



Assessment of Water and Sanitary Services

In Accordance With Part 7 of the
Local Government Act 2002

Revision 3 - December 2011



Whakatane District Council

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REFERENCES

PLANNING

Long Term Council Community Plan 2009-2019

A Socio-Economic Profile of the People of the Bay of Plenty Region, EBOP 2002/03

WATER SUPPLY

Water Asset Management Plan 2009-2010

Register of Community Drinking-Water Supplies in New Zealand 2007 Edition, Ministry of Health

Register of Community Drinking-Water Supplies in New Zealand 2005 Edition, Ministry of Health

WASTEWATER

Wastewater Asset Management Plan 2009-2010

STORMWATER

Stormwater Asset Management Plan 2009-2010

PUBLIC TOILETS

Property Asset Management Plan 2009/2010

CEMETERIES

Parks and Reserves Asset Management Plan 2009/10

Glossary

Acronym	Description
AMP	Asset Management Plan
AC	Asbestos Cement
DWA	Drinking water assessor for Ministry of Health
I&I	Infiltration and Inflow
LTP	Long Term Plan
LGA	Local Government Act (2002)
MDPE	Medium Density Poly Ethylene
MAV	Maximum Acceptable Value (for a contaminant listed in NZDWS)
NZDWS	New Zealand Drinking Water Standards
PVC	Polyvinyl Chloride
UV	Ultra Violet
WDC	Whakatane District Council
TLA	Territorial Local Authority
BoPRC	Bay of Plenty Regional Council

1 Executive Summary

1.1 The Water and Sanitary Services Assessment process and background

The introduction of the Local Government Act 2002 placed responsibility on Territorial Local Authorities (TLAs) to complete assessments of water services (drinking water, sewerage/wastewater and stormwater) and sanitary services (public toilets, cemetery & crematoria, solid waste) for communities throughout their district. Public consultation on the findings of these assessments was required.

The assessment process places emphasis on the identification, and proposals for resolution, of any adverse health impacts or environmental impacts arising from existing and future demand for water and sanitary services. Where reticulated water services do not exist then an assessment of risk arising from lack of the reticulated service is to be undertaken.

The assessments are not exclusively for Council provided services but also encompass private schemes. The definition of 'community' is left to the TLA. An initial assessment was undertaken as required in April 2005 and following a public consultation process, adopted by Council in May 2005. Subsequent assessments are required to be undertaken from 'time to time'. This document is the second update to the original assessment and includes changes made in 2005 and again in 2009.

The assessment has drawn upon available documentation (AMPs, LTCCP, Ministry of Health Registers) and knowledge within Council and elsewhere to document the services provided by existing reticulation schemes.

1.2 Communities assessed

The following settled areas have been defined as 'communities' for the purposes of this assessment

Whakatane	Ruatahuna
Ohope	Minginui
Edgecumbe	Fonterra Edgecumbe*
Matata	Galatea
Murupara	Huiarau*
Taneatua	Matahi*
Ruatoki	Murphy's Camp*
Waimana	Nukuhou North*
Te Mahoe	Pikowai Camp*
Te Teko	Te Whaiti*
Plains Water Scheme Area	Rural dwellings and Marae outside a reticulated scheme

* denotes those not covered in initial assessment 2005

1.3 Recommendations arising from the assessment

1.3.1 Communities with reticulated water services:

The principal issue identified, with regards to reticulated communities, is that a number of the schemes (Te Mahoe, Plains, Edgecumbe, Ruatoki, Murupara) are drawing water from groundwater sources or springs that are not proven 'secure' sources. These supplies therefore may not have a barrier to protozoa (giardia and cryptosporidium) as required by the NZ Drinking Water Standards. Funding has been approved for upgrades to address this issue in Ruatoki from the MoH Capital Assistance Programme (CAP). These upgrades will include securing a reliable source; extending the scheme to include those not currently connected and the provision of additional storage. Projects will also be included in the Council's next LTP to progressively address water quality and level of service issues in the plains water supply.

Action will be taken in accordance with current Drinking Water Standards to prove the ground water security in Murupara. A project to abstract water from Paul Road aquifer will be included in the proposed (LTP) to supply water to Edgecumbe and parts of the Plains Scheme. Paul Road aquifer is a deep aquifer and can be proven as a secure ground water source.

Capacity issues in summer are identified with the Matata and Plains schemes. While it is recommended that demand management be implemented in the first instance, additional storage will be provided where immediate deficiencies have been identified (i.e. additional storage will be provide in Matata in 2012/13).

A study to understand pipe upgrade/extension options to meet the present and future demand in the Plains area is underway.

Investigations need to continue to provide a satisfactory resolution to the arsenic issue with the Plains water scheme.

A number of other upgrade and maintenance items for the schemes are identified in the Asset Management Plans. These are appropriate and should be implemented as programmed.

1.3.2 Communities without reticulated water services

A large number of rural dwellings and a number of marae rely upon shallow bores, springs, stream sources or roof water. The risk assessment identifies 'medium' and 'high' risks associated with these supplies.

Where a reticulated scheme exists, as in Ruatoki, it is recommended that connection to the reticulated scheme is the preferred option for unserved properties. A project is planned in Ruatoki to upgrade the water system to allow all the dwellings within Ruatoki water boundary to connect to the public water system with funding assistance from Ministry of Health (MoH) and Housing New Zealand Corporation (HNZC). Except for the Plains and Ruatoki water schemes, all properties within schemes boundaries are required to connect to the water system.

For most areas however, the location and low density of housing means a reticulated supply is not feasible. For these properties, education of householders on appropriate care and maintenance of water supplies is recommended. The Council will help these communities by providing advice as necessary and, where ever possible, will implement projects to improve these water supplies with the assistance from the Ministry of Health.

The sanitary status of water supplies to the unreticulated community, and the health implications arising from it, are not currently well understood. This is an information gap which is recommended to be filled for the benefit of future assessments. Furthermore, the sufficiency of supply for such communities needs to be understood as it's essential that an adequate supply of water is available for cooking but also to operate sanitary facilities.

1.3.3 Communities with reticulated Wastewater services

The most obvious threat to public health is the result of wastewater overflows. Such overflows are a problem in Whakatane, Ohope and in particular in Edgecumbe. To address these issues there are a number of operational and upgrading actions identified within this report and the Asset Management Plans and these are programmed for implementation. The assessment has not identified any other significant health or environmental issues associated with these schemes.

1.3.4 Communities without reticulated Wastewater services

Outside of the reticulated scheme areas a large number of rural dwellings and marae communities rely upon on site wastewater treatment and disposal. Generally this is by way of basic septic tank systems.

The risk assessment identifies 'medium' and 'high' risks associated with on site wastewater disposal where soils are unsuitable, appropriate maintenance is not undertaken or density of houses is high (as in settlements such as Matata and Te Teko). There is a risk of surface water contamination where high groundwater conditions exists in close proximity to surface drainage systems, as is the case in Matata.

For Matata and Te Teko it is recommended that current investigations and applications for Sanitary Works Subsidy (SWS) be progressed. In the event that community support for a reticulated scheme is not forthcoming and/or external funding to make the schemes financially viable is not obtained, then these communities should be placed upon a Council managed septic tank pump out and maintenance programme.

For the balance of the rural areas reticulation is not feasible. For the unreticulated community, education of householders on appropriate care and maintenance of on site disposal systems is recommended.

The sanitary status of on site systems used in the unreticulated community, and the health implications arising from them, are not currently well defined. This is an information gap which is recommended to be filled for benefit of future assessments.

1.3.5 Communities with reticulated Stormwater

A number of upgrade and improvement measures to address known problems for the reticulated stormwater schemes are programmed in the AMP. Significant works completed since 2005 include the upgrade of pumping at Douglas St, installation of new flood pumps for the Awatapu Lagoon, stormwater improvements to Otarawairere and a major upgrade of stormwater disposal for the west of Edgecumbe.

1.3.6 Communities without reticulated Stormwater

Health and environmental issues in the communities without reticulated stormwater are not believed to be widespread. Poor drainage around dwellings leading to damp houses and septic tank effluent field failures is known to be a problem in some rural areas. It is recommended that this issue be addressed through a community education programme, logically run in conjunction with that on water supply and septic tank maintenance.

1.3.7 Public toilets

Adequate public toilets exist. Additional facilities should be considered in response to proven community demand and resource capabilities. Potability of water supplies at rural toilets (those not on Council reticulated water supply) should be reviewed.

1.3.8 Cemeteries and Crematoria

There are currently no identified health issues with cemeteries. The only issue identified in the previous report was the lack of a crematorium. A crematorium has since been built and commissioned and this new facility forms part of Hillcrest cemetery. It is however noted that the provision of suitable burial grounds to cover the various religious denominations may be required. Without such grounds, 'special' burial places will occur more often as the population ages. To address this, the council will determine if suitable burial grounds for people of varied religious denominations will be required following the next census review (based on growth, age and demographics). If there is an increasing interdenominational component of the community then this may require the council to reconsider and plan for special services provided with our cemeteries.

1.3.9 Effluent disposal points

There are no identified health issues associated with effluent disposal points in the District and the existing facilities are considered adequate for demand.

1.3.10 Solid waste

Whakatane District has replaced the previous Waste Management Plan (WMP) with a comprehensive Waste Management and Minimisation Plan (WMMP) in 2010 and no specific assessment of solid waste services was required for the LGA (2002) assessment. A number of changes to service delivery for solid waste services have occurred since 2009. These include closure of the Burma Rd landfill, building a new transfer station, increased materials recovery and changes to refuse collection services. Building of a greenwaste/kitchen waste composting plant is planned in the year 2011/12.

1.4 Process to finalise the assessment

Consultation on the original Assessment and its findings was required, with a special consultative procedure as per the LGA. This was done and the feedback from public submissions incorporated.

This 2011 revision is about documenting changes since the initial assessment. To finalise these changes, under the Local Government Act 2002, the Council must adopt an amended Assessment of Water and Sanitary Services using the special consultative procedure. Section 83 of the LGA specifies that the Council must make the statement of proposal (the draft AWSS) and a summary of the proposal available to the public and give public notice of the proposal. A submission period of not less than one month from the date of the public notice must be allowed, followed by an opportunity for submitters to be heard by the Council.

It is proposed that the Council provide delegation to the Projects and Service Committee to hear and consider submissions and make recommendations to Council to adopt the final AWSS.

1.5 Improvement plan for the assessment

This assessment has drawn upon a large pool of information, and has covered the majority of the deficiencies that were identified in preceding assessments. Nonetheless there are a number of areas where specific information remains elusive.

Specific information gaps identified include:

- Data on the performance of unreticulated sewer systems throughout the district, and the environmental and health impacts of the failures that do occur;
- Data on the quality and quantity of the water supplies of unreticulated properties throughout the district, including all source types, to properly assess the variation in risk associated with those supplies (both in terms of quality and sufficiency of supply).

It is recommended that a programme of investigation be put in place to fill these gaps before the next assessment. Bay of Plenty Regional Council, Toi Te Ora – Public Health Service and local Iwi would all have a role to play in this process.

2 Introduction

2.1 Water and Sanitary Services Assessments

The introduction of the Local Government Act 2002 (LGA, the Act) placed responsibility on Territorial Authorities to complete assessments of water and sanitary services for communities throughout their districts. Public consultation on the findings of these assessments is also required.

The Act (s125, 126,127,128,129) outlines the assessment process, with emphasis on the identification, and proposals for resolution, of any adverse health impacts or environmental impacts arising from existing and future demand for water and sanitary services.

The services required to be assessed are:

Water

- Drinking (potable) water supply
- Wastewater treatment and disposal
- Stormwater

Sanitary

- Public toilets
- Wastewater disposal stations
- Cemeteries and crematoria
- Landfills

A key feature of the LGA requirements is that the assessments are not exclusively for Council provided services but address all communities and might for example include:

- A group of rural dwellings that use a private water supply
- A school serviced by a bore (water), septic tank (wastewater) and soakage system (stormwater)
- A Marae or camping ground, where health risks may arise during large events
- A settlement serviced by onsite wastewater systems.

Solid waste can be excluded from the assessment, provided that the Council has a waste management plan in place. Since Whakatane has a Waste Management and Minimisation Plan in place an assessment of solid waste services is not required as part of this assessment. The Waste Management Plan was reviewed however to confirm its completeness as part of the original Assessment. The passage of the Waste Minimisation Act 2008 does require Waste Management Plans to be updated by 2012. This has been completed in 2010. A number of changes to service delivery have been completed since 2009 including closure of the Burma Rd landfill, building a new transfer station, increased materials recovery and changes to refuse collection services. Building of a greenwaste/kitchen waste composting plant is planned in the 2011/12 year.

2.2 Process for assessment

The process of undertaking the assessments within Whakatane District is as follows:

- Collection of all relevant documentation from Council
- Review of documentation
- Council staff interviews
- Site visits
- Ministry of Health interview
- Bay of Plenty Regional Council staff interviews
- Review of all relevant documentation from Regional Council
- Draft report
- Comments on draft report
- Finalise draft Assessment report
- Periodic update of WSSA text/content (involving consultation)

2.3 Communities with reticulated services

The initial review of communities within Whakatane District identified the following reticulated services:

Community	Water	Sewerage	Stormwater
Whakatane	Y	Y	Y
Ohope	Y	Y	Y
Edgecumbe	Y	Y	Y
Matata	Y	N	Y
Murupara	Y	Y	Y
Taneatua	Y	Y	Y
Ruatoki	Y	N	N
Waimana	Y	N	N
Te Mahoe	Y	Y	Y
Te Teko	Y	N	Y
Plains Water Scheme Area	Y	-	-
Ruatahuna	P	N	N
Minginui	Y	N	N
Fonterra Edgecumbe	Y	-	-
Galatea	P	N	N
Huiarau	P	N	N
Matahi	P	N	N
Murphy's Camp	Y	N	N
Nukuhou North	P	N	N
Pikowai Camp	Y	N	N
Te Whaiti	P	N	N

Table 1: Communities with Reticulated Services. A 'Y' indicates that the relevant service is available to the bulk of that community, a 'P' indicates partial availability, an 'N' indicates that the service is unavailable, and a '-' indicates that the community is not valid for that service.

A map of the District is shown below (figure 1)

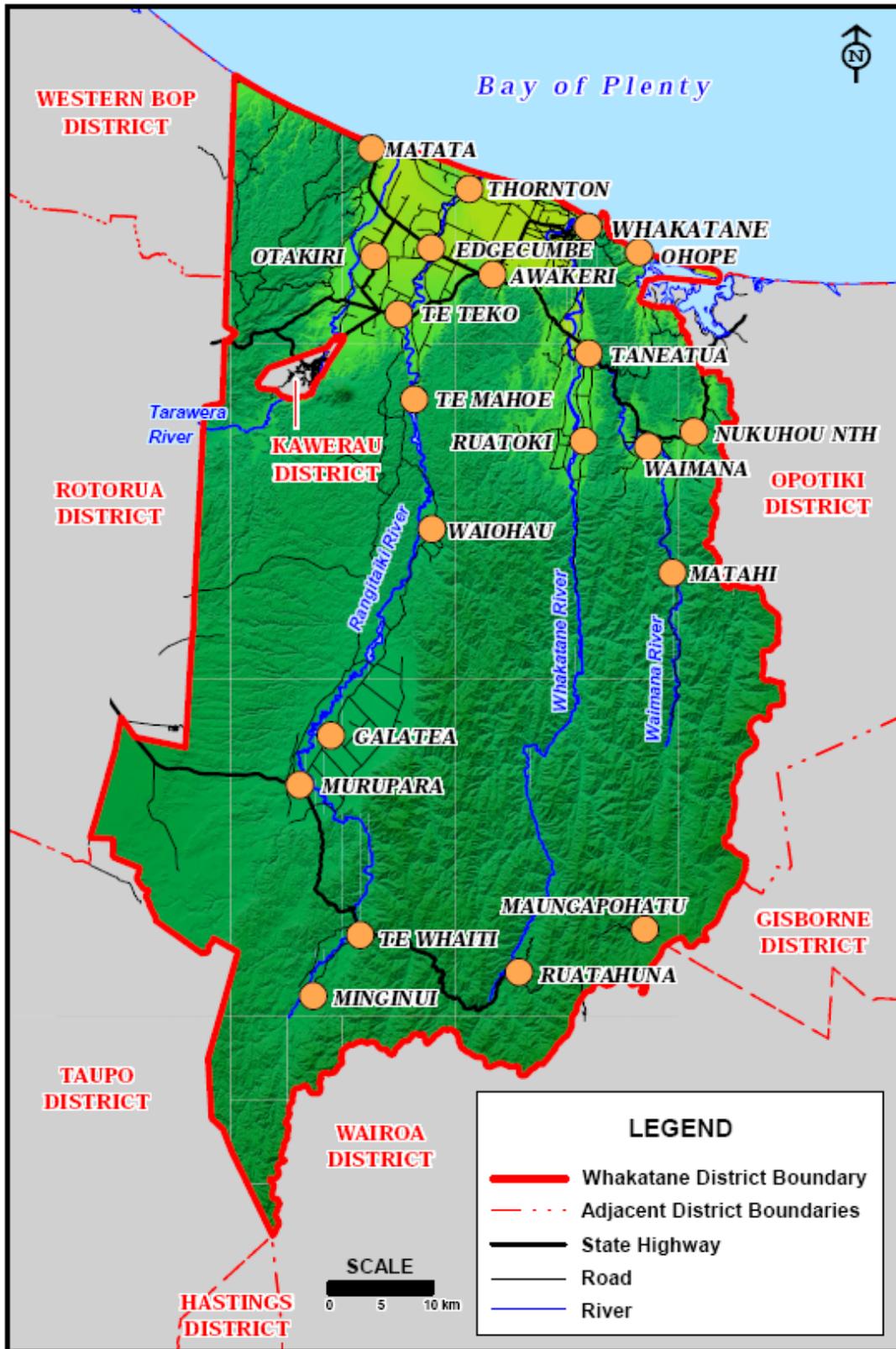


Figure 1: District wide map

3 Statutory Requirements

3.1 Assessments of Water and Sanitary Services

The Local Government Act 2002 required all local authorities to complete water and sanitary assessments by 30 June 2005, (Sections 123 – 129 of the Act). Assessments were to include statements of options available to meet current and future demands. A major focus of these assessments is the impact of water and sanitary services on public health and the environment. An assessment is required of any risks to the community relating to the absence of either reticulated water supply or reticulated wastewater services.

The information gained from these assessments should be used to formulate future strategies for these activities and can be thought of as a strategic plan of action for infrastructure to meet the needs of future community and key stakeholder demands.

Section 126 outlines the information required for the assessment of water services and states:

- (1) *An assessment of water services must contain the following information:*
 - (a) *a description of the means by which –*
 - (i) *Drinking water is obtained by residents of, and communities, within, the district, including the extent to which –*
 - (A) *water supply is provided within the district by the territorial authority and any other person; and*
 - (B) *the water is potable; and*
 - (ii) *sewage is disposed of within the district, including the extent to which reticulated sewerage and sewerage treatment services are provided within the district by the territorial authority and any other person; and*
 - (iii) *stormwater is disposed of within the district, including the extent to which drainage works are provided within district by the territorial authority and any other person; and*
 - (b) *an assessment of any risks to the community relating to the absence in any area of either a water supply or a reticulated wastewater service or both; and*
 - (c) *an assessment of-*
 - (i) *the quality and adequacy of supply of drinking water for each community; and*
 - (ii) *the quality and quantity of wastewater discharged from reticulated sewerage or a sewage treatment system; and*
 - (d) *a statement of current and estimated future demands for water services within its district and a statement of any issues relating to –*
 - (i) *the quality and adequacy of supply of drinking water for each community; and*
 - (ii) *the health and environmental impacts of discharges of stormwater and sewage (whether treated or untreated) arising from the current and future demands; and*
 - (e) *a statement of the options available to meet the current and future demands identified under paragraph (d) and assessment of the suitability of each option for the district and for each community within it; and*

- (f) *a statement of the territorial authority's intended role in meeting the current and future demands identified under paragraph (d); and*
- (g) *the territorial authority's proposal for meeting the current and future demands identified under paragraph (d) including proposals for any new or replacement infrastructure.*

Section 127 refers to information required for assessment of sanitary services and is as follows:

- (a) *A description of the sanitary services provided within the district for each community in it; and*
- (b) *A forecast of future demands for sanitary services within the district and each community in it; and*
- (c) *A statement of the options available to meet the forecast demands and an assessment of the suitability of each option for the district and each community in it; and*
- (d) *A statement of the territorial authority's intended role in meeting the forecast demands; and*
- (e) *A statement of the territorial authority's proposals for meeting the forecast demands, including proposals for any new or replacement infrastructure; and*

A statement about the extent to which the proposals will ensure that public health is adequately protected.

3.2 Consultation

Consultation is the exchange of ideas to ensure that a wide range of views are considered in making decisions. It is the dialogue preceding decision making and helps to shape and endorse future direction.

There are two types of consultation – informal and formal. Informal consultation occurs prior to consultation required under various pieces of legislation (i.e. 'formal consultation') and can take any form and may include stakeholder meetings and discussion groups. Formal consultation is undertaken according to legislative requirements, such as the Special Consultative Procedures under the Local Government Act.

A Council undertaking consultation under the Local Government Act must do so in accordance with six principles of consultation (Section 82). These are

1. Providing people with reasonable access to relevant information
2. Encouraging people to present their views
3. Giving clear information on the purpose and scope of the consultation
4. Providing reasonable opportunities for people to present their views to the local authority
5. Receiving those views with an open mind
6. Providing submitters with information on the decision and the reasons for the decision.

