development plan

The key capital projects for the next three years are presented in Table 21. The \$30k reticulation extension project in 2010/11 is the main development project in the next three years.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	-	<b>30,000</b>	<b>2,500</b>
Compliance	-	30,000	-
Piped Network	-	30,000	-
National Park reticulation extension	-	30,000	-
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
National Park asset management development	-	-	2,500

Table 21– Short-term capital development needs for National Park

### 5.2.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.2.6 Summary of future costs

The summary future costs for National Park village is summarised in Table 22.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 17,243</b>	<b>\$ 17,243</b>	<b>\$ 17,243</b>
Revenue	1,000	1,000	1,000
Corporate Overheads	1,000	1,000	1,000
Operating Expenses	7,243	7,243	7,243
Depreciation	8,000	8,000	8,000
<b>Maintenance</b>	<b>\$ 16,391</b>	<b>\$ 16,391</b>	<b>\$ 16,391</b>
Maintenance Contracts	16,391	16,391	16,391
Piped Network	396	396	396
Open Drain Network	1,692	1,692	1,692
All Other Maintenance Expenses	14,303	14,303	14,303
<b>Capital Development (LOS Enhancement)</b>	<b>\$ -</b>	<b>\$ 30,000</b>	<b>\$ 2,500</b>
Compliance	-	30,000	-
Piped Network	-	30,000	-
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 22– Summary of short-term needs for National Park

## 5.3 Ohakune

### 5.3.1 Asset description

#### Description

Ohakune Township is a popular ski town so is experiencing growth with a peak population growth at 1.8% per year, and visitors at 5% per year, as described in Section 3.0.

Ohakune Township is serviced by a mix of open drains and pipe systems that have grown over time to carry the urban and commercial areas of Ohakune.

There are around 24km of stormwater pipeline in length in Ohakune as shown in Table 23 . Most pipes are 225mm and 300mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater-- Ohakune						TOTAL	
	Diameter(mm)	CONC	PVC	STEEL	Unknown	uPVC		
Reticulation	0	5			12,075		12,080	
	100					16	16	
	150	52	10			544	606	
	200					185	185	
	225	3,353			120	26	3,500	
	230	25					25	
	250					122	122	
	300	2,480			156	66	2,701	
	375	1,012					1,012	
	450	827					827	
	600	274					274	
	750	31					31	
	900	77					77	
	1000			28			28	
	1200	138					138	
	1800	66					66	
	Unknown	429				1,602		2,031
	<b>TOTAL</b>	<b>8,770</b>		<b>10</b>	<b>28</b>	<b>13,953</b>	<b>959</b>	<b>23,719</b>

Table 23- Stormwater reticulation summary for Ohakune

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 3, or moderate for the Ohakune stormwater network. There is poor haunching in many of the manholes and they are in need of repair. The stormwater culvert pipework is difficult to clean and maintain because of the diameter variations.

There is a lack of continuity of flow due to continual variations in pipework throughout the network which affects the hydraulic performance of the system.

Upgrades to a number of locations throughout the stormwater reticulation have been reported to have generally improved the overall system performance. The most significant upgrades include mains renewals, open drain upgrades, culvert replacements etc. in Shannon Street, Miro Street, Upper Thames Street and Utuhia Place.

## Capacity

There has been a long standing problem with the hydraulic performance of Ohakune's stormwater channels. Most channels in urban Ohakune are unable to take additional flow. There is a three phase management plan for Ohakune as follows:

- Phase 1- RDC completed the Ohakune Stormwater Investigation study in June 2008. It identified system deficiencies including measuring and mapping the town's open channel stormwater network.
- Phase 2 - Horizons will build a model of the Ohakune Floodplain and develop a series of flood maps for the floodplain for a range of flood events.
- Phase 3 – RDC will identify and prioritise the works to control the identified flood hazards.

The findings from Phase 1 found that capacities of the culverts and bridges were generally good, while the channels in urban Ohakune require improved levels of maintenance to prevent localised flooding and erosion problems.

There are nine problem sections of channels in urban Ohakune as summarised in Table 24. The capital cost to improve the performance of Ohakune channels is \$30k over the next three years.

Watercourse	Issue	Risk
Mangawhero stream	Large number of willow tress affecting channel	Significant erosion which may compromise stream banks.
The Three Railway Channels	Severely altered natural watercourses.	Impacts flood carrying capacity.
Miro Street Channel	Small sized vegetation in watercourse affecting capacity.	Insufficient capacity to pass flood flows.
Mangateitei Stream	Willow congestion downstream of SH49.	Impacts flood carrying capacity.
Stream Channels A, B and C	Small sized vegetation in watercourse affecting capacity.	Impacts flood carrying capacity.

**Table 24- Poor performing Ohakune watercourses**

## Condition

The condition has been assessed at a grade of 4, or poor, for the Ohakune stormwater network. The reticulation suffers from collapsed pipework and poor workmanship. Many of the old concrete pipes have no reinforcement and open joints provide an easy path for tree roots to enter causing blockages and further damage to the pipes. The operators have also reported that the connections between manholes and pipes have not been properly installed and often manholes have been installed without a base.

## Critical assets

There are known problem areas in Ohakune, although not identified formally through a criticality assessment, as discussed in Section 4.2.2. These include:

- Miro Street channel between Park Avenue and Lee Street, Ohakune – this channel is full and is unable to take any further increases without causing the likelihood of flooding.
- Most channels passing through urban Ohakune, excluding Mangawhero and Mangateitei, are unable to take additional runoff from development without causing the likelihood of flooding.

## 5.3.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

### Short term forecast operations and maintenance needs

Table 25 presents the forecast short-term operations and maintenance requirements for the Ohakune stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>82,384</b>	<b>82,384</b>	<b>82,384</b>
Revenue	2,000	2,000	2,000
Revenue (connections)	2,000	2,000	2,000
Corporate Overheads	3,000	3,000	3,000
Insurances	2,000	2,000	2,000
Rates	1,000	1,000	1,000
Operating Expenses	17,384	17,384	17,384
Support	17,384	17,384	17,384
Depreciation	60,000	60,000	60,000
<b>Maintenance</b>	<b>65,496</b>	<b>65,496</b>	<b>65,496</b>
Maintenance Contracts	65,496	65,496	65,496
Piped Network	1,296	1,296	1,296
Maintenance of Piped Systems	1,296	1,296	1,296
Open Drain Network	30,254	30,254	30,254
Maintenance of Open Channels	17,760	17,760	17,760
Maintaining of Watercourses 1	3,744	3,744	3,744
Maintaining of Watercourses 2	8,750	8,750	8,750
All Other Maintenance Expenses	33,946	33,946	33,946
All Other Maintenance Day Works	13,855	13,855	13,855
Contract Lump Sum professional services	20,091	20,091	20,091

Table 25– Short-term operations and maintenance needs for Ohakune

There is little or no backlog of routine maintenance.

### 5.3.3 Renewals plan

Planned stormwater reticulation renewals for Ohakune for the next three years are presented in Table 26.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>81,580</b>	<b>81,580</b>	<b>81,580</b>
Planned	81,580	81,580	81,580
Piped Network	71,580	71,580	71,580
Perform a structured rolling replacement programme	71,580	71,580	71,580
Open Drain Network	10,000	10,000	10,000
Ohakune drain re-formation	10,000	10,000	10,000

Table 26– Short-term renewals needs for Ohakune

### 5.3.4 Development plan

Most of the capital works for this township have been initiated from the 2008 Condition Assessment and the capacity study. The key capital projects for the next three years are presented in Table 27. The two main projects are the new reticulation to cater for growth at \$50k per annum, and reticulation extension at \$60k per annum.

	2009/10	2010/11	2011/12
<b>Capital Development (Growth)</b>	<b>50,000</b>	<b>50,000</b>	<b>50,000</b>
Piped Network	50,000	50,000	50,000
District wide new reticulation	50,000	50,000	50,000
<b>Capital Development (LOS Enhancement)</b>	<b>60,000</b>	<b>60,000</b>	<b>70,000</b>
Compliance	60,000	60,000	60,000
Piped Network	60,000	60,000	60,000
Ohakune resource consent application	-	-	-
Ohakune reticulation extension	60,000	60,000	60,000
Network Improvement	-	-	10,000
General Network Improvement	-	-	10,000
Ohakune asset management development	-	-	10,000
Piped Network	-	-	-
Network survey for lid and invert levels establish	-	-	-

Table 27– Short-term capital development needs for Ohakune

### 5.3.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.3.6 Summary of future costs

The summary future costs for Ohakune is summarised in Table 28.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 82,384</b>	<b>\$ 82,384</b>	<b>\$ 82,384</b>
Revenue	2,000	2,000	2,000
Corporate Overheads	3,000	3,000	3,000
Operating Expenses	17,384	17,384	17,384
Depreciation	60,000	60,000	60,000
<b>Maintenance</b>	<b>\$ 65,496</b>	<b>\$ 65,496</b>	<b>\$ 65,496</b>
Maintenance Contracts	65,496	65,496	65,496
Piped Network	1,296	1,296	1,296
Open Drain Network	30,254	30,254	30,254
All Other Maintenance Expenses	33,946	33,946	33,946
<b>Renewals</b>	<b>\$ 81,580</b>	<b>\$ 81,580</b>	<b>\$ 81,580</b>
Planned	81,580	81,580	81,580
Piped Network	71,580	71,580	71,580
Open Drain Network	10,000	10,000	10,000
<b>Capital Development (Growth)</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>
Piped Network	50,000	50,000	50,000
District wide new reticulation	50,000	50,000	50,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 60,000</b>	<b>\$ 60,000</b>	<b>\$ 70,000</b>
Compliance	60,000	60,000	60,000
Piped Network	60,000	60,000	60,000
Network Improvement	-	-	10,000
General Network Improvement	-	-	10,000
Piped Network	-	-	-

Table 28– Summary of short-term needs for Ohakune

## 5.4 Ohura

### 5.4.1 Asset description

#### Description

The Ohura Township stormwater system consists almost entirely of open public drains, open roadside drains, and a number of short lengths of stormwater culvert. The town is located in a swampy, low lying area and floods.

There are around 7.5km of stormwater pipeline in length in Ohura as shown in Table 29 . Most pipes are 300mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater-- Ohura			
	Diameter(mm)	CONC	Unknown	TOTAL
Reticulation	0		5,778	5,778
	200	20		20
	300	290		290
	450	117		117
	600	117		117
	900	22		22
	1800	60		60
	Unknown	75	967	1,042
	TOTAL	701	6,745	7,446

Table 29- Stormwater reticulation summary for Ohura

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 3, or moderate for the Ohura stormwater network. Historically the drains were silted up and overgrown with vegetation. However, the performance of the open public drains has improved over that last five years with the increased maintenance with the new Facilities Maintenance Contractor.

#### Condition

The condition has been assessed at a grade of 3, or moderate for the Ohura stormwater network. Overall the condition of the open public and roadside drains is considered to be acceptable. Structurally the channel banks are considered satisfactory.

#### Critical assets

No critical assets have been identified in the Ohura stormwater network.

### 5.4.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

#### Short term forecast operations and maintenance needs

Table 30 presents the forecast short-term operations and maintenance requirements for the Ohura stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>
Corporate Overheads	1,000	1,000	1,000
Insurances	1,000	1,000	1,000
Depreciation	4,000	4,000	4,000
<b>Maintenance</b>	<b>9,784</b>	<b>9,784</b>	<b>9,784</b>
Maintenance Contracts	9,784	9,784	9,784
Piped Network	228	228	228
Maintenance of Piped Systems	228	228	228
Open Drain Network	7,056	7,056	7,056
Maintenance of Open Channels	3,072	3,072	3,072
Maintaining of Watercourses 1	3,984	3,984	3,984
Maintaining of Watercourses 2	-	-	-
All Other Maintenance Expenses	2,500	2,500	2,500
All Other Maintenance Day Works	2,500	2,500	2,500

Table 30– Short-term operations and maintenance needs for Ohura

There is little or no backlog of routine maintenance.

### 5.4.3 Renewals plan

Planned stormwater reticulation renewals for Ohura for the next three years are presented in Table 31.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>15,790</b>	<b>15,790</b>	<b>15,790</b>
Planned	15,790	15,790	15,790
Piped Network	5,790	5,790	5,790
Perform a structured rolling replacement programme	5,790	5,790	5,790
Open Drain Network	10,000	10,000	10,000
Ohura drain re-formation	10,000	10,000	10,000

Table 31 – Short-term renewal needs for Ohura

### 5.4.4 Development plan

The key capital projects for the next three years are presented in Table 32. The development projects for Ohura are relatively minor.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	<b>-</b>	<b>-</b>	<b>12,500</b>
Compliance	-	-	10,000
Piped Network	-	-	10,000
Ohura reticulation extension	-	-	10,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
Ohura asset management development	-	-	2,500

Table 32 – Short-term capital development needs for Ohura

### 5.4.5 Disposal plan

No assets have been identified to be disposed of in this township.

#### 5.4.6 Summary of future costs

The summary future costs for Ohura is summarised in Table 33.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 5,000</b>	<b>\$ 5,000</b>	<b>\$ 5,000</b>
Corporate Overheads	1,000	1,000	1,000
Depreciation	4,000	4,000	4,000
<b>Maintenance</b>	<b>\$ 9,784</b>	<b>\$ 9,784</b>	<b>\$ 9,784</b>
Maintenance Contracts	9,784	9,784	9,784
Piped Network	228	228	228
Open Drain Network	7,056	7,056	7,056
All Other Maintenance Expenses	2,500	2,500	2,500
<b>Renewals</b>	<b>\$ 15,790</b>	<b>\$ 15,790</b>	<b>\$ 15,790</b>
Planned	15,790	15,790	15,790
Piped Network	5,790	5,790	5,790
Open Drain Network	10,000	10,000	10,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 12,500</b>
Compliance	-	-	10,000
Piped Network	-	-	10,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 33– Summary of short-term needs for Ohura

## 5.5 Owhango

### 5.5.1 Asset description

#### Description

The Owhango stormwater system consists of two designated public drains as follows:

- Stormwater pipework, manholes and kerbside sumps service the commercial area of the Township along State Highway 4.
- Open roadside drains operated under the Road Maintenance Contract service the remainder of the Township.

There is 2.1km of stormwater pipeline in length in Owhango as shown in Table 34. Most pipes are 300mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater-- Owhango			
	Diameter(mm)	CONC	Unknown	TOTAL
Reticulation	0		2,000	2,000
	300	86		86
	Unknown	69	8	77
	<b>TOTAL</b>	<b>155</b>	<b>2,008</b>	<b>2,163</b>

Table 34- Stormwater reticulation summary for Owhango

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 3, or moderate for the Owhango stormwater network. The hydraulic capacity of the stormwater drains is satisfactory.

There a better understanding of the network performance of Owhango stormwater network with an investigation underway that will drive any future development plans if required.

#### Condition

The condition has been assessed at a grade of 3, or moderate for the Ohura stormwater network. The condition of the public drains and open roadside channels is acceptable. Structurally the channels are satisfactory.

#### Critical assets

No critical assets have been identified in the Owhango stormwater network.

### 5.5.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

#### Short term forecast operations and maintenance needs

Table 35 presents the forecast short-term operations and maintenance requirements for the Owhango stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>1,449</b>	<b>1,449</b>	<b>1,449</b>
Operating Expenses	1,449	1,449	1,449
Support	1,449	1,449	1,449

	5,098	5,098	5,098
<b>Maintenance</b>	<b>5,098</b>	<b>5,098</b>	<b>5,098</b>
Maintenance Contracts	5,098	5,098	5,098
Piped Network	300	300	300
Maintenance of Piped Systems	300	300	300
Open Drain Network	1,524	1,524	1,524
Maintenance of Open Channels	516	516	516
Maintaining of Watercourses 1	1,008	1,008	1,008
Maintaining of Watercourses 2	-	-	-
All Other Maintenance Expenses	3,274	3,274	3,274
All Other Maintenance Day Works	1,600	1,600	1,600
Contract Lump Sum professional services	1,674	1,674	1,674

**Table 35– Short-term operations and maintenance needs for Owhangó**

There is little or no backlog of routine maintenance.

### 5.5.3 Renewals plan

Planned stormwater reticulation renewals for Owhangó for the next three years are presented in Table 36.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>4,650</b>	<b>4,650</b>	<b>4,650</b>
Planned	4,650	4,650	4,650
Piped Network	4,650	4,650	4,650
Perform a structured rolling replacement programme	4,650	4,650	4,650

**Table 36 – Short-term renewal needs for Owhangó**

### 5.5.4 Development plan

The key capital projects for the next three years are presented in Table 37. The main projects are the data capture at \$25k and reticulation extension at \$40k.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	<b>45,000</b>	<b>-</b>	<b>22,500</b>
Compliance	45,000	-	20,000
Piped Network	45,000	-	20,000
Owhangó planning and data capture	25,000	-	-
Owhangó reticulation extension	20,000	-	20,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
Owhangó asset management development	-	-	2,500

**Table 37 – Short-term capital development needs for Owhangó**

### 5.5.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.5.6 Summary of future costs

The summary future costs for Owhango is summarised in Table 38.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 1,449</b>	<b>\$ 1,449</b>	<b>\$ 1,449</b>
Operating Expenses	1,449	1,449	1,449
<b>Maintenance</b>	<b>\$ 5,098</b>	<b>\$ 5,098</b>	<b>\$ 5,098</b>
Maintenance Contracts	5,098	5,098	5,098
Piped Network	300	300	300
Open Drain Network	1,524	1,524	1,524
All Other Maintenance Expenses	3,274	3,274	3,274
<b>Renewals</b>	<b>\$ 4,650</b>	<b>\$ 4,650</b>	<b>\$ 4,650</b>
Planned	4,650	4,650	4,650
Piped Network	4,650	4,650	4,650
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 45,000</b>	<b>\$ -</b>	<b>\$ 22,500</b>
Compliance	45,000	-	20,000
Piped Network	45,000	-	20,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 38– Summary of short-term needs for Owhango

## 5.6 Raetihi

### 5.6.1 Asset description

#### Description

Raetihi Township is serviced predominantly by a reticulated system consisting of pipework, and manholes with kerb side sumps. There are also a small number of open public drains. Private properties are mainly serviced by private soakage which does not perform well.

There is 9.7 km of stormwater pipeline in length in Raetihi as shown in Table 39. Most pipes are 225mm and 300mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater--Raetihi						TOTAL	
	Diameter(mm)	CONC	Novaflow	PVC	Unknown	uPVC		
Reticulation	0				4,837		4,837	
	150	24		15		27	66	
	160		34				34	
	200					51	51	
	225	1,268					1,268	
	300	975					975	
	370	24					24	
	375	160					160	
	450	362					362	
	600	536					536	
	900	84					84	
	1500	33					33	
	Unknown	177				1,108		1,285
	TOTAL	3,643		34	15	5,945	78	9,715

Table 39 - Stormwater reticulation summary for Raetihi

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 3, or moderate for the Raetihi stormwater network. The stormwater reticulation suffers from a lack of continuity of flow due to continual variations in pipework diameter. The public open drains are hard to fix due to their depth.

#### Capacity

There have been some flooding complaints within the townships. System performance will be better understood with a capacity study is proposed along with LIDAR study.

A channel management investigation completed in September 2008 found two watercourses in Raetihi requiring work to improve the hydraulic performance to prevent potential flooding. The Makotuku River has a significant number of large willows growing in the channel which restrict the passage of flood flows. The Seddon Street watercourse has a number of small and large willow trees in the stream channel causing blockages. The capital cost to improve the performance of the Raetihi channels is \$30k over the next three years.

#### Condition

The condition has been assessed at a grade of 3, or moderate for the Raetihi stormwater network. The condition of stormwater pipework, manholes and kerb side sumps is acceptable. A number of stormwater cesspits inspected as part of the 2008 Condition Assessment were in poor condition with a significant amount of repair works required.

#### Critical assets

No critical assets have been identified in the Raetihi stormwater network.

## 5.6.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

### Short term forecast operations and maintenance needs

Table 40 presents the forecast short-term operations and maintenance requirements for the Raetihi stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>7,795</b>	<b>7,795</b>	<b>7,795</b>
Revenue	1,000	1,000	1,000
Revenue (connections)	1,000	1,000	1,000
Corporate Overheads	1,000	1,000	1,000
Insurances	-	-	-
Rates	1,000	1,000	1,000
Operating Expenses	5,795	5,795	5,795
Support	5,795	5,795	5,795
Depreciation	-	-	-
<b>Maintenance</b>	<b>30,232</b>	<b>30,232</b>	<b>30,232</b>
Maintenance Contracts	30,232	30,232	30,232
Piped Network	468	468	468
Maintenance of Piped Systems	468	468	468
Open Drain Network	8,542	8,542	8,542
Maintenance of Open Channels	1,956	1,956	1,956
Maintaining of Watercourses 1	336	336	336
Maintaining of Watercourses 2	6,250	6,250	6,250
All Other Maintenance Expenses	21,222	21,222	21,222
All Other Maintenance Day Works	14,525	14,525	14,525
Contract Lump Sum professional services	6,697	6,697	6,697

Table 40– Short-term operations and maintenance needs for Raetihi

There is little or no backlog of routine maintenance.

## 5.6.3 Renewals plan

Planned stormwater reticulation renewals for Raetihi for the next three years are presented in Table 41.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>38,170</b>	<b>38,170</b>	<b>38,170</b>
Planned	38,170	38,170	38,170
Piped Network	28,170	28,170	28,170
Perform a structured rolling replacement programme	28,170	28,170	28,170
Open Drain Network	10,000	10,000	10,000
Raetihi drain re-formation	10,000	10,000	10,000

Table 41– Short-term renewals needs for Raetihi

## 5.6.4 Development plan

The key capital projects for the next three years are presented in Table 42. The main project is the \$30k reticulation extension in Raetihi in 2011/12.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	<b>4,000</b>	<b>-</b>	<b>32,500</b>
Compliance	4,000	-	30,000
Piped Network	4,000	-	30,000
Raetihi resource consent application	-	-	-
Raetihi planning and data capture	4,000	-	-
Raetihi reticulation extension	-	-	30,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
Raetihi asset management development	-	-	2,500

Table 42– Short-term capital development needs for Raetihi

### 5.6.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.6.6 Summary of future costs

The summary future costs for Raetihi is summarised in Table 43.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 7,795</b>	<b>\$ 7,795</b>	<b>\$ 7,795</b>
Revenue	1,000	1,000	1,000
Corporate Overheads	1,000	1,000	1,000
Operating Expenses	5,795	5,795	5,795
Depreciation	-	-	-
<b>Maintenance</b>	<b>\$ 30,232</b>	<b>\$ 30,232</b>	<b>\$ 30,232</b>
Maintenance Contracts	30,232	30,232	30,232
Piped Network	468	468	468
Open Drain Network	8,542	8,542	8,542
All Other Maintenance Expenses	21,222	21,222	21,222
<b>Renewals</b>	<b>\$ 38,170</b>	<b>\$ 38,170</b>	<b>\$ 38,170</b>
Planned	38,170	38,170	38,170
Piped Network	28,170	28,170	28,170
Open Drain Network	10,000	10,000	10,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 4,000</b>	<b>\$ -</b>	<b>\$ 32,500</b>
Compliance	4,000	-	30,000
Piped Network	4,000	-	30,000
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 43– Summary of short-term needs for Raetihi

## 5.7 Rangataua

### 5.7.1 Asset description

#### Description

The stormwater system within Rangataua consists of a combination of public drains and a reticulated system of pipework and manholes, with a small number of surface inlets. The Rangataua stormwater drainage network also includes approximately 1.5km of the Marino/Kaha Street Watercourses.

