

**EVIDENCE FOR HEARING  
PLAN CHANGE 9 – REGION-WIDE WATER QUANTITY  
BAY OF PLENTY REGIONAL WATER AND LAND PLAN**

**Submitter Name:** Rotorua Lakes Council      **Submission Nr**      60

Signature (of person authorised to sign on behalf of submitter)



Ella Jonker, S&L Consultants Ltd,

C/o Rotorua Lakes Council

**Address for Service**

36 Kereiti Street, Mt Maunganui 3116

**Telephone:**

07 577 6069

**Email:**

ejonker@sltga.co.nz

**Contact person and Designation**

Ella Jonker, Senior Planner

## 1. INTRODUCTION

My full name is Ella Wilhelmina Jonker. I am Senior Planner at S&L Consultants. I represent the interests of Rotorua Lakes Council in relation to Plan Change 9. This evidence is provided in support of RLC's submissions and further submission to Proposed Plan Change 9, Region-wide Water Quantity, to the Bay of Plenty Regional Water and Land Plan (Proposed Plan Change 9).

I hold a BSc in Urban and Regional Planning with Honours degree. I have eight years' experience in policy planning, working for Rotorua Lakes Council, including drafting of various district plan chapters and managing hearings and appeals. I have over twenty years' experience overseas in planning, resource management and project management. I am thus qualified to speak to the Plan Change 9 matters relating to water quantity and associated legislation. I have prepared Rotorua Lakes Council submission to Plan Change 9 in consultation with Council's engineering team. I am thus familiar with the matters relating to Rotorua's municipal water supply.

Although this is a Council hearing, I note that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note (2014) and I agree to comply with it. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where I state I am relying on the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from my expressed opinion.

## 2. SCOPE OF KEY EVIDENCE

The evidence presented in support of RLC's submissions and further submissions are detailed in the following documents:

a) Appendix 1 – Evidence relating to list of RLC submissions and further submissions

All the submissions and further submissions of RLC is listed, together with a comment relating to the decision sought, and cross-references to further evidence. The decision sought in some cases part from the original submission and in some cases support the s.42 staff report. Please note that the key matters of concern to RLC are addressed in the Appendices that follow.

b) Appendix 2 – Joint Territorial Authority Evidence

This outlines the decision sought by the joint Territorial Authorities (Tauranga City Council, Western Bay of Plenty, Whakatane and Rotorua Lakes District Councils) on various plan provisions. Where the s.42 report departs from the recommendations in this Appendix and RLC supports those changes, it is noted in Appendix 1 above.

c) Appendix 3 – Future growth and urban development.

RLC considers that Plan Change 9 does not address their concerns relating to acknowledging and providing for future growth and urban development. The reasons and outline of relevant legislation are provided in the evidence.

d) Appendix 4 – Water metering

RLC recommends further amendments to Plan Change 9 in response to the s.42 report recommendations. The reasons and justification for the changes are provided in the context of cost-benefits relating to individual water metering versus financially more feasible and

operationally more effective methods. Appendix 5 (Water Conservation Strategy) and Appendix 6 (Report on Progress in Implementation of RLC Water Strategy 2018) are in support of the evidence presented in Appendix 4.

### 3. SUMMARY OF EVIDENCE

RLC has reviewed the s.42 staff response to the submissions and further submissions. RLC appreciates the effort to address the concerns raised in the submissions.

There are a few key issues that RLC considers have not been addressed sufficiently in the s.42 report. These matters are key to ensuring security of municipal supply and RLC's evidence is therefore focussed on these matters. These are addressed in detail in Appendix 2, 3 and 4, but summarised as follows:

- (a) Ensuring that the need of municipal water supply to provide for future growth and urban development is recognised within the policy framework.
- (b) With relation to accounting measures (specifically individual water metering requirements), ensuring that consideration is given to financial feasibility and alternative water conservation mitigation measures when assessing a consent for water take.
- (c) Establishing the necessary policy and rule framework to establish an enabling consenting framework for future resource consent applications for municipal take.

Where RLC considers that the reason for its submission is sufficient for the Hearing Panel to make its decision on the various matters, no further evidence is provided. RLC reserves its position relating to these submissions and further submissions.