While a local authority has discretion as to how it observes these principles, they must have regard to the matters set out in s 82(4) relating to matters such as the current views and

preferences of persons who will or maybe affected by or have an interest in the decision or matter, the nature and significance of the decision or matter, and the costs and benefits of any consultation.

Section 88 of the Act states that the special consultative procedure must be used for any proposal to alter the mode by which a significant activity is undertaken unless the proposal is explicitly provided for in the long-term plan (LTP). The water and sanitary assets are considered a significant activity for the Council, and are specified as such in its Policy on Significance. Any changes to these services are therefore subject to the special consultative procedure specified in Section 83 of the Act.

3.3 Special Consultative Procedures

Section 83 of the Act defines the Special Consultative Procedure which is a revised version of section 716A of the Local Government Act 1974, and is repeated below.

- (1) *Where this Act or any other enactment requires a local authority to use or adopt the special consultative procedure, that local authority must—*
- (a) *prepare*
 - (i) *a statement of proposal; and*
 - (ii) *a summary of the information contained in the statement of proposal (which summary must comply with section 89); and*
 - (b) *include the statement of proposal on the agenda for a meeting of the local authority; and*
 - (c) *make the statement of proposal available for public inspection at—*
 - (i) *the principal public office of the local authority; and*
 - (ii) *such other places as the local authority considers necessary in order to provide all ratepayers and residents of the district with reasonable access to that statement; and*
 - (d) *distribute in accordance with section 89(c) the summary of the information contained in the statement of proposal; and*
 - (e) *give public notice, and such other notice as the local authority considers appropriate, of the proposal and the consultation being undertaken; and*
 - (f) *include in the public notice a statement about how persons interested in the proposal—*
 - (i) *may obtain the summary of information about the proposal; and*
 - (ii) *may inspect the full proposal; and*
 - (g) *include in the public notice a statement of the period within which submissions on the proposal may be made to the local authority; and*
 - (h) *ensure that any person who makes a submission on the proposal within that period—*
 - (i) *is sent a written notice acknowledging receipt of that person's submission; and*
 - (ii) *is given a reasonable opportunity to be heard by the local authority (if that person so requests); and*

- (i) ensure that the notice given to a person under paragraph (h) (i) contains information—
 - (i) advising that person of that person's opportunity to be heard; and
 - (ii) explaining how that person may exercise that person's opportunity to be heard; and
 - (j) ensure that, except as otherwise provided by Part 7 of the Local Government Official Information and Meetings Act 1987, every meeting at which submissions are heard or at which the local authority, community board, or committee deliberates on the proposal is open to the public; and
 - (k) subject to the Local Government Official Information and Meetings Act 1987, make all written submissions on the proposal available to the public.
- (2) The period specified in the statement included under subsection (1) (g) must be a period of not less than 1 month beginning with the date of the first publication of the public notice.
- (3) This section does not prevent a local authority from requesting or considering, before making a decision, comment or advice from an officer of the local authority or any other person in respect of the proposal or any submission or both.

This consultative process can be summarised in the following steps:

STEP ONE - Preparation of a statement of proposal and a summary

Council must prepare a description of the proposed decision or course of action. This statement of proposal must be available for distribution throughout the community and must be available for inspection at the Council office and anywhere else Council deems appropriate. The statement of proposal must be included on an agenda for a meeting of Council. Council is also required to prepare a summary of information. This summary must be a fair summation of the major matters in the proposal, and must be distributed as widely as Council considers as being reasonably practicable.

STEP TWO - Public notice

Council must publish a notice in one or more daily newspapers, or in other newspapers of equivalent circulation, of the proposal and of the consultation being undertaken.

STEP THREE - Submissions

Council must allow at least one month (from the date of the public notice) for submissions. Council must acknowledge all written submissions and offer submitters a reasonable opportunity to make an oral submission.

STEP FOUR - Deliberate in public

All meetings where Council deliberates on the proposal or hears submissions must be open to the public (unless there is some reason to exclude the public in terms of the Local Government Official Information and Meetings Act (LGOIMA)). Similarly all submissions must be made available unless there is reason to withhold them under LGOIMA. The local authority can consider reports from officers or other persons before making its decision.

STEP FIVE - Notifying decisions

A copy of the decision and a summary of the reasons for that decision must be provided to submitters.

Unlike the Resource Management Act, the Local Government Act Special Consultative Procedure has no direct appeal process. The only appeal process open to people unhappy with the outcome is via a judicial review through the High Court.

3.4 Policy on significance – an aid to decision making

Under the Local Government Act 2002 Councils are required to specify a policy on significance (Section 90). This policy sets out the local authority's general approach to determining significance, and may include thresholds, criteria or procedures to be used by the local authority to assess whether matters are significant. It must also list the assets the local authority considers to be its strategic assets.

In the Whakatane District the wastewater system as a whole, reservoirs and water systems as a whole, stormwater systems as a whole, public toilets as a whole, cemeteries and landfills/ transfer station, are identified as strategic assets (amongst others).

3.5 Assessments are an on going process and adequacy of information

The first Assessment under the LGA (2002) was completed by 30 June 2005 (then revised in 2009). Subsequent Assessments must be made from 'time to time'. There is therefore a requirement to update the Assessment as circumstances change or new information becomes available.

The assessment process as required by the Act is potentially a major task for many local authorities. In that regard the Act recognises that all the required information to complete the assessment, especially in regards private schemes and unreticulated communities, will not be readily available.

Section 129(3) of the Act requires a territorial authority to use its "*best endeavours to make a full and balanced assessment*". This obliges territorial authorities to be proactive in seeking out appropriate information for the assessments. However, section 129(1) requires information to the extent that the territorial authority considers appropriate, having regard to:

- The significance of the information; and
- The costs of, and difficulty in, obtaining the information; and
- The extent of the territorial authority's resources; and

- The possibility that the territorial authority may be directed under the Health Act 1956 to provide the services.

4 Background on Whakatane District

4.1 Introduction

The Whakatane District has a central location in the Bay of Plenty region, with a coastline extending from Otamarakau in the west to Ohiwa Harbour in the east. In the north of the district is the extensive floodplain of the Rangitaiki Plains and Whakatane River valley. While flood prone from the large catchments inland, these fertile agricultural areas are protected by extensive flood protection schemes, as are the main towns of Whakatane and Edgecumbe. At its southern end the district includes the steep bush clad catchments of the Urewera river valleys, home to a number of isolated communities. In the southwest are the Galatea plains, Murupara Township and extensive areas of exotic forestry. The District covers an area of 4,442 square kilometres.

The Whakatane District is in a volcanically and seismically active area. The active volcano of White island is offshore and the faults of the central north island volcanic zone run north south through the district.

Based on the most recent census (2006), the Whakatane District has a population of 33,303 people, of this 50% live in the Whakatane urban area. Between 2001 and 2006 there was a slight increase in private dwellings from 11,535 to 11,709.

4.2 Levels of service for water services

The levels of service for water supplies are predominantly covered by the NZ Drinking Water Standards (NZDWS) and Ministry of Health gradings. The passage of the Health (Drinking Water) Amendment Act 2007 clarified the expectations placed upon water supply providers. The Act provides a legal framework for the regulation of drinking water quality in New Zealand. Key requirements are that a water supply provider must now take “all practicable steps” to comply with the NZ Drinking Water Standards (NZDWS). Public Health Risk Management Plans (PHRMPs) have been a key tool in managing water supply risk and in compliance with the Act. With some exceptions (for small supplies) every water supplier must prepare a PHRMP. Whakatane District now has PHRMPs in place for all its supplies and the Drinking Water Assessor has approved seven PHRMPs and two PHRMPs are under review. The Whakatane District Council has also prepared Catchment Sanitary Inspections for seven water schemes and six of these have been approved by the Drinking Water Assessor. The Health (Drinking Water) Amendment Act 2007 also sets a timeline for compliance with the Act, based upon the size of community.

Council does not have a policy or formal statement on the grading to achieve for any water supply, but does strive to achieve an ‘Aa’ grading for all of their water supplies and reticulation networks by 2013. The Register of Community Drinking Water Supplies in New Zealand is maintained by the Ministry of Health and provides a grading for all community water supplies. *The first letter of the grading relates to the source water and treatment plant, the second letter relates to the distribution zone.* The grades indicate the level of risk of potential contamination in the system, not the quality of the water. A grading of ‘A’ is considered very low level of risk, while a grading of ‘E’ is considered completely

unsatisfactory/high level of risk. If a water supply has not been graded, it is given the default grade 'U' (ungraded).

The levels of service for wastewater and stormwater are controlled by the conditions of resource consents issued by the Regional Council, the requirements of the Building Act as well as community expectations. Council are in the process of applying for a comprehensive stormwater consents for the main urban catchments (starting with Whakatane), which will set out the level of service and discharge water quality requirements for the future.

4.3 Community Outcomes for Whakatane District

The community outcomes as listed in the LTCCP 2009-19 are:

Clean Protected Environment	Environmentally responsible development
Prosperous economy	High quality affordable infrastructure
Strong transparent and open leadership	Education & training opportunities for all
Safe caring community	Healthy people and quality housing
Diverse, creative and active community	

The presumption of the Local Government Act 2002 is that the community outcomes are the drivers for council's activities. The links between Council activities, community outcomes and high level goals are set out in the Community Outcomes document.

4.4 Future levels of service in the district

Factors which are likely to affect levels of service for water and sanitary services in the future are:

- The community expectations and affordability to meet the cost
- For wastewater the renewal of consents has typically resulted in higher standards for effluent discharge quality
- Stormwater is similar to wastewater regarding higher standards being imposed with consent renewals. In particular limits on the contaminants in stormwater can be expected. The issuing of the comprehensive discharge consents will impose requirements on Council. The quality standard set are largely dependent on the quality of water of the receiving environment as well as its ability to mix and disperse stormwater. This may well increase the level of service.

- Levels of service for cemeteries and crematoria are changing in that national trends show crematoria use is on the increase. It is anticipated that this trend will continue
- Passage of the Waste Minimisation Act 2008 has placed a much greater emphasis on managing solid waste to minimise waste disposed to landfill.

4.5 Future growth predictions

4.5.1 Whakatane District population growth

Information obtained from the 2001 and 2006 census shows that the Whakatane District experienced minimal population change over this period. In 2006 the District population stood at 33,303 where as in 2001 the population was 32,868. This represents an increase of only 1.3%. As at 2001 Whakatane District's population accounted for 13% of Bay of Plenty's total population.

4.5.2 Whakatane District's population change

In the five years from 1991 to 1996 the population increased by 3%. In the following five years this dropped by 1%. Following the results of the most recent census (carried out in 2006) the population slightly increased again by 1%. Future population growth projections are that the Bay of Plenty Region as a whole will experience a 28% population increase by 2026. This growth is expected to be predominantly in Tauranga City and Western Bay of Plenty District but is likely to spill over into the Eastern Bay. Growth in the Whakatane District is most likely to be in the north and coastal areas. Population of the smaller rural communities is more likely to be static or decline. Medium projected figures extracted from the Whakatane and Ohope residential growth strategy show a slight population decline after 2013 with net migration and an ageing population being the main factors associated with the gradual change. However, despite this, the urban areas of Whakatane, Piripai and Ohope are expected to experience significant growth. The Whakatane District Council is currently preparing a residential growth strategy for Whakatane and Ohope in line with the review of the present District Plan.

No significant changes in projected population growth which would change the conclusions of the AWSS have occurred since the last version of this assessment.

5 Community Definitions

5.1 What defines a “Community”?

The LGA (2002) does not clearly specify the definition of a ‘community’. The only criteria noted are that the assessment does not need to go down to individual property level. Each TLA can define its own communities for the purposes of the assessment to suit its own situation.

For water services each individual community was identified by its combination of water source, sewage and stormwater treatment (being either fully serviced or un-serviced) with a view to risk assessments to be carried out for those that have no reticulation.

For the purposes of this assessment, only water supplies that have the potential to affect public health have been considered. For example, those sources used solely for irrigation and/or industrial processes have not been listed or assessed.

5.2 Communities adopted for the Assessment

In discussion with Council staff, the Regional Council and Toi Te Ora – Public Health Service, as well as taking into consideration the communities defined in the DWSNZ grading register we have produced the following list of communities to be assessed for water services.

Whakatane	Minginui
Ohope	Fonterra Edgecumbe*
Edgecumbe	Galatea
Matata	Huiarau*
Murupara	Matahi*
Taneatua	Murphy’s Camp*
Ruatoki	Nukuhou North*
Waimana	Pikowai Camp*
Te Mahoe	Te Whaiti*
Te Teko	Rural dwellings and Marae outside a reticulated scheme
Plains Water Scheme Area	
Ruatahuna	

* Not considered in the original Assessment completed in 2005

For sanitary services Whakatane District will be the defined community as the services are used by the entire community.

6 Description of Assets

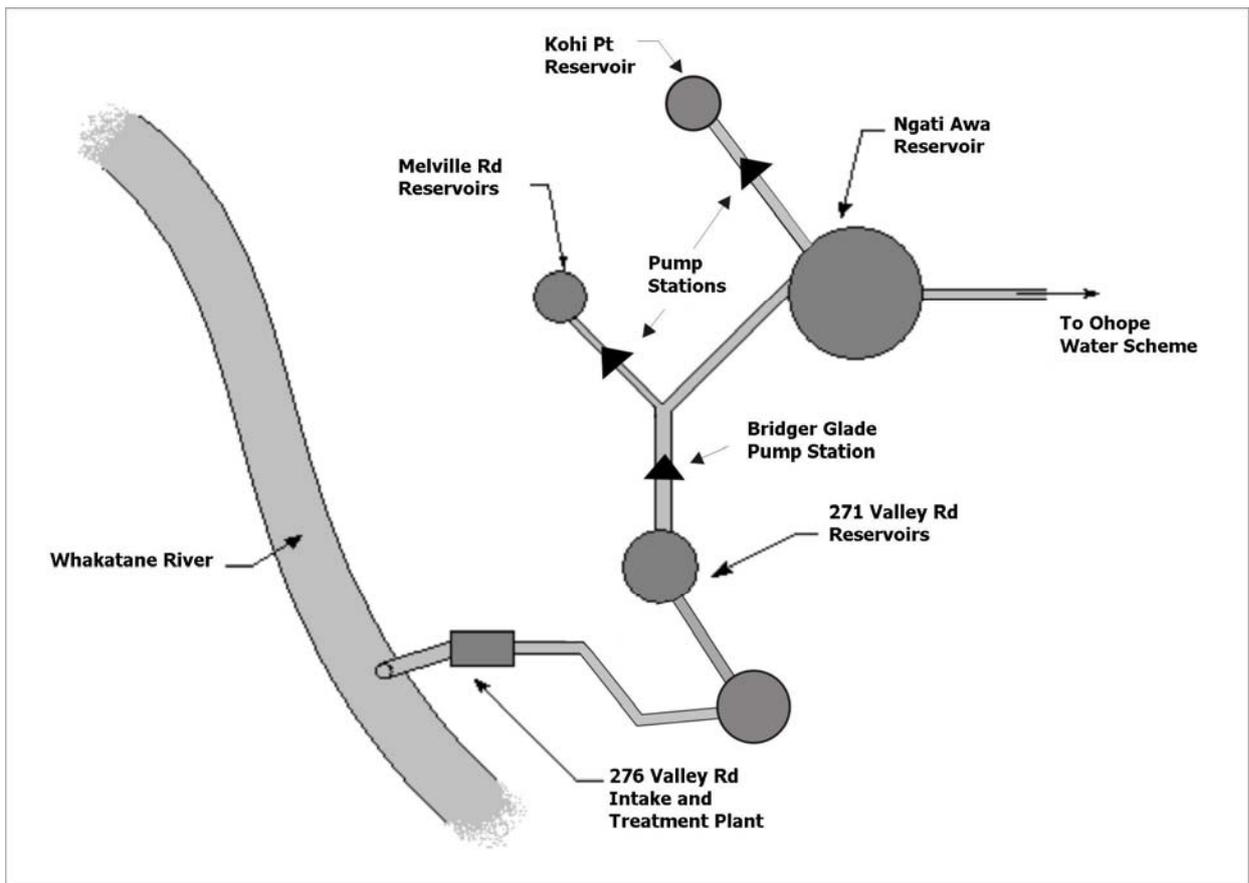
6.1 Water Supply

6.1.1 WHAKATANE

Whakatane District Council owns the water supply infrastructure for the Whakatane supply area. Overall responsibility for the management and operation of the water supply rests with the Council. The Whakatane water scheme consists of the following areas:

- The Whakatane urban area
- The Coastlands/ Piripai area
- The Hub / Gateway Drive shopping and light industrial area
- Otarawairere/ Kohi Point area
- Whakatane West/ Poroporo area

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties Connected		6,200 approx
Estimated Population		15,024
Catchments		Multiple
Intakes		276 Valley Road
Storage	m ³	7,900 (Valley Rd) 115 (Melville) 163 (Otarawairere) 270 (Ngati Awa)
Total water storage		8,448 (8.448 million litres)
Consented water take		Up to 20 000 m ³ at 276 Valley Road (WTP)
Pumped/Gravity		Pumped to the Valley Road reservoirs, Melville Road reservoirs, 24 Kohi point and Ngati Awa reservoirs.
Average daily demand	m ³ /day	8,000 Summer 5,000 Winter
Maximum Take (Capacity)	m ³ /day	12,000
Consent Expiry		2025
Water Grading (source and treatment/ distribution)		'Ee', last graded in 2007. Note: the low grading is mainly due to non-compliance with monitoring requirements i.e. inadequate data, as set out in the new DWS Grading System. Works have been undertaken to comply with DWS 2007 and improve the water quality. New gradings will probably be done in 2012 after one year of data is collected which will include data from the new UV disinfection system.
Compliance Problems		2000/2001 11 +ve bacto (Pre treatment) 2001/2002 1 +ve bacto (Pre treatment) 2002/2003 7 +ve bacto (Pre-treatment)

Table 2: Whakatane water supply details

6.1.1.1. Source and Abstraction

Water for the Whakatane scheme is taken from the Whakatane River at 276 Valley Rd, where it is drawn and treated at the same location. The river has a large agricultural catchment and some small point source wastewater discharges upstream (Taneatua). It is also subject to periods of high turbidity when the river is in flood which can affect the filtration/sedimentation process. Therefore the water often has high treatment requirements. High salinity of raw water is a problem during prolonged dry seasons as a result of salt water intrusion during high tides.

A catchment sanitary inspection (CSI) has been undertaken for the Whakatane supply.

6.1.1.2. Treatment, Delivery and Storage

The water is treated by screening, coagulation, sedimentation and filtration, UV disinfection and is dosed with chlorine for disinfection. The water is also fluoridated which is the only District supply that is fluoridated. Activated carbon is used for taste and odour control at certain times of the year (very low flows and in flood conditions).

There is 7,900m³ of storage available in the three reservoirs located in the hills above the plant. From there, the water is then either pumped to several smaller reservoirs throughout Whakatane or gravity fed into the network. The reservoirs at the top of Melville road have a combined storage capacity of 115m³ and the storage facility for Otawairere Village (at 24

Kohi Point) is 163m³. Water is also pumped to the Ngati Awa reservoir (which can be bypassed), which holds the water that is reticulated to Ohope. If needed, this can also be used to supplement supply to parts of Whakatane.

6.1.1.3. Reticulation

Water pipe condition varies with type and age. Plastic pipes (ALK, PVC and PE) make up about 46% of the scheme and are in very good condition. The remaining pipes (including AC, and steel) are in average to poor condition. The worst lines are pre 1970 galvanised steel pipes. These have gradually been replaced since 1998 and this work is still ongoing.

A pressure management project is currently underway and nearing completion (i.e. commissioning is underway). The installation of the pressure reducing valves (PRVs) serves to lower pressures in the network which in turn will improve losses through pipe breakages/leakage and excessive usage.

6.1.1.4. Assessment to meet future demand

The current capacity of the Whakatane treatment plant and its associated pumping equipment is adequate for the current and forecasted demand over the next ten years. It was anticipated that by 2012 the filters would need upgrading to meet future demands and quality needs. This work began in the 2010/2011 financial year and is on track to be completed by June 2012. There is also a 10 year capital works programme for the treatment plant covering a 20 year design horizon identified in the Water Supply Asset Management Plan.

In addition to these works, a recent upgrade of the Hinemoa St main increased the supply that can be provided across the Whakatane River to the Coastlands/Piripai areas. A number of pipe upgrade projects are included in the present LTP to meet the future demand.

6.1.1.5. Quantity

The current storage capacity is capable of supplying water to Whakatane for approximately two days at winter demand or one day at peak summer demand. This is an adequate level of storage. The existing consent allows the abstraction of up to 20,000 m³/d (the current plant capacity is 12,000 m³/d).

6.1.1.6. Quality

The most recent MoH grading in 2007 assessed water grading in Whakatane as Ee. It is important to note however that this low grading is due to non-compliance with monitoring requirements as set out in the new Grading system. Measures are now in place to improve this grading with the target Aa grade expected to be achieved in 2013. A revised grade is expected to be given in 2012 once a full year of data is available and after the new UV treatment has been commissioned. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

The plant has full coagulation, sedimentation, filtration and disinfection treatment facilities and the quality of water is appropriately monitored. Post treatment the plant achieves 100%

compliance with bacteriological requirements. Turbidity monitoring after the filters is in place to achieve protozoa compliance. The supply is also fluoridated and this has been the subject of two referenda and was confirmed by a Council resolution. However, there is pressure from certain groups to stop fluoridation of water in Whakatane. To address this, the council will undertake a policy review in response to submissions received for the removal of fluoride as a result of the annual plan submissions.