There is 4.2 km of stormwater pipeline in length in Rangataua as shown in Table 44 . Most pipes are 300mm and 375mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater--Rangataua			
	Diameter(mm)	CONC	Unknown	TOTAL
Reticulation	0		1,509	1,509
	225	172		172
	300	354		354
	375	386		386
	450	101		101
	600	37		37
	Unknown	416	1,241	1,657
	TOTAL	1,466	2,750	4,216

Table 44- Stormwater reticulation summary for Rangataua

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 2, or good, for the Rangataua stormwater network. System performance has improved with recent upgrades.

There were some deep open drains in the Rangataua stormwater systems that have been piped in the past. Nei and Kaha Streets watercourses have been partially piped. The community wishes all the open drains to be piped but these need to be balanced with affordability and environmental issues.

#### Condition

The condition has been assessed at a grade of 2, or good for the stormwater system in Rangataua. The condition of the stormwater pipes, manholes, and sumps is very good as these have been mainly installed in recent years. The public drains and roadside drains are satisfactory in terms of their physical structure.

#### Critical assets

No critical assets have been identified in the Rangataua stormwater network. System and performance in the future will be better understood with a capacity study proposed in the future. LIDAR data will be collected for this purpose.

### 5.7.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

#### Short term forecast operations and maintenance needs

Table 45 presents the forecast short-term operations and maintenance requirements for the Rangataua stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>1,500</b>	<b>1,500</b>	<b>1,500</b>
Revenue	500	500	500
Revenue (connections)	500	500	500
Corporate Overheads	1,000	1,000	1,000
Insurances	-	-	-
Rates	1,000	1,000	1,000

	7,314	7,314	7,314
<b>Maintenance</b>	<b>7,314</b>	<b>7,314</b>	<b>7,314</b>
Maintenance Contracts	7,314	7,314	7,314
Piped Network	252	252	252
Maintenance of Piped Systems	252	252	252
Open Drain Network	4,422	4,422	4,422
Maintenance of Open Channels	264	264	264
Maintaining of Watercourses 1	408	408	408
Maintaining of Watercourses 2	3,750	3,750	3,750
All Other Maintenance Expenses	2,640	2,640	2,640
All Other Maintenance Day Works	2,640	2,640	2,640

**Table 45 – Short-term operations and maintenance needs for Rangataua**

There is little or no backlog of routine maintenance.

### 5.7.3 Renewals plan

There are no short term renewals identified in Rangataua.

### 5.7.4 Development plan

The key capital project for the next three years is presented in Table 46.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	-	-	<b>2,500</b>
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
Rangataua asset management development	-	-	2,500

**Table 46– Short-term capital development needs for Rangataua**

### 5.7.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.7.6 Summary of future costs

The summary future costs for Rangataua is summarised in Table 47.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 1,500</b>	<b>\$ 1,500</b>	<b>\$ 1,500</b>
Revenue	500	500	500
Corporate Overheads	1,000	1,000	1,000
<b>Maintenance</b>	<b>\$ 7,314</b>	<b>\$ 7,314</b>	<b>\$ 7,314</b>
Maintenance Contracts	7,314	7,314	7,314
Piped Network	252	252	252
Open Drain Network	4,422	4,422	4,422
All Other Maintenance Expenses	2,640	2,640	2,640
<b>Capital Development (LOS Enhancement)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,500</b>
Network Improvement	-	-	2,500
General Network Improvement	0	0	2500

Table 47 - Summary of short-term needs for Rangataua

## 5.8 Taumarunui

### 5.8.1 Asset description

#### Description

Taumarunui stormwater system consists of a combination of public drains and an extensive reticulated system consisting of pipework and manholes with kerbside sumps, and some drains are privately owned.

There is 55.2km of stormwater pipeline in length in Taumarunui as shown in Table 48. Most pipes are 225mm and 300mm in diameter and concrete is the main known pipe material.

Asset Type	Stormwater-Taumarunui												
	Diameter(mm)	AC	CONC	CONC Twin	GEW	HDPE	Novaflo	PVC	RCRRJ	STEEL	Unknown	uPVC	TOTAL
Reticulation	0		3								14,758		14,761
	100		15		41		-	45		20		25	146
	150	102	800		498			23				273	1,696
	175		1										1
	200	66	24							462			533
	225		7,807		123			17		357			8,304
	250		5									66	70
	255		36										36
	280									7			7
	300	141	6,462		94	30			47	95		159	7,028
	375		2,088										2,088
	450		3,388	24									3,412
	475		17										17
	600		2,452							5			2,457
	650		64										64
	675		22										22
	700		24										24
	750		967									55	1,022
	825		36										36
	875		19										19
	900		444										444
	1200		12										12
	1800		12										12
Unknown		480							6	12,540	5	13,031	
TOTAL		310	25,179	24	756	30	-	84	47	952	27,297	583	55,263

Table 48- Stormwater reticulation summary for Taumarunui

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

#### Performance

The reticulation performance has been assessed at a grade of 2, or good, for the Taumarunui stormwater network.

The number of complaints or requests for service made in relation to stormwater flooding being reduced dramatically with the introduction of preventive maintenance since 2003 to ensure removal of sediment and debris from stormwater sumps.

There is anecdotal evidence of insufficient pipe sizes and degrees of pipe disjoints.

There is a critical private drain identified in Taupo Road that is an old railway drain running through Housing Corporation properties. The costs and risks are being assessed including some private funding for the physical works required.

#### Capacity

The majority of the watercourses in Taumarunui are performing well and are in good condition. There are five channels identified with hydraulic performance issues summarised in Table 49. The capital cost to improve the performance of Taumarunui channels is \$30k over the next three years. Horizons intend to complete LIDAR mapping of the Taumarunui area.

Watercourse	Issue	Risk
Rangaroa Stream	Large number of willow tress affecting channel	Impacts flood carrying capacity
Liardvale Road Drain	Large willow tree and branches into channel.	Impacts flood carrying capacity.
Mangakahikatoa Stream	A significant channel with a large catchment. Heavily congested channel and culvert with trees. Parts of the channel need to be reshaped to reform to a reasonable channel.	Insufficient capacity to pass flood flows.
Ongarue River	Considerable regrowth in channel after clearing work in the early 1980s. Heavily overgrown river.	Significantly impacts flood carrying capacity.
Taupo Road Watercourse	Poor structural integrity of channel and is also deep.	Unable to carry flow required in heavy rainfall event.

**Table 49-- Poor performing Taumarunui watercourses**

#### Condition

The condition has been assessed at a grade of 3, or moderate for the Taumarunui stormwater network. A small number of stormwater manholes however require either rehaunching or rebenching. Inspection of the stormwater sumps and grates reveals these to be in overall good condition. A number of catchpits inspected were in poor condition, requiring significant maintenance and/or clearing.

#### Critical assets

No critical public assets have been identified in the Taumarunui stormwater network.

### 5.8.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

#### Short term forecast operations and maintenance needs

Table 50 presents the forecast short-term operations and maintenance requirements for the Taumarunui stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>216,357</b>	<b>216,357</b>	<b>216,357</b>
Revenue	3,000	3,000	3,000
Revenue (connections)	3,000	3,000	3,000
Corporate Overheads	4,000	4,000	4,000
Insurances	2,000	2,000	2,000
Rates	2,000	2,000	2,000
Operating Expenses	46,357	46,357	46,357
Support	46,357	46,357	46,357
Depreciation	163,000	163,000	163,000

	2009/10	2010/11	2011/12
<b>Maintenance</b>	<b>106,646</b>	<b>106,646</b>	<b>106,646</b>
Maintenance Contracts	106,646	106,646	106,646
Piped Network	4,632	4,632	4,632
Maintenance of Piped Systems	4,632	4,632	4,632
Open Drain Network	36,500	36,500	36,500
Maintenance of Open Channels	22,716	22,716	22,716
Maintaining of Watercourses 1	8,784	8,784	8,784
Maintaining of Watercourses 2	5,000	5,000	5,000
All Other Maintenance Expenses	65,514	65,514	65,514
All Other Maintenance Day Works	11,937	11,937	11,937
Contract Lump Sum professional services	53,577	53,577	53,577

Table 50– Short-term operations and maintenance needs for Taumarunui

There is little or no backlog of routine maintenance.

### 5.8.3 Renewals plan

Planned stormwater reticulation renewals for Taumarunui for the next three years are presented in Table 51.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>
Planned	10,000	10,000	10,000
Open Drain Network	10,000	10,000	10,000
Taumarunui drain re-formation	10,000	10,000	10,000

Table 51– Short-term renewals needs for Taumarunui

### 5.8.4 Development plan

The key capital projects for the next three years are presented in Table 52. The main project is the reticulation extension at \$60k per annum.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	<b>64,534</b>	<b>79,534</b>	<b>79,534</b>
Compliance	60,000	75,000	65,000
Piped Network	60,000	75,000	65,000
Taumarunui resource consent application	-	-	5,000
Taumarunui planning and data capture	-	15,000	-
Taumarunui reticulation extension	60,000	60,000	60,000
Network Improvement	4,534	4,534	14,534
General Network Improvement	-	-	10,000
Taumarunui asset management development	-	-	10,000
Piped Network	4,534	4,534	4,534
Network survey for lid and invert levels establish	-	-	-
Network survey and CCTV inspections	4,534	4,534	4,534

Table 52– Short-term capital development needs for Taumarunui

### 5.8.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.8.6 Summary of future costs

The summary future costs for Taumarunui is summarised in Table 53.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 216,357</b>	<b>\$ 216,357</b>	<b>\$ 216,357</b>
Revenue	3,000	3,000	3,000
Corporate Overheads	4,000	4,000	4,000
Operating Expenses	46,357	46,357	46,357
Depreciation	163,000	163,000	163,000
<b>Maintenance</b>	<b>\$ 106,646</b>	<b>\$ 106,646</b>	<b>\$ 106,646</b>
Maintenance Contracts	106,646	106,646	106,646
Piped Network	4,632	4,632	4,632
Open Drain Network	36,500	36,500	36,500
All Other Maintenance Expenses	65,514	65,514	65,514
<b>Renewals</b>	<b>\$ 10,000</b>	<b>\$ 10,000</b>	<b>\$ 10,000</b>
Planned	10,000	10,000	10,000
Open Drain Network	10,000	10,000	10,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 64,534</b>	<b>\$ 79,534</b>	<b>\$ 79,534</b>
Compliance	60,000	75,000	65,000
Piped Network	60,000	75,000	65,000
Network Improvement	4,534	4,534	14,534
General Network Improvement	-	-	10,000
Piped Network	4,534	4,534	4,534

Table 53– Summary of short-term needs for Taumarunui

## 5.9 Waiouru

### 5.9.1 Asset description

#### Description

Stormwater services within Waiouru consist of a combination of open public drains, and a reticulated system consisting of pipework, and manholes with kerbside sumps.

There is 1.2km of stormwater pipeline in length in Waiouru as shown in Table 54. Most pipes are 225mm in diameter and concrete is the main pipe material.

Asset Type	Stormwater--Waiouru			
	Diameter(mm)	CONC	PVC	TOTAL
Reticulation	150	26		26
	225	545		545
	300	147	20	167
	375	192		192
	450	321		321
	TOTAL	1,231	20	1,251

Table 54- Stormwater reticulation summary for Waiouru`

Data source: BizeAsset June 2008

A layout plan of the stormwater reticulation for each township is in Appendix H. Note that these plans are only conceptual.

NZ Transport Agency is responsible for the stormwater runoff from the state highways. There needs to be better coordination between the two agencies to improve the overall stormwater management in Waiouru.

#### Performance

The reticulation performance has been assessed at a grade of 2, or good, for the Waiouru stormwater system. There are minimal operational or flooding problems with the Waiouru stormwater system.

The Waiouru township is relatively flat and the businesses generally do not have much freeboard for flood protection.

#### Condition

The condition has been assessed at a grade of 3, or moderate for the Waiouru stormwater network. A small number of stormwater manholes however require either rehaunching or rebenching. Inspection of the sumps and grates reveals these to be in good condition.

#### Critical assets

No critical assets have been identified in the Waiouru stormwater network.

### 5.9.2 Operations and maintenance plan

This is detailed in Section 5.2.2.

#### Short term forecast operations and maintenance needs

Table 55 presents the forecast short-term operations and maintenance requirements for the Waiouru stormwater assets to maintain the current service levels. These forecasts are largely based on historical expenditure trends but also consider changes to the network from changing demand and planned renewals and development activities.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>5,997</b>	<b>5,997</b>	<b>5,997</b>
Corporate Overheads	100	100	100
<i>Rates</i>	<i>100</i>	<i>100</i>	<i>100</i>
Operating Expenses	2,897	2,897	2,897
<i>Support</i>	<i>2,897</i>	<i>2,897</i>	<i>2,897</i>
Depreciation	3,000	3,000	3,000

	2009/10	2010/11	2011/12
<b>Maintenance</b>	<b>8,734</b>	<b>8,734</b>	<b>8,734</b>
Maintenance Contracts	8,734	8,734	8,734
Piped Network	384	384	384
<i>Maintenance of Piped Systems</i>	<i>384</i>	<i>384</i>	<i>384</i>
Open Drain Network	816	816	816
<i>Maintenance of Open Channels</i>	<i>384</i>	<i>384</i>	<i>384</i>
<i>Maintaining of Watercourses 1</i>	<i>432</i>	<i>432</i>	<i>432</i>
All Other Maintenance Expenses	7,534	7,534	7,534
<i>All Other Maintenance Day Works</i>	<i>4,186</i>	<i>4,186</i>	<i>4,186</i>
<i>Contract Lump Sum professional services</i>	<i>3,349</i>	<i>3,349</i>	<i>3,349</i>

Table 55– Short-term operations and maintenance needs for Waiouru

There is little or no backlog of routine maintenance.

### 5.9.3 Renewals plan

Planned stormwater reticulation renewals for Waiouru for the next three years are presented in Table 56.

	2009/10	2010/11	2011/12
<b>Renewals</b>	<b>10,000</b>	<b>10,000</b>	<b>10,000</b>
Planned	10,000	10,000	10,000
Open Drain Network	10,000	10,000	10,000
<i>Waiouru drain re-formation</i>	<i>10,000</i>	<i>10,000</i>	<i>10,000</i>

Table 56– Short-term renewals needs for Waiouru

### 5.9.4 Development plan

The key capital project for the next three years is presented in Table 57.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	<b>-</b>	<b>-</b>	<b>2,500</b>
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500
<i>Waiouru asset management development</i>	<i>-</i>	<i>-</i>	<i>2,500</i>

Table 57– Short-term capital development needs for Waiouru

### 5.9.5 Disposal plan

No assets have been identified to be disposed of in this township.

### 5.9.6 Summary of future costs

The summary future costs for Waiouru is summarised in Table 58.

	2009/10	2010/11	2011/12
<b>Operations</b>	<b>\$ 5,997</b>	<b>\$ 5,997</b>	<b>\$ 5,997</b>
Corporate Overheads	100	100	100
Operating Expenses	2,897	2,897	2,897
Depreciation	3,000	3,000	3,000
<b>Maintenance</b>	<b>\$ 8,734</b>	<b>\$ 8,734</b>	<b>\$ 8,734</b>
Maintenance Contracts	8,734	8,734	8,734
Piped Network	384	384	384
Open Drain Network	816	816	816
All Other Maintenance Expenses	7,534	7,534	7,534
<b>Renewals</b>	<b>\$ 10,000</b>	<b>\$ 10,000</b>	<b>\$ 10,000</b>
Planned	10,000	10,000	10,000
Open Drain Network	10,000	10,000	10,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,500</b>
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 58– Summary of short-term needs for Waiouru

## 5.10 Unserviced townships

There are several small townships in the District that are currently unserviced with a public stormwater system. There maybe pressure in future to provide this service with growth in neighbouring townships. The current status of these unserviced townships is shown in Table 59.

Township	Water service status	Comments
Horopito	No formal stormwater system.	Development is occurring now
Kakahi	Only roadside drains ( 3km in total)	
Matiere	Only a partial stormwater system (1.4km in total)	
Piriaka	Only a partial stormwater system ( 923 m in total)	
Raurimu	Only a partial stormwater system	Development is occurring now.

Table 59 - Summary of unserviced small townships

### 5.10.1 Development plan

The short-term operation and maintenance needs and capital development needs for Piriaka and Raurimu are presented in Table 60 and Table 61 respectively.

	2009/10	2010/11	2011/12
<b>Maintenance</b>	\$ 612	\$ 612	\$ 612
Maintenance Contracts	612	612	612
Piped Network	192	192	192
Open Drain Network	420	420	420
<b>Capital Development (LOS Enhancement)</b>	\$ -	\$ -	\$ 2,500
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 60 – Summary of short-term needs for Piriaka

	2009/10	2010/11	2011/12
<b>Maintenance</b>	\$ 1,768	\$ 1,768	\$ 1,768
Maintenance Contracts	1,768	1,768	1,768
Piped Network	192	192	192
Open Drain Network	1,476	1,476	1,476
All Other Maintenance Expenses	100	100	100
<b>Capital Development (LOS Enhancement)</b>	\$ -	\$ -	\$ 2,500
Network Improvement	-	-	2,500
General Network Improvement	-	-	2,500

Table 61 - Summary of short-term needs for Raurimu

The key capital projects for the next three years for the unserviced townships are presented in Table 62.

	2009/10	2010/11	2011/12
<b>Capital Development (LOS Enhancement)</b>	\$ -	\$ 300,000	\$ -
Compliance	-	300,000	-
Piped Network	-	300,000	-

Table 62 – Short-term capital development needs for unserviced townships.

## 5.11 Future improvement

Opportunities to improve the way we manage our assets include:

### Asset portfolio

- Consider undertaking a CCTV survey of stormwater network to gain a better understanding of asset condition.
- Undertake a capacity study of Owhango stormwater network to understand its current and future performance.
- Undertake a capacity study of Raetihi stormwater network to understand its current and future performance.
- Undertake further flood control study of the Maukuroa Stream.

## 6.0 Sustainability in Ruapehu District

Council manages the stormwater activity in a suitable manner across the four community well-beings.

- **Social.** Stormwater systems are a central service in urbanised areas conveying runoff via watercourses and pipe systems through to outfalls into the receiving environment. These services have a major benefit to our communities by preventing flooding of property. Considerable effort is being put into ensuring that the stormwater system can deal with this.
- **Economic.** The public infrastructure is vital for the economic well-being of the District to enable business development in the community. Affordability remains one of the key issues facing Ruapehu District and Council continues to explore and implement cost effective management initiatives for the stormwater activity including the adoption of sound “best appropriate” asset management practices, balancing in-house, and outsourcing physical works and specialist advisory services, and in-house, and outsourcing physical works and specialist advisory services.
- **Environmental.** Council has adopted the community’s views on the importance of the environment within the District. All works on the network are carefully considered for environmental impact, particularly in areas of environmental significance. Managing the stormwater to minimise these adverse effects is an important aspect of the sustainable management of the networks.

The discharge of stormwater often contains significant levels of pollutants which may impact on ecosystems and bio diversity. Managing the stormwater to minimise these adverse effects is an important aspect of the sustainable management of the networks.

- **Cultural.** Reducing overflow pollution into the waterways and reducing the level of pollutants in the stormwater discharge in Ruapehu District are key initiatives for cultural sustainability. Stormwater discharges are governed by the provision of the RMA 1991. Consenting issues are critical for stormwater activity.

One of the fundamental goals of asset management is to achieve sustainability across the four community well-beings. This asset management plan describes the levels of service required by the Ruapehu District regarding stormwater, both now and in the future, considers risks involved and presents strategies to sustainably deliver these levels of service into the future.

Key sustainability issues are summarised below.

- **Social.** Stormwater systems are a central service in urbanised areas conveying runoff via watercourses and pipe systems through to outfalls into the receiving environment. These services have a major benefit to our communities by preventing flooding of property. Considerable effort is being put into ensuring that the stormwater system can deal with this.
- **Economic.** The public infrastructure is vital for the economic well-being of the District to enable business development in the community. Affordability remains one of the key issues facing Ruapehu District and Council continues to explore and implement cost effective management initiatives for the stormwater activity including:
  - Adopting sound “best appropriate” asset management practices to provide suitable levels of service now and into the future, with adequate risk controls in a cost effective manner.
  - Maintaining ownership and core management of infrastructure in-house, and outsourcing physical works and specialist advisory services.
  - Adopting competitive pricing procedures for service delivery by external labour and specialists with emphasis on value (not just cost) and fostering long-term relationships. Key services are bundled and delivered in a term contract.

- Inviting innovation in technology and service delivery modes, including exploring contract opportunities with neighbouring authorities, and working with local farmers to implement minor improvement solutions.
- Environmental. Council has adopted the community's views on the importance of the environment within the District. All works on the network are carefully considered for environmental impact, particularly in areas of environmental significance.

The discharge of stormwater often contains significant levels of pollutants which may impact on ecosystems and bio diversity. Managing the stormwater to minimise these adverse effects is an important aspect of the sustainable management of the networks.

A negative side-effect of constructing the stormwater system is the greenhouse gases emitted during the manufacture of materials, installation and maintenance of these systems. While not commonly considered, it is important to be aware of the complete range of environmental impacts caused when constructing urban stormwater systems. These emissions could come from sources such as vehicle and plant emissions during construction and maintenance, fabrication of pipe materials and concrete. No specific targets have yet been established for stormwater and this will be considered in future following Central Government guidelines and policy.

Stormwater also has an indirect influence on sustainability through its relationship to water supply and wastewater. Rainwater harvesting or rain tanks reduce stormwater peak flows, and reduce the demand for treated mains water. Stormwater can infiltrate the wastewater systems which may cause overflows in wet weather.

Although RDC has not developed its own sustainability long term plan, there are national guidelines and policies providing guidance for Ruapehu's stormwater network.

- Cultural. Reducing overflow pollution into the waterways and reducing the level of pollutants in stormwater discharge in Ruapehu District are key initiatives for cultural sustainability. Stormwater discharges are governed by the provision of the RMA 1991. Consenting issues are critical for stormwater activity.

