



WATER PROFILE STATEMENT

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1 Introduction

The provision of water supply infrastructure is a vital consideration for the development of the Waipa District. To assist the Waipa District Council (WDC) in preparing a District Growth Strategy, this Water Supply Infrastructure Profile Statement provides a brief profile of the water supply infrastructure within the Waipa District.

1.1 Purpose and Scope

The purpose of this profile statement is to:

- n Collate available information on water infrastructure provision and plans for current augmentation of infrastructure.
- n Identify information/data gaps.
- n Profile the level of infrastructure to give a snapshot of the current situation and current issues arising.
- n Discuss issues and associated opportunities in relation to how the infrastructure is positioned to service future growth in the District.

1.2 Definitions and Abbreviations

Raw water – untreated water extracted from the environment.

Reservoir – a structure that stores water.

AMP – WDC Water Supply Asset Management Plan 2006.

WDC – Waipa District Council.

EW – Environment Waikato.

LTCCP – Long Term Council Community Plan.

MoH – Ministry of Health.

HDWAA – Health Drinking Water Amendment Act 2007.

DWSNZ2005 (REVISED 2008) – Drinking Water Standards for New Zealand 2008.

RMA – Resource Management Act 1991.

LGA – Local Government Act 2004.

UV – Ultra Violet radiation water treatment process for the inactivation of protozoa in accordance with DWSNZ2005 (REVISED 2008).

WTP – Water treatment plant.

WWTP – Waste water treatment plant.

1.3 Limitations

This initial assessment has been based on information available in referenced reports and documents as well as brief discussions with a number of WDC staff members. Some of the referenced reports were prepared a number of years ago and information contained within them may be outdated.

2 Current Profile

A summary of the current water supply infrastructure, proposed improvements, and documented community aspirations within the Waipa District is included in Appendix A.

2.1 Current Water Supply Infrastructure

The Waipa District covers an area of approximately 1473 square kilometers. The two main urban centres are Cambridge and Te Awamutu, with smaller towns of Karapiro, Pirongia, Kihikihi and Ohaupo.

WDC own raw water intakes, treatment plants and reticulation networks in the urban settlements of Cambridge, Karapiro, Te Awamutu, Pirongia, Kihikihi and Ohaupo, as well as the rural agricultural areas of Pukerimu and Te Rore. All of these water supplies with the exception of Te Rore are operated by WDC. The Te Rore water supply is operated by the Te Rore Water Supply Group Inc.

In addition, bulk water is supplied from the Te Awamutu water supply reticulation to the privately owned and operated Tokanui water supply. Agreements exist with Hamilton Airport and the Fonterra Dairy Factories that also have private supplies which are augmented with water from WDC supplies. Water supply to the two largest consumers, the Fonterra dairy factories at Hautapu and Te Awamutu, has been capped by agreement, as is the volume supplied to the Tokanui water supply.

2.1.1 Cambridge / Karapiro Water Supply

The Cambridge / Karapiro water supply has three raw water sources and treatment plants:

1. Water is drawn from Lake Karapiro and treated at the Karapiro Water Treatment Plant. The treatment processes are coagulation, clarification, rapid gravity sand filters, powdered activated carbon dosing and chlorine gas disinfection. The sludge blanket clarifiers limit the capacity of the treatment plant to 132L/sec (11,400m³/day), which just meets current peak summer demands. It is planned to upgrade the capacity of the clarifiers in 2011 and the gravity sand filters in 2015. Existing treatment processes may not meet the protozoa removal / inactivation requirements of DWSNZ2005 (REVISED 2008) and WDC are planning to add a UV treatment process to ensure compliance requirements can be met. Water from the Karapiro WTP is pumped to the Karapiro reservoirs.
2. Water is taken from two springs at Maungatautari to a balance tank from where it gravitates to the Karapiro reservoirs. The water from the springs is partially treated with chlorine gas disinfection. The springs are not considered "secure" from contamination in accordance with DWSNZ2005 (REVISED 2008) and WDC plan to add a UV treatment process to ensure compliance requirements can be met. Because water from the springs is fed directly to the Karapiro reservoirs where it blends with the water from the Karapiro WTP, the entire Cambridge / Karapiro water supply does not comply with DWSNZ2005 (REVISED 2008) until all treated water streams are compliant. A number of customers are serviced directly off raw water mains from the springs. Provision of untreated water to customers may, even if notified to customers as being unfit for drinking, be in violation of the current drinking water regulations. It is planned to treat the supply from the Hicks Road springs in the near future.
3. Water is drawn directly from the Waikato River downstream of Lake Karapiro. It is treated at the Alpha WTP from where it is pumped directly into the Cambridge reticulation network. Treatment consists of coagulation, clarifiers, pressure filters, and chlorine disinfection.