The last two summer/autumn low flow periods have seen an issue with salinity in the Whakatane River, adversely affecting the taste of treated water. This is caused by the salt water wedge intruding upstream of the intake. Interim measures of changing the draw off point on the existing intake tower, combined with water restrictions at the worst times (extreme low river flow <9 m³/s and high tides) have assisted in mitigating the problem. A project to temporarily shift the intake point further upstream and clear of the saline water was completed in 2009/10. A project underway this year aims to identify alternative water sources (e.g. new boreholes) that could be used in the future. Test boreholes are currently being used to assess both water quality and quantity.

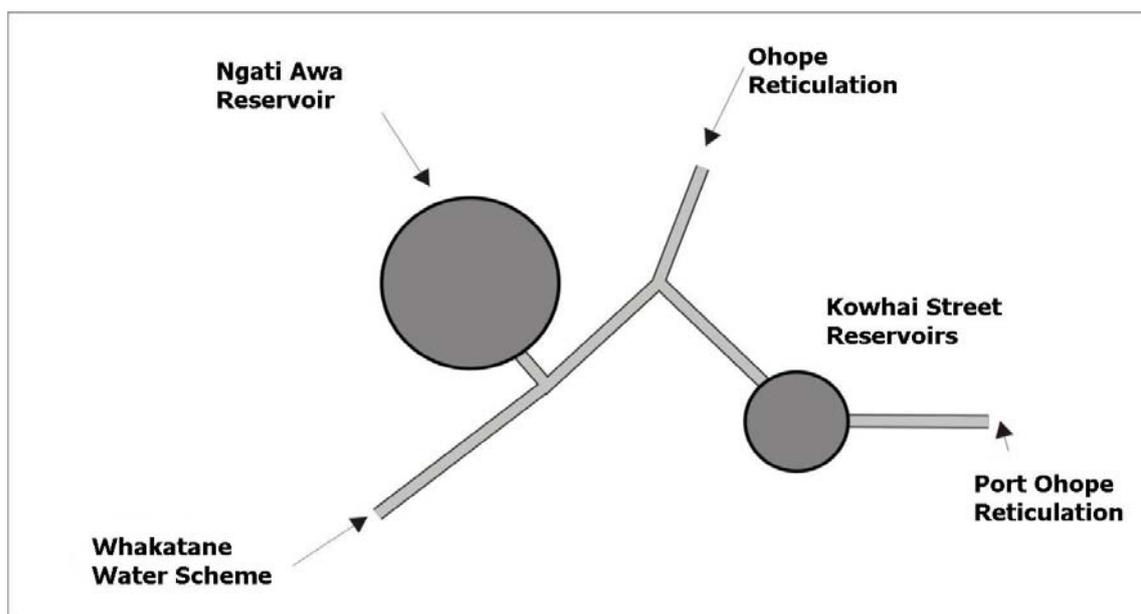
6.1.1.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.2 OHOPE

Whakatane District Council owns the water supply infrastructure for Ohope with the overall responsibility for the management and operation of the water supply resting with Council. The water for Ohope is sourced from the Whakatane supply. Ohope has no separate water source. For rating purposes Ohope water scheme has been amalgamated with Whakatane water scheme.

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties Connected		1,786 (1,712 metered)
Estimated Population		3,000 approx (Winter). (More than 6,000 in peak summer)
Catchments		Multiple
Intakes		Ngati Awa reservoir
Storage	m ³	2,000 - (Ngati Awa) 900 - (Kowhai St) 2,900
Treatment		Whakatane WTP
Pumped/Gravity		Ngati Awa reservoir gravity feeds Ohope including Kowhai St reservoirs. Hillcrest is also fed from Ngati Awa reservoir when Bridger Glade Pump station is not operating
Average daily demand	m ³ /day	2,790
Maximum Take	m ³ /day	See Whakatane Supply
Water Grading (source and treatment/ distribution)		'Ed', last graded in 2007
Compliance Problems		Only one bacteriological non compliance in 2002/2003

Table 3: Ohope water supply details

6.1.2.1. Treatment, Delivery and storage

The water is treated at 276 Valley Rd in Whakatane before it is pumped to Ngati Awa reservoir for distribution to Ohope and its reservoirs on Kowhai Street. The Ngati Awa reservoir has adequate pressure head to service Ohope.

6.1.2.2. Reticulation

The Ohope scheme has 35.1 km of pipe. All pipework is in good condition as it's relatively new. Currently the western area of Ohope feeds directly from the Ngati Awa reservoir.

Recent pressure management has resolved issues of excessive head causing leakage and problems for consumers.

6.1.2.3. Assessment to meet future demand

The current capacity of the Whakatane treatment plant and its associated pumping equipment is adequate for the current and forecasted demand over the next ten years. The current storage capacity in Ohope is adequate for the current service area. Additional water storage may be required if there is to be an extension to other areas such as Wainui. There is potential for further development at Ohope, either through infill or new subdivision. This could impact on system capacity and will need to be addressed by subsequent update assessments.

Projects are included in the present LTP to upgrade the water reticulation and to install an additional reservoir to meet the future demand.

6.1.2.4. Quantity

The current storage capacity is 2,900 m³. The design peak daily demand for Ohope is 2,790m³. There is therefore over one day of storage available for the Ohope water supply which is deemed to be adequate for the present demand.

6.1.2.5. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Whakatane Community supply 'Ed'. Like Whakatane, this low grading is the result of incomplete data due to non-compliance with monitoring requirements. Upgrades to the Whakatane water supply will result in the same improvements in Ohope; therefore the future grading target is Aa. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

6.1.2.6. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.3 EDGE CUMBE

Whakatane District Council owns the water supply infrastructure for Edgecumbe with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

Key Features of the water supply are summarised in the Table below:

Properties Connected		655 (29 metered)
Estimated Population		1,680
Catchments		Multiple
Source		Ex Plains Supply
Storage	m ³	None specific for Edgecumbe, reservoir located within the Plains scheme
Treatment		Supplied chlorinated from Plains Scheme
Pumped/Gravity		Gravity from Plains Scheme
Average daily demand	m ³ /day	See Plains Scheme
Maximum Take	m ³ /day	See Plains Scheme
Consent Expiry		See Plains Scheme
Water Grading (source and treatment/ distribution)		'Ee', (2007); low grade for reasons mentioned earlier)
Compliance Problems		1 +ve bacto 2000/2001 in reticulation

Table 4: Edgecumbe Water Supply Details

6.1.3.1. Source and Abstraction

The Edgecumbe scheme purchases water through bulk meters from the Plains Scheme. There is no source, reservoir or water pump station within the Edgecumbe Township.

6.1.3.2. Treatment, Delivery and storage

The Rangitaiki Plains Scheme chlorinates the water before it is reticulated to Edgecumbe. Note however that the Johnson Rd bore source is not chlorinated.

6.1.3.3. Reticulation

The Edgecumbe water scheme consists of 16.3 km of pipe work. There is an ongoing upgrade programme to replace galvanised and AC pipes.

6.1.3.4. Assessment to meet future demand

The population of Edgecumbe is predicted to decrease over the next ten years from 1,730 permanent residents to 1,604 by 2014, therefore the current water scheme will adequately supply the area in the foreseeable future. The Plains water scheme has the capacity to supply water for 3,000 permanent Edgecumbe residents; this is almost double the current population.

6.1.3.5. Quality

The MoH Register of Community Drinking water Supplies 2007 Edition graded the supply as Ee. As mentioned previously this low grade is due to non-compliance of monitoring requirements rather than as a direct result of poor water quality. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

Two of the sources that supply Edgecumbe Township (Braemar spring and Johnson Rd bore) have high levels of arsenic. An application has been made to central government for funding to address this problem. The Whakatane District Council is currently planning to

supply water to Edgecumbe from an aquifer with good quality water situated in Paul Road area. See section 6.1.10 on the Plains scheme for more detail

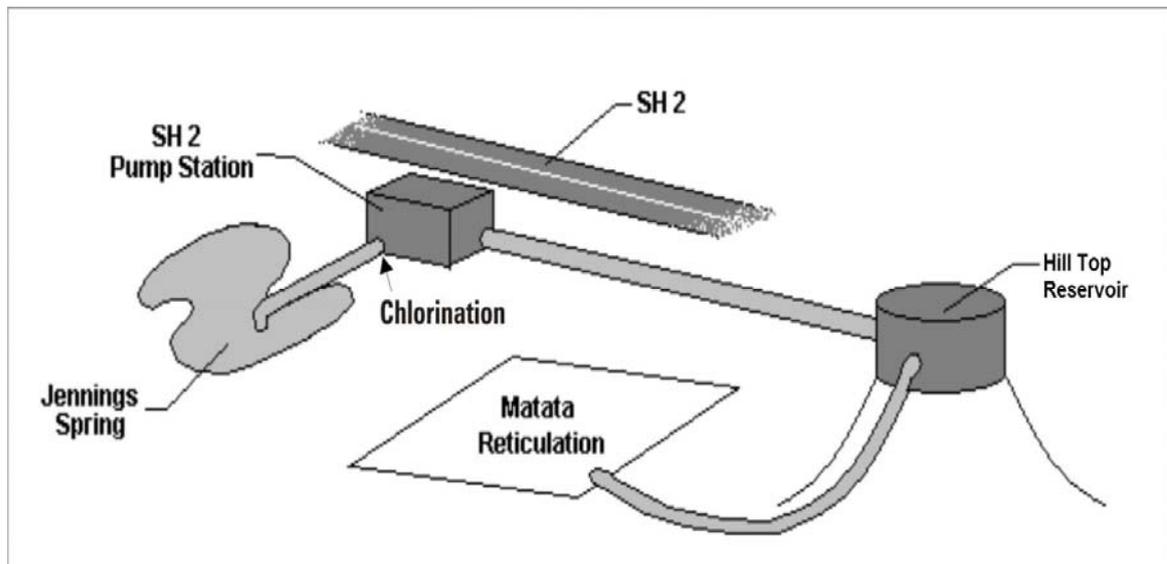
6.1.3.6. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.4 MATATA

Whakatane District Council owns the water supply infrastructure for Matata with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

A schematic of the water supply is illustrated below. Note that the chlorination plant now also includes UV treatment.



Key Features of the water supply are summarised in the Table below:

Properties Connected		325 (28 metered)
Estimated Population		690
Catchments		Multiple
Intakes		Jennings spring
Storage	m ³	250
Treatment		Chlorination (gas) and UV treatment
Pumped/Gravity		Gravity
Maximum daily demand	m ³ /day	330
Maximum Take	m ³ /day	500
Consent expiry		2025
Water Grading (source and treatment/ distribution)		'Ee', last graded in 2007. low grade as mentioned with previous schemes.
Compliance Problems		Need to test for Cu & Pb (P2 determinands)

Table 5: Matata Water Supply Details

6.1.4.1. Source and abstraction

The Matata scheme draws its water from Jennings's spring.

6.1.4.2. Treatment, Delivery and storage

Water from the Jennings's spring is chlorinated and UV treated at Awakaponga before being pumped to a 250m³ reservoir on a hill south of the town. During the summer periods daily demand exceeds the storage capacity for this scheme, so storage is considered insufficient for the current demand. Additional reservoir storage is planned for 2012/13.

6.1.4.3. Reticulation

The Matata reticulation consists of 15.2 km of pipes that have a NZ infrastructure asset condition grading of 3.

6.1.4.4. Assessment to meet future demand

The expected population of Matata is likely to increase over the next ten years, especially as Matata is relatively close to planned new developments in the Te Puke/Rangiuru area and is therefore likely to experience growth pressure. The extent of growth is somewhat difficult to predict at this stage, as while the location is coastal and close to employment centres, there are constraints on landholding and wastewater servicing (see section 6.2.10).

At present, the Matata supply suffers water shortages in summer. This is due to a peak in population, hot weather affecting Jennings's spring and the much higher than average per capita water consumption by residents of Matata. Taking into account the results of public consultation, the Whakatane District Council are considering the following options:

1. Installing more storage in the scheme to cope with peak demand
2. Installing a metering scheme (outcome from 2012 LTP deliberations awaited)
Council has recently upgraded the treatment facility with MoH subsidy funds and

also has submitted an application to the MoH under the Capital Assistance Program (CAP) to increase the storage capacity.

6.1.4.5. Quantity

The Matata water scheme has the capacity to supply water for 800 permanent residents, which is adequate for the current and forecasted demand over the next ten years. However this is subject to the provisos over demand management and possible growth as noted above. Storage is insufficient at current peak summer demand (< 24 hrs), but addition capacity is planned.

6.1.4.6. Quality

The MOH Register of Community Drinking Water Supplies 2005 Edition graded the Matata water supply 'Ee'. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

A catchment sanitary inspection has been completed for this supply and submitted to the drinking water assessor for approval. In addition to this, a PHRMP has also been approved.

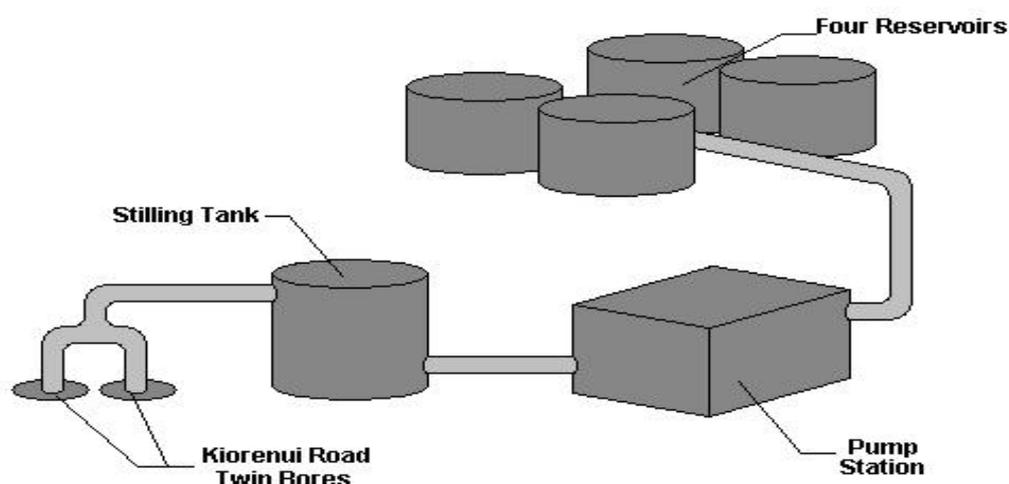
6.1.4.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.5 MURUPARA

Whakatane District Council owns the water supply infrastructure for Murupara with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties Connected		758 (46 service meters)
Estimated Population		2,060
Intakes		Two artesian bores
Storage	m ³	1,475
Treatment		None. Source water quality is good.
Pumped/Gravity		Pumped to reservoirs
Average daily demand	m ³ /day	1,500
Maximum Take	m ³ /day	4,100
Consent Expiry		2025
Water Grading (source and treatment/ distribution)		Ed (2007 grading)
Compliance Problems		2 +ve bacto WTP 2000/2001 2 +ve bacto Retic 2001/2002 1 +ve bacto Retic 2002/2003

Table 6: Murupara Water Supply Details

6.1.5.1. Source and Abstraction

Murupara abstracts its water from two bores on Kiorenui Road.

6.1.5.2. Treatment, Delivery and storage

The water from the bores on Kiorenui Road has a slightly low pH. The water goes to a settling tank before it is pumped to three reservoirs where it is gravity fed into Murupara's reticulation network. No other treatment takes place as water quality is generally good.

6.1.5.3. Reticulation

Murupara scheme has 20.7 km of pipe, which is in generally moderate condition along with the valves and hydrants.

6.1.5.4. Assessment to meet future demand

The current capacity of the Murupara water scheme is adequate for the current demand and for the forecasted demand over the next ten years. Population is predicted to be static or declining over this period.

6.1.5.5. Quantity

The current storage capacity is capable of supplying water to Murupara for an average day's demand.

6.1.5.6. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Murupara supply 'Ed'.

Currently there is no chlorination and therefore no residual disinfection. The Murupara community does not want chlorination of the supply. In the recent past routine sampling and testing of the water has not detected any bacterial contamination. Water age testing will be carried out to demonstrate the ground water security.

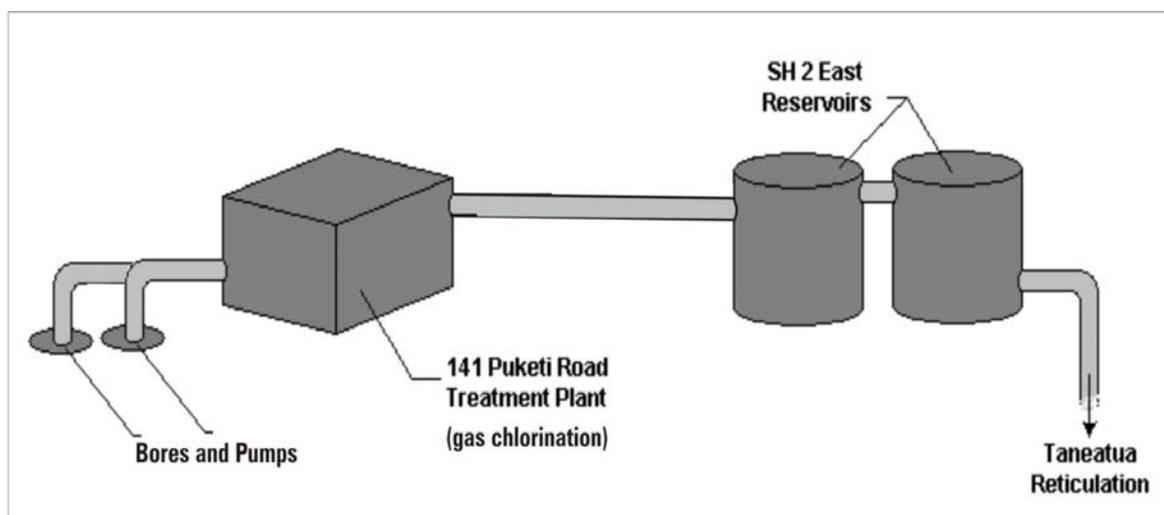
6.1.5.7. Replacement infrastructure

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.6 TANEATUA

Whakatane District Council owns the water supply infrastructure for Taneatua with the overall responsibility for the management and operation of the water supply resting with the Whakatane District Council.

A schematic of the water supply is illustrated below. Note that the chlorination plant now also includes UV treatment.



Key Features of the water supply are summarised in the Table below:

Properties connected		281
Estimated Population		790
Intakes		141 Puketi Road Bores
Storage	m ³	727
Treatment		Gas Chlorination and UV treatment
Pumped/Gravity		Pumped to reservoirs
Average daily demand	m ³ /day	581
Maximum Take	m ³ /day	805
Consent Expiry		2025
Water Grading (source and treatment/ distribution)		'Ee', last graded in 2007
Compliance Problems		None

Table 7: Taneatua Water Supply Details

6.1.6.1. Source and abstraction

Taneatua abstracts its water from two bores on Puketi Rd.

6.1.6.2. Treatment, Delivery and storage

The water is treated with chlorine at 141 Puketi Rd before it is delivered to the two reservoirs on SH 2 east which have a combined capacity of 727m³.

6.1.6.3. Reticulation

Taneatua's water scheme has 8.4 km of pipe, 60% of which is AC, 3% PE and 3% PVC all of which is in moderate condition.

6.1.6.4. Assessment to meet future demand

The current capacity of the Taneatua water scheme is adequate for the current demand and for the forecasted demand over the next ten years. The Taneatua population is expected to be static for the next ten years.

6.1.6.5. Quantity

The current storage capacity in Taneatua allows for just over a day at peak flow. The current level of service which the bore and chlorination plant can provide is no constraint on the quantity of water. At present a project is underway to replace the existing timber reservoir with a steel reservoir.

6.1.6.6. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Taneatua water supply 'Ee'. As with other supplies this poor grading is due to non-compliance of monitoring. A number of improvements were made for this supply based on the PHRMP approved in 2008. These include:

1. Upgrades to the reservoirs including the installation of backflow prevention valves to allow additional maintenance and structural improvements to the reservoirs themselves (i.e. replacing a worn timber tank with a new steel tank);
2. Upgrades to the pumping and treatment shed and installing continuous water quality monitoring equipment. This included installing additional telemetry to monitor chlorination and turbidity and additional security for the building;
3. Installation of pH correction equipment to minimise corrosion issues and UV treatment to make the supply 'secure'.

A catchment sanitary inspection has been completed for this supply and is with the DWA for approval. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

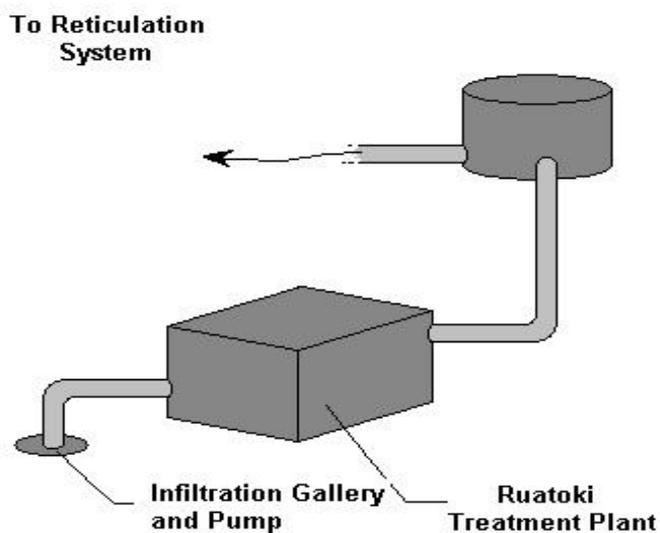
6.1.6.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.7 RUATOKI

Whakatane District Council owns the water supply infrastructure for Ruatoki with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties Connected		Currently 125 connected dwellings out of a total in the valley in excess of 400
Estimated Population		1,890 Uruwera area unit Design Pop 560
Catchments		Multiple catchments
Intakes		Shallow infiltration gallery
Storage	m ³	150
Treatment		Chlorination (gas)
Average daily demand	m ³ /day	407
Maximum Take	m ³ /day	600
Consent Expiry		2019
Water Grading (source and treatment/ distribution)		'Ee', last graded in 2007
Compliance Problems		Notes to test for Cadmium and Lead (P2 determinands)

Table 8: Ruatoki Water Supply Details

6.1.7.1. Source and abstraction

Ruatoki abstracts its water from an infiltration gallery on Ngahina Rd on the western side of the Whakatane River. The source is vulnerable for flooding. A funding application has been lodged with MoH to secure subsidy funds to improve the security of source of supply. The outcome of the application is awaited.