## 6.1 Future improvements

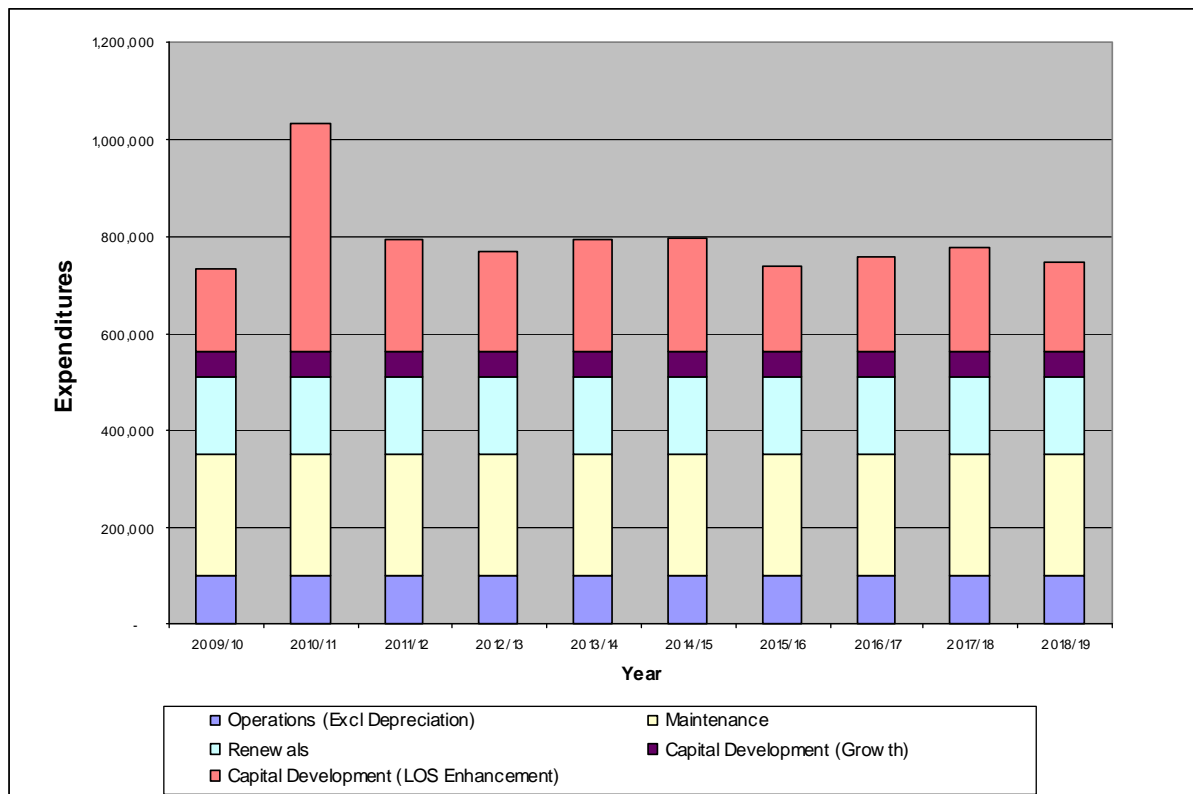
There are a number of improvements that have been identified to improve the way we manage sustainability including:

- Develop sustainability measures for stormwater in support of the Central Government guidelines and policy.

## 7.0 Financial requirements

### 7.1 10-year financial forecast summary

Table 63 presents the 10-year financial forecasts for the stormwater activity. The summary forecast is shown graphically in Figure 21. Inflation factors have been introduced at a summary level in Appendix C to allow direct comparison with financials reported in the LTCCP.



**Figure 21 –Financial forecast**

The key trends in this financial forecast are:

- Operations and maintenance – \$3.5 million is budgeted for over the 10 year planning period for stormwater asset operations and maintenance. There is an increase in maintenance forecast from 2012-13 to allow for an anticipated contract increase.
- Renewals - \$1.6 million is budgeted for over the 10 year planning period for stormwater asset renewals. Stormwater renewals are relatively constant at around \$160k per annum and are for reticulation and open drain renewals.
- Capital development for growth – \$0.5 million is budgeted for over the 10 year planning period to address growth. This is constant at \$50k per annum for the expected new building and subdivision throughout the District
- Capital development for level of service – \$2.3 million is budgeted for over the 10 year planning period to address identified service gaps and risk issues.

Expenditure Category	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Total Operating Expenditure</b>	<b>\$ 589,801</b>	<b>\$ 592,315</b>	<b>\$ 598,218</b>	<b>\$ 601,473</b>	<b>\$ 604,505</b>	<b>\$ 607,843</b>	<b>\$ 611,285</b>	<b>\$ 614,038</b>	<b>\$ 617,067</b>	<b>\$ 620,383</b>
<b>Total Capital Expenditure</b>	<b>\$ 383,724</b>	<b>\$ 679,724</b>	<b>\$ 439,724</b>	<b>\$ 417,224</b>	<b>\$ 439,724</b>	<b>\$ 444,724</b>	<b>\$ 384,724</b>	<b>\$ 404,724</b>	<b>\$ 424,724</b>	<b>\$ 394,724</b>
<b>Operations</b>	<b>\$ 337,725</b>	<b>\$ 340,239</b>	<b>\$ 346,143</b>	<b>\$ 349,397</b>	<b>\$ 352,429</b>	<b>\$ 355,767</b>	<b>\$ 359,209</b>	<b>\$ 361,962</b>	<b>\$ 364,992</b>	<b>\$ 368,307</b>
Revenue	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Revenue (connections)	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Corporate Overheads	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100
Insurances	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Rates	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Operating Expenses	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125
Support	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125
Depreciation	238,000	240,514	246,418	249,672	252,704	256,042	259,484	262,237	265,267	268,582
<b>Maintenance</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>
Maintenance Contracts	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076
Piped Network	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340
National Park	396	396	396	396	396	396	396	396	396	396
Ohakune	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296
Ohura	228	228	228	228	228	228	228	228	228	228
Owhango	300	300	300	300	300	300	300	300	300	300
Piriaka	192	192	192	192	192	192	192	192	192	192
Raetihi	468	468	468	468	468	468	468	468	468	468
Rangataua	252	252	252	252	252	252	252	252	252	252
Raurimu	192	192	192	192	192	192	192	192	192	192
Taumarunui	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632
Waiouru	384	384	384	384	384	384	384	384	384	384
Open Drain Network	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702
National Park	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692
Ohakune	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254
Ohura	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056
Owhango	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524
Piriaka	420	420	420	420	420	420	420	420	420	420
Raetihi	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542
Rangataua	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422
Raurimu	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476
Taumarunui	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500
Waiouru	816	816	816	816	816	816	816	816	816	816
All Other Maintenance Expenses	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034
National Park	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303
Ohakune	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946
Ohura	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Owhango	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274
Piriaka	-	-	-	-	-	-	-	-	-	-
Raetihi	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222
Rangataua	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640
Raurimu	100	100	100	100	100	100	100	100	100	100
Taumarunui	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514
Waiouru	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534

Expenditure Category	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Renewals</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>
Planned	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190
Piped Network	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190
Ohakune	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580
Ohura	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790
Owhango	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650
Raetihi	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170
Open Drain Network	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Ohakune	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Ohura	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Raetihi	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Taumarunui	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Waiouru	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
<b>Capital Development (Growth)</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>
Growth	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Piped Network	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
District Wide	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 173,534</b>	<b>\$ 469,534</b>	<b>\$ 229,534</b>	<b>\$ 207,034</b>	<b>\$ 229,534</b>	<b>\$ 234,534</b>	<b>\$ 174,534</b>	<b>\$ 194,534</b>	<b>\$ 214,534</b>	<b>\$ 184,534</b>
Compliance	169,000	465,000	185,000	185,000	175,000	190,000	170,000	190,000	170,000	180,000
Piped Network	169,000	465,000	185,000	185,000	175,000	190,000	170,000	190,000	170,000	180,000
National Park	-	30,000	-	30,000	-	30,000	-	30,000	-	30,000
Horopito	-	300,000	-	30,000	-	30,000	-	30,000	-	30,000
Ohakune	60,000	60,000	60,000	65,000	60,000	60,000	60,000	60,000	60,000	60,000
Ohura	-	-	10,000	-	-	10,000	-	10,000	-	-
Owhango	45,000	-	20,000	-	20,000	-	20,000	-	20,000	-
Raetihi	4,000	-	30,000	-	35,000	-	30,000	-	30,000	-
Taumarunui	60,000	75,000	65,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Network Improvement	4,534	4,534	44,534	22,034	54,534	44,534	4,534	4,534	44,534	4,534
General Network Improvements	-	-	40,000	-	-	40,000	-	-	40,000	-
Asset Management Development	-	-	40,000	-	-	40,000	-	-	40,000	-
Piped Network	4,534	4,534	4,534	22,034	54,534	4,534	4,534	4,534	4,534	4,534
Ohakune	-	-	-	-	50,000	-	-	-	-	-
Raetihi	-	-	-	-	-	-	-	-	-	-
Rangataua	-	-	-	-	-	-	-	-	-	-
Taumarunui	4,534	4,534	4,534	22,034	4,534	4,534	4,534	4,534	4,534	4,534

Table 63 - Summary financial forecast for the stormwater activity

## 7.2 Capital expenditure overview

The significant trends and changes are as follows:

- Overall the total capital investment averages approximately \$0.44 million per year, with around \$50k of this addressing growth issues, and \$0.23 million addressing service levels.
- Renewals are constant at \$160k per annum.

## 7.3 Capital renewal requirements

The comparison between renewal expenditure and the depreciation forecast is summarised in Figure 22. Renewals forecasts are less than depreciation reflecting that stormwater pipes generally function for a long time even in relatively poor condition compared to water supply and wastewater assets.

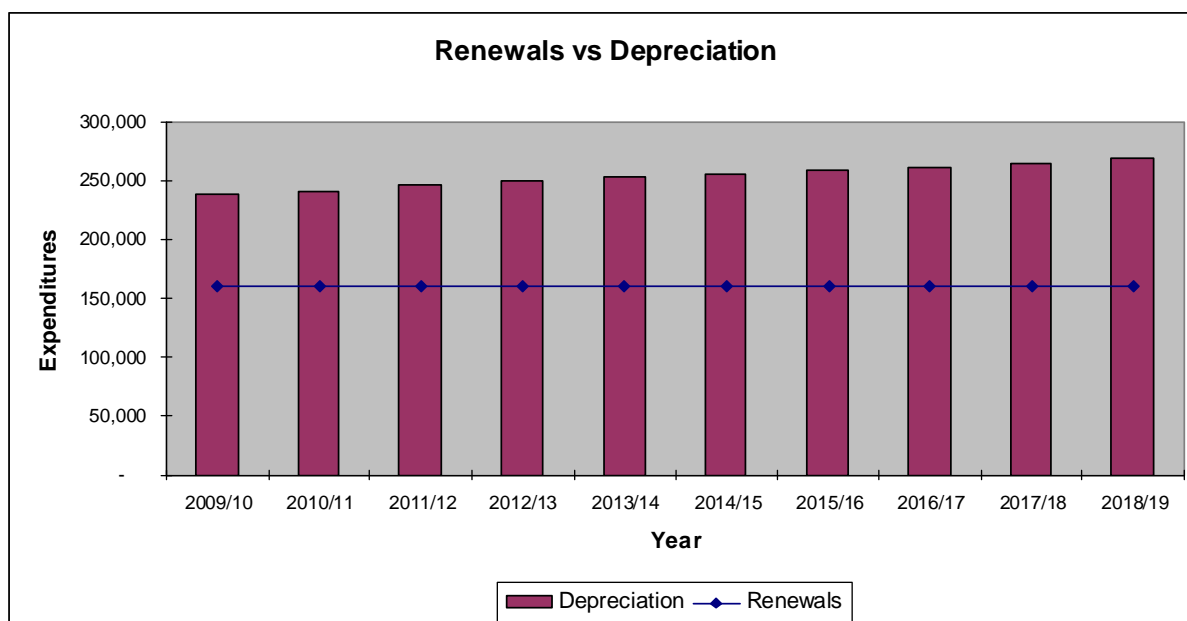


Figure 22 - Capital renewal expenditure and depreciation comparison

## 7.4 Operational expenditure

The operating forecast increases from \$0.59 million to \$0.62 million, reflecting cost increases anticipated in the maintenance contract, power supply and increased depreciation from growth to the asset base.

## 7.5 Expenditure categories

Expenditure and revenue projections within this plan have been classified as capital (new and renewal) or operating, in accordance with generally accepted accounting practice. The capital expenditure categories are detailed in Table 64. The capital projects are categorised as growth, renewal or levels of service.

Capital category	Capital sub category	Description
Renewals	Planned	Planned replacement of existing assets using a modern equivalent asset. This can be driven by a number of issues including break history, condition surveys and maintenance renewals.
	Unplanned	Unplanned replacement of assets due to unplanned failures.
Levels of service	Customer	Replacement, upgrading or installation of new assets to achieve the customer outcomes defined in the levels of service, such as stormwater service reliability.
	Statutory ( or compliance)	Replacement, upgrading or installation of new assets to achieve compliance with the statutory obligations defined in the levels of service, such as health and safety.
	Planned ( or capacity)	Upgrades to existing assets to meet increased capacity requirements.
	Network improvements	Information technology projects, data improvements, network studies and other expenditure necessary to support asset operations and provision of water services.
Development	Development pressure	Local upgrades of assets to accommodate incoming population.
	Vested assets	Purchase of vested assets from new developments.

**Table 64 - Capital expenditure categories**

Council has developed a depreciation policy that reflects accounting treatment of activities for infrastructure asset components. It has approved the use of this policy, and these definitions have been applied during the development of this asset management plan.

## 7.6 Key assumptions

The basis for the financial forecasts is explained in the lifecycle management plans (Section 5.0). The following general assumptions have been made in preparing the 10-year expenditure forecasts:

- All expenditure is stated in dollar values as at June 2008 with no allowance made for inflation over the 10-year planning period. They have been inflation-indexed at the summary level in terms of the BERL economic forecast index for the water industry, as recommended by the Audit Office, as presented in Appendix C.
- The rate and pattern of urban growth and development continues as assumed and noted within Section 3 of this plan.
- Maintenance costs are based largely on historical expenditure and assume there are no significant changes in contract rates (above the rate of inflation). Impacts of fuel tax are still being assessed and will be included in updated financial forecasts in subsequent versions of this plan.

- Maintenance and renewal allocations have been based on preserving current levels of service, and expenditure levels have been increased to match the growth of new assets and achieve the target levels of service noted in Section 2. No significant optimisation works have been allowed for.
- Remaining lives for stormwater assets are based on a top-down condition assessment and assumed deterioration profile.
- Repairs exceeding \$50,000 are capitalised as a renewals item.

The most significant potential changes to the financial projections shown will result from the factors below:

- Changes in the desired level of service and service standards from those identified in this asset management plan.
- Assumptions have been made as to the average useful lives and average remaining lives of the asset groups based on current local knowledge and experience, historical trends, and predictive modelling outputs. These are routinely reviewed and the accuracy improved based on real time assessments of asset deterioration).
- Changes in contract rates above inflation due to market or other external influences.

## 7.7 Confidence levels

The confidence in data used as a basis for the financial forecasts has been assessed using the grading system from the NZWWA NZ Guidelines for Infrastructure Asset Grading Standards, as summarised in Table 65.

Attribute	Very Uncertain	Uncertain	Reliable	Highly Reliable	Comments
Unit cost for Replacement					Facilities Management Contractor and other service providers maintain unit rates for capital projects.
Demand Information					Detailed growth analysis completed provides a sound basis for forecasts. Demand forecasts are still in developing phase.
<b>OPEX</b>					
Direct Cost – O&M					Costs come from Facilities Management Contractor.
Depreciation					Completed in house from actual contracts and independently audited.
<b>CAPEX</b>					
Renewals					Based on condition assessments and asset failures, see Section 5.
New Works					Based on consent requirements and specific designs, see Section 5.
<b>ASSET DATA</b>					
Condition/remaining life					Remaining lives are consistent with IIMM. Condition information collected with maintenance contractor, see Section 5.
Asset hierachy					Hierachy well defined in Bizeasset
Age					Some information in Bizeasset.
Quantity					Stored mostly in Bizeasset good level of information.

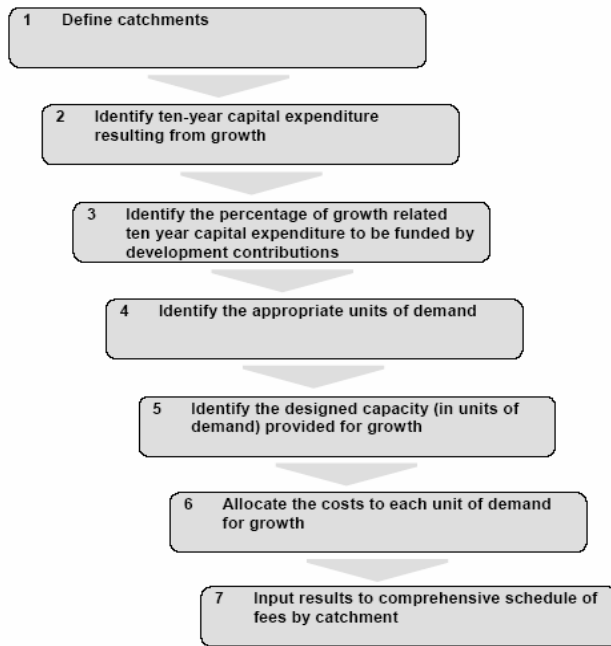
**Table 65 - Data and financial forecast confidence**

Forecasts will be improved with more sophisticated analysis and improved knowledge of the assets as discussed in Section 8.0.

## 7.8 Development contributions

### 7.8.1 Overview

Development contributions are calculated in accordance with the methodology set out in Schedule 13 of the LGA 2002, by using the seven-step process shown in Figure 23.



**Figure 23 - Methodology for calculating development contributions**

Development growth can affect the level of service standards for the stormwater activity for other users of the network. To continue to provide a safe and efficient stormwater network, additional capacity, safety or “quality” provisions are continually built into the network either as specific upgrades or as part of the renewal programme. Accordingly, development contributions for the stormwater activity are levied to recognise the investment required for the ongoing District-wide upgrade of the network.

The cost of capital expenditure required to cater for development will generally be recovered by means of development contributions from developers who benefit from the increased capacity created to cater for development. Exceptions to this include developments where grants or subsidies are received to fund development driven increases in infrastructural capacity. The proportion of capital expenditure that will be funded by development contributions, financial contributions and other sources of funding will depend on the ability of Council infrastructure to accommodate an increase in demand for each activity.

The portion of capital expenditure that must be undertaken to renew infrastructure or to provide increased levels of service will be funded from the Council’s normal sources of funding.

Council takes development contributions at the time of resource consent, building consent or service connection. Development contributions will only be levied if and to the extent that they haven’t already been charged previously. For residential developments only one development contribution will be charged for every separately inhabitable unit. For non-residential developments only one development contribution will be charged per toilet pan.

### **7.8.2 Assumptions**

Section 201(b) of the LGA 2002 requires the development contribution policy to state significant assumptions underlying the calculation of the schedule of development contributions.

- System-wide view – In developing a methodology for the development contributions, the Council has taken a system-wide view in identifying the cumulative effect of development on infrastructure, that is, by considering the infrastructure impacts on all ratepayers created by both individual and multiple developments across a catchment. This is because all individuals have sewage use for serviced townships.
- Planning horizon – Capacity increases are designed to reflect the overall level of growth in equivalent housing units expected over the next 10 years.

- Development contributions calculation – Contributions are calculated using the following development contribution assessment:

$$DC = DU * C \div NU$$

Symbol	Description
DC	Development contribution
DU	The number of units of demand for which a development must be paid
C	The development component of the capital cost of the project between of providing additional capacity to Council's infrastructure
NU	The total additional capacity that any particular upgrade or replacement project will provide, divided by the activity specific expression of one unit of demand

- Unit of demand – household number
- Growth forecasts – The overall planning assumption is for 2.5% per annum to take account of the impact on infrastructure of continuing growth within the District over the next 10 years. Although the growth rate varies from town to town, total growth is used to calculate district-wide contributions for the sewerage activity. Growth for capacity planning purposes is estimated after consideration of projections of population, households and employment prepared by Statistics New Zealand based on census data.

### 7.8.3 Development contributions

Table 66 outlines the cost of development contributions per unit of demand for the stormwater activity in the Ruapehu District. Development contributions are calculated on a district wide basis and are detailed in Appendix I.

Catchment	Capital Expenditure	
	Total development driven capital expenditure	Development contributions
Whole District	\$0.5million	\$0.5million

Table 66- Development contributions

## 7.9 Valuation summary

The stormwater assets were last valued as at 30 June 2007 by DTZ and then updated as at 30 June 2008, as shown in Table 67. Table 15 summarizes the valuation of the stormwater assets at township level by major asset groups. Stormwater assets were valued at a depreciated replacement cost of \$10.661 million (30 June 2008) by Council.

**Stormwater**

Lines	18,046,114	8,258,888	9,787,227	319,353	131,671	73,799	2,246	376,931	4,172	8,240,741	8,336,858	325,771	8,562,020
Points	1,994,125	871,525	1,122,600	37,319	7,900	4,070	147	85,603	829	915,058	876,424	38,294	953,058
Plant	134,500	121,686	12,814	1,624	0	0	0	0	0	120,062	121,686	1,624	121,686
Land	1,025,000	1,025,000	0	0	0	0	0	0	0	1,025,000	1,025,000	0	1,025,000
	<b>21,199,739</b>	<b>10,277,099</b>	<b>10,922,640</b>	<b>358,296</b>	<b>139,571</b>	<b>77,869</b>	<b>2,393</b>	<b>462,534</b>	<b>5,000</b>	<b>10,300,860</b>	<b>10,359,968</b>	<b>365,689</b>	<b>10,661,764</b>

**Table 67- Summary of stormwater assets valuation**

In calculating the asset value, the following assumptions have been applied:

- The data in the BizeAsset database was the source of asset physical data.
- This valuation has adopted the Depreciated Replacement Cost methodology. This approach assumes that all assets will continue to be employed as part of an ongoing operation and is therefore consistent with NZIAS 16 and NAMS NZ Infrastructure Asset Valuation and Depreciation Guidelines.
- Depreciation is provided on all depreciable assets on a straight-line basis over the total assessed economic life of the asset.
- Residual values have been assumed as zero throughout.
- In all cases replacement has been made in accordance with modern practice standards with equivalent capacity and performance.

The total economic lives for stormwater pipes that were applied in the 2008 valuation are summarized in Table 68.

Pipe type	Years
AC	50
CLS	60
CONC	60
GEW	80
HPDE	80
PVC	80
STEEL	60
UPVC	80

**Table 68- Pipe economic lives**

The base lives for other sewerage assets that were applied in the 2008 valuation are summarized in Table 69.