RLC's submissions and further submissions share the same theme as that of the other Territorial Authorities – security of municipal supply for existing and future takes. TCC's Statement of Evidence by Richard Harkness, "Summary" in section 4 captures the concerns raised in RLC's submissions and further submissions. RLC therefore supports TCC's evidence in as far as it relates to municipal supply in general.

## APPENDIX 1

### EVIDENCE RELATING TO LIST OF RLC SUBMISSIONS AND FURTHER SUBMISSIONS

The last column in the list below outlines RLC's position relating to the various submissions and further submissions in the context of the s.42 staff report:

- In some instances, the proposed amendments in the s.42 report sufficiently address RLC's concerns. If these amendments are adopted by the Committee/Hearing Panel, that would satisfy those submission points.
- Where RLC's concerns have not been addressed sufficiently, reference is made to Appendix 2 to 4 for further evidence relating to key submissions and further submissions.
- For submissions and further submissions where no comments are made, the status quo remains.

Index Key: Update Appendix references

Orange highlighted rows = RLC submissions

Un-highlighted rows = RLC further submissions

Blue highlighted rows = Further submissions to RLC submissions (Included for context only – not representative of the full further submission point)

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
		<b>Overarching Comments</b>				
60-1	RLC		RLC requests the amendments as outlined below or any alternative amendments that would address the concerns raised.		<p>Overall, the intent and principles of plan change 9 (PC9) are supported. The sustainable management and the efficient use of fresh water are essential to ensure the region's economic development. A better understanding of the water use and allocation will benefit the future management of this resource. Municipal water supply is a vital resource as it provides for the social and economic wellbeing of our community and this is recognised by PC9, but it does not adequately provide for increased water demand that will be experienced as Rotorua expands.</p> <p>Rotorua Lakes Council (RLC) supports the participation of tāngata whenua in the process of creating frameworks (i.e. sub-regional plans) for Water Management Areas (WMAs). This will involve the setting of freshwater objectives and limits for the water bodies based on the aspirations and desired outcomes of tāngata whenua, city and district councils, resource users and the community.</p> <p>RLC reserves the right to have an interest in any part of PC9, should any future amendments affect the security of its municipal water supplies. However, this submission will focus on the areas where RLC consider amendments to PC9 are required.</p>	<p>The proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this submissions of RLC with relation to providing for future urban growth.</p> <p>Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.</p> <p>Consequential to the s.42 amendments to Schedule 7, RLC is proposing a new criteria be included. Refer to Appendix 4, Water Metering for further evidence and discussion on the matter.</p>
FS to 60-1	TCC			Support		
	WBDC			Support		
	Ngati Rangiwewehi			Neutral	PC9 does not adequately provide for increase in municipal take	
	Horticulture NZ			Oppose	HortNZ does not support the bundling of domestic and municipal water supply. There is a need to recognise that water is not essential for all municipal supplies.	
60-2	RLC			Matters in PC9 that may adversely affect this objective are discussed in more detail against the specific provisions of PC9	<p>RLC supports the precautionary approach to water allocation as long as the priority for municipal water is recognised and secured above all other uses. Allocation levels for municipal water need to be maintained at current levels. However, the increasing water demand as a result of urban and economic growth needs to be better recognised and provided for in PC9 to ensure security of supply and to recognise RLC's investment into its municipal supplies.</p>	<p>The proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this submissions of RLC with relation to providing for future urban growth.</p> <p>Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.</p>
	TCC			Support		