6.1.7.2. Treatment, Delivery and storage

The Ruatoki treatment plant is situated on Ngahina Rd and consists of gas chlorination before it is pumped into a 150m³ reservoir. The Whakatane District Council plans to upgrade the treatment plant to meet the current Drinking Water Standards. A funding application lodged with MoH in 2011 to secure subsidy funds to improve the water system was successful. This will be used to upgrade the water system, including securing a reliable source and extending the scheme to include those not currently connected.

6.1.7.3. Reticulation

Ruatoki scheme has 28.6 km of pipes and the condition of the pipes is moderate. There is a problem in that some of the mains were laid in Class B uPVC which is an inadequate pressure rating for a municipal supply. The reticulation is in two areas divided by the Whakatane River.

6.1.7.4. Assessment to meet future demand

The current capacity of the Ruatoki water scheme is adequate for the current demand, though it is not expected to meet future demand as residences outside of the scheme's boundaries are requesting inclusion. To meet the future demand the reticulation will need to be upgraded and extended. There are a large number of properties on the reticulation route which currently take water from various alternative sources (shallow bores, springs in the hills, roof water). From a public health perspective it would be best if all those people who can connect to the scheme did so.

The Whakatane District Council has lodged an application to MoH to secure funds to extend and upgrade the water reticulation to enable all the dwellings in the Ruatoki to connect to the public water system managed by the Council. The Council also has carried out a number of public consultations on this matter. The outcome of this application is awaited.

6.1.7.5. Quantity

The current storage capacity is capable of supplying water to Ruatoki for one third of an average day. Storage is therefore inadequate and will need to be augmented if further connections are made.

The Whakatane District Council lodged an application with MoH to secure subsidy funds to install an additional reservoir to increase the storage capacity in Ruatoki. This was successful so will be used to provide additional storage in 2012/13.

6.1.7.6. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Ruatoki supply 'Ee'. A number of improvements are planned for this supply based on the PHRMP approved in 2008. As mentioned above funding has been sort through the MoH for the improvement of the water treatment plant.

A catchment sanitary inspection has been completed for this supply and is with the DWA for approval.

It is anticipated that the water grading will be improved significantly in the next grading in 2012.

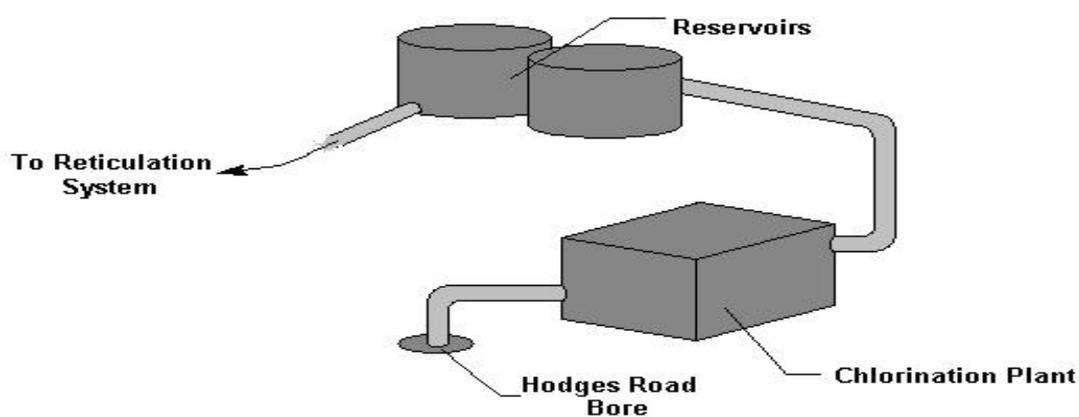
6.1.7.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.8 WAIMANA

Whakatane District Council owns the water supply infrastructure for Waimana with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

A schematic of the water supply is illustrated below. Note that the chlorination plant now includes UV treatment.



Key Features of the water supply are summarised in the Table below:

Connected properties		57
Estimated Population		160
Intakes		Hodges Road Bore
Storage	m ³	182
Treatment		Gas Chlorination and UV treatment
Average daily demand	m ³ /day	61
Maximum Take	m ³ /day	200
Consent Expiry		2025
Water Grading (source and treatment/ distribution)		'Ee', last graded 2007
Compliance Problems		None

Table 9: Waimana Water Supply Details

6.1.8.1. Source and abstraction

Waimana abstracts its water from a shallow bore at Hodges Road.

6.1.8.2. Treatment, Delivery and storage

Waimana water is chlorinated before it is pumped into the reservoirs.

6.1.8.3. Reticulation

Waimana water scheme has 3.1km of pipe work, all of which is in good condition. Recently some of the water pipes have been upgraded with the MoH subsidy funds.

6.1.8.4. Assessment to meet future demand

The current capacity of the Waimana water scheme is adequate for the current demand. The population in Waimana is expected to be static over the next ten years.

6.1.8.5. Quantity

The current storage capacity is capable of supplying water to Waimana for nearly three days of average consumption, which is more than adequate.

6.1.8.6. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Waimana water supply 'Ee'. A number of improvements have been completed recently for this supply based on the PHRMP approved in 2008. These include:

1. Construction of security fences and other access controls at both the reservoir and water source;
2. Upgrading of the pumping and treatment shed to include an automatic chlorine cylinder changeover, turbidity, pH, reservoir level, pump status and chlorine monitoring and telemetry, and an external plug for easy backup power connection;

3. Installation of UV treatment to make the supply 'secure';
4. Further work is planned to improve the access road to the reservoir.

A catchment sanitary inspection has been completed and approved by the DWA for this water scheme. It is anticipated that the water grading will be improved significantly in the next grading in 2012.

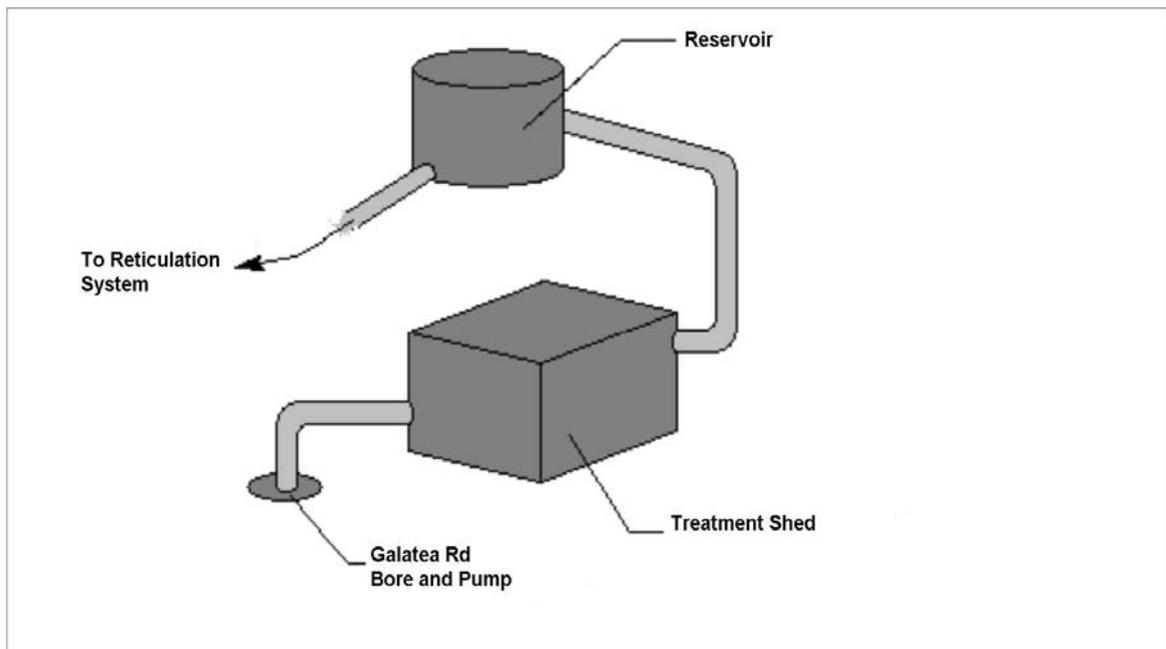
6.1.8.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.9 TE MAHOE

Whakatane District Council owns the water supply infrastructure for Te Mahoe with the overall responsibility for the management and operation of the water supply resting with Whakatane District Council.

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties Connected		32
Estimated Population		90
Intakes		30m deep Bore
Storage	m ³	230
Treatment		Chlorinated (sodium hypochlorite) and cartridge filters
Pumped/Gravity		Gravity from reservoir
Average daily demand	m ³ /day	55
Maximum Take	m ³ /day	336
Consent Expiry		----
Water Grading (source and treatment/ distribution)		Ec (2007)
Compliance Problems		2001/2002 3 +ve bacto at bore 2002/2003 2 +ve bacto at bore Note these relate to the old bore since decommissioned. The new bore installed 2007 has been clear of E Coli since installation

Table 10: Te Mahoe Water Supply Details

6.1.9.1. Source and abstraction

The Te Mahoe supply extracts its water from a 30m deep bore located at the entrance to the village off Galatea Rd. This bore was commissioned in 2006 and replaced an earlier bore at the base of the Matahina dam. The previous bore had been affected by reconstruction work on the dam and was showing elevated turbidity and positive E Coli counts after rainfall. The new bore produces high quality water and is to date free of bacterial contamination. While marginally less than 30 m deep, the bore draws from an aquifer below an apparent confining ignimbrite layer and may well prove to be “secure”. Ageing of the water was inconclusive.

6.1.9.2. Treatment, Delivery and storage

Water from the bore is pumped through cartridge filters (5 micron followed by 1 micron), chlorinated and then fed to the 230m³ reservoir.

6.1.9.3. Reticulation

Te Mahoe water scheme has 2.52 km of pipe work, all of which is in moderate condition. Recently the rising main to the reservoir has been replaced. A project recently completed to remove and replace some existing reticulation. The main aim of this was to reduce leakage.

6.1.9.4. Assessment to meet future demand

The current capacity of the Te Mahoe water scheme is adequate for the current demand, as the bore pump is capable of delivering 14m³/hr and the reservoir can store 230 m³. Peak daily demand is approximately 55m³/d. The current storage capacity is capable of supplying water to Te Mahoe for over 4 days of average consumption. The population in Te Mahoe is expected to be static over the next ten years.

6.1.9.5. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Te Mahoe water supply Ec. A number of improvements are planned for this supply based on the PHRMP approved in 2008. These include:

The source is not proven as a 'secure' groundwater and is therefore non-compliant for protozoa removal. Ageing of the water was inconclusive; however an extended period of microbiological test record may yet prove the source to be secure. As a precautionary measure UV is to be installed.

A number of projects have been implemented in Te Mahoe to improve water quality in the recent past including installation of a Hypo dosing system, installation of a new bore, installation of continuous water quality monitoring equipment, upgrading of the telemetry and installation of a security fence around the bore and the treatment plant.

It is anticipated that the water grading will be improved significantly in the next grading in 2012.

6.1.9.6. Infrastructure replacement

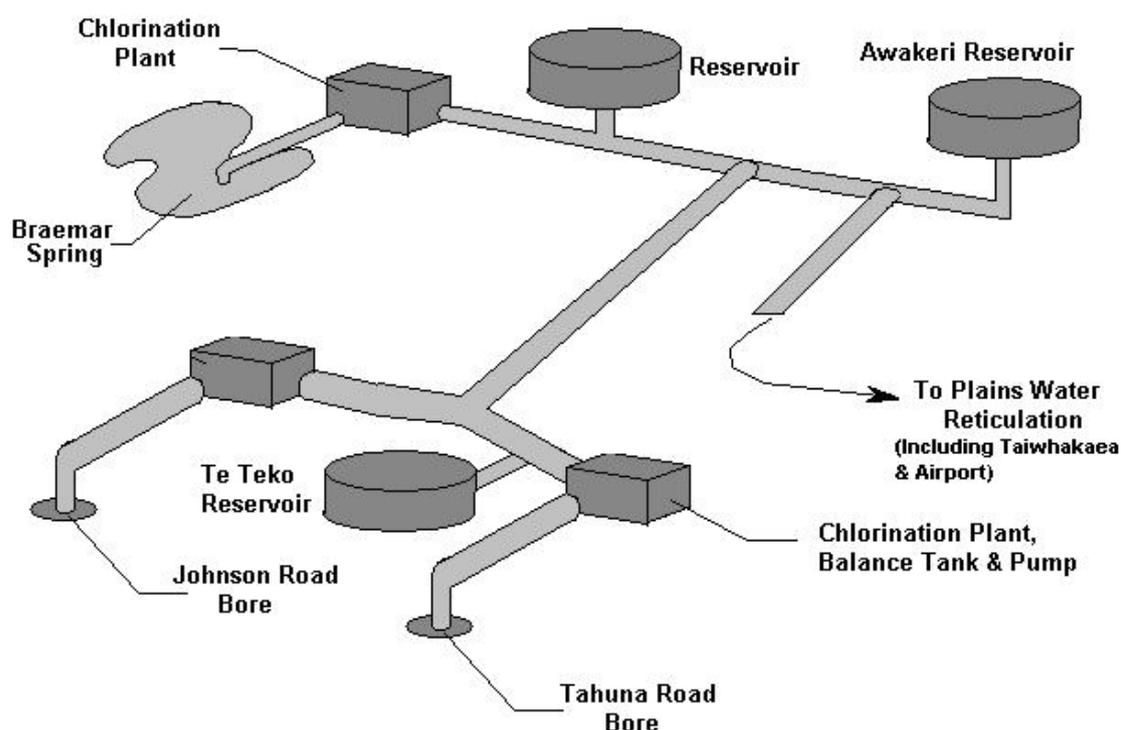
Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.10 PLAINS

Whakatane District Council owns the water supply infrastructure for the Plains water scheme (this includes Te Teko township). Overall responsibility for the management and operation of the water supply rests with Whakatane District Council.

The Plains scheme is predominantly used for non domestic uses in the rural area it serves, such as dairy shed and stock water. However, an estimated 15% is used as potable water for domestic use, making this an important drinking water supply.

A schematic of the water supply is illustrated below:



Key Features of the water supply are summarised in the Table below:

Properties connected		1,768
Estimated population		5,955 (including Edgecumbe)
Intakes		Braemar Spring Johnson Road Bores Tahuna Road Bore Paul Rd bore (not yet operational)
Storage	m ³	<u>4,300 (Braemar)</u> <u>230 (Tahuna)</u> <u>250 (Awakeri)</u> <u>Onepu (46)</u> <u>5026 (TOTAL)</u>
Treatment		Chlorination (Braemar and Tahuna sources only)
Average daily demand	m ³ /day	5,382
Maximum Take	m ³ /day	
Consent Expiry		Tahuna Rd Bore : 2019 Braemar Spring : 2025 Johnson Rd Bore : March 2016
Water Grading (source and treatment/ distribution)		Ee
Compliance Problems		None

Table 11: Whakatane Plains Water Supply Details

6.1.10.1. Source and abstraction

The Plains water supply has three sources; an artesian spring adjacent to Braemar Road, two bores on Johnson Rd and another bore on Tahuna Rd. In addition to these a bore located at Paul Rd has been recently added, however this has yet to be commissioned and is not connected to the network.

6.1.10.2. Treatment, Delivery and storage

Each of the three sources are pumped directly to reticulation at their respective points of extraction. The Braemar and Tahuna Rd sources are chlorinated here as well. There are three main reservoirs, distributed about the network, with a combined capacity of 5,026m³. As daily use can be as high as 6,900m³/day, storage capacity is insufficient for this scheme.

6.1.10.3. Reticulation

The Plains water scheme has 238.8 km of pipe work, all of which is generally in moderate condition. The current reticulation is not adequate to supply water to meet the present demand. Low water pressure is experienced in some parts of the reticulation during the peak summer demand period. At present provision of water connections is restricted in the Awakeri area.

6.1.10.4. Assessment to meet future demand

The Plains water scheme has difficulty meeting the current summer peak demand as mentioned above and additional source(s) and reservoirs will be required in the next ten years to meet the future demand. The scheme is constantly being extended, this is mainly at the request of those living on the plains. A 50 year plains water supply strategy is currently being developed. A new source (Paul Rd bore) has recently been added and it's intended that this supply will be connected to the water supply network within the next three years.

6.1.10.5. Quantity

Additional storage capacity and reticulation upgrades would greatly increase the effectiveness of the scheme especially during the peak summer period. Improvements to supply pressure to the Awakeri area have been made in November 2008 with recommissioning of the Putiki Rd boost pump station.

6.1.10.6. Quality

The MOH Register of Community Drinking water Supplies 2007 Edition graded the Plains water scheme as 'Ee' for all sources and distribution.

The Braemar spring source is not currently proven as a 'secure' groundwater and is therefore non-compliant for protozoa removal. This presents a possible health risk. The bores are not proven as secure but are highly likely to be given the depth.

The water is not treated for pH correction and is therefore corrosive. This is a problem for copper and brass fittings in plumbing. Point of entry filters (e.g. “akdolit” media) is an option for consumers who wish to reduce their water corrosiveness.

In recent years the issue of arsenic levels in the Plains Scheme water has been a cause of concern, and more lately antimony also. The Braemar spring source has arsenic at 23 ppb, Johnson Rd bores 18 ppb, 10 ppb and Tahuna Rd bore nil. When the scheme was first commissioned these levels were acceptable under the times standards at the time. However a more recent revision of the World Health Organisation arsenic limit, adopted into the NZDWS (2005), lowered the limit (MAV) to 10 ppb (and the target is to have 50% of the MAV). The arsenic present in the source waters is at valence state +3. Arsenic can occur in water in either valence state +3 or +5. However the NZDWS does not differentiate the two forms and does not accept therefore that one valence is less potentially harmful.

Currently the council is looking at different options to solve capacity and arsenic issues with this scheme, including:

1. Separating the scheme into two different areas. The predominantly rural areas will be supplied from the arsenic contaminated Braemar and Johnson Rd sources and “point of entry” devices used for arsenic removal, while the more densely populated areas, such as Edgumbe and the area east of the Rangitaiki River will be supplied by the new bore at Paul Rd.
2. Retaining the Braemar and Johnson Rd sources, and installing arsenic treatment facilities for the entire flow.
3. Treating the water to the larger communities only

The Health (Drinking Water) Amendment Act 2007 is relevant here as the Plains scheme rural areas would qualify as a “Rural agricultural supply” under the Act. The larger communities within the Plains scheme (Edgumbe, Te Teko, Awakeri) would then become supplies in their own right with the Plains scheme as the bulk water source. The communities would have to meet the NZDWS.

6.1.10.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing water supply assets. This programme is outlined in the 2007/2008 Water Asset Management Plan and updated in 2011/2012 AMP.

6.1.11 RUATAHUNA

Ruatahuna is serviced by a variety of water supply arrangements. A small scheme maintained by the community serves some 17 dwellings including the school and the local store. The ownership of the scheme assets is still to be resolved. At present the Whakatane District Council does not own the water supply assets in this scheme and is not involved in maintaining the scheme.

The water source is a spring and there is no chlorination apart from at the school. The source is not currently secure and is therefore non-compliant for protozoa removal.

Each dwelling in the scheme has installed adequate water storage and will proceed to upgrade and install reticulation to houses. Once this is complete, funds will then be used to install treatment systems. The projects will not be completed for at least another 12 months, at which time new PHRMPs will be written for DWA approval.

The demand on water may rise due to a possible increase in tourism in the community. Housing Corporation NZ is currently involved in upgrading water supplies for some dwellings.

Overall there is a lack of definition of the current state of water supplies to the Ruatahuna community as a whole and the risks posed by the sources in use.

6.1.12 MINGINUI

Minginui is an ex forestry town with about 100 people. The main source of supply is a 25 m deep bore which generally produces good quality bore water (although slightly acidic)

The pipeline infrastructure was once poor but the entire reticulation network has recently been upgraded. E.coli monitoring has produced positive samples in the past, however no transgressions have been found recently. One possibility is that in the past septic tank systems infiltrated the poor quality water lines or possibly that the bore source is fed from surface water.

The scheme is run by a local committee and the Ngati Whare Trust is looking at creating a new incorporated society for the management and operation of the water assets. They will be writing their new PHRMP in the near future that will include risks and mitigation etc. A risk management plan is in place at present and is currently being implemented.

6.1.13 FONTERRA (EDGE CUMBE)

Fonterra operates a large dairy factory in Edgecumbe, which operates a water intake and treatment plant. This system provides water for process as well as for consumption by employees, of whom there are approximately 350. The intake and treatment plant operates periodically, closing down for the dairy off-season (mid May to mid July). During this time the plant relies on storage while available, and then the council owned Edgecumbe scheme. The treatment applied consists of sand filtration followed by chlorination. The scheme is owned and operated by Fonterra.