Asset Type	Base lives
CON	50
SUMP	50
MAN	50
OUTLT	50
CULVERT	50
PIPE	60
OPEN DRAIN	50

Asset Type	Base lives
PUBLIC DRAIN	50

Table 69-- Other asset base lives

## 7.10 Revenue and financing policy

### 7.10.1 Introduction

The Local Government Act 2002 requires the adoption of policies that outline how operating and capital expenditure for each activity will be funded. This is detailed in the revenue and financing policy, which is included in the Council's LTCCP. The policy identifies:

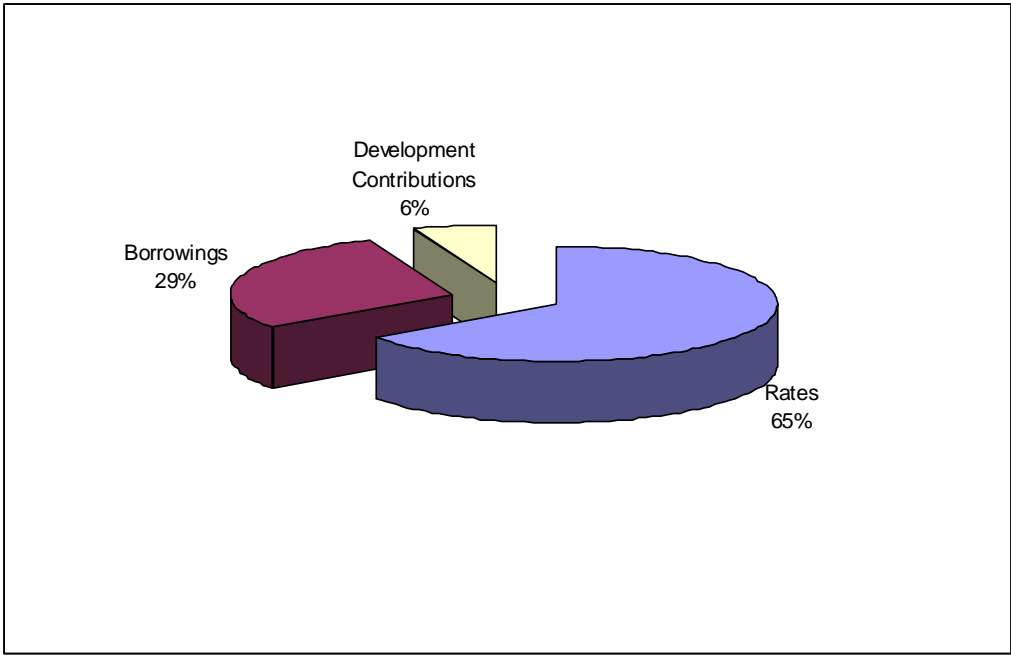
- The community outcomes to which the activity primarily contributes.
- The distribution of benefits between the community as a whole, any identifiable part of the community, and individuals.
- The costs and benefits, including consequences for transparency and accountability, of funding the activity distinctly from other activities.

Community outcomes are discussed in Section 2.0. The statements which follow summarise who benefits from the services, who pays for the service and how the programmes are funded.

Capital works that are an improvement or addition to the asset are considered intergenerational in nature. Council's use of funding mechanisms to fund capital development is as follows. The Council will first apply development contributions, then depreciation funding available, then loan and lastly rate funding depending on the circumstances.

Development contributions expected from developers are likely to be minor and unable to be predicted with certainty.

Given these funding policies, the estimated 2008/09 funding source allocation is presented in Figure 24. The development contributions received each year will not necessarily match development expenditure. Further, funding proportions will vary from year to year reflecting the annual variations in expenditure. This graph should be considered indicative only and will be refined by the Council finance group in the next version of this plan.



**Figure 24 – Funding sources for the stormwater activity**

Funding sources for stormwater services include:

- Rates
- Borrowing
- Development contributions.

**7.11 Significance policy**

The whole stormwater network has been identified as a strategic asset as defined in Council's significance policy in the long term plan.

**7.12 Future improvements**

The improvements summarised throughout this plan will contribute to making the financial forecasts more robust. Specific improvements relating to this forecast include:

- Reviewing the expenditure forecasts with a particular focus on ensuring clear and robust linkages to levels of service, growth and achieving asset management strategies.

## 8.0 Continuous improvement

Council's vision for the quality of AM planning is to match but not lead best practice for comparable local authorities, which are defined as rural authorities with small urban towns (e.g. Waikato DC, Waitomo DC, Rangitikei DC).

### 8.1 Improvements achieved

The Council has progressively reviewed and made improvements to its asset management planning for the stormwater activity since the first asset management plan was prepared in 1996. The 2008 version represents a significant departure from the style of previous plans, with the following key improvements being incorporated:

- Levels of service – Levels of service statements and performance measures have been revised with a greater emphasis on service, and less on process inputs and community satisfaction.
- Demand management – Demand drivers have been separately reviewed and updated, with a summary of likely impact on the stormwater activity. Updates have been made to population estimates, trend analysis and the high, medium and low demand scenarios presented. Demand projections have been developed to better enable impacts to be managed.
- Risk management – Risk assessment and evaluation has been redeveloped, including an identification of critical assets, and a more thorough assessment of risk events within a formalised framework. Risks requiring action have been identified and mitigation controls have been included within the works programmes.
- Lifecycle management plans – Asset information has been updated.
- Financial summary – Financial projections and development contributions information has been updated.
- Improvement planning – A comprehensive AM status review was undertaken prior to updating the AM plan, which included a gap analysis and the development of a prioritised improvement plan. This improvement plan has been inserted into the document.
- Strengthened linkages – Linkages between the three fundamental works drivers (levels of service, change in demand and risk) and works programmes within the lifecycle management section and financial summary have been strengthened with summary tables included in each of these sections.
- Document reformat – The plan has been restructured, including the removal of generic asset management theory content, and the development of a summary more closely aligned with information required for the LTCCP.
- Councillor involvement – Councillors have been more fully involved in the development of this plan with an initial awareness-raising workshop, followed by a workshop which summarised key issues and proposed Council response within the asset management framework.

### 8.2 Approach

Effective asset management practices are demonstrated by Council's ability to meet the following criteria that are the focus of our detailed review. The sophistication to which Council undertakes each of these activities is dependent on our strategic goals and the benefits that can be obtained from improving our practices.

- Asset knowledge, the appropriateness, reliability and accessibility of data and the processes associated with the use and maintenance of asset data.
- Strategic planning processes, the processes used in the implementation of AM activities including failure planning, risk



- management, service level reviews and long term financial planning.
- Current AM, the processes used in the implementation of AM activities including capital expenditure programmes and operations and maintenance management.
- Asset management plans that identify the optimum lifecycle management tactics and resources.
- Information systems to support (and often replicate) AM processes and store/manipulate data.
- Organisational tactics including organisational, contractual and people issues.

The current and appropriate practice levels (for a three-year target) in AM were assessed using the rating schedule shown in Table 70. The size of the “gap” between current and appropriate practice provides an indication of the priority that should be placed on improving in that area.

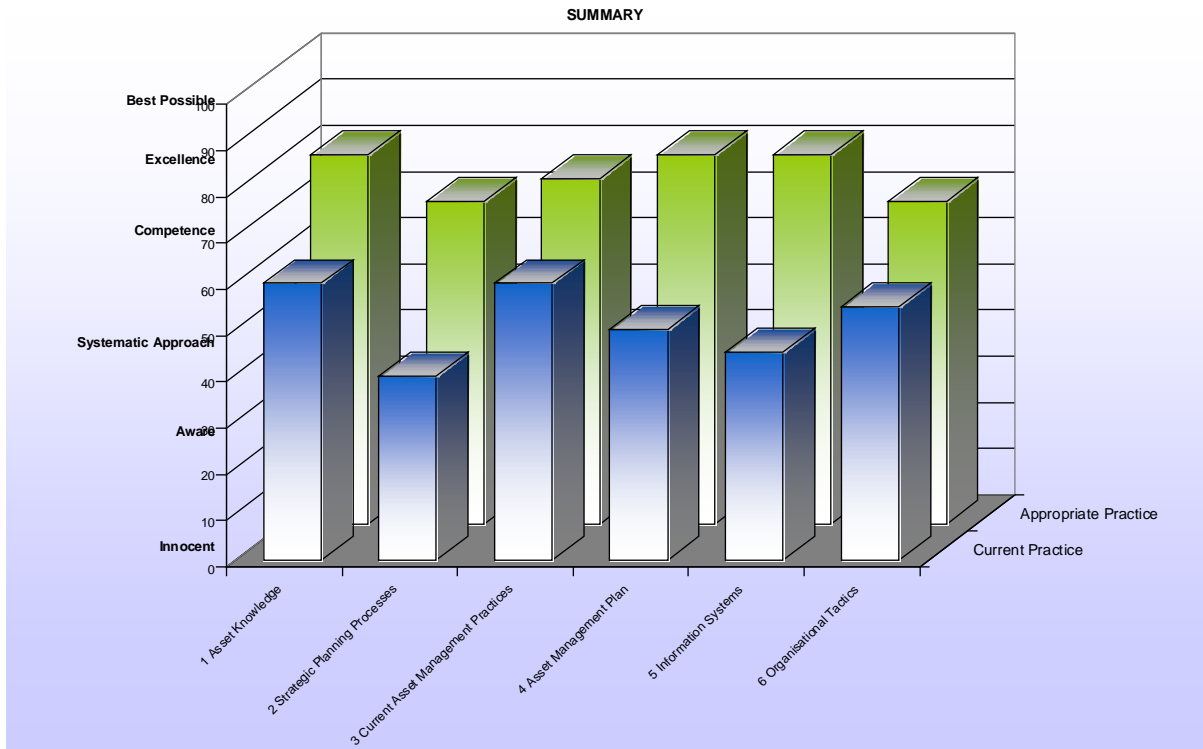
Quality Level	Score
Best Possible	100
Excellence	85
Competence	70
Systematic Approach	45
Awareness	25
Innocence	0

**Table 70 - Gap assessment rating system**

“Appropriate” practice was assessed with consideration of the guidelines for “basic” and “advanced” AM plans issued by the Officer of the Auditor General (refer Attachment A) and appropriate practice expectations for a Council our size. The “advanced” requirements for AM plans defined in the guidelines are consistent with the AM plan outputs required for the LTCCP as stated in Schedule 10 of the Local Government Act 2002.

The Audit Office have publicly stated their expectation that organisation’s should soon be able to demonstrate achievements in advanced AM practices. Council’s primary goal is to achieve legislative compliance, if this has not already been achieved.

The results of the gap analysis are illustrated in chart form in Figure 25, and tabulated in more detail in Appendix F.



**Figure 25- Gap analysis outcomes**

Improvement projects identified through the gap analysis process have been prioritised considering benefits to Council achieved through the improved processes, and effort/cost involved in implementing the improvement projects. This is summarised in **Error! Reference source not found.** The improvement projects have been developed for water supply, wastewater and stormwater since many would be undertaken at the same time.

**Description**

Legislative Compliance

Greatly enhanced operational efficiency

Significant cost savings achieved

Major risk mitigated

Major gap between current and appropriate practice

Some improvements to operational efficiency

Moderate cost savings achieved

Will contribute to legislative compliance

Significant gap between current and appropriate practice

Minor improvements to operational efficiency

Minor cost savings achieved

Not a legislative requirement

**WATER SUPPLY IMPROVEMENT TASKS**

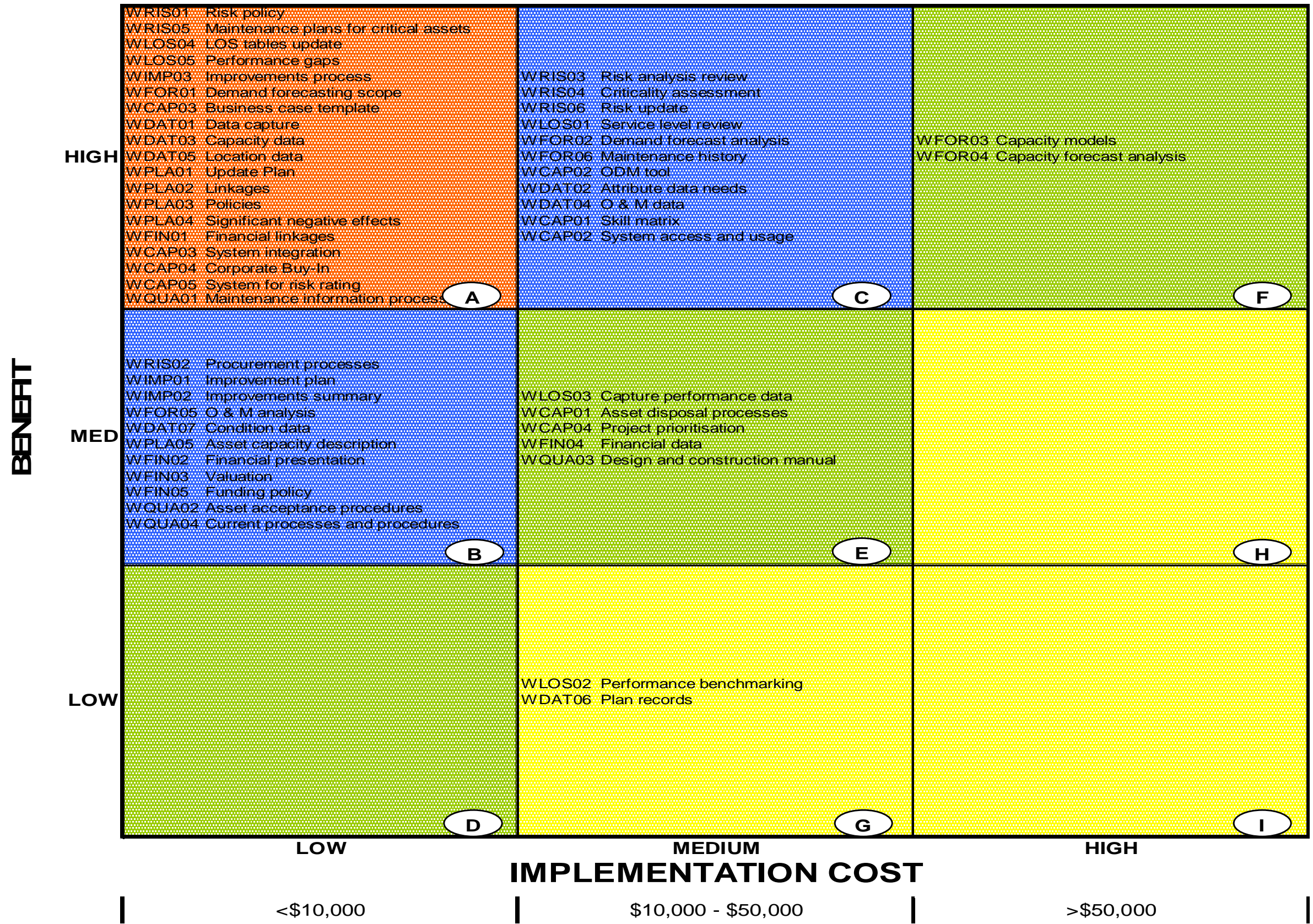


Table 71 - -Benefit cost assessment of improvement projects

### **8.3 Short-term improvement programme**

Council is committed to an ongoing improvement philosophy and has progressively reviewed and improved its asset management planning since the first asset management plan was prepared. The risk-based review of the Council's asset management planning identified the priority improvement projects shown in Table 72 scheduled to be actioned over the next three years. Project briefs are included in Appendix G.

Improvement Projects	Description	Responsibility	Resources			2008/09	2009/10	2010/11
			Total Days	External (\$)	Internal (Days)			
<b>For all three waters combined</b>								
<b>Risk Management</b>								
WRIS01 Risk policy	Develop risk management policy	GM, Assets					Oct-09	Aug-10
WRIS02 Procurement processes	Develop formal procurement processes to document current practices	Corporate	2					
	Review risk framework and register, including likelihood/consequence and risk rating definitions for both tangible and intangible risks	GM, Assets	Completed	Completed	Completed	Sep-08		
WRIS03 Risk analysis review								
WRIS04 Criticality assessment	Undertake criticality analysis to formally assign criticality ratings to assets	GM, Assets	23	30,000	3	Jun-09		Jun-11
WRIS05 Maintenance plans for critical assets	Develop maintenance plans for critical asset and events	GM, Assets	3		3			Jun-11
WRIS06 Risk update	Update risk register	GM, Assets	Completed	Completed	Completed	Sep-08		Jun-11
<b>Levels of Service and Performance</b>								
WLOS01 Service level review	Review levels of service, including user needs review, consultation needs, SMART principles, rationalise existing tables, LOS describe key aspects of service	GM, Assets	12	Completed	Completed		Jun-10	
WLOS03 Capture performance data	Capture performance information against KPIs as routine activity and report through the organisation	GM, Assets	2	Completed	Completed	Jun-09		
WLOS04 LOS tables update	Update LOS tables to reflect updated service level statements, and to report trended performance achieved	GM, Assets	2	Completed	Completed	Jun-09		
WLOS05 Performance gaps	Link performance description through levels of service tables, formal gap identification and performance discussion in the lifecycle management section	GM, Assets	Completed	Completed	Completed	Sep-08		
WLOS06 Sustainability KPIs	Develop KPIs specific to sustainability	GM, Assets	2	1,000	1	Jun-09		
WLOS07 LOS survey	Undertake a LOS survey for the activity on current and future LOS	GM, Assets	2	5,000	1	Jun-09		
<b>Improvement Plan</b>								
WIMP01 Improvement plan	Develop prioritised improvement plan with responsibilities, timeframes, resource allocations and KPIs defined	GM, Assets	Completed	Completed	Completed	Sep-08		
WIMP02 Improvements summary	Summarise achievements made against previous plan	GM, Assets	Completed	Completed	Completed	Sep-08		
WIMP03 Improvements process	Develop processes for routinely monitoring and reporting progress made in improvement activities	GM, Assets	1	Completed	1	Sep-08		
<b>Forecasting</b>								
WFOR01 Demand forecasting scope	Scope demand forecasting analysis	GM, Assets	Completed	Completed	Completed	Jun-09		
WFOR02 Demand forecast analysis	Undertake demand forecasting, including sensitivity or scenario analysis, cost, risk and los implications, and link to lifecycle management section	GM, Assets	5	5,000	2		Jun-10	
WFOR03 Capacity models	Develop hydraulic models for all townships to understand existing and future capacity	GM, Assets	55	75,000	5	Jun-09	Jun-10	Jun-11
WFOR04 Capacity forecast analysis	Undertake forecasting to understand capacity including risk and LOS implications	GM, Assets	38	50,000	5	Jun-09	Jun-10	Jun-11
WFOR05 O & M analysis	Develop O & M strategies with better cost information	GM, Assets	9	10,000	2		Jun-10	
WFOR06 Maintenance history	Develop processes to readily track maintenance history to validate asset lives and as an input into forecast renewals	GM, Assets	5	4,500	2			Jun-11
WFOR07 Climate change	Consider the impacts of climate change on the future management of wastewater.	GM, Assets	2	5,000	2			Jun-11
WFOR08 Demand management plan	Revise the demand management plan taking into consideration best practice in the industry and adapting this for Ruapehu's needs.	GM, Assets	2		2		Dec-09	

Improvement Projects  For all three waters combined	Description	Responsibility	Resources			2008/09	2009/10	2010/11
			Total Days	External (\$)	Internal (Days)			
<b>Capex Evaluation</b> WCAX01 Asset disposal processes WCAX03 Business case template  WCAX04 Project prioritisation	Develop processes for reviews of network to identify surplus assets, or assets to be disposed of Develop standard business case pro-forma including sections for community outcome impacts, NPV analysis and intangibles quantification for major projects Develop transparent process for prioritising capital projects	GM, Assets GM, Assets GM, Assets	1 3 12	 3,000 Completed	 1 2	  Jun-09	  Jun-10	  Jun-11
<b>Attribute and Condition Data</b> WDAT01 Data capture WDAT02 Attribute data needs WDAT03 Capacity data  WDAT04 O & M data WDAT05 Location data WDAT06 Plan records WDAT08 Condition data  WDAT09 Performance data	Strengthen processes to ensure capture of data into BizeAsset Review data capture needs and develop processes to achieve it. Assess and record asset capacity for all townships particularly for Ohakune. Quantify for current capacity and for future growth. Record planned maintenance schedules and activities in BizeAsset Complete validation process of location data in BizeAsset and GIS Consider benefits and costs of making the old plans records being available in MapInfo Complete formal condition and performance assessment every three years in future including considering implementing CCTV surveys to compliment the visual inspections. Record all the causes for blockages and reduce the number of unknown causes as much as practicable.	GM, Assets GM, Assets  GM, Assets GM, Assets GM, Assets GM, Assets GM, Assets GM, Assets	2 12  2 2 2 18 15 3	Completed Completed  Included  20,000 15,000 3,000	2 2  2 Ongoing 2 5 2 1	Jun-09 Jun-09  Jun-09 Jun-09 Jun-09  Jun-09	  Jun-10 Jun-10  Jun-10	     Jun-11 Jun-11
<b>AM Plan Update</b> WPLA01 Update Plan  WPLA02 Linkages  WPLA03 Policies WPLA04 Significant negative effects WPLA05 Asset capacity description	Improve conciousness of plan and develop executive summary as a document which could be considered a standalone document Review and improve linkages throughout the plan, including community outcomes, LOS, demand and risk, key strategic issues, lifecycle strategies, work programmes, financials and improvement projects Review and develop AM policy and underlying AM strategies Summarise how Council is addressing the significant negative effects Describe how Council is assessing asset capacity	GM, Assets GM, Assets GM, Assets GM, Assets GM, Assets	Completed Completed Completed Completed Completed	Completed Completed Completed Completed Completed	Completed Completed Completed Completed Completed	Sep-08 Sep-08 Sep-08 Sep-08 Sep-08		
<b>Financials</b> WFIN01 Financial linkages WFIN02 Financial presentation  WFIN03 Valuation WFIN04 Financial data WFIN05 Funding policy	Develop linkages between AMP and LTCCP financial forecasts Standardise financial tables and develop processes to ensure robust links between AM plan, LTCCP and financial system Summarise valuation outcomes Review need for capture of historic financial data linked to asset number Review and clarify funding policy, particularly regarding funding of renewals and depreciation recognition	GM, Assets GM, Assets GM, Assets GM, Assets CFO	Completed 5 Completed 2 2	Completed Completed Completed Completed Completed	Completed 5 Completed 2 Completed	Sep-08 Sep-08 Sep-08  Jun-09	  Jun-10	
<b>AM Capability Development</b> WCAP01 Skill matrix  WCAP02 System access and usage WCAP03 System integration  WCAP04 Corporate Buy-In WCAP05 System for risk rating	Undertake an AM skill needs matrix and review current status. Target retention, recruitment, training and outsourcing. May be part of organisation wide initiative Review Council usage and access needs to key systems a (eg Maximo and BizeAsset) Examine integration opportunities between financial system, asset management system, customer services system and GIS Develop processes to ensure Councillor and staff buy-in to AM planning importance Develop system capability to assess risk for each asset or facility	Corporate Corporate IT GM, Assets GM, Assets	3 3 18 1 2	  15,000  Included	Completed Ongoing Ongoing Completed Completed	Jun-09 Jun-09 Jun-09 Jun-09 Jun-09	  Jun-10	
<b>Quality</b> WQUA01 Maintenance information processes WQUA02 Asset acceptance procedures WQUA03 Design and construction manual WQUA04 Current processes and procedures	Reconcile information in Maximo with HEAT and migrate to new AM system Review procedures in place for accepting new assets, particularly developer-created assets Develop a RDC design and construction manual for capital and development works Review the processes in place to ensure processes and procedures are kept up to date	GM, Assets GM, Assets GM, Assets GM, Assets	2 1 18 1	  20,000 Completed	Unknown Completed 5 Completed	Jun-09 Jun-09  Jun-09		  Jun-11

Table 72 - Water utilities asset management processes improvement tasks

## 8.4 Asset management plan review and monitoring

### 8.4.1 Asset management plan review

To ensure the asset management plan remains useful and relevant, the following ongoing process of plan monitoring and review will be undertaken:

- Formal adoption of the plan principles and outcomes by the Council
- Review and formally adopt levels of service
- Revise asset management plan annually to incorporate and document changes to works programmes, outcome of service level review and new knowledge resulting from the asset management improvement programme
- Quality assurance audits of asset management information to ensure the integrity and cost-effectiveness of data collected
- Peer review – 3 yearly audits will be undertaken to assess the effectiveness with which this plan meets corporate objectives (periodic internal audits will be undertaken to assess the adequacy of asset management processes, systems and data, and external audits will be undertaken to measure performance against desired practice).