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
FS to 60-2	WBDC			Support		
	Ngati Rangiwewehi			Neutral	Support precautionary approach	
60-17	RLC		RLC reserves its right to make a further submission in support of concerns raised by interest groups within its district.		In addition to the key issues mentioned above, RLC also has an interest in the other matters where the changes affect the wider community (specifically iwi/hapu and farmers) and how the plan change can have synergies to other RLC strategies and priorities.	
FS to 60-17	Ngati Rangiwewehi			Neutral		
60-18	RLC		RLC will retain a keen interest in this matter to ensure environmental requirements and consumptive use (including competing uses) are balanced and municipal supply is secured over the long term		RLC foresee that the catchment specific limits that will be set under WQ P2, including environmental bottom lines (e.g. minimum flows) may be very different to the interim limits in PC9 as it will account for catchment specific issues.	
FS to 60-18	Ngati Rangiwewehi			Neutral		
	Federated Farmers			Oppose	Seeking further priority for municipal supply is premature (to be done at WMA stage) and disproportionate (benefit of municipal supply already recognised)	
8-42	Tauranga City Council		Provide for a consistent approach to the terms relating to water bodies, rivers, streams, and surface flow to avoid confusion.	Support	PC9 sometimes refers to water bodies, and in other provisions refers to rivers, streams, and surface flow which can be confusing. A consistent approach is required, or alternatively use of appropriate definitions to avoid confusion.	
8-46	Tauranga City Council		TCC seeks that further aspects be taken into account where the section 32 RMA evaluation has not gone far enough in relation to the importance of municipal water supplies, including the following specific matters: 1. Acknowledge how the NPSUDC and RPS provide for urban development and associated infrastructure to service future growth areas. 2. Address legislative requirements including the Local Government Act 2002, and the Health (Drinking water) Amendment Act 2007, requiring that an adequate and safe drinking water supply be provided. 3. Ensure long term certainty and priority for municipal water supplies. 4. To consider the option of including provisions that make it clear that existing municipal supply consents will not be reviewed under the interim limits regime. 5. Consider the option of a new objective and associated policies which provide for certainty and priority for municipal water supplies, recognising the importance of municipal water supplies under the proposed controlled activity rule. 6. Consider the appropriateness of a non-notification rule for renewal of existing municipal supplies under the proposed controlled activity rule. 7. Consider the option of other alternative methodologies being used to provide flexibility on how the interim limits are set; particularly in light of varying river sizes and sources of water supply.	Support	As per submission	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
19 - 9	Toi Te Ora - Public Health Service		That Council includes interagency collaboration at the beginning of the planning process. This should specifically require a reliable and safe water supply to be identified by local authorities and/or resource and building consent applicants	Oppose	Although Council supports inter-agency collaboration, it needs to be acknowledged that the regional council and local councils have different statutory roles. The submitter needs to clarify how plan change 9 should meet the relief sought in the submission.	
48-1	Western Bay of Plenty District Council		Clarify the statement (in the Assessment of water availability and estimates of current allocation levels report) for table 1 surface water allocation (p15) "Water takes authorised under the RMA or Permitted under the RWLP are not included in this table." Does this mean that Council's existing consented water takes will be able to be given effect to, despite occurring on a river/stream that is indicated as being allocated above allocable flow.	Support	Confirmation of the status of existing municipal consents would provide more clarity.	
		<b>Matters of Concern to Maori</b>				
79-1	Ngati Rangiwewehi	Issue 29-34, Objective 39-46, Policy 64-80	Amend issues, objectives and policies to recognise kaitiaki flows when allocating water	Support	Reasons stated in Ngati Rangiwewehi submission.	
79-2	Ngati Rangiwewehi	Long term strategic overview and Methods	Amend the long term strategic overview and associated methods to take into account the implementation of kaitiaki flows	Support	The kaitiaki flow will be different for different water supplies and the detail of what this means can be determined during the Water Management Area discussions. For this to happen, kaitiaki flow needs to be recognised in plan change 9.	
79-4	Ngati Rangiwewehi		The mana whakahono rohe agreements do not fore shadow or over shadow current negotiations with RLC.	Support	Local hapu also needs to be consulted.	
		<b>Deleted provisions</b>				
8-35	Tauranga City Council		Retain Method 163	Support	Method 163 provides the connection with public health legislation (Health (Drinking Water) Amendment Act 2007). This is critical for municipal water supply requirements; and must be taken into account under the RMA. This is particularly important for people's health and wellbeing during drought events.	
		<b>Issue 2</b>				
8-2	Tauranga City Council		Delete reference to urban growth being limited due to lack of available water resources or amend to describe how urban growth areas within Tauranga have been identified through the RPS and require adequate water supply in order for the NPSUDC to be given effect to.	Support	It should recognise future growth within all districts. Municipal water supplies are planned and funded with a long term approach (far in excess of current maximum resource consent durations). Significant investments are made by territorial authorities for such infrastructure to ensure the wellbeing of the communities they support; therefore, such infrastructure for municipal water supply and the associated investment should be given protection against uncertainty and undue regulatory costs, with appropriate recognition and protection for existing and future municipal water takes.	Consequential amendments in line with the proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.  Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.