Treated water is gravitated from the Karapiro reservoirs to the reticulation network. A new reservoir has recently been constructed at Cambridge North to supply the Cambridge North growth area. This reservoir is filled from the existing reticulation network, and water is pumped from the reservoir to boost the pressure in the local reticulation. The reservoir cannot be filled while the booster pumps are operating, and further work is required to optimize the operation of this reservoir.

Further storage reservoirs are planned for Cambridge North, and Karapiro in 2012 and 2011.

There needs to be a hydraulic model of the Cambridge reticulation network. WDC plan to build hydraulic models by 2012.

2.1.2 Te Awamutu / Pirongia

Water for the Te Awamutu water supply is sourced from the Mangauika Stream and treated at the Te Tahī WTP. The water source is currently over allocated and the resource consent needs to be renewed in 2011. It is likely that WDC will have difficulty renewing the resource consent to abstract water from the Mangauika Stream without additional strict conditions and limitations being imposed. During peak dry summer flows the current consented amount of 19,000m³/d cannot be achieved and will likely be restricted in 2011.

WDC have investigated alternate sources from the Punia and Waipa Rivers, as well as groundwater options for water supply. Two production bores are currently being drilled at the Te Tahī WTP to supplement the supply of raw water. Reports indicate that the new production bores could yield approximately 30l/s, plus potential for another 30l/s if a further well was developed. CH2M Beca are currently investigating the treatability of this bore water. It is expected this water will be able to be treated utilising the existing WTP with minimal modifications. The LTCCP includes budget for WTP upgrade in 2010.

The Te Tahī WTP uses a direct filtration treatment process with ACH coagulation upstream of the filters and chlorine disinfection and UV downstream.

Water is transported from the Te Tahī WTP to the Pirongia and Te Awamutu reticulation networks through long trunk mains that are nearing the end of their service lives and are in need of renewal. WDC have included some projects in their LTCCP to renew these water mains.

Water storage in the Te Awamutu water supply is limited. WDC have investigated site options for additional reservoirs, but no decision on the preferred site(s) has been made yet. The construction of the new reservoir has been scheduled for 2010.

A new reservoir is planned for Pirongia in 2012.

A hydraulic model of the Te Awamutu reticulation network has been completed. The model was built using EPANet computer software. Current modeling results are unreliable, and considered not useful by WDC. Some modeling work is ongoing. WDC plan to build more useful hydraulic models by 2012.

2.1.3 Kihikihi

Kihikihi sources its water from two groundwater bores and treats it at the Rolleston WTP. Water treatment consists of chlorine gas disinfection and pH correction. The security of the bores from contamination still needs to be proven in accordance with DWSNZ2005 (REVISED 2008). If the security of the bores cannot be proven, a treatment process to inactivate protozoa (e.g. UV) needs to be installed at the WTP.

Water is stored in the Rolleston Street reservoir. There are no current plans to increase storage but it is required in the future.

2.1.4 Pukerimu / Ohaupo

Water is sourced from the Waikato River just downstream of the Cambridge WWTP, and treated at the Parallel Road WTP. A number of customers are supplied directly from the raw water pipeline. Provision of untreated water to customers may, even if notified to customers as being unfit for drinking, may be in violation of the current drinking water regulations. Treatment processes include alum coagulation, rapid gravity sand filters, pH correction, powdered activated carbon dosing and chlorine gas disinfection. WDC plan to add a UV treatment process to ensure DWSNZ2005 (REVISED 2008) compliance requirements can be met. Provision is made for this in the LTCCP.