This is summarised in Table 73.

Activity	Action	Target Date
<b>Asset management plan review and development</b>	• Adoption of AM plan principles by Council	November 2008
	• Adoption of AM plan outcomes by Council	February 2009
	• Annual review of plan context by AM team	April 2009
	- Check AM plan content for consistency with adopted council programmes and plans	
	- Compliance with agreed AM improvement programmes	
	• Full review of the AM plan and external review of technical content including an assessment of the effectiveness and adequacy of AM processes, systems and data	April 2011
	• Adoption of reviewed AM plan by Council	June 2009
<b>Levels of service</b>	• External review of AM plan information by Audit New Zealand	2 and 3 December 2008
	• Review service performance measures (including public consultation process) and formally adopt levels of service	April 2009, then three-yearly
<b>Risk</b>	• Consolidate performance against actual level of service delivered and report in Annual Report	July 2009
	• Review of risk framework	April 2009, then three-yearly
	• Annual review of risk registers by AM team to ensure they do not occur outside the risk profile.	May 2009

Table 73– Asset management review plan

#### 8.4.2 Asset management plan monitoring

The indicators in Table 74 will be monitored to measure the effectiveness of this asset management plan.

Indicator	Measure	Source of information
Compliance with legislative requirements	<ul style="list-style-type: none"><li>Unqualified audit opinion relating to asset management plan outputs.</li></ul>	Audit NZ reports
Quality of services delivered	<ul style="list-style-type: none"><li>100%, compliance with LOS targets.</li></ul>	Annual Plan reporting
Quality of risk management	<ul style="list-style-type: none"><li>No event occurring outside of risk profile.</li></ul>	Audit of risk register.

**Table 74– Monitoring asset management plan effectiveness**

# Appendix A Summary of 2009 LTCCP Process



## Appendix A Summary of 2009 LTCCP Process

This Appendix summarises the changes made to the programmes and budgets proposed within this AM plan as part of the LTCCP process, and outlines implications to current and future levels of service and risk exposure.

The first draft of this AMP was discussed with the Council on 15/9/2008 and various subsequent meetings.

The overall result was that hard copies of this document were distributed to all Councillors on 28/11/2008.

The draft was adopted for consultation on the 24 March 2009 and was publicly consulted on 7 April to 8 May 2009 with the draft Long Term Plan 2009-19.

Submitter's hearings were held on the 27, 28 and 29 May 2009. Council then deliberated on the submissions to the LTCCP and made decisions on final LTCCP activities, projects and budgets.

Appendix A now reflects the Adopted LTCCP on 30 June 2009.

This Appendix is the only part of the document to be updated subsequent to the distribution of the draft document. It includes a new set of financial budgets. All future references to the adopted budget should refer to this budget.

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### Section A-1 30 June 2009 Adopted AM plan Overall comment

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The budget only considered the financial year ending 2010 in any detail. The differences outlined below are for that year. Other years were discussed in general.

Council has set the average rate rise to a figure of 4.5%. In order to do this the budget was altered and an analysis of this is provided below

Operational and maintenance services have been placed at the minimum level. . As the pipes age there is an increasing requirement to undertake operations if the renewal capital works are not undertaken. The total operations and maintenance values are stated in A1-1-3.

The Operations and Maintenance budget originally proposed in 2008 was set at the 2007 values with Contractual changes added. In some cases the budget has been lowered to reflect anticipated upgrade works. The margin of error is probably 5 to 10%.

An analysis of the major changes to the capital budget is discussed and have been summarised in the Table A-1-1 to A-1-3.

The One Plan being developed by Horizons Regional Council has significant implications for all communities across all activities. In the current form of the One Plan the RDC will need to provide significant sums of money in order to meet the plan requirements. This potential plan cost has not been accommodated for in this document as it's believed that the plan will change significantly. This is a risk that can not be quantified. In light of the One Plan and recent experience being commented on by other councils money allocated for resource consent applications may not be sufficient. The One Plan hearings are unlikely to be completed until 2010/2011 and significant changes continue and are not predictable. Should there be budget requirements they will be addressed in the next annual plan.

## A-1-1 2010 Budget

The formal motions taken by Council for Water Supply have been summarised as changes in the table below.

Item	Page	Description	Budget in Appendix B \$	Approved Budget February 2009	Adopted Budget June 2009 \$
Renewals	B-1	Ohakune rolling replacement programme	\$71,580	\$59,000	\$59,000
Renewals	B-1	Raetihi replacement programme	\$28,170	\$23,000	\$23,000
Growth	B-2	District wide new reticulation	\$50,000	\$27,500	\$27,500

The Ohakune township described in section 5.3 is a popular ski town with 24km of stormwater pipelines. There is a significant number of unknown pipes in the system. The condition assessment is moderate with some poor haunching in many manholes and varying pipe size creating poor continuity of flow across the network. Hydraulic capacity is reached during heavy rainfalls and a strategic plan of data gathering and assessment will help prioritise works.

The Raetihi township described in section 5.6 has a mix of unknown pipes and concrete pipes. The reticulation performance has been assessed as moderate with again some pipe variations and vegetation growth restricting flow.

There has been money placed aside for district wide reticulation, where areas are identified as requiring some drainage work due to growth.

## A-1-2 Deferred items

In addition 2 general provisions were deferred until later years:

Item	Item	Description	Budget in Appendix B \$	Approved Budget February 2009	Adopted Budget June 2009 \$
Levels Service	of B-2	Ohakune reticulation	new \$60,000	Removed	Removed
Levels Service	of B-2	Taumarunui reticulation	new \$60,000	Removed	Removed

The addition of new reticulation has been removed from the budget for 2009-10. The money was allowed to provide for minor changes to be made in the system as problems are identified. Both Ohakune and Raetihi are experiencing local flooding caused by mismatches in hydraulic flows. Reduction in these budgets (including the District Wide budget) will limit our ability to cope with change.

## **Section A-1-4 Effects on current levels of service**

### **A-1-4-1 Stormwater rolling replacement programmes**

Section 2.0 of the AMP states the levels of service for stormwater provided. Section 6 sets out the Life Cycle management plan that will assist RDC working towards achieving the stormwater systems envisaged.

There are flooding and hydraulic flow concerns in the Ruapehu District towns which need to be addressed to protect townships for storm events. Levels of service are described in pages 17, 18, 21, and 22 of the AMP.

The level of service affected by the budget cuts is that related to spot flooding. It is likely that this will continue to occur at present levels. The plan did envisage some reduction in the problem.

### **A-1.4-2 Risks affected by Budget reductions**

As townships grow and become more populated the 'open drain' and 'swampy spots' become exacerbated by increasing water volumes from sealed areas and new roofs. It becomes prudent to pipe these areas and reduce the risk of public liability across the township.

There is a level of complaints received around this area which are evaluated and resolved by this piping work. Reduction in the budget increases risk and potential public dis-satisfaction with Council.

The types of risk is summarised in section 4.0.

The stormwater reticulation renewal programme has been approximately halved. This creates the following high risk:

- Loss of stormwater capacity to the community due to critical pipelines failing.
- Liability from third party accident in open drain
- Inefficient management of asset with pollution incidents breaches of discharge consent conditions, illness and environmental damage.
- Inefficient management of asset with unavailability of urban road, (flooding).
- Increased operational costs.

The full effects of the reduced LOS, risk to public health and potential environmental effects will accumulate. This can be seen in the lack of vegetation clearance in all waterways in the urban environment.

Ruapehu District Council  
Stormwater

Activity	GL/RC	Budget 2009/10	Budget 2010/11	Budget 2011/12	Budget 2012/13	Budget 2013/14	Budget 2014/15	Budget 2015/16	Budget 2016/17	Budget 2017/18	Budget 2018/19
<b>Operating Cost</b>		<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>	<b>\$000</b>
<b>Stormwater Disposal</b>											
Stormwater Disposal		802	876	951	934	1,067	1,055	1,025	1,077	1,135	1,089
Flood Protection Works		0	0	0	0	0	0	0	0	0	0
River Management											
<b>Total Operating Costs</b>		<b>802</b>	<b>876</b>	<b>951</b>	<b>934</b>	<b>1,067</b>	<b>1,055</b>	<b>1,025</b>	<b>1,077</b>	<b>1,135</b>	<b>1,089</b>
Development Contributions		(47)	(49)	(51)	(53)	(56)	(58)	(61)	(64)	(67)	(70)
Operating Revenue		(4)	(4)	(5)	(5)	(6)	(5)	(5)	(6)	(6)	(6)
Separate Rates		(347)	(383)	(424)	(415)	(481)	(475)	(460)	(486)	(516)	(492)
<b>NET COST OF SERVICE</b>		<b>405</b>	<b>440</b>	<b>471</b>	<b>461</b>	<b>525</b>	<b>516</b>	<b>498</b>	<b>522</b>	<b>546</b>	<b>520</b>
<b>Other Funding Requirements</b>											
Development Expenditure		58	652	332	418	225	246	228	276	271	295
Renewal Expenditure		253	187	181	185	191	197	204	210	217	224
Loan Repayments		68	70	95	108	126	136	148	159	168	187
Transfers to Development Contributions Reserve		47	49	51	53	56	58	61	64	67	70
Sinking Fund Contributions		0	0	0	0	0	0	0	0	0	0
		425	958	659	765	597	637	641	709	724	776
Less Depreciation Not Funded		100	100	100	100	100	100	100	100	100	100
<b>Total Funding Requirement</b>		<b>730</b>	<b>1,298</b>	<b>1,030</b>	<b>1,125</b>	<b>1,022</b>	<b>1,053</b>	<b>1,039</b>	<b>1,131</b>	<b>1,170</b>	<b>1,196</b>
<b>Funded By</b>											
General Rates		350	388	428	420	486	480	465	491	521	498
Loans Raised		54	633	312	464	252	312	283	355	320	394
Sinking Fund Withdrawals		0	0	0	0	0	0	0	0	0	0
Transfer from Accumulated Cash		278	276	296	248	290	267	297	291	337	311
Transfer from Special Funds		0	0	0	0	0	0	0	0	0	0
Transfer from Development Contributions		47	0	0	0	0	0	0	0	0	0
Transfer (To)/From Equity		0	1	(6)	(6)	(6)	(6)	(6)	(5)	(8)	(7)
<b>TOTAL FUNDING</b>		<b>730</b>	<b>1,298</b>	<b>1,030</b>	<b>1,125</b>	<b>1,022</b>	<b>1,053</b>	<b>1,039</b>	<b>1,131</b>	<b>1,170</b>	<b>1,196</b>

**FULL FINANCIAL DATA CAN BE OBTAINED VIA S:\LTP\2009-19\Financial Forecast\LTFS Model Final**

# Appendix B Detailed Financial Tables



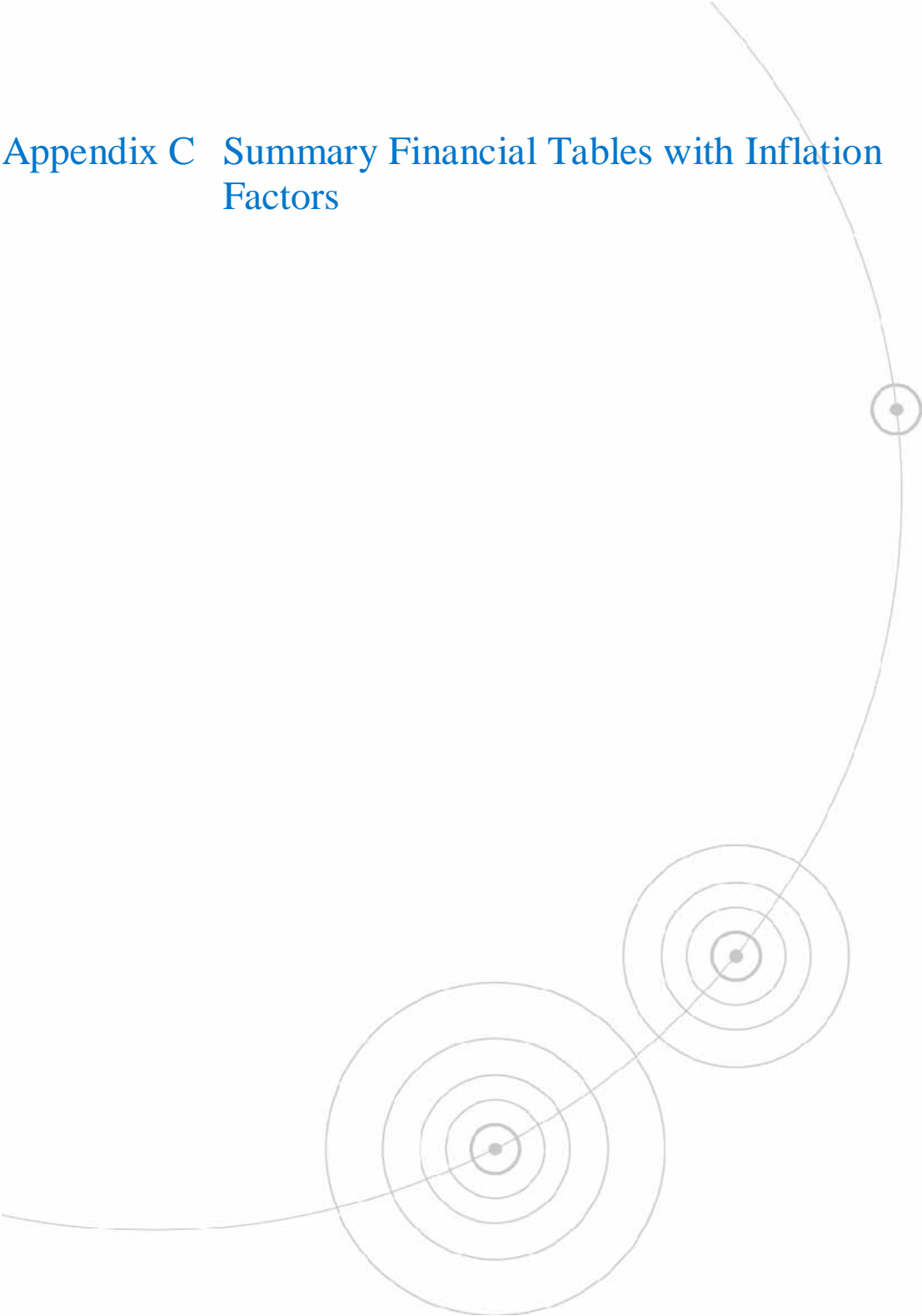
Appendix B

Detailed Financial Tables

Expenditure Category	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Total Operating Expenditure</b>	<b>\$ 589,801</b>	<b>\$ 592,315</b>	<b>\$ 598,218</b>	<b>\$ 601,473</b>	<b>\$ 604,505</b>	<b>\$ 607,843</b>	<b>\$ 611,285</b>	<b>\$ 614,038</b>	<b>\$ 617,067</b>	<b>\$ 620,383</b>
<b>Total Capital Expenditure</b>	<b>\$ 383,724</b>	<b>\$ 679,724</b>	<b>\$ 439,724</b>	<b>\$ 417,224</b>	<b>\$ 439,724</b>	<b>\$ 444,724</b>	<b>\$ 384,724</b>	<b>\$ 404,724</b>	<b>\$ 424,724</b>	<b>\$ 394,724</b>
<b>Operations</b>	<b>\$ 337,725</b>	<b>\$ 340,239</b>	<b>\$ 346,143</b>	<b>\$ 349,397</b>	<b>\$ 352,429</b>	<b>\$ 355,767</b>	<b>\$ 359,209</b>	<b>\$ 361,962</b>	<b>\$ 364,992</b>	<b>\$ 368,307</b>
Revenue	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Revenue (connections)	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Corporate Overheads	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100	11,100
Insurances	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Rates	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Operating Expenses	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125
Support	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125	81,125
Depreciation	238,000	240,514	246,418	249,672	252,704	256,042	259,484	262,237	265,267	268,582
<b>Maintenance</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>	<b>\$ 252,076</b>
Maintenance Contracts	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076	252,076
Piped Network	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340	8,340
National Park	396	396	396	396	396	396	396	396	396	396
Ohakune	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296
Ohura	228	228	228	228	228	228	228	228	228	228
Owhango	300	300	300	300	300	300	300	300	300	300
Piriaka	192	192	192	192	192	192	192	192	192	192
Raethi	468	468	468	468	468	468	468	468	468	468
Rangataua	252	252	252	252	252	252	252	252	252	252
Raurimu	192	192	192	192	192	192	192	192	192	192
Taumarunui	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632	4,632
Waouru	384	384	384	384	384	384	384	384	384	384
Open Drain Network	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702	92,702
National Park	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692	1,692
Ohakune	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254	30,254
Ohura	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056	7,056
Owhango	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524	1,524
Piriaka	420	420	420	420	420	420	420	420	420	420
Raethi	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542	8,542
Rangataua	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422	4,422
Raurimu	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476	1,476
Taumarunui	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500	36,500
Waouru	816	816	816	816	816	816	816	816	816	816
All Other Maintenance Expenses	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034	151,034
National Park	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303	14,303
National Park all other maintenance day works	5,932	5,932	5,932	5,932	5,932	5,932	5,932	5,932	5,932	5,932
National Park contract lump sum professional services	8,371	8,371	8,371	8,371	8,371	8,371	8,371	8,371	8,371	8,371
Ohakune	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946	33,946
Ohakune all other maintenance day works	13,855	13,855	13,855	13,855	13,855	13,855	13,855	13,855	13,855	13,855
Ohakune contract lump sum professional services	20,091	20,091	20,091	20,091	20,091	20,091	20,091	20,091	20,091	20,091
Ohura	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Ohura all other maintenance day works	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Ohura contract lump sum professional services	-	-	-	-	-	-	-	-	-	-
Owhango	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274	3,274
Owhango all other maintenance day works	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Owhango contract lump sum professional services	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,674	1,674
Piriaka	-	-	-	-	-	-	-	-	-	-
Piriaka all other maintenance day works	-	-	-	-	-	-	-	-	-	-
Piriaka contract lump sum professional services	-	-	-	-	-	-	-	-	-	-
Raethi	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222	21,222
Raethi all other maintenance day works	14,525	14,525	14,525	14,525	14,525	14,525	14,525	14,525	14,525	14,525
Raethi contract lump sum professional services	6,697	6,697	6,697	6,697	6,697	6,697	6,697	6,697	6,697	6,697
Rangataua	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640
Rangataua all other maintenance day works	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640	2,640
Rangataua contract lump sum professional services	-	-	-	-	-	-	-	-	-	-
Raurimu	100	100	100	100	100	100	100	100	100	100
Raurimu all other maintenance day works	100	100	100	100	100	100	100	100	100	100
Raurimu contract lump sum professional services	-	-	-	-	-	-	-	-	-	-
Taumarunui	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514	65,514
Taumarunui all other maintenance day works	11,937	11,937	11,937	11,937	11,937	11,937	11,937	11,937	11,937	11,937
Taumarunui contract lump sum professional services	53,577	53,577	53,577	53,577	53,577	53,577	53,577	53,577	53,577	53,577
Waouru	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534	7,534
Waouru all other maintenance day works	4,186	4,186	4,186	4,186	4,186	4,186	4,186	4,186	4,186	4,186
Waouru contract lump sum professional services	3,349	3,349	3,349	3,349	3,349	3,349	3,349	3,349	3,349	3,349
<b>Renewals</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>	<b>\$ 160,190</b>
Planned	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190	160,190
Piped Network	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190	110,190
Ohakune	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580
Perform a structured rolling replacement programme	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580	71,580
Ohura	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790
Perform a structured rolling replacement programme	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790	5,790
Owhango	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650
Perform a structured rolling replacement programme	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650	4,650
Raethi	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170
Perform a structured rolling replacement programme	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170	28,170
Open Drain Network	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Ohakune	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Ohakune drain re-formation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Ohura	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Ohura drain re-formation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Raethi	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Raethi drain re-formation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Taumarunui	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Taumarunui drain re-formation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Waouru	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Waouru drain re-formation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000

Expenditure Category	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Capital Development (Growth)</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>	<b>\$ 50,000</b>
Growth	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Piped Network	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
District Wide	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
District wide new reticulation	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 173,534</b>	<b>\$ 469,534</b>	<b>\$ 229,534</b>	<b>\$ 207,034</b>	<b>\$ 229,534</b>	<b>\$ 234,534</b>	<b>\$ 174,534</b>	<b>\$ 194,534</b>	<b>\$ 214,534</b>	<b>\$ 184,534</b>
Compliance	169,000	465,000	185,000	185,000	175,000	190,000	170,000	190,000	170,000	180,000
Piped Network	169,000	465,000	185,000	185,000	175,000	190,000	170,000	190,000	170,000	180,000
National Park	-	30,000	-	30,000	-	30,000	-	30,000	-	30,000
National Park reticulation extension	-	30,000	-	30,000	-	30,000	-	30,000	-	30,000
Horopito	-	300,000	-	30,000	-	30,000	-	30,000	-	30,000
Horopito reticulation extension	-	300,000	-	30,000	-	30,000	-	30,000	-	30,000
Ohakune	60,000	60,000	60,000	65,000	60,000	60,000	60,000	60,000	60,000	60,000
Ohakune resource consent application	-	-	-	5,000	-	-	-	-	-	-
Ohakune reticulation extension	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Ohura	-	-	10,000	-	-	10,000	-	10,000	-	-
Ohura reticulation extension	-	-	10,000	-	-	10,000	-	10,000	-	-
Owhango	45,000	-	20,000	-	20,000	-	20,000	-	20,000	-
Owhango planning and data capture	25,000	-	-	-	-	-	-	-	-	-
Owhango reticulation extension	20,000	-	20,000	-	20,000	-	20,000	-	20,000	-
Raetihi	4,000	-	30,000	-	35,000	-	30,000	-	30,000	-
Raetihi resource consent application	-	-	-	-	5,000	-	-	-	-	-
Raetihi planning and data capture	4,000	-	-	-	-	-	-	-	-	-
Raetihi reticulation extension	-	-	30,000	-	30,000	-	30,000	-	30,000	-
Taumarunui	60,000	75,000	65,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Taumarunui resource consent application	-	-	5,000	-	-	-	-	-	-	-
Taumarunui planning and data capture	-	15,000	-	-	-	-	-	-	-	-
Taumarunui reticulation extension	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Network Improvement	4,534	4,534	44,534	22,034	54,534	44,534	4,534	4,534	44,534	4,534
General Network Improvements	-	-	40,000	-	-	40,000	-	-	40,000	-
Asset Management Development	-	-	40,000	-	-	40,000	-	-	40,000	-
National Park asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Ohakune asset management development	-	-	10,000	-	-	10,000	-	-	10,000	-
Ohura asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Owhango asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Piriaka asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Raetihi asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Rangataua asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Raurimu asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Taumarunui asset management development	-	-	10,000	-	-	10,000	-	-	10,000	-
Waiouru asset management development	-	-	2,500	-	-	2,500	-	-	2,500	-
Piped Network	4,534	4,534	4,534	22,034	54,534	4,534	4,534	4,534	4,534	4,534
Ohakune	-	-	-	-	50,000	-	-	-	-	-
Network survey for lid and invert levels establish	-	-	-	-	50,000	-	-	-	-	-
Raetihi	-	-	-	-	-	-	-	-	-	-
Network survey for lid and invert levels establish	-	-	-	-	-	-	-	-	-	-
Network survey and CCTV inspections	-	-	-	-	-	-	-	-	-	-
Rangataua	-	-	-	-	-	-	-	-	-	-
Network survey for lid and invert levels establish	-	-	-	-	-	-	-	-	-	-
Network survey and CCTV inspections	-	-	-	-	-	-	-	-	-	-
Taumarunui	4,534	4,534	4,534	22,034	4,534	4,534	4,534	4,534	4,534	4,534
Network survey for lid and invert levels establish	-	-	-	17,500	-	-	-	-	-	-
Network survey and CCTV inspections	4,534	4,534	4,534	4,534	4,534	4,534	4,534	4,534	4,534	4,534