		<b>Issue 5</b>				
8-3	Tauranga City Council		Amend WQ 15 to confirm that existing municipal water supplies can be managed through WMPs to address any necessary reductions; while	Support	Municipal water supplies can be managed through WMPs to address any necessary reductions; however, municipal supplies cannot be expected to cease taking water or fail to provide an	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			being able to continue providing an adequate supply		adequate supply of healthy drinking water under the Health (Drinking Water) Amendment Act 2007 requirements.	
		<b>Issue 8</b>				
8-4	Tauranga City Council		Amend to emphasise the importance of protecting municipal water supplies to provide for future growth and urban development capacity; recognising the national and regional significance afforded to municipal water supplies under the NPSUDC, RPS and SmartGrowth for existing and future urban growth areas.	Support	This is highly relevant for consented municipal takes. This issue should be amended to emphasise the importance of protecting municipal water supply takes. It needs to address future urban growth areas for all districts.	Consequential amendments in line with the proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC. Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.
12-6	Whakatane District Council		Amend WQ I8 to read: "Without adequate, available, good quality water, people's ability to provide for their growing social and economic needs may be compromised."	Support	WQ I8 struggles to be an issue; it reads more like an odd sort of objective. The suggested wording makes the issue clearer.	Consequential amendments in line with the proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.  Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.
48-6	Western Bay of Plenty District Council		Amend to emphasise the importance of protecting municipal water supplies to provide for future growth and urban development capacity; recognising the national and regional significance afforded to municipal water supplies under the NPSUDC, RPS and SmartGrowth for existing and future urban growth areas.	Support	This issue should be amended to emphasise the importance of protecting all municipal water supply takes.	Consequential amendments in line with the proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.  Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.
		<b>Issue 9</b>				
12-8	Whakatane District Council		Amend WQ I19 to read: "The unauthorised taking of water creates difficulties managing allocation and can impede the achievement of the objectives of this regional plan."	Support	The fairness of allocation of resources is beyond the scope of resource management. It is more appropriate to focus on how unauthorised users affect the achievement of the objectives for management of the resource and compromise access to the resource by authorised users.	
		<b>Issue 11</b>				
8-5	Tauranga City Council		Seek amendment to the issue to clarify that "over-allocation" is to be determined through the WMA approach and is not applicable to the interim limits, unless the methodology for setting the interim limits under WQ P5 is amended.	Support	This is highly relevant for consented municipal takes. This issue should be amended to emphasise the importance of protecting municipal water supply takes. It is not clear in this issue whether over-allocation relates to interim limits under Policy WQ P5 or the limit to be set through the WMA process identified in Policies WQ P1 and P2. If it is applicable to interim limits then there must be flexibility as to how these limits are set. RLC consider that over-allocation is better determined through the WMA process and FMUs.	
		<b>New Objectives</b>				
16-3	First Gas Ltd		Add two new Objectives: "The safe, effective and efficient use, operation, maintenance, upgrade and development of regionally significant infrastructure is provided for" "To recognise that regionally significant infrastructure represents appropriate use and development in all environments where there are functional needs and / or operational requirements"	Support	The proposed objectives seek to give effect to Objective 6 of the BOPRPS. Municipal supplies are regionally significant infrastructure.	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
32-5	Galatea-Murupara Irrigation Society		Insert a new objective: " WQ O2: Anticipate and plan for provision of water to meet the reasonable needs of people and communities"	Support	The Society considers that a more proactive approach is required in anticipating and planning to meet reasonable demand for water.	
47-9	Te Runanga o Ngai Te Rangi Iwi Trust		Add new objective – Recognise the relationship of tangata whenua with natural, physical and spiritual resources.	Support	This is an obligation set out by the Treaty of Waitangi that is also recognised by the RMA 91 Sections 6, 7 and 8.	
		<b>Objective 1</b>				
8-6	Tauranga City Council		Amend Objective WQ O1 or add a new objective which provides for long term certainty and priority for municipal water supplies, recognising the importance of municipal water supplies to provide for future growth and urban development capacity. Add associated policies to acknowledge how the RPS provides for urban growth with identified areas for urban development intensification; and also provides guiding policies for the integration of land use and infrastructure; as well as giving effect to the NPSUDC; and providing consistency with RCEP and SmartGrowth provisions.	Support	It should address the importance of municipal water supplies.	The proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
50-11	Federated Farmers of New Zealand		Amend Objective WQ O1 as follows: " <u>The reliability and efficiency of the allocation and use of water resources in the Bay of Plenty is improved over time and is effective and reasonable for the given end use.</u> "	Support	Municipal supply needs to be secure and reliable.	The proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