Treated water is stored in reservoirs at the Parallel Road WTP, Cox Road and Ohaupo. Ohaupo residents have a fully reticulated "on demand" pressure supply from WDC, and improvements to the reticulation have been designed to manage the pressure and service growth areas in Ohaupo. Rural customers on the water supply have a "trickle feed" restricted supply and are advised to provide their own 24 hour on site storage and pressure booster pumps.

The scheme was originally constructed as a private supply and may not have been fully constructed to WDC standards. Based on recent inspections and failures widespread failure of the entire network is anticipated within the timeframe of this study. Options for water main renewal are being investigated.

2.1.5 Te Rore

Water for the Te Rore water supply is taken from the Mangamauka Stream. Existing filtration, chlorine disinfection and UV treatment facilities provide inadequate treatment and are unreliable. It is understood there are no plans for improvements before the expiry of the consent to abstract water from the stream in 2011. The supply main crosses the Waipa River over a pipe bridge that is in need of major repair or renewal.

2.1.6 Fire fighting supply

The "on demand" urban areas of Cambridge, Te Awamutu, Ohaupo, Karapiro and Pirongia have firefighting capability i.e. fire hydrants are installed on the principal water mains. WDC maintain and test fire hydrants throughout the district in accordance with firefighting requirements.

Modeling done by Tonkin and Taylor in 2003 suggests that there is a reasonable degree of fire flow compliance in the Cambridge reticulation.

Restricted supplies generally do not have the capacity to support fire fighting.

3 Trends and Growth

3.1 Water Industry Trends

Over the last 10 years the Ministry of Health (MoH) has signaled a need for national improvements to drinking water quality, and a reduction in public health risks associated with drinking water supplies. Regulation of the drinking water supply industry has now moved from voluntary compliance with a set of drinking water standards to a legislative requirement for Drinking Water Suppliers to monitor drinking water, take all practicable steps to comply with the drinking-water standards, and implement risk management plans.

Demand for water from many sectors has significantly reduced available allocable water from the environment, particularly in the Waipa District which is heavily dependant on the Waikato River as a raw water source for its drinking water supplies. Raw water sources to service the demand of future growth are likely to become more difficult to secure and will require applicants to demonstrate efficient use of the water abstracted.

3.2 Water Supply Trends and Growth

3.2.1 Cambridge / Karapiro

Growth in Cambridge, particularly Cambridge North has surpassed Statistics New Zealand High Growth scenario projections. This has placed a strain on the timing of the water infrastructure upgrades required to service the increased demand. The WDC LTCCP has scheduled WTP, some trunk main and reticulation renewals and upgrades to cater for the current planned growth.

The water supply to the Hautapu Fonterra Dairy factory has been “capped”. Nevertheless there is regular pressure on WDC operations team from the factory management to supply more water – especially during the peak summer demand season.

3.2.2 Te Awamutu / Pirongia

The growth anticipated under the medium growth, Te Awamutu – capped supply scenario of the current WDC Urban Growth Strategy has been catered for in the water supply augmentation projects included in the WDC LTCCP. The resource consent for abstracting water from the Mangauika Stream must be renewed in 2011, and an additional raw water source is also required. Growth in this water supply area could be limited if additional water cannot be secured in a timely manner. Bores are currently being constructed at the Te Tahī WTP to augment the raw water supply. Budgets to investigate new supplies are included in the LTCCP, but budgets for the development of these supplies have not been finalized. The water supply to the Te Awamutu Fonterra Dairy factory has been “capped”.

3.2.3 Kihikihi

Population growth in Kihikihi is expected to continue at a similar rate to other parts of the District, while the existing minor commercial / industrial demand is not expected to change significantly. The existing source and WTP have adequate capacity to sustain the projected growth.

3.2.4 Pukerimu

Demand is expected to increase within the boundaries of the Pukerimu water supply area. In particular, the Hamilton Airport industrial development, and the growing popularity and size of events at the Mystery Creek events centre will place a demand on the Pukerimu supply. Minor WTP upgrades have been included in the LTCCP. Water allocations from the scheme are currently being investigated.