# Appendix C Summary Financial Tables with Inflation Factors



## Appendix C Summary Financial Tables with Inflation Factors

Expenditure Category	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Total Operating Expenditure</b>	<b>\$ 607,495</b>	<b>\$ 628,387</b>	<b>\$ 653,689</b>	<b>\$ 676,963</b>	<b>\$ 700,787</b>	<b>\$ 725,796</b>	<b>\$ 751,803</b>	<b>\$ 777,844</b>	<b>\$ 805,133</b>	<b>\$ 833,743</b>
<b>Total Capital Expenditure</b>	<b>\$ 395,236</b>	<b>\$ 721,120</b>	<b>\$ 480,499</b>	<b>\$ 469,590</b>	<b>\$ 509,761</b>	<b>\$ 531,024</b>	<b>\$ 473,162</b>	<b>\$ 512,693</b>	<b>\$ 554,169</b>	<b>\$ 530,477</b>
<b>Operations</b>	<b>\$ 347,856.75</b>	<b>\$ 360,959.18</b>	<b>\$ 378,239.29</b>	<b>\$ 393,249.48</b>	<b>\$ 408,562.01</b>	<b>\$ 424,804.11</b>	<b>\$ 441,781.64</b>	<b>\$ 458,522.26</b>	<b>\$ 476,231.16</b>	<b>\$ 494,973.84</b>
Revenue	7,725	7,957	8,195	8,441	8,695	8,955	9,224	9,501	9,786	10,079
Corporate Overheads	11,433	11,776	12,129	12,493	12,868	13,254	13,652	14,061	14,483	14,917
Operating Expenses	83,559	86,066	88,647	91,307	94,046	96,867	99,774	102,767	105,850	109,025
Depreciation	245,140	255,161	269,267	281,008	292,953	305,727	319,132	332,194	346,113	360,952
<b>Maintenance</b>	<b>\$ 259,638.19</b>	<b>\$ 267,427.33</b>	<b>\$ 275,450.15</b>	<b>\$ 283,713.66</b>	<b>\$ 292,225.07</b>	<b>\$ 300,991.82</b>	<b>\$ 310,021.57</b>	<b>\$ 319,322.22</b>	<b>\$ 328,901.89</b>	<b>\$ 338,768.94</b>
Maintenance Contracts	259,638	267,427	275,450	283,714	292,225	300,992	310,022	319,322	328,902	338,769
Piped Network	8,590	8,848	9,113	9,387	9,668	9,958	10,257	10,565	10,882	11,208
Open Drain Network	95,483	98,348	101,298	104,337	107,467	110,691	114,012	117,432	120,955	124,584
All Other Maintenance Expenses	155,565	160,232	165,039	169,990	175,090	180,342	185,753	191,325	197,065	202,977
<b>Renewals</b>	<b>\$ 164,995.70</b>	<b>\$ 169,945.57</b>	<b>\$ 175,043.94</b>	<b>\$ 180,295.26</b>	<b>\$ 185,704.11</b>	<b>\$ 191,275.24</b>	<b>\$ 197,013.49</b>	<b>\$ 202,923.90</b>	<b>\$ 209,011.62</b>	<b>\$ 215,281.96</b>
Planned	164,996	169,946	175,044	180,295	185,704	191,275	197,013	202,924	209,012	215,282
Piped Network	113,496	116,901	120,408	124,020	127,740	131,573	135,520	139,585	143,773	148,086
Open Drain Network	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239	67,196
<b>Capital Development (Growth)</b>	<b>\$ 51,500.00</b>	<b>\$ 53,045.00</b>	<b>\$ 54,636.35</b>	<b>\$ 56,275.44</b>	<b>\$ 57,963.70</b>	<b>\$ 59,702.61</b>	<b>\$ 61,493.69</b>	<b>\$ 63,338.50</b>	<b>\$ 65,238.66</b>	<b>\$ 67,195.82</b>
Growth	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239	67,196
Piped Network	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339	65,239	67,196
<b>Capital Development (LOS Enhancement)</b>	<b>\$ 178,740.41</b>	<b>\$ 498,129.02</b>	<b>\$ 250,818.41</b>	<b>\$ 233,019.01</b>	<b>\$ 266,093.25</b>	<b>\$ 280,046.31</b>	<b>\$ 214,655.27</b>	<b>\$ 246,430.33</b>	<b>\$ 279,918.70</b>	<b>\$ 247,998.77</b>
Compliance	174,070	493,319	202,154	208,219	202,873	226,870	209,079	240,686	221,811	241,905
Piped Network	174,070	493,319	202,154	208,219	202,873	226,870	209,079	240,686	221,811	241,905
Network Improvement	4,670	4,811	48,664	24,800	63,220	53,176	5,577	5,744	58,107	6,094
General Network Improvements	-	-	43,709	-	-	47,762	-	-	52,191	-
Piped Network	4,670	4,811	4,955	24,800	63,220	5,414	5,577	5,744	5,916	6,094

# Appendix D Risk Process



## Appendix D Risk Process

The following tables present the consequence and likelihood definitions adopted within the activity risk assessments.

CONSEQUENCE	Weight	IMPACT					
		0	1	2	3	4	5
Description		<i>Not Applicable</i>	Insignificant	Minor	Significant	Major	Catastrophic
Associated Cost Range		\$0	< \$2,000	\$2,000 - \$20,000	\$20,000 - \$200,000	\$200,000 - \$3M	>\$3M
Analysis Cost Value		\$0	\$1,000	\$10,000	\$100,000	\$2,000,000	\$5,000,000
Corporate Image and Reputation	15%		Event only of interest to individuals. Nil effect or community concern.	Minor community interest. Local media report	Loss of community confidence in Council. National publicity. Public agitation for action.	Public investigation. International coverage. Management changes demanded.	
Safety and Health	25%		Negligible injury/health concern	Minor injury/health concern. Medical attention required.	Serious injury/health concern. Hospitalisation required.	Loss of life or widespread long-term hospitalisation required.	Multiple loss of life or city-wide epidemic
Environmental	20%		Negligible impact. Reversible within 1 week	Material damage of local importance. Prosecution possible. Impact fully reversible within 3 months	Serious damage of local importance. Prosecution probable. Impact fully reversible within 1 yr.	Serious damage of national importance. Prosecution expected. Impact reversible within 10 yrs	Serious damage of national importance. Prosecution. Long term study. Impact not fully reversible.
Community Effect / Loss of Service	25%		Minimal consequential loss in the community. Short term service disruption affecting small number of customers	Some consequential loss in the community. Significant localised disruption > 1 week.	Significant consequential loss in the community. Major localised disruption over extended period > 2 weeks.	Major consequential loss in the community. Major long term extensive service disruption > 4 weeks.	Catastrophic consequential loss in the community. District-wide service loss
Loss of Revenue/Business Costs	15%		Minimal direct revenue loss & cost to restore service	Some direct revenue loss & cost to restore service	Significant direct revenue loss & cost to restore service	Major direct revenue loss & cost to restore service	Catastrophic direct revenue loss & cost to restore service

Code	Likelihood of Occurrence	Current Probability of Condition Based Occurrence	Equivalent Statistical Probability
A	Almost Certain	Within 1 year	0.90
B	Likely	Within 1-2 years	0.67
C	Moderate	Within 2-10 years	0.17
D	Remote	Within 10- 50 years	0.03
E	Unlikely	> 50 years	0.01

The following table presents the risk severity definitions for assessed consequence and likelihood ratings.

		IMPACT					
		0	1	2	3	4	5
		<i>Not Applicable</i>	Insignificant	Minor	Significant	Major	Catastrophic
LIKELIHOOD	A	L	M	H	E	E	E
	B	L	M	H	H	E	E
	C	L	L	M	H	H	E
	D	L	L	L	M	H	H
	E	L	L	L	M	M	H

# Appendix E Risk Register



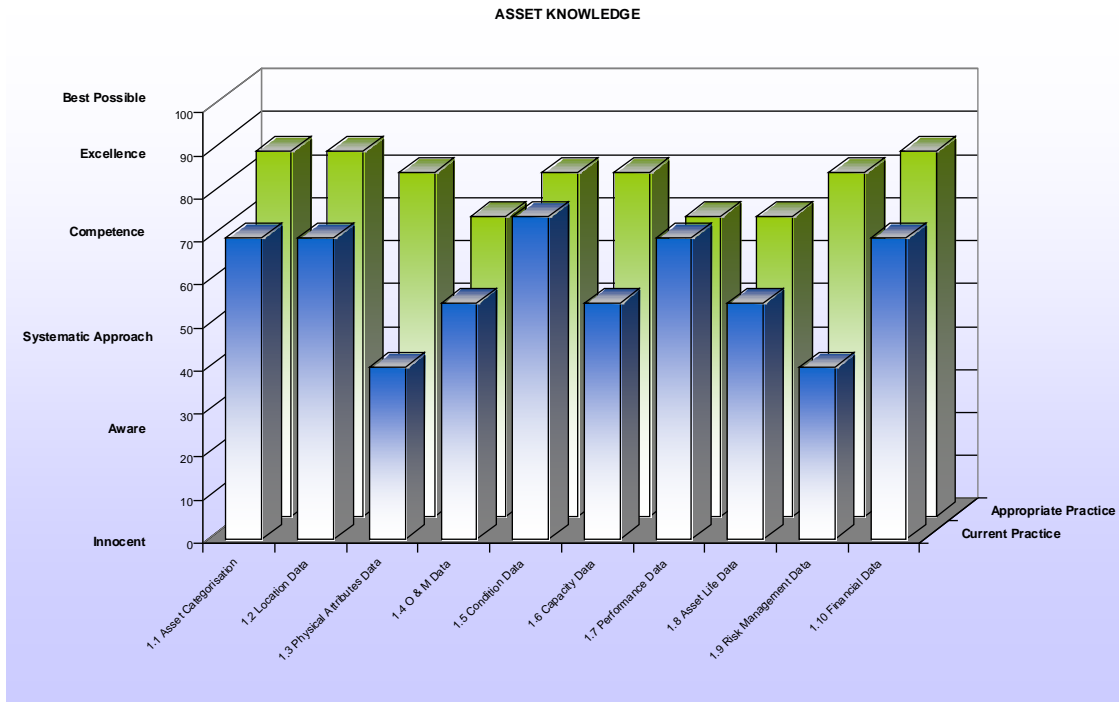
Appendix E Risk Register

Community Outcome	Core Value	Strategic Outcome	LOS Failure Indicator	Asset Group	Asset Sub-Group	Caused By	Consequence					Likelihood	Risk			Controls	
							Corporate Image	Safety & Health	Environmental	Community Effect/ Loss of Service	Loss of Asset/ Infrastructure		Weighted Ave	Peak	Weighted Ave	Existing	To Develop
							15%	25%	20%	25%	15%						
CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development. CO 22 - An environment which has an excellent quality of water, soil and air. CO 23 - River catchment areas and waterways are protected from erosion and pollution.	Safety	To maintain public health.	Flooding, slips	Piped Network	Pipe Network - Critical Pipes (>600 mm dia)	Rainfall event exceeds design storm (moderate)	2	2	2	2	2	C	C2	C2	M	Secondary overland flow paths and insurance	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design storm (extreme)	3	3	2	3	3	D	D3	D3	M	Secondary overland flow paths and insurance	Catchment studies, LIDAR mapping, and development programmes
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	2	2	2	2	D	D2	D2	L	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design storm (moderate)	2	2	2	2	2	C	C2	C2	M	Secondary overland flow paths and insurance	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design storm (extreme)	3	3	2	3	3	D	D3	D3	M	Secondary overland flow paths and insurance	Catchment studies, LIDAR mapping, and development programmes
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	2	2	2	2	D	D2	D2	L	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes, planning controls for difficult flood prone areas as a cost effective solution
					Pipe Network - Non critical Pipes (<600 mm dia)	Erosion of backfill of steep grade pipes	2	2	2	2	2	D	D2	D2	L	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity	2	3	2	2	1	E	E2	E3	L	Secondary overland flow paths and insurance	
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	2	2	3	2	D	D2	D3	L	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes, planning controls for difficult flood prone areas as a cost effective solution
						Rainfall event exceeds design capacity (moderate)	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity (extreme)	3	4	2	3	3	D	D3	D4	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Liability from third party accident into open drain	2	3	2	1	1	B	B2	B3	H	The piping of open drains is considered on a case by case basis where practical	
				Open Drain Network	Public open drains	Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity (moderate)	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity (extreme)	3	4	2	3	3	D	D3	D4	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
					Private open drains in urban areas	Liability from third party accident into open drain	1	3	2	0	1	B	B1	B3	M	Discussion with drain owner.	
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity (moderate)	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
				Flood Alleviation Infrastructure	Stopbanks	Rainfall event exceeds design capacity (moderate)	2	2	2	2	2	C	C2	C2	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Rainfall event exceeds design capacity (extreme)	3	3	2	3	3	D	D3	D3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	3	2	2	2	C	C2	C3	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
					Flood detention systems	Rainfall event exceeds design capacity (moderate)	1	2	1	2	2	C	C2	C2	M	Appropriate design, inspection and maintenance	
						Rainfall event exceeds design capacity (extreme)	2	3	1	3	2	D	D2	D3	L	Appropriate design, inspection and maintenance	
						Changes to DP and catchment characteristics, deferred upgrade works, inadequate capacity	2	2	1	2	2	C	C2	C2	M	Ability to alter upgrade priorities	Catchment studies, LIDAR mapping, and development programmes
CO 10 - Core facilities, services and infrastructure planning and provision keep pace with development. CO 22 - An environment which has an excellent quality of water, soil and air. CO 23 - River catchment areas and waterways are protected from erosion and pollution.	Quality	To provide and maintain an appropriate level of infrastructure	Unavailability of urban roads, flooding	Piped Network	Pipe Network - Critical pipes (>600 mm dia)	Silt/reduced capacity	2	2	2	2	2	D	D2	D2	L	Identify problem areas and target maintenance regimes	
						Localised damage	2	2	2	2	2	C	C2	C2	M	Inspections and maintenance programmes	
						Extensive damage (earthquake or other natural hazard)	2	2	2	2	3	C	C2	C3	M	Response planning	
						Blockage	1	1	1	1	1	C	C1	C1	L	Response procedures	
						Localised damage	1	1	1	1	1	C	C1	C1	L	Response procedures	
						Service intrusion	1	1	1	1	2	C	C1	C2	L	Reactive maintenance	CCTV inspections ; repairs or renewals
					Pipe Network - Non critical pipes (<600 mm dia)	Tree roots	1	1	1	1	2	C	C1	C2	L	Reactive maintenance	CCTV inspections ; repairs or renewals
						Extensive damage (earthquake or other natural hazard)	2	2	2	2	2	C	C2	C2	M	Response planning	
						Blocked	1	2	1	1	1	B	B1	B2	M	Routine inspections and maintenance response and clearing	
						Volcanic eruption	1	2	2	2	2	C	C2	C2	M	Response planning	
						Vandalism	1	2	1	2	1	D	D2	D2	L	Routine and reactive inspections	
						Blockage	2	2	2	2	1	D	D2	D2	L	Routine inspections and maintenance response and clearing	
				Open Drain Network	Public open drains	Extensive damage (slip or other natural hazard)	2	2	2	2	2	D	D2	D2	L	Reactive maintenance	
						Blockage	1	2	2	2	1	D	D2	D2	L	Reactive maintenance	
						Extensive damage (slip or other natural hazard)	1	2	2	2	1	D	D2	D2	L	Reactive maintenance	
					Private open drains in urban areas	Silt build up	1	1	1	2	1	C	C1	C2	L	Resource consent conditions, monitoring and removal	
						Extensive damage (earthquake or other natural hazard)	2	3	3	3	3	C	C3	C3	H	Response planning	
						Silt build up/riffle blockage	1	1	1	2	1	C	C1	C2	L	Resource consent conditions, monitoring and removal	
				Flood Alleviation Infrastructure	Stopbanks	Extensive damage (earthquake or other natural hazard)	2	3	3	3	3	C	C3	C3	H	Response planning	
						Extensive damage (earthquake or other natural hazard)	2	3	3	3	3	C	C3	C3	H	Response planning	
						Point discharges from commercial/industrial areas	2	2	3	1	2	C	C2	C3	M	Enforcement and reactive maintenance programmes	Education programmes
					Inlets and outlets	Wastewater overflows	2	2	2	1	1	C	C2	C2	M	Reactive maintenance programmes	Network modelling and integrated planning
						First flush effects from urban runoff	2	1	2	1	2	C	C2	C2	M	Proactive maintenance programmes	
						Entry of floatable litter	2	1	1	1	2	B	B1	B2	M	Litter pick up with maintenance contractor	
Pipe and Open Drain Network	Inlets and outlets	Volcanic eruption	1	2	4	3	2	C	C3	C4	H	Response planning					
		Inadequate maintenance of filters in sumps	2	1	2	1	1	C	C1	C2	L	Proactive maintenance programmes and monitoring					
		Inadequate cleaning frequency of sumps	2	1	2	1	1	B	B1	B2	M	Inspections and monitoring					
	Flood detention systems	Dumping of pollutants into sump	2	1	1	2	2	C	C2	C2	M	Enforcement and reactive maintenance programmes	Education programmes				
		Inadequate certainty that the levels of service provide optimum benefit for the cost	2	1	3	2	2	C	C2	C3	M	AM Planning and monitoring					
		Lack of documented and understood strategies and procedures	2	1	2	1	2	C	C2	C2	M	Annual Audit NZ audits; three yearly AM practices reviews					
Supporting Management Practices			Inefficient management of assets, significant asset or service failure occurs with no management plan	All	All	Inadequate analysis of condition, performance, operations and maintenance cost tracking, and capital works forecasts	2	1	2	2	2	C	C2	C2	M	AM Planning, monitoring, 3 yearly AM practices reviews	
						Inadequate works prioritisation techniques	2	1	2	2	2	C	C2	C2	M	AM Planning processes and AP submissions	
						Risk analysis and management is not comprehensive	2	3	3	2	3	D	D3	D3	M	Risk assessment review processes	