		<b>Objective 3</b>				
8-7	Tauranga City Council		Add a new objective which provides for long term certainty and priority for municipal water supplies, recognising the importance of municipal water supplies to provide for future growth and urban development capacity. Add associated policies to acknowledge how the RPS provides for urban growth with identified areas for urban development intensification; and also provides guiding policies for the integration of land use and infrastructure; as well as giving effect to the NPSUDC; and providing consistency with RCEP and SmartGrowth provisions.	Support	Provision of a secure long term municipal water supply is critical to support the urban growth areas identified under the RPS.	The proposed amendments to Objective 5 and Objective 8 in section 1 and 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
32-7	Galatea-Murupara Irrigation Society		Amend WQ O3 heading by including "an non-consumptive uses" so it reads as follows: "Manage the abstraction and non-consumptive uses of surface water..." Include additional test in WQ O3 (f) so that it reads as follows: "(f) Maintains flow variability to allow for ecological integrity and the flushing of stream systems to remove deposited sediment and growths of nuisance	Support	The objective appropriately recognises a range of instream values to be addressed when using surface water. These matters should be addressed in relation to both abstractive and non-consumptive uses of surface water. Addressing effects on those values arising from abstraction will have limited value unless the effects arising from hydro-electric generation are also addressed.	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			algae, while avoiding unnatural fluctuations which give rise to bank erosion and increased sedimentation."			
47-16	Te Runanga o Ngai Te Rangi Iwi Trust		Amend (a) Safeguards and restores mauri and life - supporting capacity of the water body.	Oppose	Water Management Areas need to set the bar and there after the policy framework to address the concerns raised by the submitter can be reviewed. Without the Water Management Areas in place, it is uncertain if areas are over allocated and how the requirement to "restore" would impact municipal supply.	The amendments proposed in the s.42 staff report to allow existing takes that are above the thresholds set in Policy 5 would satisfy this further submission of RLC.
49-14	Trustpower		Trustpower seeks the following relief from the BOPRC: 1. Amend Objective WQ 03 of the Proposed Plan Change as follows: "Manage the taking and diversion of surface water at a volume and rate that: ... (b) Maintains ecological integrity, significant ecological values, landscape values, recreational values, and tangata whenua values associated with rivers, lakes and streams. (c) Maintains water quality relative to the freshwater objectives and water quality limits of the water body	Support	As the Proposed Plan Change identifies a process for the establishment of water quality limits via Policy WQ P2, the management of taking and diversion of water should be aligned with maintaining these water quality limits and the freshwater objectives they support.	
50-13	Federated Farmers of New Zealand		Amend Objective WQ O3 as follows: 1. Add 'and/or use' to opening paragraph. "Manage the abstraction and/or use of surface water at a volume and rate that..."	Support	We consider that non-consumptive takes (such as takes for hydro electricity generation) need to be managed (e.g. the practice of "peaking" can have an impact on flushing flows). We are concerned that these takes may not fall within the definition of "abstraction."	
71-13	Ngati Pikiao Environmental Society		Amend WQ O3 (a) (b) and (f) by inserting "and where appropriate, restores" after the word maintains. Also add: (g) Require that consent conditions for any developments avoids environmental impacts on headwaters of surface water and (h) "Require that that applications for water consents must avoid potential for negative impacts on headwaters or source waters.	Oppose	Without the Water Management Areas in place, it is uncertain if areas are over allocated and how the requirement to "restore" would impact municipal supply.	The amendments proposed in the s.42 staff report to allow existing takes that are above the thresholds set in Policy 5 would satisfy this further submission of RLC.
12-10	Whakatane District Council		1. Amend WQ P2 to add specific support for objective WQ O3(a) 2. Add or amend appropriate method(s) to require specific, consistent and clear criteria, which water managers and the community can use to identify, understand and safeguard the mauri and life supporting capacity of specific water bodies, to be included in each freshwater management unit.	Support	Rotorua District Council recognises that safeguarding the mauri and life supporting capacity of water bodies is an important consideration when assessing the effects of the use of water. It would however be helpful to understand how this objective will be applied. WQ O3(a) is supported by Policy WQ P2 and RLC would encourage that the policy is amended to give specific guidance on how WQ O3(a) is to be applied. A method would also be needed to ensure that water managers and the community are given consistent and clear criteria by which they can identify, understand and safeguard the mauri and life supporting capacity of specific water bodies, so that these can be included in each freshwater management unit.	
65-11	CNI Iwi Land Management Ltd		Reword as: WQ O3 (d) Avoids or mitigates adverse effects on downstream environments WQ O3 (da) Avoids or mitigates adverse effects on uses of the water resource who demonstrate fair and efficient use. Or words to like effect.	Oppose	Although RLC supports the concerns raised by the submitter with relation to consents that were granted pre-RMA, any amendments need to recognise that existing municipal supplies need to be maintained.	The amendments proposed in the s.42 staff report to allow existing takes that are above the thresholds set in Policy 5 would satisfy this further submission of RLC.
		<b>Objective 4</b>				