4 Management Considerations

The Health Act 1956 places an obligation on Council to improve, promote and protect public health within the District. Provision of cost effective water services is implicit within this obligation. The Public Health Bill that is currently before the Health Select Committee will have a number of direct and indirect impacts on water suppliers. The Bill includes new provisions relating to Health Impact Assessments.

Authority for WDC to construct, operate and maintain water supply systems is provided by the Local Government Act 1974. Section 130 of the Local Government Act 2002 places an obligation on WDC to continue to provide water services (subject to clause 131).

The Health (Drinking Water) Amendment Act 2007 aims to protect the health and safety of people and communities by promoting adequate supplies of safe and wholesome drinking water from all drinking-water supplies. The Act imposes a range of duties on the Waipa District Council as a Drinking-Water Supplier, including duties to:

- n monitor drinking water (in compliance with the drinking water standards);
- n take all practicable steps to comply with the drinking-water standards;
- n take reasonable steps to ensure that drinking water supplied is wholesome;
- n implement public health risk management plans; and,
- n contribute to the protection of each raw water source used.

The Drinking Water Standards for New Zealand 2008 define the minimum levels of treatment and monitoring that Drinking-Water Suppliers must take all reasonably practical steps to comply with. Detailed assessments of each supply for compliance with the Health (Drinking Water) Amendment Act and the DWSNZ2005 (REVISED 2008) have not been undertaken in the preparation of this profile statement, but needs to be considered in the obligations of WDC going forward, including the timing and appropriateness of water quality improvement projects for future growth scenarios.

MoH recently released an update to DWSNZ2005 entitled DWSNZ2005 (REVISED 2008). The update largely corrects inadequacies of DWSNZ2005 as it now has greater legal standing under the HDWAA, plus reducing ambiguity and error. The document rewording clarifies that treatment plants achieving protozoan requirements via UV disinfection at a dose equivalent to 40 mJ/cm² or more do not need to undertake any further *E. coli* monitoring at the treatment plant. This could result in reasonably significant operational savings for WDC as a number of WTP's will be upgraded with a UV process. A new section has been added relating to compliance criteria and monitoring for secure bore water, which may apply to the Te Tahī and Kihikihi water supplies in the future. During the Select Committee Hearings process for the HDWAA, a new category of supply called "Rural-Agricultural Supplies" was added. The Te Rore and Pukerimu water supplies are likely to fall into this category. However, DWSNZ2005 (REVISED 2008) has not yet included any details of requirements for this category of supply. HDWAA also requires Councils to complete a Public Health Risk Management Plan (PHRMP) for all water supplies providing for populations greater than 500 people. All PHRMPs must be completed by 2013, but PHRMPs for a supply to a population greater than 10,000 people must be completed by 1 July 2009. The aim of a PHRMP is to identify, manage and minimise events that could cause a deterioration of water quality.

The Hazardous Substances and New Organisms Act 1996 has introduced new storage and handling requirements for some chemicals that may be used in water treatment processes. If not already done, it is recommended that the storage and handling of chemicals at WDC WTP's are reviewed for compliance with this Act, particularly before any capital upgrades to the WTP's are finalised.

The Resource Management Act 1991 governs all water takes. Water abstracted from the environment must comply with the conditions of the resource consent that permits the abstraction, and the conditions of the resource consent are guided by rules and guidelines in the Waikato Regional Plan which support environmental policies and objectives in the Waikato Regional Policy Statement.

Water allocation in the District will be managed by the Proposed Waikato Regional Plan Proposed Variation No. 6 – Water Allocation. Water abstraction from the Waikato River is currently at or near to the allocable limit.

Waikato Regional Policy Statement Policy number 3.4.7 has an objective to encourage efficient use of water that is available to be taken from water bodies. Water demand per capita within the Waipa District is high relative to other districts in New Zealand. A peak figure of approximately 700 litres/person/day (including losses and fire fighting, but excluding industrial use) and an average figure of approximately 400 litres/person/day relative to the New Zealand average of 250-300 litres/person/day has been reported in the AMP. It is not known if this consumptive figure includes irrigation and stock demand.