The factory supply is drawn from the Rangitaiki River and so is not affected by the arsenic contamination in the Plains supply.

6.1.14 GALATEA ROAD

The Galatea Rd water supply is a mixed use rural and domestic supply serving some 30 farms on the Galatea plains. The schemes reticulation is owned and operated by the Whakatane District Council, while the bore is owned and operated by the farmers served by the supply.

This supply could classify as a "Rural agricultural supply" under the Health (Drinking Water) Amendment Act 2007

6.1.15 GALATEA SCHOOL

No information currently available.

6.1.16 HUIARAU SCHOOL

The water supply for the Huiarau School is provided by the Ruatahuna community system. The water supply for the school serves 50 residents; the school itself has a role of 60 & teaching and additional staff of 12. There is no treatment of the water supply, but it is tested on a monthly basis. Samples are sent to the Bay of Plenty Regional Council laboratory. It is possible that a new line may be installed to alleviate some difficulties in supply experienced by the homes on the same water supply. The current supply has been operating for about 5 years.

This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.17 MATAHI SCHOOL

The Matahi School water supply is sourced from a spring in the surrounding native bush. The water is treated through cartridges & UV disinfection. At the time of writing, the water supply serviced a small school population of 21. It was estimated that the system had been in operation for approximately 9 years. There are no known plans to upgrade the water supply.

6.1.18 MURPHY’S CAMP

Murphy’s Camp operates a small private supply. The source is two bores, whose discharge is UV treated and pumped to a small water tower. The population of the camp varies throughout the year, but the supply serves 500 people at peak. This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.19 NUKUHOU NORTH SCHOOL

The Nukuhou North School supply is primarily roof collection to a tank, with a back up of bore water. The water supply has operated since the 1970’s. The water is filtered through two membrane filters, and UV treated. At peak, the water supply can cater for 100, but normal school population fluctuates between 60 at the time of writing & in excess of 80.

No upgrade of this system is planned.

This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.20 PIKOWAI CAMP

Pikowai Camp is serviced by a small water supply, which is owned and operated with the campground by the Whakatane District Council. The supply consists of a pumped sump which collects water from an artesian spring. The water is then filtered and UV treated,.

There is no reservoir, the pump pressurises the system directly. At peak, this supply caters for 150 people, but the camp usually accommodates less than 20 people.

An upgrade for this supply is being considered, primarily looking at changing the source and adding a reservoir.

This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.21 TE WHAITI SCHOOL

The board of trustees of Te Kura Toitu o Te Whaiti nui-a-Toi (Te Whaiti School) operate a private supply. This supply serves the school, the local marae and four dwellings, whose average combined population is approximately 50 people. The water is sourced from a dam, and is then sand filtered and UV treated. The dam was upgraded in 2005 by the Ministry of Education, and is expected to fill the community’s needs for the foreseeable future.

This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.22 WAIOHAU SCHOOL

The water supply for Te Kura Maori-a-Rohe o Waiohau (Waiohau School) is sourced from a groundwater bore. There is no treatment for the water prior to use in the school, the system has operated this way for over 20 years. The system currently serves 33 students and ten staff, and there are no plans to change the source or the system.

This classifies as a “neighbourhood” supply and compliance with the NZDWS is currently required by 2013.

6.1.23 RURAL DWELLINGS AND SUPPLIES OUTSIDE OF THE RETICULATED AREAS

Outside of the reticulated schemes described above there are a large number of rural dwellings and also Marae. For the purposes of the assessment these have been treated as one ‘community’ as they share common features of water source and lack of treatment and monitoring. Included in this community would be rural farm dwellings across the District. There are also a large number of properties in the Maori communities in the valleys of the Waimana (Matahi), Whakatane, Rangitaiki (Waiohau) and Whirinaki Rivers (Te Whaiti).

These unreticulated properties rely upon a wide variety of water sources including shallow bores, springs, surface streams and roof water. In a number of cases there are several dwellings sharing a common source. There has been no comprehensive survey of the unreticulated properties to determine the quality and quantity of water available. However it would be a reasonable assumption based upon our experience of working in these areas that in many cases the source waters are not secure and are prone to contamination from surface runoff. The health risks of this are discussed further in the Assessment.

6.2 Wastewater

There are six reticulated wastewater schemes, serving approximately two-thirds of the population of the Whakatane District.

6.2.1 WHAKATANE

Whakatane District Council owns the wastewater system for the urban area of Whakatane (including the central urban area, the Coastlands/Piripai area and the Hub / Gateway Dr area).

Wastewater is collected in a reticulated network and treated in a two-stage oxidation pond. The system includes a step screen and a grit trap before the primary pond, and supplementary aeration and maturation cells. The treated effluent is discharged to the ocean (offshore from Coastlands) via a submerged outfall.

The system is described in detail in the Asset Management Plan of 2011/2012. The reticulation system includes:

- 101.4 km of pipe
- 21 pump stations
- 1,461 manholes
- 5,339 service lines
- 600 m outfall pipe
- 1 diffuser

6.2.1.1. Asset Condition and Performance

Most assets in the Whakatane sewer system are in moderate to good condition. The system has moderate reliability, with an average of one major reticulation failure every year, mainly due to crown corrosion at the ends of rising mains and deterioration of ageing concrete pipes. A project is currently underway to replace the most vulnerable concrete pipes.

Blockages due to roots occur mainly in the Landing Rd area, while overflows have repeatedly occurred in City South and Pohutu St as a result of infiltration, pump operation, low built properties and suspected defective service connections.

A network model has been built for the system and this model has been used to study the wastewater system and to identify deficits in the pipe reticulation and in the pumping system. Inflow and infiltration is also a problem in some catchments. A number of pipes have been identified as under-capacity and some pump station upgrades are recommended by the study. These works have been included in the LTP.

Recent improvements at the oxidation ponds have improved their operation and odour complaints from the ponds, beyond the boundary, are now rare. The ponds will require desludging in the next 3 to 5 years.

6.2.1.2. Consent Compliance

Consent was granted in July 1978 to discharge treated effluent from the oxidation ponds into the ocean, via a submerged pipeline and diffuser. The consent specifies the allowable maximum loading and retention on the ponds. Limits are specified for the daily volume and quality of the treated effluent discharge. As a water right predating the RMA the consent has an expiry date of 2025. However any changes to the treatment system could impact upon the residual term.

Water quality monitoring is required in the mixing zone around the outfall. The condition of the outfall diffuser is to be inspected at least once every six months and further inspection is required after heavy seas, if requested by the Regional Council Engineer. The treatment system is managed in accordance with the consent requirements.

6.2.1.3. Health Hazards

There are occasional health hazards due to overflows during very wet weather conditions.. Projects are in the present LTP to address these issues and will be updated in the next LTP.

6.2.1.4. Current and Future Demand vs Capacity

The design population for the existing treatment ponds is reported in the AMP at 18,500. The present population of the reticulated area is about 15,000. There is therefore a margin for increased growth on the basis of these figures and the capacity of the treatment plant and operating structures/equipment is adequate for the next ten years. There are however other issues surrounding land use at the ponds and nearby which may cause the treatment system to be revisited within this period. Specifically the ponds and buffer area occupy land which could potentially be used for expansion of the Whakatane urban area.

6.2.1.5. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing Wastewater assets. This programme is outlined in the 2007/2008 Wastewater Asset Management Plan and updated in 2011/2012 AMP.

6.2.2 OHOPE

Wastewater is collected in a pumped reticulation, and delivered to a two stage oxidation pond to the south of the town. The treatment plant consists of a contra-shear screen, and aerated pond, a facultative pond and multiple maturation ponds, some divided by rock filters. The treated effluent is disposed of through a submerged outfall 600 m off the coast north of the plant.

The village of Otarawairere was recently incorporated into this scheme. As the village is situated close to and higher than Ohope, a falling main was connected to existing

reticulation near the western end of the town. This extension replaced on-site disposal facilities, consisting mainly of septic tanks. This extension was carried out in large part to reduce/remove the contribution that the soakage fields were having on the already poor drainage in the area.

The system is described in detail in the Asset Management Plan of 2011/2012. The reticulation system includes:

- 38.4 km of pipe
- 18 pump stations
- 487 manholes
- 1,431 service lines
- 600 m outfall pipe
- 1 diffuser

6.2.2.1. Asset Condition and Performance

Most assets in the Ohope scheme are in moderate to good condition. The system is relatively new, generally reliable, with occasional blockages and restrictions on the rising main to the ponds. Odour control devices have been installed at three pump stations. The extended shape of the reticulation can result in long residence times at low winter occupancy and flows.

Overflows from two pump stations occur during high intensity storm events. Capital works have been included in the next LTP to address this issue.

6.2.2.2. Consent compliance

Council holds two consents, namely for discharges of treated effluent (to sea) and aerosols / odorous gases from the oxidation ponds.

6.2.2.3. Effluent discharge

In August 2001 council was granted consent to discharge treated effluent from the Ohope wastewater treatment plant into the ocean, via a submerged pipeline and diffuser. The consent specifies the allowable maximum daily volume and quality of the treated effluent.

Monitoring requirements include the daily volume of wastewater entering and leaving the wastewater treatment plant, as well as the quality of the treated effluent. Monitoring in the vicinity of the ocean outfall includes sea water quality and shellfish (for faecal coliform bacteria).

The consent also required further investigation of alternatives for treatment and disposal, with a view to ceasing discharge to the ocean and a report addressing this was provided to BoPRC in 2007. The consent expired on 31 July 2010 with alternatives for treated effluent

being explored (e.g. land disposal) as part of the consent renewal process. Consultation and technical studies have been underway through 2008-09 and an application for renewal of the consent was lodged in December 2009. The 2009-19 LTP includes provision for upgrading of the outfall pipe & diffuser and then for installation of additional treatment.

The operation and management of the treatment system is in accordance with the consent requirements.

6.2.2.4. Aerosols and Odorous Gases

Consent was granted in July 2002 to discharge aerosols and odorous and other gases from the Ohope wastewater treatment plant. Monitoring includes measurement of dissolved oxygen in the treatment system. This consent expires on 31 July 2021.

6.2.2.5. Health Hazards

No public health hazard associated with the operation has been identified in the AMP. Concern was noted by the Medical Officer of Health in preliminary consultation that any overflow from the ponds or rising main would contaminate the oyster farm in Ohiwa Harbour. The pond banks have been raised to mitigate this risk. In addition to this a short water balance study has been completed to help understand pond inflow rates compared with outflow (and thus storage changes). This study revealed that there are likely to be inputs into the pond through ground seepage which will require further investigation. Work is planned in the 2011/2012 financial year to better understand the source of this seepage and reduce the risk to the ponds from it.

6.2.2.6. Current and future demand vs. capacity

The design population for the Ohope scheme is 4,500 permanent residents and 8,000 visitors. The current resident population of the reticulated area is approximately 2,850.

The Ohope urban area population is projected to increase by nearly 4% between 2006 and 2021 based upon the 2001 census projections although there is potential for stronger growth than this as a result of infill and subdivision development.

There is surplus capacity in the treatment plant and operating structures/equipment are adequate for the next ten years.

6.2.2.7. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing Wastewater assets. This programme is outlined in the 2007/2008 Wastewater Asset Management Plan and updated in 2011/2012 AMP.

6.2.3 TANEATUA

Wastewater is collected from Taneatua and treated in a two-stage oxidation pond system. The treated effluent is discharged to the Whakatane River although in dry weather losses from the ponds are such that on occasions no discharge takes place.

The system is described in detail in the Asset Management Plan of 2011/2012. The reticulation system includes:

- 7 km of pipe.
- 2 pump stations.
- 80 manholes.
- 285 service lines.

6.2.3.1. Asset Condition and Performance

The condition of the infrastructure ranges from good to moderate. The system has a moderate degree of reliability, except for overflows at the Amokura pump station following heavy rain. No substantial studies have been done to understand the extent of inflow and infiltration.

6.2.3.2. Consent Compliance

Consent was granted in May 1971, by means of a right to discharge treated effluent from the oxidation ponds into the Whakatane River. The consent specifies the allowable maximum daily average and peak discharge rates. Monitoring includes bacteriological sampling of the river water within one mile downstream of the discharge and weekly estimates of the discharge volume. As a pre RMA permit the consent has an expiry date of 2025. The treatment system is managed in accordance with the consent requirements.

6.2.3.3. Health Hazards

Occasional pump station overflows have been identified as a public health hazard. Work is programmed to address these.

6.2.3.4. Current and Future Demand vs Capacity

The design population is 2,000. The present population of the reticulated area is about 770. The Taneatua urban area population is projected to decrease by 9% between 2006 and 2021.

The capacity of the treatment plant and operating structures and equipment is adequate for the next ten years.

6.2.3.5. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing Wastewater assets. This programme is outlined in the 2007/2008 Wastewater Asset Management Plan and updated in 2011/2012 the AMP.

6.2.4 TE MAHOE

Wastewater is collected from septic tanks in Te Mahoe village and conveyed by sewer to an intermittent biological sand filter, before discharging into soakage trenches adjacent to the Rangitaiki River.

The system is described in detail in the Asset Management Plan of 2011/2012. The reticulation system includes:

- 1.2 km of pipe
- 0 pump stations
- 13 manholes
- 29 service lines

6.2.4.1. Asset Condition and Performance

The condition of the infrastructure is moderate. The system has a moderate reliability, with no major failures. The Whakatane District Council has a scheduled programme of cleaning the septic tanks.

6.2.4.2. Consent Compliance

Consent was granted in June 1997, to discharge sand filter effluent into soakage trenches in the ground. The consent specifies the allowable maximum daily discharge rate. Monitoring includes sampling of the effluent entering the soakage trenches as well as conditions within the trenches (effluent level). The consent expires on 31 May 2017. The treatment system is managed in accordance with the consent requirements.

6.2.4.3. Health Hazards

No public health hazard has been identified in the AMP.

6.2.4.4. Current and future demand vs capacity

The system provides for 25 dwellings and a school.

The AMP has no data on population projections, but no growth is anticipated. The capacity of the treatment plant and operating structures/equipment is deemed to be adequate for the next ten years.

6.2.5 EDGE CUMBE

Wastewater is collected from the urban area of Edgecumbe township and treated in a two pond oxidation system. The treated effluent is discharged to the Omeheu Canal which then feeds into the Tarawera River.

The system is described in detail in the Asset Management Plan of 2011/2012. The reticulation system includes:

- 15.9 km of pipe.
- 10 pump stations.
- 206 manholes.
- 641 service lines.

6.2.5.1. Asset Condition and Performance

The structures and plant within the Edgecumbe scheme are in moderate to good condition, but the reticulation pipes and service lines are in poor condition. This is mainly the result of unrepaired damage caused during the 1987 Edgecumbe Earthquake. As evident in CCTV footage, there are a number of cracked and dipped pipes and displaced joints. During significant rainfall events, this damage contributes towards overflows at pumpstations, manholes and at gully traps on private properties. This additional inflow and infiltration of stormwater has also led to overtopping of the oxidation ponds in the past.

Recent upgrades to the treatment plant have reduced the risk of overflows. A substantial project is currently underway to complete further repairs the reticulation network as well as upgrade pump stations (to address both storage and reliability issues). It should however be noted that some damage to private sections of house laterals will need addressing to completely resolve inflow/infiltration problems.

Desludging of the ponds will be required in the next ten years. This may be an issue, as there is a lack of available land around the ponds for dewatering of the sludge. The pond embankments were raised in 2005-06 to increase the storage available in the ponds in wet weather and avoid overflows to adjoining farmland.

6.2.5.2. Consent compliance

Consent was granted in June 1980 to discharge treated effluent from the oxidation ponds into the Omeheu Canal. The consent specifies the allowable maximum loading on the wastewater entering the primary pond and the minimum retention time in the tertiary pond. Limits are specified for the daily volume and quality of the treated effluent discharge. The treatment system is managed in accordance with the consent requirements.

The Tarawera River Management Plan has set tight standards for discharge of effluent to the Omeheu Canal. Depending upon how the Plan is applied to the Edgecumbe ponds consent this may require upgrading of the effluent quality. Through 2008-09 monitoring of the Omeheu Canal water quality has been underway to provide background information for any future consent/upgrade.

6.2.5.3. Health Hazards

Pump station overflows and surcharging gully traps and manholes have been identified as public health hazards. As mentioned above, work is underway to reduce inflow and infiltration.

6.2.5.4. Current and future demand vs. capacity

The design population is 3,000. The present population of the reticulated area is about 1,700. The Edgumbe urban area population is not expected to be increased significantly in the next ten years. Under normal conditions, the capacity of the treatment plant and operating structures/equipment is adequate for the next ten years.

Overflows occur following heavy rains, particularly to the south of Bridge St. As mentioned above the Council plans to address the problem by implementing a capital works programme and upgrading the urban stormwater scheme.

6.2.5.5. Infrastructure replacement

Whakatane District Council has a comprehensive capital works programme for replacing deteriorating or failing Wastewater supply assets. This programme is outlined in the 2007/2008 Wastewater Asset Management Plan and updated in 2011/2012 AMP.

6.2.6 MURUPARA

Wastewater is collected from the urban area of Murupara township and passed through a comminutor before being treated in a two-stage oxidation pond system. The treated effluent is discharged to the Rangitaiki River. Rangitahi College has a private pump station, which pumps wastewater to the township reticulation.

The system is described in detail in the 2011/2012 Asset Management Plan. As at May 2011, the reticulation system included:

- 11.4 km of pipe;
- 0 pump stations (except Rangitahi College which is private);
- 166 manholes;
- 564 service lines;

6.2.6.1. Asset Condition and Performance

The condition of the infrastructure is moderate to poor condition. The system however has a moderate reliability, with no major reticulation failures. There were known issues as a result of poor construction methods (e.g. protruding laterals). These were repaired in 2011 along with several pipe faults.

A recurring problem in the system is the failure to cap service lines from houses that are removed or abandoned.

Pond # 1 requires desludging. A project is currently underway with a large part of the work expected to be completed by July 2011.

6.2.6.2. Consent compliance

Consent was granted in April 1981, by means of a right to discharge treated effluent from the oxidation ponds into the Rangitaiki River. The consent specifies the allowable maximum loading on the wastewater entering the primary pond and the minimum retention time in the secondary oxidation pond. Limits are specified for the daily volume and quality of the treated effluent discharge. As a pre RMA permit the consent has a sunset clause expiry date of 2025. The treatment system is managed in accordance with the consent requirements.

6.2.6.3. Health Hazards

Occasional overflows due to blockages and during high rainfall events have been identified as public health hazards.

6.2.6.4. Current and Future Demand vs. Capacity

The design population is 4,000. The present population of the reticulated area is about 2,030. The Murupara urban area population is projected to decrease by about 10% between 2006 and 2021. Therefore the capacity of the treatment plant and operating structures/equipment is deemed to be adequate for the next ten years.

6.2.6.5. Infrastructure replacement

Whakatane District Council has a programme for replacing deteriorating or failing Wastewater assets. This programme is outlined in the 2007/2008 Wastewater Asset Management Plan and updated in 2011/2012 AMP.

6.2.7 ASPECTS COMMON TO ALL THE COUNCIL OWNED RETICULATION SCHEMES

The following summary applies to all the Council owned reticulated schemes:

6.2.7.1. Consumer Issues

The AMP includes defined Levels of Service for a range of criteria, including:

- Environmental (compliance with discharge consents)
- Reliability (blockages, overflows)
- Availability (continuity of service)
- Quality (compliance with maintenance standards)
- Safety (avoidance of health hazards)
- Responsiveness (timeliness regarding system failures and public enquiries)
- Courtesy, empathy, assurance (customer perception of service)

Overall satisfaction (percentage of respondents rating service as “quite satisfactory” or better). There are however concerns with the perceived level of service being offered to resident in Edgumbe. These are currently being address through major capital works aimed at reducing sewer overflows as a result of problems with inflow/infiltration.

At present only the environmental, safety and overall satisfaction parameters are monitored. While the environmental performance targets are achieved, the overall satisfaction target (as measured by public survey) of 80% “fairly satisfied or better” has not been achieved (results for 2000 to 2003 vary between 60 and 69% with a slight upward trend). Points of concern to unhappy respondents included odours from the oxidation ponds and general concerns regarding improving and upgrading the wastewater system. However feedback from the Community Boards and the LTCCP/Annual Plan submissions indicates that the current Levels of Service and proposed work programmes are in line with customer expectations.

6.2.7.2. Trade Waste

Trade waste discharged to all Council reticulated wastewater schemes are managed in accordance with the Trade Waste Bylaw 2007. This regulates the quantity, type and strength of contaminants discharged from business who’s activity is deemed to produce trade waste in one form or another. The Bylaw adopted by council is based upon the NZ model trade waste bylaw NZS 9201 of 2004.

6.2.7.3. System Development and Maintenance

The Wastewater AMP 2011/2012 sets out planned capital and operation/maintenance expenditure for ten years, in accordance with various factors, including.