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
60-4	RLC		WQ O4 (d) needs to clarify the reason for not allowing the mixing of water between aquifers.		<p>RLC considers the water allocation for municipal supply to be surface water if it is taken from springs. The springs are fed from aquifers, which are considered to be groundwater.</p> <p>Objective WQ O4 (d) requires managing the allocation and abstraction of groundwater that does not result in a sustained decline in groundwater levels and at a volume and rate that does not cause the mixing of water between different aquifers where those aquifers are not naturally connected. This is not practical as water mixes underground and above ground anyway. The ground water (aquifers) and surface water (spring) systems are all interconnected as also suggested in policy WQ P9 (aiming to integrate the management of groundwater and surface water resources to recognise the interrelationship between them).</p> <p>The reason for the requirement “at a volume and rate that does not cause the mixing of water between different aquifers where those aquifers are not naturally connected”, needs to be made clear. Is it intended to prevent mixing of water through poorly constructed bores?</p>	The clarification relating to Objective 4(d), mixing of water and interrelationship between groundwater and surface water as outlined in the BOPRC s.42 report (Page 51, paragraph 27), would satisfy this submission of RLC.
FS to 60-4	WBDC			Support		
	Ngati Rangiwewehi			Neutral	Support precautionary approach	
		<b>Objective 5</b>				
60-3	RLC		Amend WQ O5 as follows: <u>When planning for land use changes, including urban growth and land use intensification, are planned to account for how water resource limitations of the location will be addressed prior to implementation, particularly in areas with existing and projected high water demand, and limited water resources.</u>		<p>RLC agrees that land use changes, intensification and urban growth should not occur without adequate assessment of water resources as stated in WQ P27 and WQ M1.</p> <p>However, WQ O5 requires that land use changes, including urban growth and land use intensification, are planned to account for water resource limitations of the location.</p> <p>The water resource limitations should not deter planning for future development (e.g. in the long term spatial or district plans). Rather, any limitations should be identified and then infrastructure planned or alternative sources identified to address the increased demand and provide for population growth. The recently confirmed NPS on urban development capacity also supports this stance in terms of planning for development and allocating capacity accordingly.</p>	<p>The proposed amendments to Objective 5 in section 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this submission of RLC.</p> <p>Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.</p>
FS to 60-5	WBDC			Support		
	Ngati Rangiwewehi			Neutral	Urban growth should not occur without adequate assessment of water source as per P27 and M1. Clarification required.	
	Horticulture NZ (Incorrectly referenced submission nr 30-3)			Oppose	The NPUDC does not provide an unfettered priority of resources to enable urban growth. HortNZ does not support the bundling of domestic and municipal water supply.	
65-18	CNI Iwi Land Management Ltd		Reword as: Particularly in areas with existing and projected high water demand, and limited water resources: (a) Land use changes, including urban growth and land use intensification, are planned to account for water resource limitations of the location (b) Existing users are required to have current consent with review conditions requiring efficient use, and such consents are reviewed	Oppose	This should not apply to priority uses. Municipal supply need to be secure and need to be able to provide for future growth. When existing municipal supply consents are reviewed, we need to be able to maintain our existing takes.	<p>Consequential amendments in line with the proposed amendments to Objective 5 in section 8 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.</p> <p>Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.</p>