Approximate water losses have been reported as 25%. This figure is also high relative to the national average which has been reported as being 16% in the Ministry for Economic Development – Infrastructure Stock Take Report for Water Supply Systems (January 2004). WDC do not have a water loss management strategy, and nominal water loss reduction targets reported in the AMP have been offset against predicted higher water demand caused by an increase in use of domestic water appliances (e.g. dishwashers). Environment Waikato will require a clear demonstration of efficient water use from WDC in future applications for resource consents or renewal of resource consents for the abstraction of water from the environment, as described in section 3.4.3, Policy 2 of the Proposed Waikato Regional Plan Proposed Variation No. 6 – Water Allocation. WDC plans to develop a water demand management strategy.

The following key community outcomes that relate to water supply services have been identified in the Waipa Community Outcomes Review 2007:

Economically secure Waipa –

Planning ensures infrastructure matches development requirements and meets the needs of a growing population

Environmentally sustainable Waipa –

Water quality in our rivers and lakes is maintained and improved and water is used efficiently

5 Strategic Opportunities and Constraints

5.1 Level of Service

In 2002 Council undertook a District wide consultation exercise to identify community outcomes for Waipa District. These outcomes are vision statements of where the community wishes to be in the future: socially, culturally, environmentally and economically. In 2007 key stakeholder organizations reviewed the community outcomes. The purpose of the review was to build on the work done in 2002, and introduce more “Waipa specific” statements.

While Council has a good understanding of the community needs through consultation processes, it has not formally explored service level options with its community and the community’s willingness to pay for improved levels of service (or vice versa). Council staff have reported a general shift in community expectation for higher levels of service. This shift will be more noticeable in fringe areas around urban settlements and the Pukerimu and Te Rore water supplies that all have low levels of service.

WDC aim to provide the following levels of service:

- n Minimum Bb grading for all supplies
- n 100% compliance with resource consents
- n 100% compliance with NZS4507:2003 for fire fighting water flow and pressure
- n > 88% customer satisfaction with water supply – increasing to 90% by 2009
- n < 3 hours interruption of supply per annum for on demand service

Communities’ desires for improved water services could possibly be realised cost effectively with strategically positioned growth cells.

5.2 Sustainability

High per capita water demand and high water losses are significant issues that need to be addressed in a Water Conservation Strategy.

Growth is tending to occur at the extremities of the reticulation networks, and the networks have not necessarily been designed to accommodate the growth. If unchecked this could result in energy use increasing at a higher rate than population growth, as water needs to be pumped to force water to the network extremities through undersized pipes. Growth of this nature is unsustainable, and the full impact of growth options on the water supply networks needs to be reviewed in a sustainable manner.

5.3 Constraints and Issues

Ministry of Health water supply grading documentation suggests a target grade of “a” for reticulation networks that service populations > 10,000 people. The Cambridge and Te Awamutu water supplies both fall into this category. At present WDC has a minimum target level of service of ‘b’ for all supplies. For some supplies it may be more cost effective and equally acceptable to adopt “supply specific” rather than “district wide” water supply grades.

Ministry of Health guidelines suggest that a suitable level of service for storage volume is 24 hours average annual daily demand. At present, most water supplies do not have this volume of storage. This deficiency has already been identified and the LTCCP has identified projects to improve storage provision.

The large distances between water supplies restrict the ability to economically interconnect the supplies to provide network and water supply redundancy in emergencies. The possibility to interconnect supplies should be considered in long term strategy for water supply.

5.4 Opportunities

The Pukerimu supply is located between the two main centres of Cambridge and Te Awamutu. Notwithstanding the network will not achieve its anticipated design life, it could be a potential opportunity to renew the network with larger pipes that meet the requirements of growth and network interconnectivity without the need to further write off infrastructure to achieve these objectives.

There is currently a one way connection between Te Awamutu and Kihikihi. Opportunity exists to upgrade this to a fully interconnected network.