- Customer expectations and level of service
- Legislative requirements
- Community growth
- Asset capacity
- Asset condition
- Consent requirements
- Affordability
- Health and safety

The LTCCP 2009-19 provides for the following within the District area:

- Wastewater upgrade at Coastlands
- Pond desludging at Murupara
- Wastewater treatment plant and reticulation construction at Matata
- Sewer reticulation renewals in Whakatane
- Reticulation investigation & upgrades in Murupara
- Reticulation upgrades in Edgecumbe
- Wastewater treatment plant upgrade in Ohope
- Off line storage tank in McAlister St
- Wastewater treatment plant upgrade for Edgecumbe
- Wastewater treatment plant and reticulation construction at Te Teko
- Reticulation and pump station upgrades at Ohope
- Pond desludging at Taneatua

6.2.7.4. Options for Future

The 2011/2012 AMP focuses on demand management as the means of controlling future development. Key methods include:

1. Water demand management. Water meters have been installed but, to date, there has been little education on water conservation. At present Whakatane District Council is preparing a water conservation strategy for the District water schemes.
2. Reduction in trade waste. A new bylaw was passed in 2007. A new charging regime based on trade waste quantities discharged into the Council reticulation is effective from 2010/11.
3. Reduction in infiltration and inflow (programmes have been implemented in the main urban areas of Whakatane, Ohope, Taneatua and Edgecumbe). A regular CCTV and smoke testing programme will be in place.

6.2.8 SUMMARY OF KEY ISSUES ARISING FROM COUNCIL OWNED RETICULATION SCHEMES

The following key issues are identified from review of the reticulated schemes:

- Potential failure of deteriorating pipes, particularly in Whakatane (Concrete and AC)
- Inflow and infiltration causing wastewater overflows from pump stations and manholes following heavy rain
- Odour
- Lack of data on performance – not all collected
- Reporting and access to condition assessment data
- Rapid population rise in some areas versus decline in others
- Lack of accurate information for some schemes.

6.3 Semi Serviced (Reticulated Water, Septic Tank Wastewater)

Three communities (Matata, Te Teko and Minginui) have been identified as having reticulated water supplies but no reticulated wastewater collection. Properties within these communities have individual septic tanks with on-site soakage fields. The fact that they have reticulated water suggests that water consumption is likely to be higher than in areas where there is no water supply, therefore they are likely to generate more wastewater.

6.3.1 MATATA

Elevated levels of faecal coliform and nitrogen, probably linked to onsite wastewater disposal, have been identified in the three streams/drains that flow through the township (January 2004). In 2003/4 the council consulted the community, who supported an application for a Sanitary Works Subsidy (SWS), which received provisional approval. However, before the scheme could progress further, the 2005 debris flow disaster occurred, recovery from which became the priority. With the majority of the disaster recovery works now complete, the proposal was again revisited. Following further investigation of different options, vacuum reticulated system with disposal to the Edgecumbe treatment plants was chosen as the preferred option. Following this, an amended funding application was lodged with SWSS for an estimated cost of \$10.1 million. The ministry has approved \$6.7 million for the project. At present the council is considering available options to implement and funding the remaining amount. Before any works are started, a peer review will be completed of the preferred option.

6.3.2 TE TEKOKO

In 2003/04 consultation also began with Te Teko residents for a sewage scheme for the township, subsidised through the SWS. The scheme failed to gain local support with the

level of funding available at that time (~50%). However, with recent changes to the SWS funding criteria Te Teko, which has a deprivation index 10, would now obtain a higher level of support through the SWSS, assuming funding were available. A reassessment of the 2004 scheme (full conventional reticulation, package treatment plant and effluent disposal on the Te Teko golf course) was undertaken, together with some community consultation, to decide upon the future direction of the scheme. A cost analysis has been undertaken of a new reticulated scheme and a managed regime of on-site systems will need to be done to identify the cost per lot of each option. The project is on hold as SWSS funding is not available at present. The scheme has been included in the 2009-19 LTP.

6.3.3 MINGINUI

Minginui is serviced by septic tanks. Soakage conditions are generally reasonable being free draining pumice soils. The cost of getting septic tanks pumped out at this remote community is an issue for some householders and means some tanks are not cleaned as often as they should.

6.3.4 UNSERVICED

As with water supply, outside of the reticulated schemes described above, there are a large number of rural dwellings and marae. For the purposes of the assessment these have been treated as one “community” as they share common features of on site wastewater disposal and a lack of treatment or monitoring. Included in this community would be rural farm dwellings across the District. There are also a large number of properties in communities in the valleys of the Waimana (Matahi), Whakatane (Ruatoki), Rangitaiki (Waiohau) and Whirinaki Rivers (Te Whaiti).

The condition and age of the on-site wastewater systems is not known. From our experience with working on housing renewal projects in the Ruatoki and Waiohau areas we would expect that there are a large number of undersized and substandard on site systems in use. Soil conditions in some areas are not ideal for on site wastewater disposal.

In cases where bore supplies for potable water are located close to the discharges from septic tanks, care must be taken to ensure that the bore water quality is not affected. This is normally controlled through the building consent process. The discharge from a septic tank should be at least 30m from a borehole used for drinking water.

6.4 Stormwater

There are several communities within the Whakatane District that can be classified as having full stormwater reticulation. Full reticulation is defined as have the potential to collect and dispose of all stormwater runoff from roofs and roads.

6.4.1 WHAKATANE

Whakatane is the largest urban area in the district. Although predominantly residential there is a reasonable sized commercial and industrial component in the stormwater catchments.

6.4.1.1. Catchments

The Whakatane urban area, excluding Piripai, has a stop-bank built in 1968 to protect the town against flooding from the Whakatane River. Bay of Plenty Regional Council manages and maintains the Stop bank protection system.

There are 14 pump stations including two near the Hub shopping centre which are managed and maintained by the Whakatane District Council.

The hill catchments to the south of Whakatane (Wainui Te Whara and smaller steep hill catchments along Valley Rd) have a large effect on the stormwater system and the management of this.

6.4.1.2. Reticulation

The Whakatane stormwater system comprises of the following assets:

- 37.6 km of pipes
- 994 manholes
- 8,081 m of open channel
- 14 pumpstations
- 15 storage / retention ponds

The following table shows the condition of the assets:

Asset	Description	Grade
Open Drains	CC (2%), OD (98%)	Moderate
Floodgates	Ranging from 100mm to 1600mm	Moderate
Manholes	MH (867), CP (118)	Moderate
Pump Station 1301	Strand Canal - 1x75 kW 2x20 kW pumps	Moderate
Pump Station 1302	Riverside Dr-1x25 kW pump	Moderate
Pump Station 1303	Eivers Rd-2x22 kW pumps	Good
Pump Station 1304	Douglas St-2x7.5 kW, 1x18.5 kW pumps (upgraded 2008)	Good
Pump Station 1304/2	Karaka Pl- 1x18.5 kW pump	Good
Pump Station 1305	Salonika St-1x3.1 kW pump	Good
Pump Station 1306	Arawa Rd-1x25 kW, 1x45 kW pump	Moderate
Pump Station 1307	McGarvey Rd-1x30 kW pump	Good
Pump Station 1308	Awatapu Dr-2x93 kW pump	Good
Pump Station 1309	Amber Gr-1x7.5 kW, 1x15 kW pump	Good
Pump Station 1310	Gateway Dr-2x15 kW pumps	Good
Pump Station 1311	Hinemoa St-2x22 kW pumps	Good
Pump Station 1312	James St-1x2.2 kW pump	Poor

Asset	Description	Grade
Pump Station 1314	Marchignal St-1x2 kW	Good
Pump station	Awatapu lagoon	Excellent
Storage Pond	Landfill	Moderate
Stormwater Lines	Various types (53%) Unknown (47%)	Good. – Mod.

6.4.1.3. Outfalls

There are several outfalls discharging either to the river, lagoon or sea. Many of these outfalls have pumps associated with them to discharge through the stopbanks.

6.4.1.4. Stormwater Quality

At present there is little specific treatment of stormwater. There are some detention ponds and silt traps below the hill catchments. Primarily these are to prevent aggradation of channels through the shallower sloping urban areas rather than for removal of contaminants. Ponding forebays prior to the pumpstations provide some silt removal and capture of litter. The Bay of Plenty Regional Land and Water Plan aims to limit sediment and chemical loading from stormwater discharged into receiving waters. Stormwater treatment will likely become part of future discharge consents and this will be particularly important when applying for a comprehensive stormwater consent

6.4.1.5. Catchment Modelling

Council have completed detailed stormwater models for most of Whakatane, including the three main catchments of Apanui, Hinemoa and Whakatane South. Only the Muriwai (limited reticulation) and Awatapu are yet to be modelled. These models are being used initially to identify and solve capacity issues. The model outputs will later be incorporated into catchment management plans and comprehensive resource consents. Work is currently underway to model overland flow paths, in addition to the modelling of the primary stormwater network. The outputs of this modelling will identify areas that are susceptible to either pooling or surface water inundation during extremely large rainfall events (e.g. those having 100 and 300 yr return periods).

6.4.1.6. Known problem areas

There are known problems with stormwater ponding in Pohutu, Beach and Bracken St areas. Options were previously put to the community for long-term planning but these were rejected and so these have yet to be resolved.

The Wainui Te Whara stream creates problems in large rainfall events, notably in the Douglas St and Alexander Ave area, where its banks are sufficient to contain only a 1 in 20 year flood. A preliminary study was made in 2008, and options such as floodwalls, increased stop banks and a mid-catchment dam were considered. More recently, funding was approved for a joint project between BoPRC and WDC to investigate flood mitigation options for all streams in Whakatane and Ohope that pass through urban areas (including the Wainui Te Whara). This project is well underway with the options analysis stage to be completed by August 2011.

6.4.2 EDGE CUMBE

This town is predominantly residential with some commercial land. The Fonterra dairy factory is a large industrial site. Fonterra have their own stormwater discharge points controlled through consents from BoPRC.

6.4.2.1. Catchments

There are four main catchments, delineated by the Rangitaiki River running south to north through the township and the railway embankment running east-west. Edgecumbe southwest and northwest are on the west of the Rangitaiki River. Edgecumbe southeast (Konini Place and Hydro Rd area) are on the on the east bank. Edgecumbe northeast is occupied by the Fonterra Dairy factory and the EastPack kiwifruit packhouse and cool store.

Edgecumbe relies upon the Rangitaiki Plains drainage scheme administered by BoPRC to provide land drainage. The town is protected from flooding from the Rangitaiki River by stopbanks maintained as part of the River scheme by BoPRC.

6.4.2.2. Reticulation

The Edgecumbe stormwater system comprises of the following assets:

- 6.3 km of pipes
- 119 manholes
- 4,379 m of open channel
- 17 cesspits

The following table shows the condition of the assets:

Asset	Description	Grade
Open Drains	OD (100%)	Moderate
Pump station	Otakiri Road	Excellent
Manholes	MH (114) CP (17)	Moderate
Stormwater Lines	CC (93%) Others (7%)	Moderate

6.4.2.3. Quality

There are no specific measures in place to control discharge of contaminants from the stormwater system. Stormwater is contaminated by sewage overflows in heavy rain. This problem is well recognised and is being addressed by upgrading of sewer lines and improved stormwater control, both of which have projects underway at present to address these issues.

6.4.2.4. Problem Areas

The principal area subject to flooding from local stormwater is Edgecumbe south, in particular Totara St, Kanuka Pl and parts of Kowhai Ave. The Hydro Rd area was subject to severe flooding in the July 2004 storms as a result of a major stopbank breach.

A review of the township's flood defences and stormwater systems was undertaken by Opus Consultants following the July 2004 flooding. This recommended the following upgrades:

1. Increased capacity in the Reids Floodway which runs to the east of the township and diverts floodwaters from the Rangitaiki River
2. Control gates on the inflow to the Reids Floodway
3. Increased pumping capacity to the Edgecumbe northwest catchment
4. Raising of the west stopbank on Reids Floodway in the Edgecumbe southeast to provide a differential freeboard in favour of the urban area (Hydro Rd and Konini Pl) and the Transpower substation. Provision would be made for access for a tractor powered flood pump for use when the Reids floodway is full.
5. Raising of the west stopbank on Reids Floodway in the Edgecumbe north east to provide a differential freeboard in favour of the Fonterra site. Again provision would be made for access for a tractor powered flood pump for use when the Reids floodway is full.

Works recently completed include:

1. A stormwater pumpstation to be provided at the Otakiri Rd intersection to deliver water direct to the Rangitaiki River and relieve pressure on the Omeheu adjunct pump station.
2. Construction of a low bund and stopbank in the Edgecumbe Southwest catchment to protect the lower lying houses from flooding from the adjacent rural land. This bund is not proposed to be of a height sufficient to provide a secondary flood defence against a failure of the main Rangitaiki River stopbank. This work has now been completed.
3. A new pump station is under construction in the North-West quadrant of the town to improve the stormwater discharge in that part of the town.

6.4.3 OHOPE

Ohope occupies a narrow coastal strip. In the west the township lies between steep hills to the south and the sea to the north, while in the east the harbour forms the southern boundary. In the 20 year planning period from 2001 to 2021 a total of 304 dwellings are projected to be built in the following areas:

6.4.3.1. Reticulation

The Ohope stormwater system comprises of the following assets:

- 8.2 km of pipes
- 188 manholes
- 1,555 m of open channel
- 4 storage / retention ponds
- 24 cesspits
- 5 soak pits

The following table shows the condition of the assets:

Asset	Description	Grade
Drainage channels	SR (100%)	Moderate
Manholes	MH (133), CP (24)	Moderate
Storage ponds	Ohiwa Pde, Claydon Pl, Waterways, Liddon Cv	Good
Stormwater lines	CC (88%), Various (12%)	Good

6.4.3.2. Outfalls

Stormwater runoff is captured by a piped gravity system that discharges to natural streams, sand dune soak pits or ocean / harbour outfalls. Concern was noted in several public submissions about discharge of stormwater directly to the harbour. While disposal to soak pits or detention ponds can be maximised in some areas, there will be a need for outfalls to cope with higher flows.

6.4.3.3. Stormwater Quality

There are primary stormwater settlement/detention ponds in place at four locations between the urban area and the harbour. Similarly there are five dune soak pits (with high level overflows) along Ocean Rd. Given the residential nature of the catchment contaminant levels in stormwater would be expected to be low. Ohiwa Harbour is a particularly sensitive environment in which to discharge stormwater. Treatment of stormwater is a matter which will likely be addressed in future through the resource consent process.

6.4.3.4. Problem Areas

Problems are occasionally experienced with the four main streams that pass from the hills through the residential area. As mentioned previously, the flood hazard posed by these four streams is being investigated as part of a larger Whakatane and Ohope stormwater study.

In 2008 a stormwater system for the Cliff Rd, Brown Rd was installed. The main driver for this was to reduce ground stability issues as a result of poorly controlled stormwater and to reduce the impact of stormwater disposed of through soakage.

6.4.3.5. Capacity

Some pipes in the existing reticulation are under capacity. A capital work programme will be included in the next LTP to upgrade these pipes to meet design standards.

As new developments take place, new drainage systems, where excess water will possibly be piped to detention ponds and then discharged to the sea, will be progressively developed. The cost of development of these systems will largely fall on the developers. Particular attention will need to be made through the building consent process to those areas identified above.

6.4.4 MATATA

Matata is a residential area with very few commercial lots. Matata occupies a coastal terrace with steep hill country behind and a lagoon in front. Three streams from the hills flow through the town. The hills behind Matata can be subject to localised high intensity orographic rainfall as saturated air comes in from the sea.

6.4.4.1. Reticulation

The Matata stormwater system comprises of the following assets:

- 887 m of pipes
- 2,506 m of open channel

Most properties are able to dispose of stormwater to the roadside swales or to the stream channels.

The following table shows the condition of the assets:

Asset	Description	Grade
Drainage channels	SR/OD	Moderate
Manholes	MH (100%)	Moderate
Stormwater lines	CC (100%)	Moderate

6.4.4.2. Stormwater Quality

Water quality in the streams, particularly the central Waimea stream, is shown through testing to be affected by septic tank effluent. This is one of the drivers for a reticulated wastewater scheme to be installed.

6.4.4.3. Problem Areas

Both the natural and artificial channels in Matata suffer the effects of high velocity flows from steep catchments. Common problems include culverts being fouled by debris and

scour on the bed and banks of the channels. Drop structures, which will reduce flow velocities, are planned in the systems. The upper catchments, particularly of the Awatarariki and Waitepuru streams are prone to debris flows. The Matata flood mitigation project has largely address these issues.

In recent times (i.e. 2010-2011) high groundwater levels have plagued the area, particularly around the Matata Hotel, near the playground and along Arawa St. New subsurface drainage pipes have been installed to drain this water towards and into the lagoon. These high groundwater levels affect the ability to dispose septic tank effluent through soakage fields.

6.4.4.4. Capacity

With improvements to the Waimea Stream the system should be able to cope with future demand. Additional piped roadside drains may be required in future if development warrants it.

6.4.5 TANEATUA

Taneatua occupies a flat site. It is a residential area with very few commercial lots.

6.4.5.1. Reticulation

The Taneatua stormwater system comprises of the following assets:

- 1,849 m of pipes
- 30 manholes
- 897 m of open channel

The following table shows the condition of the assets:

Asset	Description	Grade
Drainage channels	OD (100%)	Moderate
Manholes	MH (100%)	Moderate
Stormwater lines	CC (100%)	Moderate

6.4.5.2. Outfalls

Stormwater runoff is captured by a piped gravity system that discharges to a large open drain that leads from the township into a stream adjacent to the railway line to eventually discharge into the Whakatane River.

6.4.5.3. Problem Areas

Generally there are minimal issues associated with the Taneatua network. However, frequent open drain maintenance is critical as the piped network is dependent on the ability of the open drain to convey stormwater away from the township.

6.4.5.4. Capacity

The capacity of the Taneatua stormwater has been generally adequate in the past despite some significant events. There is no significant growth in this town and the system should therefore cope with future demand.

6.4.6 MURUPARA

Murupara is a residential area with few commercial lots.

6.4.6.1. Reticulation

The Murupara stormwater system comprises of the following assets:

- 8.5 km of pipes
- 112 manholes
- 121 m of open channel

The following table shows the condition of the assets:

Asset	Description	Grade
Manholes	MH (100%)	Moderate
Stormwater Lines	CC (100%)	Moderate

6.4.6.2. Outfalls

Stormwater runoff is captured by a piped gravity system that is connected to an open drain adjacent to Ngatimanawa Rd that discharges into the Rangitaiki River.

6.4.6.3. Stormwater Quality

No specific stormwater quality treatment is provided.

6.4.6.4. Problem Areas

There are no known problems with the stormwater service in this community.

There is no significant growth in this town and the system should therefore cope with future demand.

6.4.7 TE TEKO

Te Teko is a residential area with several commercial lots. The site is generally flat, but does have an old flood course of the Rangitaiki river forming a swale through the township. Te Teko relies on the Rangitaiki Plains drainage scheme for effective drainage. The Rangitaiki Plains drainage scheme is administered by BoPRC. An open drain approximately 120m of length within the Te Teko Township which has been used by some residents to dump waste items has been piped. This has reduced the health risk to the community due to contaminated water in the drain.

6.4.7.1. Reticulation

The Te Teko stormwater system comprises of the following assets:

- 235 m of pipes
- 8 manholes
- 123 m of open channel

The following table shows the condition of the assets:

Asset	Description	Grade
Open Drain	OD (100%)	Moderate
Manholes	MH (100%)	Good
Stormwater Lines	CC (100%)	Moderate

6.4.7.2. Outfalls

Stormwater runoff is captured by a piped gravity system that discharges into an old river watercourse that intersects State Highway 30 west side of the Rangitaiki River.

6.4.7.3. Stormwater quality

The water quality in the outlet drain downstream of the town is poor with high bacterial counts. This may relate to stormwater runoff from the highway and likely reflects poor wastewater soakage conditions and lack of tank maintenance also.

6.4.7.4. Problem Areas

Severe river flooding, as occurred in July 2004, can fill the swale through the town. There have in the past been problems with maintenance of the outlet drain in the downstream rural area affecting land drainage in the township. This is a maintenance issue.

6.4.7.5. Capacity

The capacity of the township has been adequate in the past despite some significant events. There is no significant growth in this town and the system should therefore cope with future demand.

6.4.8 TE MAHOE

Te Mahoe is a small ex hydro village situated on a river terrace at the base of the Matahina dam. It has good falls and generally good soakage conditions.

6.4.8.1. Reticulation

The Te Mahoe stormwater system comprises of the following assets:

- 1,888 m of pipes
- 23 manholes

The following table shows the condition of the assets:

Asset	Description	Grade
Manholes	MH (100%)	Moderate
Stormwater Lines	CC (96%) Others (4%)	Moderate

6.4.8.2. Outfalls

Stormwater runoff is captured by a piped gravity system that discharges to outfall points adjacent to the Rangitaiki River.

6.4.8.3. Stormwater Quality

There are no known quality issues or treatment devices in place.

6.4.8.4. Problem Areas

There are no known problems with stormwater in this community.

6.4.8.5. Capacity

The capacity of the stormwater system in the township has been adequate in the past despite some significant events. There is no significant growth in this town and the system should therefore cope with future demand.

6.4.9 UNSERVICED

Remaining properties in the District have no specific stormwater service. Stormwater is disposed of by soakage or discharge to surface water channels or roadside drains as dictated by site conditions. For the purposes of the assessment all unserviced properties are treated as one community.

6.5 Public Toilets

There are two categories of public toilet within the Whakatane District:

1. Council owned and operated toilets open to the public. This includes toilets within Council owned/community shared facilities often managed on behalf of the Council by others, which are available for public use when attending/using the facility e.g. Council owned swimming pools, community shared swimming pool facilities, community halls etc;
2. Privately owned and operated toilets that are available for public use e.g. shopping malls, service stations.