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			to ensure that only what is required is allocated. Or words to like effect.			
71-14	Ngati Pikiāo Environmental Society		Amend WQ O5 to insert "including water catchments"	Oppose	RLC only supports the temporary limits set in policy 5, based on the assumption that cross-catchment takings are possible. Under RLC submission 60-5, BOPRC is requested to confirm this. BOPRC needs to ensure that Plan change 9 is not in opposition to the approach requested by RLC as a consequence of the submission by Ngati Pikiāo.	
		<b>Objective 6</b>				
8-9	Tauranga City Council		Seek clarification on what is an acceptable level; and that references to 'low flow' and an acceptable level are determined through the WMA procedure; and do not involve interim flows under WQ P5.	Support	Clarity is important to ensure security of municipal supply.	
48-10	Western Bay of Plenty District Council		Consider rewording WQ O6 to read: "The potential adverse effects of water abstraction during low surface water flows or low aquifer levels are avoided or minimised."	Support	Support deletion of "to acceptable level" as this should be determined through the WMA procedure	
		<b>Objective 7</b>				
8-10	Tauranga City Council		Seek flexibility on how interim limits are set. Seek clarification if this is meant to be an Objective, and amend wording to address this. TCC seeks clarification on whether this relates to the interim limits.	Support	Limits set for life supporting levels: This is supported in principle; however, a flexible approach is required for determining interim instream flows of water bodies.	
		<b>Objective 8</b>				
8-11	Tauranga City Council		TCC seeks that Objective WQ O8 be stated earlier as a priority. Objective WQ O8 should be amended to recognise the importance of municipal water supplies, and also acknowledge the additional economic as well as social benefits.	Support	Reasons stated in the submission	The proposed amendments to Objective 8 in section 1 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy these further submissions of RLC.  RLC notes that the s.42 staff recommendation limits the priority of municipal water supply to drinking water only as per WQ O8 (f). All municipal users contribute to the economic wellbeing of the region and is part of one reticulation system. Certain uses cannot be excluded from a municipal take application or municipal supply. The RPS WQ 3B (b) does not exclude certain uses when directing to prioritise municipal supply. The long-term certainty and priority is required for the municipal system as a whole, not just for drinking water. The s.42 staff recommendations relating to non-domestic uses sufficiently address treating these land uses (industrial etc) differently from domestic uses during drought management (as outlined in Schedule 7).
12-12	Whakatane District Council		Amend WQ O8(a) to read: "(a) Social benefits from the use of water for domestic, marae, or municipal water supply, including in particular essential drinking and sanitation requirements for present and future generations"	Support	Reference to present and future generations address the concerns raised in RLC's submission.	
48-11	Western Bay of Plenty District Council		Retain WQ O8 with amendments. Objective WQ O8 should be amended to recognise the importance of municipal water supplies, and also acknowledge the additional economic as well as social benefits.	Support	Reasons stated in the submission	Refer to Appendix 3, Future Growth and Urban Development, specifically to RPS WQ 3B for further evidence or discussion relating to this matter.
		<b>Objective 10</b>				
4-12	Western Bay of Plenty District Council		Retain WQ O10	Support	Reasons stated in the submission	
		<b>Objective 11</b>				
8-12	Tauranga City Council		TCC seeks clarification on when this Objective WQ O11 is triggered; as the RMA describes serious temporary	Support	Reasons stated in the submission	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			shortage, but it is not clear what 'a significant problem means			
		<b>New Policies</b>				
81-10	Beef + Lamb New Zealand Limited		<p>Include new/ or amend existing Policies for Water quantity and allocation "A. Water quantity is managed to ensure that the take and use of water is reasonable and justifiable for the intended use. The following specific measures for ensuring reasonable and justifiable use of water must be taken into account when establishing catchment plans and considering consent applications (as applicable) to take water for irrigation, stock drinking , public water supply, dairy shed washdown or industrial use, and during reviews of consent conditions for these activities. (a) For irrigation, resource consent applications must be required to meet a reasonable use test in relation to the maximum daily rate of abstraction, the irrigation return period and the seasonal or annual volume of the proposed take. When making decisions on the reasonableness of the rate and volume of take sought, the Regional Council must: (i) consider land use, crop water use requirements, on-site physical factors such as soil waterholding capacity, and climatic factors such as rainfall variability and potential evapo-transpiration (ii) assess applications either on the basis of an irrigation application efficiency of 60%, or on the basis of a higher efficiency where an application is for an irrigation system with a higher efficiency (iii) link actual irrigation use to soil moisture measurements or daily soil moisture budgets in consent conditions. (b) For domestic use, animal drinking water and dairy shed washdown water, reasonable needs must be calculated where possible in accordance with good management practice for water efficiency for that particular use, climate, and stocking policies (c) For industrial uses, water allocation must be calculated where possible in accordance with best management practices for water efficiency for that particular industry. (d) For public water supplies, the following must generally be considered to be reasonable: (i) an allocation of 300 litres per person per day for domestic needs as appropriate, plus (ii) an allocation for commercial use equal</p>	Oppose	RLC considers that the concerns raised by the submitter are best addressed during the identification of the Water Management Areas.	