6 Base Case Conclusions

6.1 General

Water loss and water demand are high (above the national average) and WDC have no Water Conservation Strategy. This will weaken Councils case in applications for resource consent to abstract more water from the environment, and does not support the desired community outcomes documented in the LTCCP. WDC plans to develop a water demand management strategy.

Water storage volumes are inadequate in most water supplies. Timing of construction of additional storage should be reviewed as an integral part of the growth study because growth without a corresponding increase in water storage will compound a risk that has already been identified as "Extreme" in the AMP.

Water quality does not comply with DWSNZ2005 (REVISED 2008) in many water supplies. WDC have identified projects in the LTCCP to address this, and to achieve limited compliance in the next 10 years. Timing of these upgrades should be reviewed as an integral part of the growth study to confirm Council's compliance with obligations under the Health (Drinking Water) Amendment Act.

There needs to be better definition of town boundaries to ensure that the correct level of fire service is provided.

6.2 Cambridge / Karapiro

Source water is available to service new growth areas but this will require upgrading of the WTP.

Limited plans are in place to renew and augment WTP's, storage reservoirs and reticulation to service currently identified growth areas and improve the level of service (quality).

Maungakawa would like to be connected to the Cambridge North reticulation. A Council resolution has been passed for Maungakawa to be connected.

6.3 Te Awamutu / Pirongia

Source water availability is a major issue that has the potential to restrict growth within the water supply area until it is satisfactorily resolved. Bores are being developed at the Te Tahi WTP as an interim solution while alternate water sources are investigated.

Very high water losses have been reported in the privately owned Tokanui water supply that has a bulk feed from the Te Awamutu water supply. The supply to Tokanui has been capped.

A plan to connect the Te Rore water supply to the Te Awamutu water supply in 2011 needs to be agreed by Council.

The trunk mains to town are old and in need of renewal. Storage volume within the network is less than a days supply. As a result, the risk of a water supply failure is reported in the AMP as "Extreme". Projects have been identified in the LTCCP to correct this.

6.4 Pukerimu

Available capacity within this scheme is being investigated against current water allocations. Widespread failure of the network is anticipated within the lifetime of this study. The poor condition of reticulation is limiting growth.

6.5 Kihikihi

Aesthetic issues within the water supply will continue to be addressed with reactive operational and maintenance intervention (mains flushing) for the foreseeable future unless the community signal a desire to pay for a higher level of service.

7 Recommendations for further work

The following specific further work tasks have been recommended as they relate to the general ability of the WDC water supplies to service future growth:

- n Develop a Water Conservation Strategy. The strategy would be used to ensure the efficient distribution of water by WDC and to describe strategies that WDC would use to influence the behaviour of customers. Important aspects of the strategy would be to set water demand reduction targets, prioritise demand side management measures to reduce water wastage and inefficient use, and document how a water conservation ethic and culture will be developed within WDC and the community. The first step of this strategy is to gain a better understanding of water uses and resultant total water demand in the District.
Once the water demand is understood, a key component of water demand that WDC can proactively manage is water loss minimisation. At present water losses are high. An understanding of current water demand will also enable better forecasting of future water demand to be made. Augmentation projects could then be scoped, with a reasonable degree of confidence in the required timing and the impact of realistic demand reduction targets could be assessed.
- n If not already done, WDC obligations in relation to the Health (Drinking Water) Amendment Act should be reviewed in reference to the AMP and LTCCP levels of service, projects and costs so that a clear unambiguous strategy for complying with obligations under the Act is documented. This review should also consider the impact of the DWSNZ2005 (REVISED 2008) on WDC water supplies.
- n A functional hydraulic model of the reticulation networks is required.