6.5.1 Public toilets open directly to the public

Whakatane District Council operates 37 public toilets that are open directly to the public during their opening times (varying from 16 – 24 hours per day, most being 24 hours per day) or in conjunction with community facilities which are open as required. Cleaning and minor maintenance is carried out by private contractors who operate under a performance based contract, managed by the Contracts section of the Council on behalf of the Asset Manager. Cleaning and maintenance of these facilities is provided for under the New Zealand Standard for Public Toilets (NZS 4241:1999). These standard provide design information and advice on the numbers, location, type and quality and includes features and fitting for public toilets. Guidance on cleaning and sanitisation is also provided.

There are also two remote toilets (bioloos) that are owned and operated by the Council and do not have access to Council water and wastewater services. These toilets are designed to operate without a water supply. Where a water supply does exist, it is unlikely to be potable.

The following table, provides a list of the existing public toilet locations, along with other important information regarding opening hours, quality of hand washing water (is it potable), and whether the toilets are connected to a reticulated sewerage system.

Location		Disposal		Water Supply- pans/basins			Maintenance			Comments/Issues
Town	Location	Public	Septic Tank	Public/ Potable	Bore	Other	Contract	In House	Cleaning frequency/day	
Whakatane	Eve Rimmer Building	Y		Y			Y		3	5 pans, 1 urinal
Whakatane	Grandstand Toilets	Y		Y			Y		3	5 pans, 1 urinal
Whakatane	Hillcrest Toilets	Y		Y			Y		3 PW	1 pan
Whakatane	River Edge Toilets	Y		Y			Y		T	5 pans, 2 urinals
Whakatane	Rose Garden Toilets	Y		Y			Y		1	3 Pans, 1 Urinals
Whakatane	Rugby Park Toilets	Y		Y			Y		2	4 pans, 4 urinals
Whakatane	Soccer Club Toilets	Y		Y			Y		3	4 Pans 1 Urinal
Whakatane	The Heads Toilets	Y		Y			Y		T	4 Pans, 1 Urinal
Whakatane	Warren Park Toilets	Y		Y			Y		3	3 Pans, 1 Urinal
Whakatane	Boon Street	Y		Y			Y		T	7 Pans, 1 Urinal
Whakatane	Otuawhaki	Y		Y			Y		T	7 pans, 1 urinal
Whakatane	Eivers Road	Y		Y			Y		B	1 pan
Kopeopeo	James Street Exeloo	Y		Y			Y		2	2 Pans
Coastlands	Coastlands Toilets	Y		Y			Y		B	1 pan
Ohope	Mahy West Toilets	Y		Y			Y		B T	4 pans, 1 Urinal
Ohope	Tennis Club Toilets	Y		Y			Y		B	4 Pans, 1 Urinal
Ohope	Maraetotara Toilets	Y		Y			Y		1	4 Pans
Ohope	Surf Club Toilets	Y		Y			Y		B	4 Pans 1 Urinal
Ohope	West End Toilets	Y		Y			Y		B	4 Pans, 1 Urinal
Ohope	Ohiwa Wharf Toilets	Y		Y			Y		B	3 Pans, 1 Urinal
Ohope	Ocean Road Toilets	Y		Y			Y		B	4 Pans, 1 Urinal
Ohope	Otao Toilets	Y		Y			Y		B	4 Pans, 2 Urinal
Matata	Pikowai East Toilets		Y				Y		B	2 pans, 1 urinal
Matata	Pikowai West Toilets		Y				Y		B	4 pans, 1 urinal
Matata	Matata Main Road Toilets		Y	Y			Y		B	5 Pans, 1 Urinal
Matata	Matata Reserve Toilets		Y	Y			Y		S	3 pans, 1 urinal
Edgecumbe	College Road Toilets	Y		Y			Y		4 PW	3 Pans, 1 Urinal

Location		Disposal		Water Supply-pans/basins			Maintenance			Comments/Issues
Town	Location	Public	Septic Tank	Public/Potable	Bore	Other	Contract	In House	Cleaning frequency/day	
Edgecumbe	Kauri Street Toilets	Y		Y			Y		4 PW	3 Pans, 1 Urinal
Edgecumbe	West Bank Road Toilets		Y	Y			Y		4 PW	2 Pans,
Murupara	Pine Drive Exeloo	Y		Y			Y		1	1 pan
Galatea	Aniwhenua Public Toilets		Y		Y		Y		1	4 pans
Galatea	Mangamate Toilets		Y	Y			Y		1	4 pans, 1 urinal
Taneatua	Taneatua Toilets	Y		Y			Y		1	3 pans
Te Teko	Te Teko Park Toilets		Y	Y			Y		1	3 Pans, 1 Urinal
Thornton	Thornton North Toilets		Y	Y			Y		B	3 pans, 1 urinal
Thornton	Thornton South Toilets		Y	Y			Y		B	4 pans, 1 urinal
Waimana	Waimana Toilets		Y	Y			Y		1	5 pans, 2 urinals

Notes:

B - beach toilets, cleaning frequency are mostly daily during the year except for the Christmas/January period when it is twice daily

T - town, two hourly clean checks Monday to Saturday and once daily on Sunday.

S - sports, twice per week during the winter season and for the summer season as required.

PW indicates per week

All asset and component data is collected, held and maintained within the Councils asset management system, for building Assets. Condition and useful life data is held for each building component. This information informs a regular renewals programme for this asset class.

6.5.2 Privately owned and operated toilets

Toilets which fall into this category are those that are provided privately, but which are either specifically designed for public use, or are known to be used by the public.

Their cleaning and maintenance is entirely managed by the organisations that provide them. Examples are at service stations although generally these are restricted to customers of the business and are not truly “public”. Council does not have a list of these types of toilets.

6.6 Effluent Disposal Facilities

Effluent disposal facilities include those used by campervans and caravans as well as those for stock trucks. The location of stock truck dump sites is managed by NZTA and there are none as yet in the Whakatane District itself, however there is one at Waitohi in Opotiki District that services stock trucks travelling through. In Whakatane District, effluent disposal facilities are available for the use of campervans, caravans, trucks etc. The dump sites are located at the Whakatane caravan park, Maraetotara reserve and at the Caltex Service Station. A dump site has recently been installed at Murupara following a request from the community.

6.7 Cemeteries and Crematoria

6.7.1 General

Whakatane District Council operates six public cemeteries. Council provides this service to comply with Section 4 of the Burial and Cremation Act 1964. This provides that:

“it shall be a duty of the local authority, where sufficient provision is not made elsewhere for the burial of the bodies of persons who previously lived within the district, to establish and maintain a suitable cemetery. Also the maintenance of records is best undertaken by an organisation which will exist for an indefinite period of time.”

WDC staff has indicated that the capacity of all of the Council cemeteries in the district extends beyond 2020. It is however noted that the provision of such grounds to cover the various religious denominations may be required beyond this. Without such grounds, ‘special’ burial places may occur more often as the population ages. To address this, the council will determine if suitable burial grounds for people of varied religious denominations will be required following the next census review (based on growth, age and demographics). If there is an increasing interdenominational component of the community then this may require the council to reconsider and plan for special services provided with our cemeteries.

Cemetery maintenance and operation is carried out by WDC staff and through formal maintenance contracts.

There are also several private cemeteries and a number of Maori Urupa in the district that are maintained and operated by the respective owners/Trusts. There are no known health issues related to these cemeteries.

WDC do not have a comprehensive list of all of the private cemeteries in the district and there is no legal requirement for them to do so.

6.7.2 Asset Information

Council manages/oversees six cemeteries. This does not include the private 'Grant Family' cemetery.

6.7.3 Domain Road Cemetery – 1 hectare

It is believed that the Domain Road Cemetery was the first European style cemetery for Whakatane township. The first recorded burial here was in 1899 but it is known to be older than that. The cemetery has never been officially closed as there are purchased plots still unused.

6.7.4 Hillcrest Cemetery and Crematorium– 5.6 hectares

Whakatane Hillcrest cemetery is on Whakatane-Ohope highway. The first burial recorded was in 1944. A separate RSA section is included, both lawn and ashes. The Council employs a full-time Sexton to maintain the facilities

The recently completed crematorium was the first in the district and was officially opened in October 2009. The facility's modern design is centred around a waka theme and incorporates a 50 seat chapel.

6.7.5 Taneatua Cemetery – 4.5 hectares

Located on the outskirts of the township, it is nestled on a hillside amongst a variety of mature trees. The first recorded burial recorded was in 1918. It services the wider Taneatua area.

6.7.6 Awakaponga Cemetery (Matata) – 4.5 hectares

Located on a hillside just outside Matata, it is an attractive setting nestled amongst surrounding farmland. This cemetery is managed by a local Trust.

6.7.7 Waimana – 0.6 hectares

Until recently this cemetery was administered by the Waimana Domain Board. A small rural cemetery, it services the wider Waimana community. The first recorded burial was in 1912.

6.7.8 Murupara/Galatea Cemetery – 6.1 hectare

Located on Cemetery Rd, Galatea, plots include RSA, Protestant and Catholic, and an RSA ashes wall. Only a small portion is used for burials, the balance is leased to a local farmer. The cemetery is used mainly by Murupara and Galatea residents. The area is well planted in a quiet peaceful spot.

6.7.9 Grant Family Cemetery (private)

Nestled amongst a 3.6 hectare Council-owned woodlot in Galatea, the cemetery has five private graves. The property was gifted to council in 1962.

6.8 Solid Waste

Since Council has a Waste Management and Minimisation Plan (WMMP), an assessment of solid waste is not required as part of this assessment. .

In 2003, the Whakatane Waste Management Plan was adopted by the Council to address solid, liquid and gaseous waste and encompassed the targets of the NZ Waste Strategy and was consistent with the requirements of the LGA (2002). A detailed review of the WMP was undertaken for the 2005 WSSA and it was concluded no specific coverage of the solid waste was required.

The WMP has been replaced with new WMMP in 2010/11 taking into account recent and proposed changes to services and adopted by the Council.

7 Assessments of Public Health Issues

7.1 Approach

This section of the assessment provides a comparative evaluation of risk events between communities in Whakatane District. This enables priorities to become established to implement any necessary improvement measures.

As outlined in the LGA (2002), such risk assessments are required for communities without reticulated water supply, wastewater and stormwater services.

The options that are available to Council to address identified risks fit within four broad areas:

1. Tolerate existing situation where the risk is judged to be sufficiently low
2. Persuasion and education
3. Regulation through bylaws and enforcing compliance with legislation
4. Providing new infrastructure

7.2 Risk Assessment explanation and methodology

In assessing the risk of an event, there are three components, the product of which provides a comparative evaluation of risk:

1. Probability (likelihood of the event occurring)
2. Magnitude (number of people exposed)
3. Consequence (impact to an individual)

In addition to public health consequences, there are other potential consequences to a community from the absence of reticulated water supply, wastewater or stormwater services, these include

1. Limitations on economic growth
2. Public image to council or owner of system
3. Environmental damage
4. Social and cultural cost.
5. Prosecution and legal costs.

Many of these consequences are beyond the control or intended sphere of influence for a Council, noting that these risk assessments are undertaken for unreticulated communities.

The long term planning functions of a Council are addressed through the LTCCP. The community outcomes and the subsequent implementation of District Plans will determine the extent of Council influence where the lack of water services may adversely affect:

- Economic growth
- Public image
- Social and cultural health
- Risk of prosecution for reasons other than public health and
- Environmental sustainability (that does not also offer a public health risk).

There is a fundamental requirement for Whakatane District Council to protect the public health of the community (Health Act 1956). Specific reference is made to Health Act 1956 obligations in Part 7 of the LGA 2002– the section that requires the completion of Water and Sanitary Services assessments. The risk assessments in communities where there is an *“absence of either a reticulated water supply or a reticulated wastewater service or both”* (S 126(1) (b) LGA 2002) will therefore focus on public health risk.

The impact to an individual of a public health risk can be described as catastrophic – because death or severe sickness may result. For all communities this factor therefore

remains unchanged (i.e. it is a 'constant' in the risk equation). To meaningfully compare the public health risk of unserved communities within Whakatane District involves the comparison of the product of the remaining two components in the risk equation: i.e. the probability of the event and the number of people who are exposed to the risk.

For each event, a qualitative risk description can be allocated that evaluates probability of occurrence using the following table.

Likelihood Ranking	Description	Risk
Rare	May occur only in exceptional circumstances <i>(not known to have occurred but have heard of it happening in other areas)</i>	Very low
Unlikely	Could occur at some time <i>(could occur/would have occurred at some stage in the last 100 years under the current operating conditions)</i>	Low
Possible	Might occur at some time <i>(have known of the occurrence in the last 10 years)</i>	Medium
Likely	Will probably occur <i>(will probably occur – once every 1-2 years)</i>	High
Almost certain	Is expected to occur in most circumstances <i>(is expected to occur)</i>	Very high

Table13: Risk description

It is assumed that the number of people exposed to the risk event is directly related to the population of the community. It is accepted that there are other issues, such as extent of an individual's use of the system and their vulnerability to becoming sick. However, these risk assessments are a comparative tool and for this purpose variables other than population are also assumed to be 'constants' in the risk equation.

Some communities may have a higher than normal percentage of at risk people. An example would be a home for the elderly. In these situations a decision may be made to elevate the probability of the event to ensure that appropriate priorities are allocated to preventative measures. This has not been done for this exercise.

Furthermore, the risk events have been assessed on the basis that no preventative measures are in place other than the infrastructure that is either known to exist or assumed to be in place.

In some circumstances the risk profile adopted may reflect a lack of information on the particular situation. In this circumstance an appropriate solution to an identified risk may simply be to confirm whether the infrastructure, operational procedures and monitoring systems are actually better than has been assumed.

7.3 Reticulated water supply

The existing reticulated water supplies that have an asset management plan do not require a formal risk assessment as part of this Assessment. Whakatane District Council aim to

continue compliance with microbiological criteria of the current New Zealand Drinking Water Standards and work towards achieving an 'Aa' grading for all water supplies.

Other than the Whakatane, Ohope, Waimana, Taneatua and Matata water supplies, there are no council owned water supply systems within the Whakatane District that have protozoa compliance with the New Zealand Drinking Water Standards (though as noted previously work is planned to address this for all remaining Council supplies). There are also reticulated systems without disinfection (Murupara, Ruatahuna and some smaller private schemes). The absence of a protozoa barrier and disinfection does represent a significant health risk. It is therefore recommended that Council should assess and implement as appropriate the options to increase protozoa compliance within the District.

Public Health Risk Management Plans have been prepared and approved by the DWA for all of the Council owned and operated supplies in the district, including:

- Matata (02/2008)
- Murupara (02/2008)
- Ruatoki (08/2007)
- Taneatua (02/2008)
- Te Mahoe (08/2007)
- Waimana (06/2007)
- Edgecumbe (04/2011)
- Ruatoki (04/2011)
- Matata (04/2011)

The Whakatane and Ohope OHRMP are currently under review.

7.4 Unreticulated water supplies

The tables following provide a generic risk assessment for the unreticulated community.

WATER SUPPLY	ROOF TANK
<p>Event: Bacterial and microbiological contamination of supply Probability: Likely Risk without Preventative measures: Medium</p>	
Causes	Preventative Measures - Options
<p>Runoff from roof - accessed by birds/animals; Inadequate treatment; Contamination of storage tank ; Poor maintenance of infrastructure, this includes sediment accumulation and cleaning; Vandalism/sabotage; Overhanging vegetation</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate barriers to faecal contamination • Install first flush diverters on collection pipework • Review the design of pipework and tanks to minimise risk of drawing collected sediment (refer NZWWA Journal Sept 2004 P30 – article by John Ashworth – “Simple Measures to Improve Tank Water Quality”). • Prepare and implement public health risk management plans accompanied by a planned maintenance and monitoring programme • Elevate monitoring of water quality <p>Encouragement can be enhanced through cooperation with HPO/Drinking Water Assessor to jointly disseminate literature and advice about alternatives for water supply treatment improvements and the benefits of maintenance and monitoring programmes</p> <p>Require owner to:</p> <ul style="list-style-type: none"> • complete and implement public health risk management plans for assessment by EHO • elevate monitoring of water quality (refer draft NZDWS 200X) • Implement a comprehensive maintenance programme to ensure roof, and tank is cleaned regularly and is secure from contamination <p>Through bylaw/building WOF/consent process and subsequent inspection service.</p> <p>This latter course would be appropriate where roof water supplies communal facilities such as Marae.</p> <p>Connection to existing community supply</p>
WATER SUPPLY	Roof tank
<p>Event: Insufficient supply</p>	

Probability: Rare Risk without Preventative measures: Low	
Causes	Preventative Measures - Options
Drought Excessive consumption Illegal / un permitted use Inst. high demand (e.g. fire) High /unexpected growth in demand Tanker supply Inadequate storage Water pipe leaking Cost of upgrade	Encourage owner to: <ul style="list-style-type: none"> Upgrade water supply system to provide adequate storage – including the retention of pool water out of season for firefighting purposes Review the need for additional storage Ensure the contract of supply with tankered water supplier ensures the water supplied is potable and delivered/offloaded using hygienic procedures Support owner to determine most viable alternative source Connection to existing community supply Develop alternative supply

WATER SUPPLY	Roof tank supply
Event: Chemical contamination of supply Probability: Unlikely Risk without Preventative measures: low	
Causes	Preventative Measures Options
Runoff from roof from pesticide/herbicide spray drift Inadequate treatment Use of inappropriate roof paints (e.g. lead based) Accumulation of soot/dirt from chimneys Leaching from storage tank (NB replacement of concrete tank with plastic may result in corrosive water)	Encourage owner to: <ul style="list-style-type: none"> Upgrade water supply system to provide adequate barriers to chemical contamination Install first flush diverters on collection pipework Prepare and implement public health risk management plans accompanied by a planned maintenance and monitoring programme that focuses on chemical contamination causes) Elevate monitoring of water quality (refer draft NZDWS 200X) to include potential chemicals Encouragement can be enhanced through cooperation with HPO/Drinking Water Assessor to jointly prepare and disseminate literature that provides advice about alternatives for water supply treatment improvements and the benefits of maintenance and monitoring programmes Require owner to: <ul style="list-style-type: none"> complete and implement public health risk management

<p>Vandalism/terrorism</p> <p>Poor maintenance of infrastructure</p>	<p>plans for assessment by EHO</p> <ul style="list-style-type: none"> • elevate monitoring of water quality (refer draft NZDWS 200X) to include potential chemicals • Implement a comprehensive maintenance programme to ensure roof, and tank is cleaned regularly and is secure from contamination <p>Through bylaw/building WOF/consent process and subsequent inspection service</p> <p>Connection to existing community supply</p>
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WATER SUPPLY	Bores and springs
<p>Event: Bacterial and microbiological contamination of supply</p> <p>Probability: likely</p> <p>Risk without preventative measures: High</p>	<p>In the context of individual and small scale supplies in the District, it is unlikely that source waters accessed by shallow bores and springs will be “secure” groundwaters and therefore faecal contamination is probable.</p>
Causes	Preventative Measures - Options
<p>Infiltration from farmland into infiltration zone</p> <p>Inadequate treatment</p> <p>Infiltration from urban activities into infiltration zone</p> <p>Infiltration from septic tank fields</p> <p>Insecure well head</p> <p>Poor maintenance of infrastructure</p> <p>Poor skills</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate barriers to faecal contamination • Review the design of bore headworks, pipework and tanks to minimise risk of contamination. Simple improvements to drainage and construction of well heads can prevent much contamination and reduce risk. • Prepare and implement public health risk management plans accompanied by a planned maintenance and monitoring programme • Elevate monitoring of water quality (refer draft NZDWS 200X) <p>Encouragement can be enhanced through cooperation with HPO/Drinking Water Assessor to jointly disseminate literature and advice about alternatives for water supply treatment improvements and the benefits of maintenance and monitoring programmes</p> <p>Require owner to:</p> <ul style="list-style-type: none"> • complete and implement public health risk management plans for assessment by EHO • elevate monitoring of water quality (refer draft NZDWS 200X) • Implement a comprehensive maintenance programme to ensure bore is secure from contamination <p>Through bylaw/building WOF/consent process and subsequent inspection service.</p> <p>Connection to existing community supply</p>

WATER SUPPLY	Bores & Springs
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<p>Event: Chemical contamination of supply Probability: Possible Risk without preventative measures: Medium</p>	
Causes	Preventative Measures - Options
<p>Infiltration from farmland into infiltration zone</p> <p>Inadequate treatment</p> <p>Infiltration from urban activities into infiltration zone</p> <p>Insecure well head</p> <p>Poor maintenance of infrastructure</p> <p>Poor skills</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate barriers to chemical contamination • Review the design of bore headworks, pipework and tanks to minimise risk of contamination. Simple improvements to drainage and construction of well heads can prevent much contamination and reduce risk. • Prepare and implement public health risk management plans accompanied by a planned maintenance and monitoring programme <p>Encouragement can be enhanced through cooperation with HPO/Drinking Water Assessor to jointly disseminate literature and advice about alternatives for water supply treatment improvements and the benefits of maintenance and monitoring programmes</p> <p>Connection to existing community supply</p> <p>Develop alternative supply</p>

WATER SUPPLY	Bores & Springs
<p>Event: Insufficient supply Probability: Unlikely/possible Risk without preventative measures: Low/Medium</p>	
Causes	Preventative Measures - Options
<p>Drought</p> <p>Excessive consumption</p> <p>Water pipe leaking</p> <p>Illegal / un permitted use</p> <p>Inst. high demand (e.g. fire)</p> <p>Upstream abstraction by new users</p> <p>Inadequate storage</p> <p>Poor skills</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide additional storage – • Minimise water use <p>Connection to existing community supply</p> <p>Develop alternative supply</p>