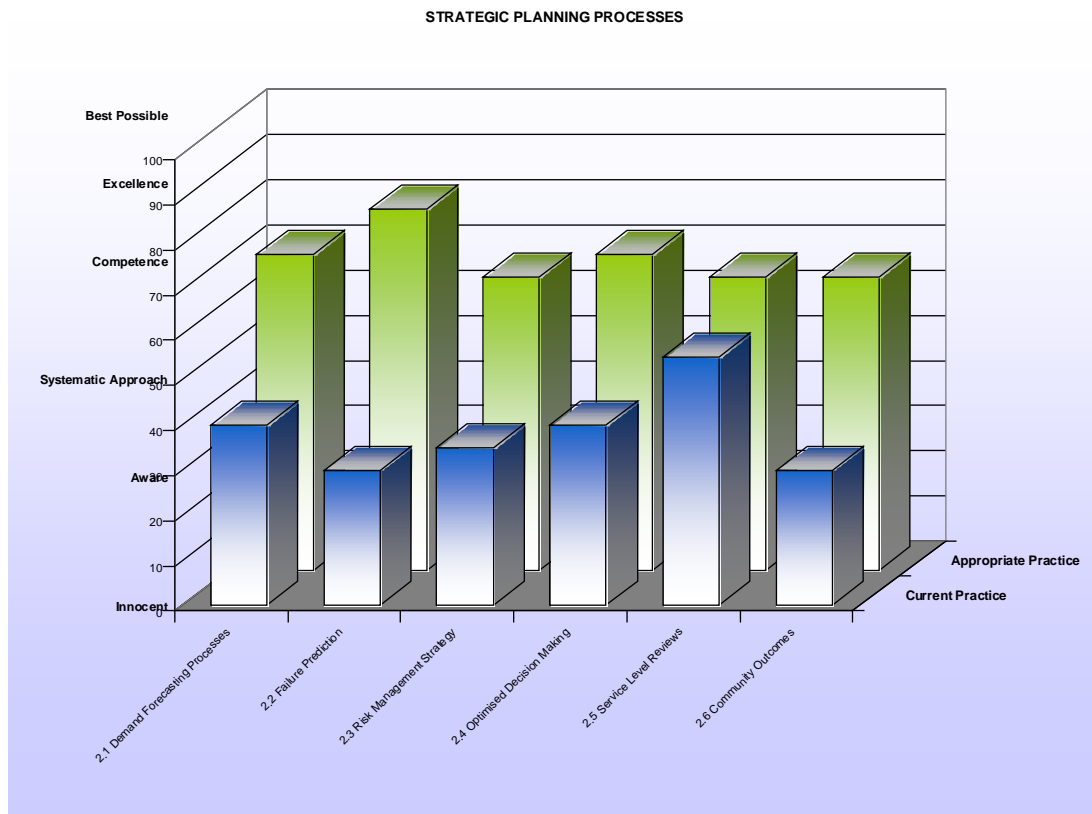
# Appendix F AM Practices Gap Analysis



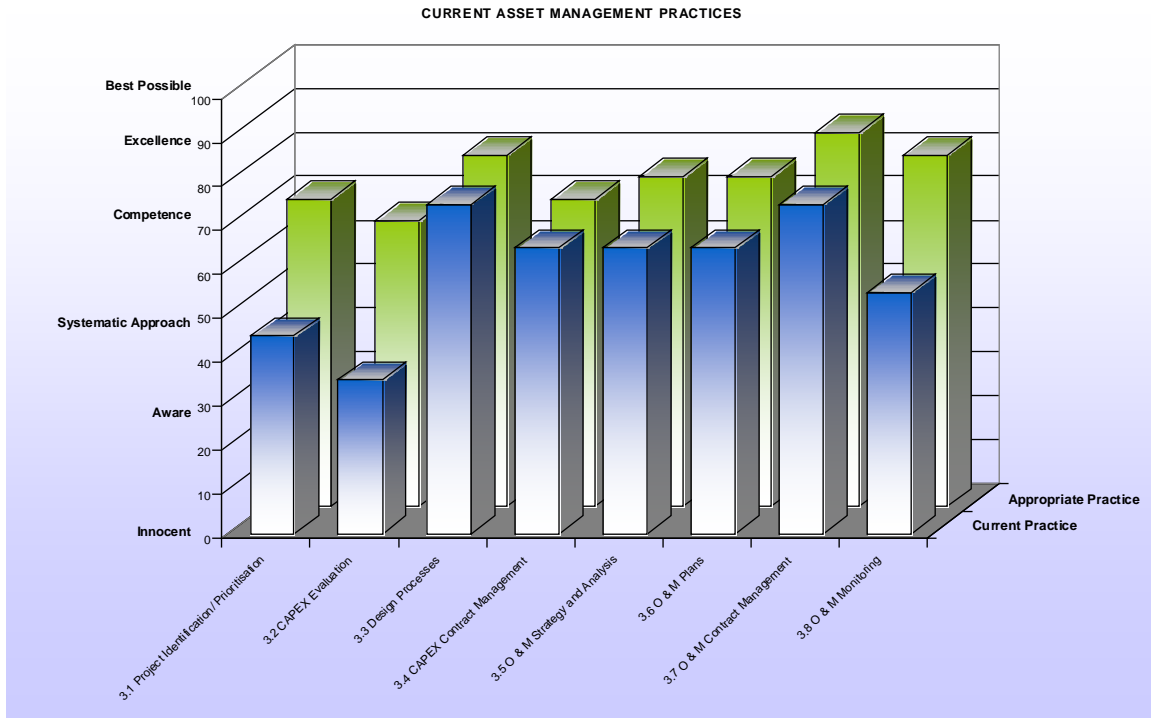
## Appendix F AM Practices Gap Analysis



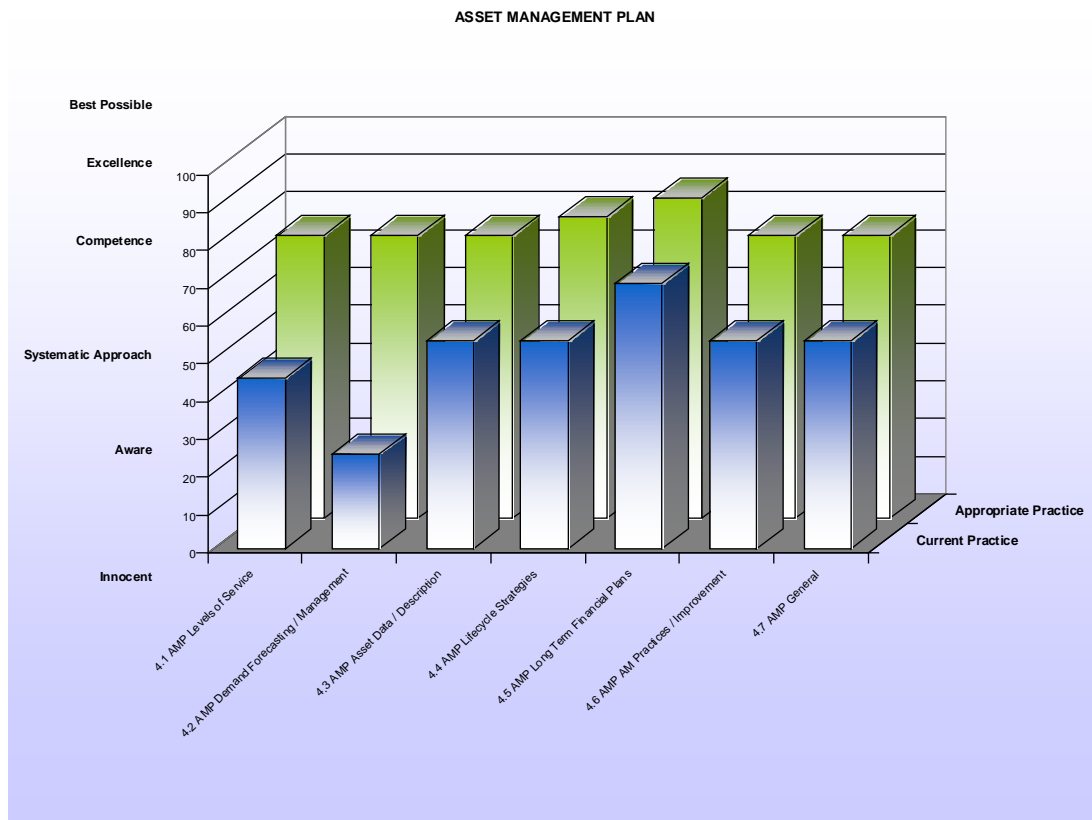
Assessment of asset knowledge



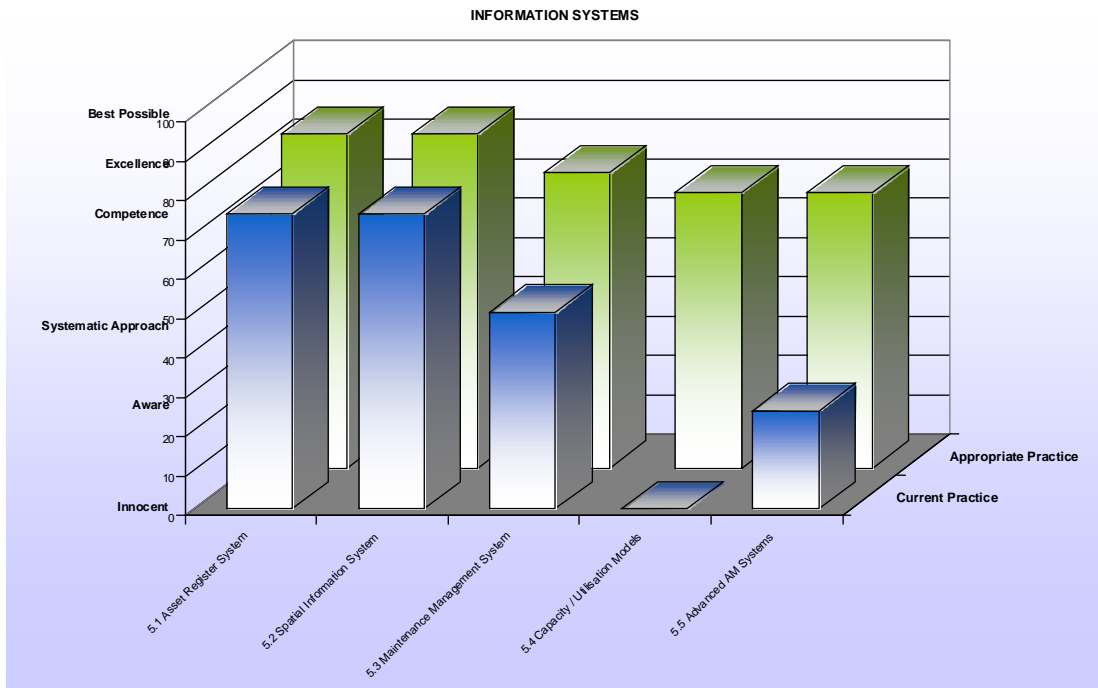
Assessment of strategic planning processes



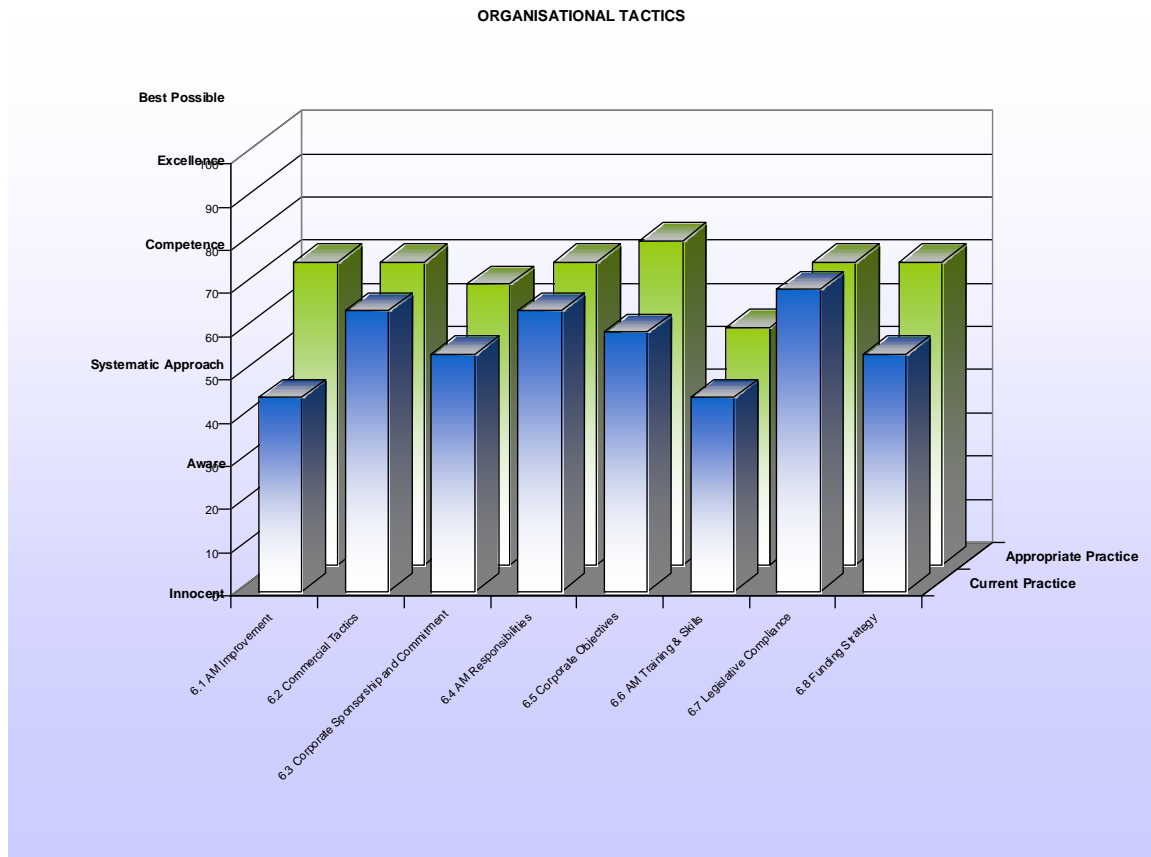
**Assessment of current asset management processes**



**Assessment of AM plan**

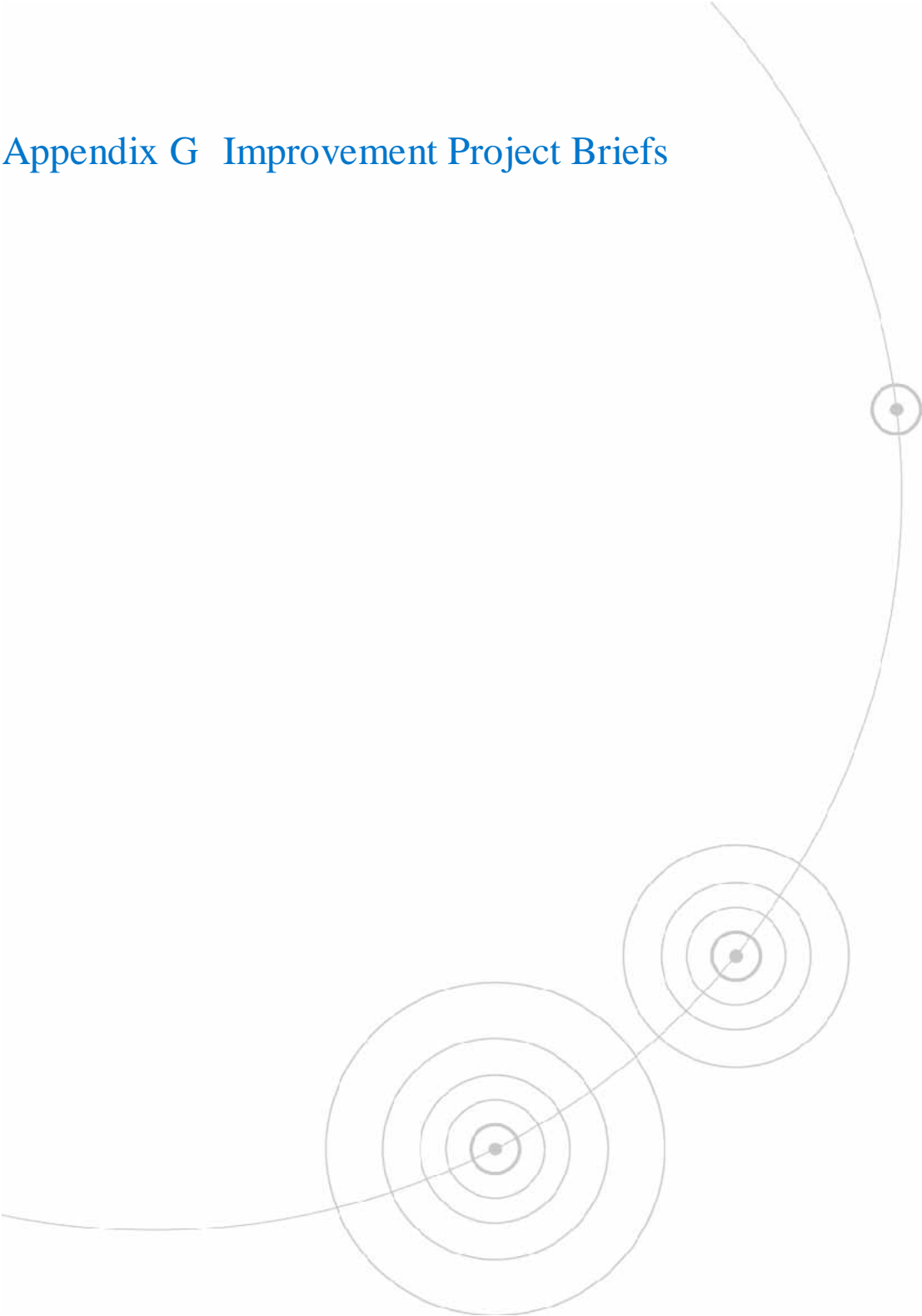


**Assessment of AM information systems**



**Assessment of organisational tactics**

# Appendix G Improvement Project Briefs



# Project WCAP – AM Capability Development

### Objective

To ensure council retains and develops staff and systems to meet AM needs.

### Sub projects

This project is made up of the following sub projects:

- WCAP 01 – Skill matrix
- WCAP 02 – System access and model usage
- WCAP 03 – System integration
- WCAP 04 – Corporate buy-in
- WCAP 05 – System for risk rating

### Expected Benefits

- Improved understanding of AM skill needs and current organisational status (staff and systems).
- Identification of potential for system integration for efficient and consistent information access.
- AM importance “buy-in” from councillors and staff for sustainable delivery of core Council activities.

### Deliverables

- Development of an AM skills needs matrix and gap analysis. Capacity-building strategy.
- Review Council usage and access needs to key systems (e.g. Maximo and BizeAsset)
- Examine integration opportunities between financial system, asset management system, customer services system and GIS.
- Councillor and staff buy-in to AM planning importance.
- System capability to assess risk for each asset or facility.

### Project Team

- Assets team, corporate services team, IT team

### Methodology

- Develop an AM skills needs matrix and then review current status. Develop a strategy considering retention, recruitment, training and outsourcing options organisation wide.
- Review council usage and access needs to key systems (e.g. Maximo/BizeAsset).
- Review and examine integration opportunities between financial system, asset management system, GIS, customer services system and other systems.
- Develop processes to ensure councillors and staff buy-in to AM planning importance
- Develop system capability to assess risk for each asset or facility.

### Resources

- Internal
  - 17 days
- External
  - Specialist systems advice - \$15,000

## Timeframe

- Suggested commencement date: Project to commence by June 2009 onwards
- Estimated overall project duration: 1 year

# Project WCAX – Capex Evaluation

## Objective

To improve the CAPEX evaluation process allowing CAPEX decision making to be based on more complete data.

## Sub projects

This project is made up of the following sub projects:

- WCAX 01 – Asset disposal processes.
- WCAX 02 – ODM tool.
- WCAX 03 – Business case template.
- WCAX 04 – Project Prioritisation.

## Expected Benefits

- Council is able to identify assets surplus to requirements or to be disposed of.
- Reduced maintenance costs, liabilities and improved community access.
- Better understanding and quantification of intangible benefits of projects to assist in CAPEX decision making.
- Standard pro-forma will simplify business case process and ensure all impacts etc are included.
- Improved process for prioritising capital projects.

## Deliverables

- Complete usable processes for the review of the 3 waters assets to identify surplus assets
- ODM tool able to quantify intangible benefits to prioritise projects clearly and transparently.
- Standard business case pro-forma.
- Transparent process for prioritising capital projects.

## Project Team

- Assets team

## Methodology

- Review/develop policy and processes for reviews of network to identify surplus assets, or assets to be disposed of.
- Workshop ODM framework options to agree on approach to be adopted. Develop framework with reference to any existing prioritisation tools, linked to key service level aspects and other considerations agreed. Develop tool and trial to “calibrate”.
- Develop standard business case pro-formas including sections for:
  - Project description
  - Needs and benefits including community outcome and service level impacts
  - Risks associated with the project and with not undertaking the project
  - Project and lifecycle costs
  - Project timeframe
  - Priority ranking from ODM framework
- Develop capital project prioritisation methodology.

## Resources

- Internal
  - Disposal policy - 1 day
  - ODM framework workshops and trials – 5 days
  - Develop business case templates – 1 day
  - Project prioritisation – 2 days
- External
  - Specialist assistance with ODM framework development – \$30,000
  - Assistance with developing business case templates – \$3,000
  - Assistance with developing capital project prioritisation methodology – \$15,000

## Timeframe

- Suggested commencement date: Project to commence in June 2009
- Estimated overall project duration: 2 years

# Project WDAT – Attribute and Condition Data

## Objective

To improve asset and activity planning knowledge.

## Sub projects

This project is made up of the following sub projects:

- WDAT 01 – Data capture.
- WDAT 02 – Attribute data needs.
- WDAT 03 – Capacity data.
- WDAT 04 – O&M data.
- WDAT 05 – Location data.
- WDAT 06 – Plan records.
- WDAT 07 – Condition data – Complete.
- WDAT 08 – Condition data.
- WDAT 09 – Performance data

## Expected Benefits

- Improved processes to capture asset data.
- Improved availability and consistency of data throughout Council to enable better decision-making
- Better understanding of asset liabilities and future works and expenditure needs.

## Deliverables

- Strengthen processes to ensure capture of data into BizeAsset.
- Review data capture needs and develop processes. Raetihi has been identified as the highest priority.
- Assess and record asset capacity for all townships, particularly Ohakune.
- Record planned maintenance schedules and activities in BizeAsset.
- Complete validation process of location data in BizeAsset and GIS.
- Consider benefits and costs of making old plans available in Mapinfo.
- Use burst pipe report and other information for better assessment of condition of 3 waters assets than just 3 yearly visual inspections.
- Complete formal condition and performance assessment every 3 years.
- Record all blockages etc and reduce the number of unknown causes.

## Project Team

- Assets and IT team

## Methodology

- Identify and strengthen data/information needs and flows into BizeAsset.
- Review data capture needs and develop data capture processes. Capture data in accordance with the programme.
- Assess and record asset capacities.
- Record planned maintenance schedules and activities.
- Validate location data.

- Review benefits/costs of making old plans available in Mapinfo.

## Resources

- Internal
  - Data capture and process improvement – 18 days
- External
  - Capture data and review benefits of all assets in MapInfo – \$53,000

## Timeframe

- Suggested commencement date: Project to commence by February 2009
- Estimated overall project duration: 2.5 years

# Project WFIN – Financials

## Objective

To standardise financial tables and ensure links between council documents.  
To enable asset-based historical costs to be tracked.

## Sub projects

This project is made up of the following sub projects:

- WFIN 01 – Financial linkages – complete.
- WFIN 02 – Financial presentation
- WFIN 03 – Valuation – complete.
- WFIN 04 – Financial data
- WFIN 05 – Funding policy

## Expected Benefits

- Improved confidence in consistent financial reporting.
- Improved understanding of asset-based costs to enable targeted strategies.
- Improved confidence in equitable and sustainable funding.

## Deliverables

- Develop linkages between AMP and LTCCP financial forecasts.
- Standardise the financial tables and develop processes to ensure robust links between AM plans, LTCCP and financial systems.
- Summarise valuation outcomes.
- Review the need for capture of historic data linked to asset number.
- Review and clarify funding policy, particularly regarding funding of renewals and depreciation recognition.

## Project Team

- Assets team, financial team and IT team

## Methodology

- Corporately agree on form of AM plan financial tables. Develop FIS query aligned with these standard tables.
- Review the need for capture of historic financial data linked to asset number considering effort required and benefits achieved.
- Review and clarify funding policy, particularly regarding funding of renewals and depreciation recognition.

## Resources

- Internal
  - Financial tables – 5 days
  - Historic asset-based financial tracking – 2 days
  - Funding review – 2 days.

## Timeframe

- Suggested commencement date: By September 2008
- Estimated overall project duration: 2 years

# Project WFOR – Forecasting

## Objective

To forecast future trends in levels of service and other performance requirements and identify likely gaps.

To enable maintenance history to be tracked and linked to asset strategies and forecast needs.

## Sub projects

This project is made up of the following sub projects:

- WFOR 01 – Demand forecasting scope – complete.
- WFOR 02 – Demand forecast analysis.
- WFOR 03 – Capacity models.
- WFOR 04 – Capacity forecast analysis.
- WFOR 05 – O&M analysis.
- WFOR 06 – Maintenance history.
- WFOR 07 – Climate change.
- WFOR 08 – Demand management plan.
- WFOR 09 – Water Services bylaw.

## Expected Benefits

- To be able to plan to meet future needs in an efficient and informed manner.
- Increased confidence in depreciation expenses, future renewal needs, and optimum maintenance/renewal strategies.

## Deliverables

- Undertake scope demand forecasting analysis.
- Undertake demand forecasting analysis.
- Development of hydraulic models.
- Forecasting to understand capacity including risk and LOS implications.
- O&M strategies complete with cost information.
- Processes to track maintenance history to validate asset lives.
- Review of impacts of climate change.
- Revision of the demand management plan taking into consideration industry best practise.

## Project Team

- Assets team

## Methodology

- Scope demand forecasting analysis.
- Undertake demand forecasting, including sensitivity or scenario analysis, cost, risk, LOS implications and link to lifecycle management.
- Develop hydraulic models to understand current and future capacity.
- Carry out forecasting to understand capacity including risk and LOS implications.
- Develop O&M strategies complete with better cost information.
- Develop processes to track maintenance history to validate asset lives.
- Consider impacts of climate change on future management of assets.

- Revise the demand management plan taking into consideration industry best practise.

## Resources

- Internal
  - 22 days
- External
  - Hydraulic model development – \$75,000
  - Assistance with demand forecasts – \$5,000
  - Undertaking forecasting – \$50,000
  - Development of O&M strategies – \$10,000
  - Develop processes to track asset-based maintenance history tracking – \$4,500
  - Impacts of climate change – - \$5,000

## Timeframe

- Suggested commencement date: Project to commence in February 2009
- Estimated overall project duration: 2.5 years

# Project WIMP – Improvement Plan

## Objective

To routinely monitoring and report on progress made in improvement activities.

## Sub projects

This project is made up of the following sub projects:

- WIMP 01 – Improvement plan – complete.
- WIMP 02 – Improvements summary – complete.
- WIMP 03 – Improvements process – complete.

## Expected Benefits

- An up to date understanding of progress made in improvement activities.