8 References

1. Waipa District Council, "Asset Management Plan Water Supply", Maunsell Aecom, 2006
2. Waipa District Council "Assessment of Water Services", Opus International Consultants, 2004
3. Waipa District Council "LTCCP 2006 – 2016", 2006
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5. Environment Waikato "Proposed Waikato Regional Plan, Proposed Variation No. 6 – Water Allocation"
6. Ministry for Economic Development, "Infrastructure Stocktake: Infrastructure Audit", 2004
7. Health Drinking Water Amendment Act 2007
8. Drinking Water Standards for New Zealand 2005
9. Draft Drinking Water Standards for New Zealand 2008
10. Te Rore Water Supply Options Report, Opus International Consultants, 2003
11. Water Source Security, Kihikihi and Maungatautari, Opus International Consultants, 2003
12. Kihikihi Water Treatment and Reticulation Issues and Options, Harrison Grierson 2002
13. Cambridge Water Supply System Long Term Strategy, Tonkin and Taylor, 2003

Appendix A

Summary of Water Services within Waipa District

Table A1

Summary of Water Supply Services in Waipa District

Water Supply	Current	Trends	Local Issues	10 Year Plan – Service Augmentation	Aspiration
Cambridge / Karapiro	WDC owned / operated. Reticulated. Lake Karapiro source/ insecure spring source/ Waikato River source.	Very high growth. Hautapu structure plan.	Water quality (springs mainly). Treatment capacity (Karapiro). Trunk main renewals / capacity. Trunk mains to and in Cambridge North. Rural areas on restricted connections. Consumers on raw water mains.	Water treatment quality upgrades. Karapiro WTP clarifier and filter upgrade. Trunk main from Karapiro to Leamington. New reservoir (Stage 2).	Maungakawa would like to connect to Cambridge North. Some residents around Hautapu Dairy factory want a reticulated water supply.
Te Awamutu / Pirongia	WDC owned / operated. Reticulated. River source.	Moderate growth. Growth in Pirongia may put pressure on water supply.	Water source availability and no spare capacity – limiting growth. Trunk main renewals. Storage. Pirongia rural areas only have trickle feed – may be restricting growth.	Water source & WTP upgrade. New reservoir. Water main from Taylor's Hill to dairy factory. Pirongia new reservoir. Water upgrades to sub-divisions.	
Kihikihi	WDC owned / operated. Reticulated. Bore source.	Average growth.	Security of water source (DWSNZ2005 (REVISED 2008)). Aesthetic quality of water (taste / colour).	3 rd Bore.	Community may want better standard of treatment to improve aesthetic quality.

Water Supply	Current	Trends	Local Issues	10 Year Plan – Service Augmentation	Aspiration
Pukerimu / Ohaupo	WDC owned / operated. Reticulated. Waikato River source.	Hamilton Airport and Mystery Creek growth. Improved level of service for Ohaupo.	Predominantly rural agricultural trickle feed supply. A few consumers on raw water main for irrigation. Airport growth not served by this water supply – overlap with HCC networks?		
Te Rore	WDC owned. Privately operated.	This water supply is meant to be for irrigation only, but customers use it for drinking water as well.	Unprotected / contaminated source. Poor water quality not suitable or meant for drinking water (Health (Drinking Water) Amendment Act obligations). Consent will not be renewed after 2011 (reported). Critical trunk main pipe bridge in extremely poor condition. Could link to Te Awamutu in future.	Quality improvements in the short term. Connection to Te Awamutu water supply.	Connection to the Te Awamutu water supply.
Tokanui	Privately owned. Privately operated. Bulk supply from Te Awamutu water supply.	Failures of local reticulation network are impacting negatively on public health risk.	Privately owned / operated. Poor water quality. High water loss. Service failures. Public health issue.	Unknown.	Unknown.
Hautapu	Privately owned supply at Hautapu dairy factory.	Dairy factory receives top up from WDC supply. Supply volume to Dairy factory capped.	Poor water quality (private supply).	An urban growth structure plan is being prepared for Hautapu that includes reticulated WDC water supply.	

Water Supply	Current	Trends	Local Issues	10 Year Plan – Service Augmentation	Aspiration
Hamilton Airport	Private supply owned by Hamilton Airport.	Insufficient capacity for airport future demand.	The most likely water supply for the proposed developments around the airport will be supplied from Hamilton City Council not the Pukerimu water supply.		
Unreticulated	Roof (rainwater) tanks or groundwater for larger properties.				

Appendix B

Map Showing Location of Water Supplies within Waipa District