WATER SUPPLY	Surface water
Event: Bacterial and microbiological contamination of supply Probability: Almost certain Risk without preventative measures: Very high	<p>Many dwellings in the Urewera valleys source water from bush streams. While the water is generally clear, it is open to faecal contamination from possums, rats etc.</p>
Causes	Preventative Measures - Options
Runoff from farmland upstream of abstraction Contamination from wild animals Inadequate treatment system Runoff from urban development upstream of abstraction Septic tank discharge upstream Stock access to waterway Recreational use upstream of abstraction Accidental discharge Poor maintenance of infrastructure Poor skills	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate barriers to faecal contamination – eg point of use disinfection and filtration • Provide storage for use in times of high turbidity • Prepare and implement public health risk management plans accompanied by a planned maintenance and monitoring programme • Elevate monitoring of water quality (refer draft NZDWS 200X) <p>Encouragement can be enhanced through cooperation with HPO/Drinking Water Assessor to jointly disseminate literature and advice about alternatives for water supply treatment improvements and the benefits of maintenance and monitoring programmes</p> <p>Require owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate barriers to faecal contamination – eg point of use disinfection and filtration • Provide storage for use in times of high turbidity • complete and implement public health risk management plans for assessment by EHO • elevate monitoring of water quality <p>Through bylaw/building WOF/consent process and subsequent inspection service.</p> <p>Other options could be:</p> <p>Connection to existing community supply</p> <p>Develop alternative supply</p>

WATER SUPPLY	Surface water
Event: Chemical contamination of supply Probability: Unlikely Risk without preventative measures: low	
Causes	Preventative Measures - Options
	As for measures to reduce risk of microbiological contamination

<p>Runoff from pesticide / herbicide application Inadequate treatment system Runoff from urban development upstream of abstraction Septic tank discharge upstream Stormwater discharge Accidental spill upstream Vandalism / terrorism Poor maintenance of infrastructure Poor skills</p>	
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WATER SUPPLY	Surface water
<p>Event: Insufficient supply Probability: Rare Risk without preventative measures: Very low</p>	
Causes	Preventative Measures - Options
<p>Drought Excessive consumption Water pipe leaking Illegal / un permitted use Inst. high demand (e.g. fire) High / unexpected growth Upstream abstraction by new users Insufficient storage Poor skills</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate storage • Review the need for additional storage • Ensure a contract of supply with tankered water supplier ensures the water supplied is potable and delivered/offloaded using hygienic procedures • Encourage water minimisation <p>Connection to existing community supply</p> <p>Develop alternative supply</p>

WATER SUPPLY	Surface water
<p>Event: Interrupted Supply Probability: Rare Risk without preventative measures: Very low</p>	
Causes	Preventative Measures – Options
<p>Accidental or malicious damage to infrastructure Flood Power failure (for extended duration) Earthquake Landslide Poor skills</p>	<p>Encourage owner to:</p> <ul style="list-style-type: none"> • Upgrade water supply system to provide adequate storage – including the retention of pool water out of season for fire fighting purposes • Review the need for additional storage <p>Connection to existing community supply</p>

From the above generic assessments the overall risk profile for properties without reticulated water in the District is derived:

Risk Profile		
Community	Communities not on reticulated water supply	
Water Supply		
Generic		
Source	Risk	Score
Roof Tank	Bacterial and microbiological contamination of supply	Medium
	Insufficient supply	Low
	Chemical contamination of supply	Low
	Interrupted supply	Very Low
Bore & Spring	Bacterial and microbiological contamination of supply	High
	Chemical contamination of supply	Medium
	Insufficient supply	Low / Medium
	Interrupted supply	Very Low
Surface Water	Bacterial and microbiological contamination of supply	Very High
	Chemical contamination of supply	Low
	Insufficient supply	Very Low
	Interrupted supply	Very Low

7.5 Reticulated Wastewater

There are no significant or long term public health concerns regarding the six reticulated wastewater systems operated by the Whakatane District Council. The events of concern are generally of a short term, local nature (e.g. through sewer overflows which occur most regularly in Edgecumbe and to a lesser degree in Whakatane and Ohope). Such sewer overflow problems are known to exist and are well recognised in the AMP and work is either planned or already started to address these.

The following indicate that public health risk is managed effectively:

- Consent compliance levels are high. The consents for Ohope expired in 2010. The Council has applied for a new resource consent and investigations are underway to improve the performance of the treatment plant.
- System capacity is mostly adequate for the next ten years. However, there are a few places where pipe improvements are required. Improvements, maintenance and replacement works are planned for most areas to minimise overflows, while extensions are planned for areas of increasing population (Whakatane and Ohope). Network models have been built for Whakatane, Ohope and Edgecumbe networks and used for studies to optimise the performance of the wastewater systems.
- Sewer blockages are attended promptly to prevent overflows.

- Sewage overflows resulting from inflow after heavy rain, will be reduced by works included in the Long Term Council Community Plan and the Asset Management Plan. There are plans to upgrade of pump stations, pipe work and stormwater schemes in Edgecumbe, Whakatane and Ohope. In addition work is already well underway to replace deteriorating concrete wastewater pipes in Whakatane. Odour concerns at treatment works have been addressed by improved process control at Whakatane and in new consent applications for the remaining reticulated areas.
- Corrosion of concrete and asbestos cement pipes has been identified and is cause for concern in some areas. Replacement of corroded pipes is provided for in the AMP.
- Trade waste discharges are managed through the Trade Waste Bylaw.
- Levels of Service and Performance Targets have been established for a wide range of service criteria, however, no data has been collected for monitoring achievements in a number of cases, including 'Reliability', 'Availability', 'Maintenance Quality', 'Responsiveness' and 'Courtesy/Empathy/Assurance'.

7.6 Unreticulated wastewater

This covers all of the communities that have septic tanks and on site disposal of wastewater including a number of Marae. The risks at each of these communities will be similar, the main variables being population served, local ground soakage conditions that reduce the effectiveness of disposal; proximity to water courses and the condition of the septic tank infrastructure and the quality of the management of the systems.

The following table summarises the risk events, their probability and related risk magnitude.

EVENT	PROBABILITY	RISK WITHOUT PREVENTATIVE MEASURES
Faecal contamination of groundwater	Likely	High, especially when water is being abstracted nearby for potable use
Faecal contamination of receiving surface water	Possible	Medium
Chemical contamination of groundwater	Unlikely	Low
Chemical contamination of receiving surface water	Rare	Very Low
Inability to receive wastes	Likely	High
Inability to dispose of effluent	Almost certain	Very High

Options for mitigation of risk associated with on site wastewater disposal include:

1. Upgrade on site disposal system to provide adequate treatment (new tanks, effluent vault filters, renew soakage fields)
2. Review the need for additional storage and disposal fields.
3. Ensure that adequate maintenance is carried out and the septic tank is emptied when required.
4. Provide literature that provides advice about septic tanks and advice on the benefits of maintenance and monitoring programmes (eg "*The Story of Your Septic Tank*").
5. Ensure that septic tank emptying services are available to meet the community need. Note that Council has in partnership with a local liquid waste contractor provided an effluent treatment facility at the Whakatane oxidation ponds.

Where a known public health problem exists and education measures are not effective, require owners to:

1. Upgrade on site disposal system to provide adequate treatment.
2. Ensure that adequate maintenance is carried out and septic tank is emptied when required.
3. Application of the bylaw/building Warrant of Fitness/consent process and subsequent inspection service.
4. Support owner to determine most viable alternative treatment.
5. Council take over the responsibility of emptying the septic tanks and charge for this service through wastewater rates.

Provision of a reticulated scheme (currently being considered for Matata and Te Teko)

7.7 Reticulated stormwater

Flooding in Whakatane, Ohope and Edgecumbe in high rainfall events is a problem. Known capacity issues are being addressed through works already programmed. New work has started to identify overland flow paths in the Whakatane urban area. An updated capital work programme will be included in the next LTP to address the issues.

7.8 Unreticulated stormwater

The table in Appendix C provides an assessment of risk posed by absence of a reticulated stormwater system. The following table summarises the risk profile:

EVENT	PROBABILITY	RISK WITHOUT PREVENTATIVE MEASURES
Flooding	Possible	Medium
Chemical contamination of SW system	Possible	Medium
Faecal contamination of SW system	Unlikely	Low
Damp houses	Possible	Medium

7.8.1 Options for mitigating the risk

Encourage owner to:

1. Ensure that adequate maintenance of roof spoutings, downpipes and section drainage is carried out.
2. Encouragement can be enhanced through dissemination of literature that provides advice and the benefits of maintenance programmes.
3. Support owner to determine most viable alternative system.

7.9 Public Toilets

No issues with capacity of existing public toilets are identified. Potability of water supplies at rural toilets (not on council water reticulation) should be reviewed.

Concern was raised in several public submissions about possible effluent surfacing above the soakage field of the Arawa St toilet block in Matata. However, following investigation carried out by BoPRC, it was found that the problem was associated with private septic tank systems on properties above the reserve. This issue is linked to the construction of a reticulated sewage system in Matata, which would replace the need for such soakage fields.

Some risks for the community arise from improper use of public toilets and vandalism. Council has maintenance contracts and renewals programmes in place to minimise the

adverse effects of these activities, however the risks cannot be completely avoided. The Council applies CPTED principles to all new toilet design proposals.

7.10 Cemeteries and Crematoria

There are no known health issues at present associated with cemeteries or the newly constructed Hillcrest crematoria

7.11 Disposal Points

Existing disposal points in the District are sufficient and meet the current needs of the community and those who pass through it.

8 Recommendations Arising From the Assessment

8.1 General

An assessment under the LGA (2002) does not need to include consideration of options, the suitability of options, the Territorial Authority's role in meeting future demand, proposals and public health statements if:

- (i) *The existing service will meet demand*
- (ii) *Public health will continue to be protected*

There is no known health or environmental problems associated with the community.

Discussion below is therefore focussed on those communities where these do not apply.

8.2 Reticulated water supplies

8.2.1 Protozoa Barrier

In regards to the reticulated schemes the absence of a barrier to protozoa (giardia and cryptosporidium) is a significant public health risk. This applies for those schemes drawing water from bores/springs not currently proven to be 'secure' groundwaters. These supplies include Murupara, Te Mahoe, Plains (Braemar source) and Ruatoki (however funding has been approved to upgrade this to a more secure source).

The recommended approach for these schemes is to firstly prove the status of the groundwater as 'secure'. Secure groundwater is a source that can be demonstrated to have been in the ground sufficiently long (greater than 12 months) to be clear of any protozoa and to be unaffected by surface or shallow groundwater inflow. Existing records may prove this, or specific testing (chemical, microbiological and age) may be required. Testing to prove secure status would cost approximately \$3,000 per source. If groundwater can be shown to be secure then no further action may be necessary.

However, apart from Murupara and Te Mahoe the water sources in question are unlikely to be found 'secure'. Specific investigation will be required in each case to assess options for meeting protozoa barrier requirements in the NZDWS. Assuming that UV disinfection provides sufficient treatment, then the cost per water supply would range from \$30,000 - \$50,000 depending upon the size of the supply and existing facilities (building, power supply). Funding has been sought from central government for all of the smaller supplies that do not have a protozoa barrier.

It is recommended that these planned protozoa barriers be installed as quickly as possible and connect the Paul Road bore to the existing reticulation to supply water to Edgecumbe to minimise public health risk.

8.2.2 Public Health Risk Management Plans (PHRMPs)

PHRMPs have now been prepared for all of the supplies that the Whakatane District Council operates. This will be addressed once decisions on NZDWS compliance for the

scheme have been made, and as this supply is about to go through major changes, it may not be prudent to prepare one immediately.

It is now important to act on the improvement plans included in these reports to work toward the council's stated aim of achieving an 'Aa' grade for each supply.

8.2.3 Water Quantity issues

Matata has summer water quantity issues. It is recommended that demand management (including metering) be assessed as an option for addressing this issue. In addition to this additional reservoir storage will be provided in 2012/13.

As the existing water sources and infrastructure are not otherwise challenged by predicted future demand, WDC considers the use of options such as extended on-site collection and disposal, greywater re-use, stormwater re-use or recycling, demand reduction and alternative technologies not to be appropriate. However, these options can be considered in the future if required.

8.2.4 Operational and Maintenance issues

A number of measures to address specific operational and maintenance issues are identified in the AMP. These are summarised below:

8.2.4.1. Whakatane Scheme

Assess condition of all pre 1970 reticulation pipework. Continue investigations to find an alternative water source to use in emergency situations where Whakatane River water is unsuitable for treatment and implement the preferred option.

8.2.4.2. Taneatua

Investigate the renewal of the existing galvanised steel service lines and aging pipelines due to poor condition.

8.2.4.3. Edgecumbe

Investigate the renewal of the existing galvanised steel service lines and aging pipelines due to poor condition.

8.2.4.4. Ruatoki

Implement the upgrade works included in the application to MoH to secure subsidy funds.

8.2.4.5. Murupara

Investigate and assess all existing below ground infrastructure. The existing below ground assets are in poor condition and are prone to frequent failure.

8.2.4.6. Plains Scheme

Finalise the Plains 50 year water strategy and implement the recommendations of the current study. Connect the Paul Road bore to the existing reticulation to serve some parts of Plains water supply.

8.2.4.7. General

Two other generic maintenance and operation issues identified across all the supplies are programmed mains flushing and repair procedures for water mains work including disinfecting and reinstating supply. The asset management plan and work instructions require amendment in regards to these issues.

8.3 Unreticulated water supply

High risks are identified with unreticulated water supplies where the water source is shallow bores and springs or surface water.

We identify that there is a lack of information on the sanitary status of small supplies in the District. It is noted also noted that if there is insufficient quantity then this may lead to poor sanitary conditions (impacting on the operation of toilets in particular). This is an information gap which should be addressed for the benefit of future assessments.

Most of the communities connection to a reticulated supply is not a feasible or economic option, with dwellings scattered over wide areas. An exception would be Ruatoki where there are a number of properties on the route of the existing reticulation which can be connected to the reticulation. Connection is recommended as the best option for these properties. This will be address with the MoH funding recently approved.

Options to improve the sanitary status of shallow bore and spring supplies include:

1. Promotion of point of use or point of entry filters and treatment devices
2. Education about improving well heads to exclude (as much as possible) surface water and animals
3. Householders providing storage for water from surface water for use when streams are turbid.

The council's role in these supplies is principally one of education and support. Council input could be at a range of levels, from providing brochures at service centres, mailing information packs to target properties or taking a more active role through facilitating workshops to up skill local community representatives. Advice and educational roles would best be carried out in cooperation with other interested parties including the Iwi authorities, Housing NZ Corporation, Regional Council and Toi Te Ora – Public Health Service.

8.4 Reticulated wastewater

8.4.1 Includes Whakatane, Ohope, Taneatua, Te Mahoe, Edgecumbe and Murupara schemes

Council has carried out comprehensive planning for meeting future demand, as described above. For the purposes of this assessment, the various proposals for the future are taken as given and are not repeated here.

Based on the information available, the following issues require further attention:

1. Review Levels of Service, performance targets and alternative methods of disposal as a result of the LTCCP and discharge consent renewal processes. This may result in amending the design assumptions and criteria
2. Obtain necessary data to ensure that performance levels are monitored
3. Develop and implement plans for communicating with residents when emergencies occur, such as sewer overflows
4. Monitor for any ongoing odour problems

8.4.2 Unreticulated wastewater

Occasional failures of on site systems are an inevitable consequence of relying on onsite systems for wastewater disposal. Provided failures are rectified by the homeowner in a timely manner then health consequences are relatively minor. Where significant health risks arise is where soakage conditions are such that failures are widespread, routine maintenance of tanks (desludging) is not done or repairs to drainage fields are not made. Problems compound in more densely settled areas. Of particular concern at present is Matata where groundwater levels over the past couple of years have been high enough to affect the efficiency of soakage fields. As mentioned previous this, combined with the likely degradation of surface water in the township, are key drivers in the proposal for a reticulated wastewater system for the community.

As with individual water supplies, there is a lack of specific information on the condition and failure rates of on site systems. There is also a lack of site specific data on contamination of groundwater and surface water resulting from on site wastewater disposal. Without firm evidence of health and environmental problems it is difficult to gain acceptance from communities that existing methods are no longer adequate. These are information gaps which should be addressed for future assessments.

Council could act in various roles, as described in the assessments chapter. These range from the education through enforcement to new infrastructure as follows:

1. Encouragement and advice on how to “do the right thing” through education, such as distributing copies of the NZWWA brochure “The story of your septic tank system” (sample copy attached as an appendix to this report)

2. Regulation to require certain actions, such as providing evidence of maintenance
3. Direct provision of service, such as regular cleaning of septic tanks
4. Direct funding for improvements or alternative forms of treatment
5. Provision of a reticulated scheme. (This is being considered for Matata and Te Teko)
6. Comments as for water supplies unreticulated above apply.

Council should liaise with BoPRC to ensure that the receiving waters are monitored for adverse effects from individual systems. Council could also check that drinking water bores are located at least thirty metres from wastewater soakage areas and advise on relocation, where appropriate.

Ensure compliance with the 'On-Site Effluent treatment Regional Plan 2006'. The purpose of the plan is to reduce the impact of domestic sewage discharged from on-site effluent treatment systems. The aim of this plan is to reduce the levels of nutrients and pathogens in surface water bodies, groundwater as well as land environments. Such effects will be avoided, remedied or mitigated by requiring best practice design, installation and management of on-site systems.

8.5 Reticulated stormwater

The following specific actions are identified from review of the reticulated schemes:

8.5.1 Whakatane

- Complete investigations on the Wainui Te Whara stream (and others) to assess options to prevent flooding in the urban area from water generated from upper catchment. This is one point of focus for a larger project that's underway to assess and reduce urban flooding as a results of upper catchment stormwater.
- Complete network modelling on the few remaining parts of the town to define system capacities and improvement priorities.
- Complete assessments on overland flow paths using LiDAR and 2D modelling

8.5.2 Ohope

- Address issues of stream overtopping as part of the larger upper catchment study and works programme.
- Address localised flooding issues through pipe upgrades (identified in modelling) or through use of overland flow paths

8.5.3 Edgecumbe

Continue to work with Environment BOP to increase level of flood protection.

8.5.4 Matata

The issue of scouring of the drains should be addressed.

8.5.5 Taneatua

Address capacity issues at eastern end. Ensure that contract maintenance of the railway open channel is completed to the required standard

8.6 Unreticulated stormwater

Health or environmental issues in the communities with unreticulated stormwater are not believed to be widespread. Poor drainage around dwellings leading to damp houses and septic tank field failures in some rural areas - this issue should be addressed through a community education programme, run logically in conjunction with a campaign on septic tank maintenance and water supply.

8.7 Public Toilets

The current spread of public toilets appears generally adequate. There may be some locations where an additional facility is required. Potability of water supplies at rural toilets (not on council water reticulation) should be reviewed.

8.8 Cemeteries and Crematoria

The issue of a local crematorium is now resolved, with a new facility opened recently at Hillcrest cemetery. There are no known health issues with cemeteries at present.

8.9 Disposal Points

There is no known health issues associated with the disposal points in the district and the existing facilities appear adequate.

8.10 Solid Waste Services

Whakatane has a comprehensive waste management plan in place as required by the LGA (2002) and therefore no further assessment is required.

9 Consultation

9.1 Preparation of draft Assessment

No consultation was carried out with the community directly in the course of preparing the initial draft assessment. The writers did however consult extensively with WDC staff and the operators of private schemes and BoPDHB.

9.2 Public Submissions

The original draft Assessment was open for public submissions over April-May 2005. In all 33 written submissions were received and 8 submitters spoke to their submissions and the final Assessment as issued incorporated this feedback.

Information from consultation during the original draft of this document included:

- Identification of local problems in water, wastewater and stormwater systems, such as odour at sewer pumpstations in Ohope.
- Support and criticism of solutions proposed in the report, such as the introduction of a reticulated sewerage system in Matata.
- Identification of the possible adverse environmental effects of the systems covered in this report, such as effluent surfacing from a public toilet's soakage field in Matata.
- Identification of water schemes that were omitted from the report, such as the Pikowai Camp supply (now included).

9.3 2011 Update

The 2011 update is an update of text to reflect changes since the initial 2005 and then draft 2009 assessment. Consultation on levels of service and projects of significance was undertaken through the 2009-19 LTCCP. However, before this report is finalised, Council must adopt an amended Assessment of Water and Sanitary Services using the special consultative procedure (as described above in Section 1.4). The table below shows the proposed plan and outlines how the requirements of section 83 of the LGA will be met.

Action	Date
Projects and Service Committee recommend to Council to adopt draft AWSS	21 September
Council adopt draft AWSS	5 October
Public Notice opening consultation period	14 October
Targeted consultation with key stakeholders, including letters to affected parties, summary in newspaper, draft AWSS on website and available from Council offices.	14 October – 14 November
Consultation closes	14 November
Council hear and consider submissions	14 December
Council adopt final AWSS	14 December

10 Water Assessment – Improvement Plan

This updated assessment under the LGA (2002) has drawn upon a large pool of information. Nonetheless there are a number of areas where specific information is difficult to obtain.

Specific information gaps identified include:

- Data on the performance of unreticulated sewer systems throughout the district, and the environmental impacts of the failures that do occur (refer to BoPRC 'On-Site Effluent Treatment Regional Plan 2006')
- Data on the quality and quantity of the water supplies of unreticulated properties throughout the district, including all source types. This needs to be done to properly assess the variation in quality and risk associated with those supplies
- It is recommended that a programme of investigation be put in place to fill these gaps before the next assessment. BoPRC, Toi Te Ora – Public Health Service and local Iwi would all have a role to play in this process.