## Deliverables

- Documented agreed process for monitoring improvement plan progress.

## Project Team

- Assets team

## Methodology

- Assign responsibilities and prepare documented process. This may be included within position descriptions or as a goal in routine performance appraisals.

## Resources

## Timeframe

# Project WLOS – Levels of Service and Performance

## Objective

To efficiently update, monitor and improve understanding of service level needs, provision and community willingness to pay.

## Sub projects

This project is made up of the following sub projects:

- WLOS 01 – Service level review.
- WLOS 02 – Performance benchmarking.
- WLOS 03 – Capture performance data.
- WLOS 04 – LOS tables update.
- WLOS 05 – Performance gaps – complete.
- WLOS 06 – Sustainability KPIs
- WLOS 07 – LOS survey

## Expected Benefits

- Increased confidence that lifecycle strategies and activities are cost effective and reflect the community's wants and needs.
- Increased confidence that the expenditure levels are appropriate and that the community supports this.
- Streamlined processes to routinely capture performance data to monitor service level provision.
- Increased confidence that Council is sustainably managing its activities.

## Deliverables

- Review of levels of service including user needs review, consultation needs, SMART principles, rationalise existing tables.
- Possible participation in three waters performance benchmarking
- Reporting of performance information against KPIs.
- LOS tables updated to reflect updated service levels with performance trends included as required.
- Performance description linkages through service tables, formal gap analysis and performance discussion.
- Sustainability KPIs developed and included in AM plan.

## Project Team

- Assets team

## Methodology

- Workshop levels of service by:
  - Identifying stakeholder groups and their needs.
  - Identifying key aspects of the land transport activity which need to be “described”.
  - Considering links between community outcomes, national, regional and local strategic goals, levels of service and lifecycle strategies and activities
  - Assessing ease of data capture and efficacy of performance measures to describe key aspects.
  - Considering SMART principles.

- Considering LOS option costing needs.
- Considering sustainability-specific issues.
- Workshop community consultation needs to agree on strategy and approach.
- Link customer performance measures to technical performance measures and develop methodology and information system to efficiently routinely collect the required data and report.
- Collect data.
- Identify key options and cost these.

## Resources

- Internal – Workshops and documented processes - 13 days.
- External:
  - Facilitation of workshops - \$15,000
  - Specialist consultation advice - \$5,500
  - LOS survey - \$5,000

## Timeframe

- Suggested commencement date: Project to commence in September 2008
- Estimated overall project duration: 3 years

# Project WPLA –Plan Update

## Objective

To routinely monitoring and report on progress made in improvement activities.

## Sub projects

This project is made up of the following sub projects:

- WPLA 01 – Update plan – Complete.
- WPLA 02 – Linkages – Complete.
- WPLA 03 – Policies – Complete.
- WPLA 04 – Significant negative effects – Complete.
- WPLA 05 – Asset capacity description – Complete.

## Expected Benefits

- A more concise plan with improved linkages and an executive summary able to be used as standalone document.
- AM strategies and policy will be developed

## Deliverables

- Improve conciseness of plan and develop executive summary as a document which could be considered a standalone document.
- Review and improve linkages throughout the plan, including community outcomes, LOS, demand, risk, key strategic issues, lifecycle strategies, work programmes, financials and improvement projects.
- Review and develop AM policy and underlying AM strategies.
- Summarise how council is addressing the significant negative affects.
- Describe how council is addressing asset capacity.

## Project Team

- Assets team

## Methodology

- Review plan and improve document.
- Review policy and strategies.

## Resources

- Internal - 1 day

## Timeframe

- Suggested commencement date: Complete by September 2008
- Estimated overall project duration: 1 month

# Project WQUA – Quality

## Objective

To ensure council processes and procedures are kept up to date  
To ensure new asset acceptance procedures are in place.

## Sub projects

This project is made up of the following sub projects:

- WQUA 01 – Maintenance information processes
- WQUA 02 – Asset acceptance procedures
- WQUA 03 – Design and construction manual
- WQUA 04 – Current processes and procedures

## Expected Benefits

- Increased confidence that processes are undertaken consistently across Council.
- Reduced risk of increased maintenance liabilities.

## Deliverables

- Information in Maximo reconciled with HEAT and migrated to BizeAsset.
- Procedures in place for accepting new assets, particularly developer created assets.
- RDC design and construction manual for capital and development works.
- Processes in place to ensure processes and procedures are kept up to date.

## Project Team

- Quality Assurance Manager, Assets team

## Methodology

- Reconcile information in Maximo with HEAT and migrate to BizeAsset.
- Review the procedures in place for accepting new assets, particularly developer created assets.
- Develop a RDC design and construction manual for capital and development works.
- Review the processes in place to ensure processes and procedures are kept up to date.

## Resources

- Internal – 9 days.

## Timeframe

- Suggested commencement date: Project to commence from June 2009 onwards
- Estimated overall project duration: 2 years

# Project WRIS – Risk Management

## Objective

To develop a risk management policy that facilitates the management process and accommodates for regular reviews.

To identify critical assets to focus lifecycle management strategies and risk mitigation works.

## Sub projects

This project is made up of the following sub projects:

- WRIS 01 – Risk policy.
- WRIS 02 – Procurement processes.
- WRIS 03 – Risk analysis review - complete.
- WRIS 04 – Criticality assessment.
- WRIS 05 – Maintenance plans for critical assets.
- WRIS 06 – Risk update - complete.

## Expected Benefits

- An up to date understanding of what the risks environment is and what requires attention.
- Assurance risks are being managed and actions undertaken to control them.
- To have a documented risk process in place that demonstrates Council is managing risk in a prudent manner.

## Deliverables

- Documented Council-wide risk management policy complete to timeframe and agreed to by organisation.
- Formal procurement processes to document current practices.
- Review of risk framework and register, including likelihood / consequence and risk rating definitions for both tangible and intangible risks.
- Criticality analysis to assign criticality ratings to assets.
- Updated risk register.

## Project Team

- Assets and Corporate teams.

## Methodology

- Workshop proposed policy to ensure corporate buy-in
- Develop formal procurement processes to document current practices.
- Review of risk framework and register, including likelihood / consequence and risk rating definitions for both tangible and intangible risks.
- Undertake criticality analysis to formally assign criticality ratings to assets.
- Develop maintenance plans for critical assets and events.
- Update risk register as necessary.

## Resources

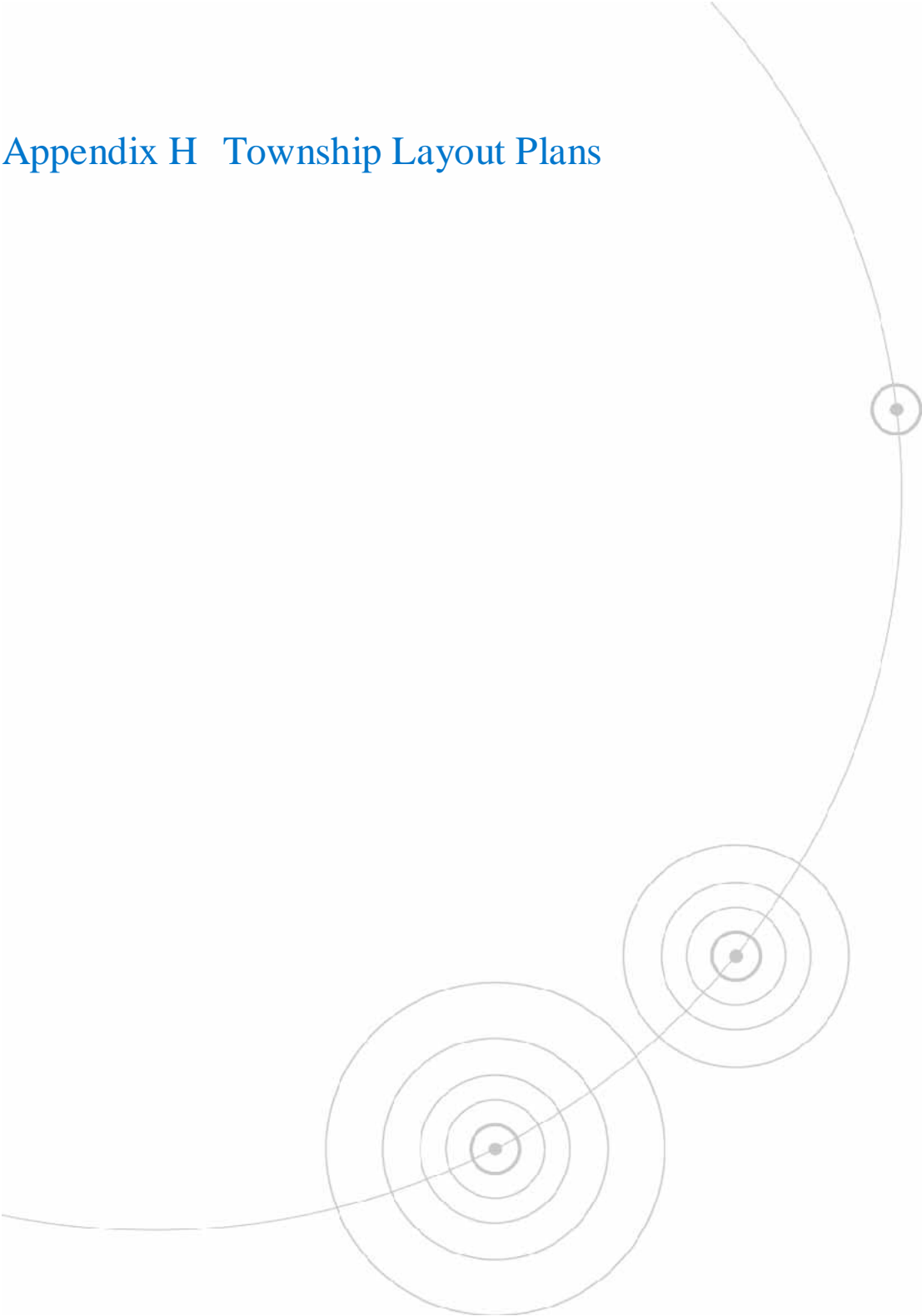
- Internal – Project establishment, workshops and policy development - 10 days

- External – Facilitation and specialist assistance to:
  - Undertake criticality analysis \$30,000

### Timeframe

- Suggested commencement date: February 2009
- Estimated overall project duration: 18 months

# Appendix H Township Layout Plans



## Appendix H Township Layout Plans



**N**  
**MANUNUI STORMWATER**  
 Scale: 1:142  
 29/10/2009

**RUAPEHU DISTRICT COUNCIL**  
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-  Property Boundary
-  Piped Stormwater
-  Unpipeds Drain
-  Railway





**N**  
**NATIONAL PARK STORMWATER**  
 Scale: 1:100  
 29/10/2009

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-  Property Boundary
-  Piped Stormwater
-  Unpipeds Drain
-  Railway







**N**  
**OHAKUNE STORMWATER**  
 Scale: 1:170  
 29/10/2009

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-  Property Boundary
-  Piped Stormwater
-  Unpiped Drain
-  Railway





**N**  
**OWHANGO STORMWATER**  
 Scale: 1:45  
 29/10/2009

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-  Property Boundary
-  Piped Stormwater
-  Unpiped Drain
-  Railway





**N**  
**RAETIHI STORMWATER**  
 Scale: 1:30  
 29/10/2009

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-  Property Boundary
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-  Unpiped Drain
-  Railway



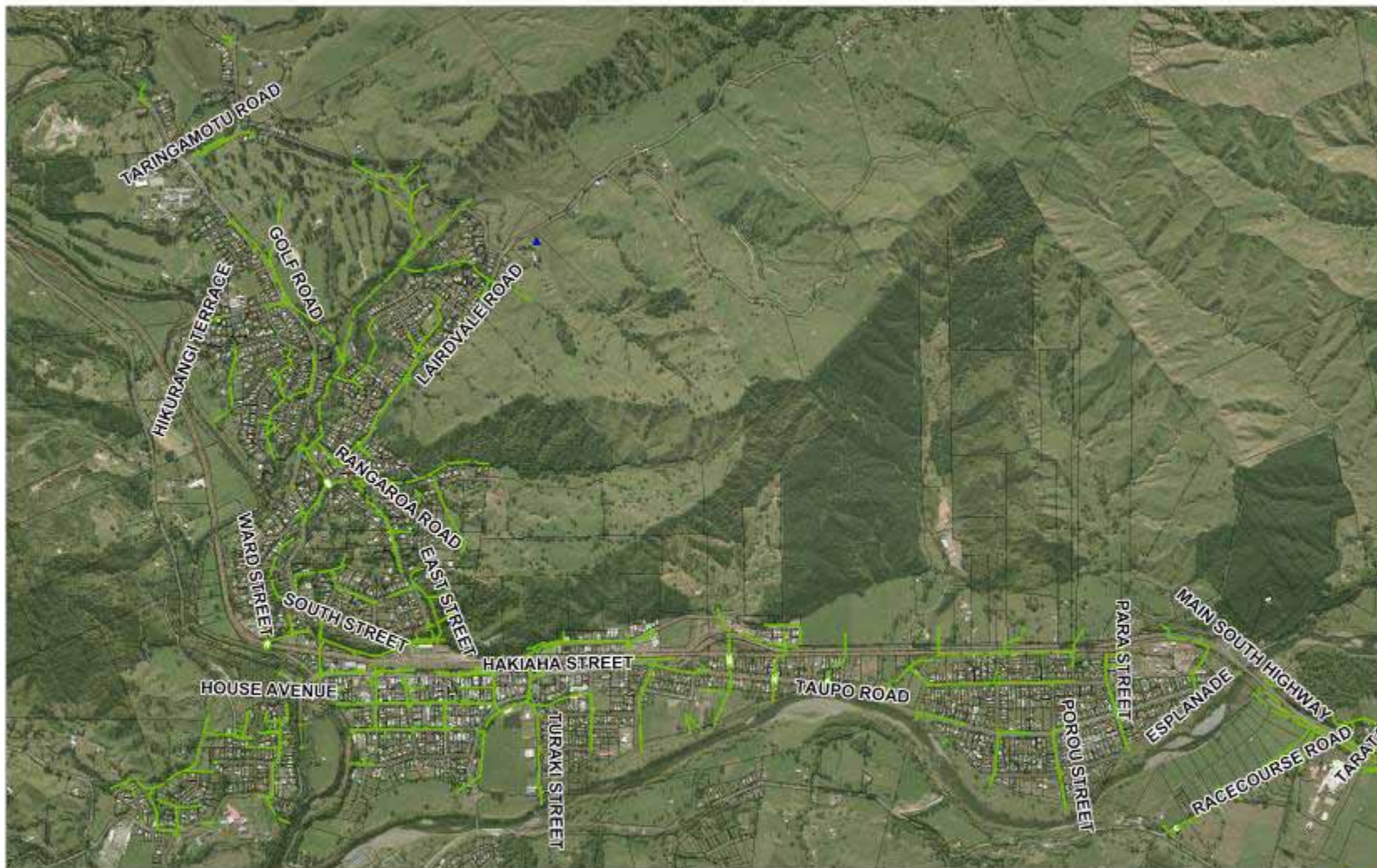


**N**  
**RANGATAUA STORMWATER**  
 Scale: 1:100  
 29/10/2009

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-  Property Boundary
-  Piped Stormwater
-  Unpipeds Drain
-  Railway





**N**  
**TAUMARUNUI STORMWATER**  
 Scale: 1:220  
 29/10/2009

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-  Property Boundary
-  Piped Stormwater
-  Unpiped Drain
-  Railway





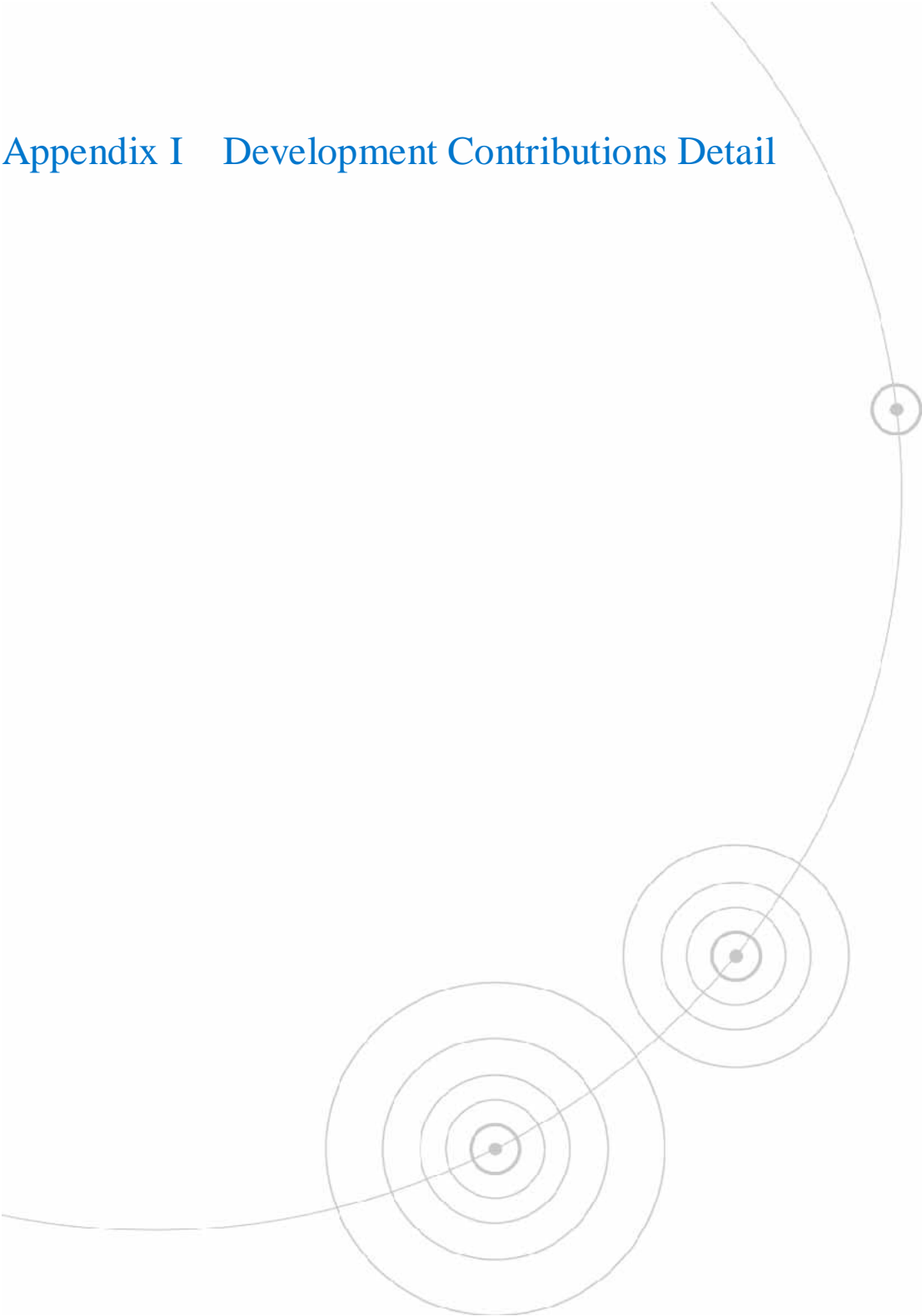
**N**  
**WAIOURU STORMWATER**  
 Scale: 1:45  
 29/10/2009

**RUAPEHU DISTRICT COUNCIL**  
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-  Property Boundary
-  Piped Stormwater
-  Unpiped Drain
-  Railway



# Appendix I Development Contributions Detail



## Appendix I      Development Contributions Detail

### Ruapehu District Council Development Contributions assessment for stormwater activity

#### 1    General

As growth occurs in the District expectations of the Stormwater system are rising. There is an expectation that open drains will be filled. In addition, hard surfaces cause greater runoff from developed sections.

This occurs throughout the District in rural as well as urban areas. The Development Contributions policy covers the background to this.

#### 2    Examples of District Wide Activity

The works identified in the Detail spreadsheet are based on consideration of recent events in the District.

The National Park stormwater plan has identified a significant upgrade requirement totalling over \$8,000,000.

Approximately \$200,000 pa has been spent in National Park village over the last 3 years. \$50,000 pa has been spent in Rangataua recently.

An enquiry has recently been received from Ohura from a citizen contemplating additions to the house.

It is expected that similar levels of activity will be required in other urban areas as the expectations of the inhabitants escalate.

Reports prepared for Ohakune and Taumarunui have both signalled the need for significant stormwater development.

It is difficult to predict exactly where the next pressure point will be.

#### 3    Financial

The overall expenditure is likely to be at least \$50,000 pa as a result of new building and subdivision throughout the District. This amount is shown in Section 7 Financial requirements and represents the sum of expenditure in various areas in the District.

To find the Development Contribution in accordance with the Policy in the LTP the total expenditure must be divided by the total expected amount of "hard" area and multiplied by the standard area of 500m<sup>2</sup>.

$\$500,000/645,000*500=\$388$ .

Based on the projected increase in the area of an average of 100 building units pa the Development Contribution should be \$500 per unit.

# Appendix J Community Expectations



## Appendix J Community Expectations

A number of meetings were held with community groups in 2008 to help inform the development of the AMPs 2009-12 and the Long Term Plan 2009-19.

The following Community Groups responded to the invitation to help inform the process:

- Enterprise Taumarunui Incorporation (ETI)
- Federated Farmers
- Horopito Residents and Ratepayers Society
- Kakahi Business Association
- National Park (NPPA, NPCB, NPBA)
- Owhango Residents and Ratepayers Incorporated Society (ORRIS)
- Raetihi Promotion Group
- Raurimu Residents and Ratepayers Association
- Ohakune 2000 (OHA 2000)
- Pipiriki Incorporation

A summary of issues relating to Stormwater for each group are below

### **ETI**

No specific issues were raised by ETI on Stormwater.

Stormwater projects related to Taumarunui are found on page 75 and following

### **Fed Farmers**

No specific issues were raised by Fed Farmers on Stormwater. A general thank you was made by RDC staff who acknowledged the help given by farmers to the roading network in clearing culverts, receiving stormwater etc.

### **Horopito**

No specific issues were raised by Horopito on Stormwater.

### **Kakahi**

Council has a division of responsibility with rural stormwater falling into the roading AMP and urban stormwater falling into the stormwater AMP. As a small township Kakahi has elements of its stormwater system that fall into each area.

Stormwater improvements for Ako Street will be part of the ongoing works in the roading area. This is not specifically mentioned in the Stormwater AMP.

Similarly the drain on Te Rena Road will be upgraded in the course of roadworks.

Kakahi is listed under small townships on page 82.

### **National Park**

The programme for Stormwater projects for National Park is found on page 56 and following

### **Owhango**

The programme for Stormwater projects for Owhango is found on page 66 and following

### **Raetihi**

No specific issues were identified but an overall desire for improvement was expressed.

Stormwater projects related to Raetihi are found on page 69 and following

### **Ohakune 2000**

No specific issues were raised by Ohakune 2000 on Stormwater.

Stormwater projects related to Ohakune are found on page 59 and following

### **Raurimu Residents and Ratepayers Association**

No specific issues were raised by Raurimu on Stormwater.

**Pipiriki Incorporation**

No specific issues were raised by Pipiriki Incorporation on Stormwater.