Sub- mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			<p>to an appropriate % of the total allocation for domestic needs, plus (iii) an allocation for industrial use calculated, where possible, in accordance with best management practices for water efficiency for that particular industry, plus (iv) an allocation necessary for hospitals, other facilities providing medical treatment, marae, schools or other education facilities, plus (v) an allocation necessary to cater for the reasonable needs of animals or agricultural uses that are supplied by the public water supply system, plus (vi) an allocation necessary to cater for growth, where growth of the municipality is provided for in an operative plan for the area and is reasonably forecast e) When making decisions on consent applications where the existing allocation for a public water supply exceeds the allocation determined in accordance with (d)(i) to (d)(vi) above: (i) consideration must be given to imposing a timeframe within which it is reasonably practicable for the existing allocation to be reduced to the determined amount, or (ii) if (i) is not imposed, an alternative allocation must be determined based on the particular social and economic circumstances of the community serviced by the public water supply and the actual and potential effects of the abstraction on the community values for freshwater within the catchment."</p>			
49-26	Trustpower		<p>Trustpower seeks the following relief from the BOPRC: 1. Introduce Policy WQ P3A into the Proposed Plan Change as follows: "Take steps to phase out the exceedance of the water quality limits for freshwater management units established via WQ P2 by considering the following, where applicable: (a) The encouragement or facilitation of voluntary reductions in the point-source discharge of contaminants. (b) The establishment of rules controlling the discharge of sediment, nitrogen, phosphorus, sediment and microbial pathogens from land uses and point source discharges. (c) The review of resource consents. (d) The management of the effects of the take, diversion, damming and discharge of water on water quality limits. (e) The appropriate management of riparian areas, including the retirement and planting</p>	Oppose	<p>This submission point should be considered together with other submissions and further submissions relating to policy 3, which address phasing out over-allocation.</p>	

Sub- mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			of riparian areas of streams, rivers, lakes, wetlands and estuaries." 2. Amend the Proposed Plan Change to ensure that water takes, discharges and			
67-22	Ngati Makino		Require resource consent for any development within close proximity of a river and not permitting any application for water which may negatively impact on head or source waters. Some headwaters are tapu and that this particular cultural value protects the source of valuable waterways.	Oppose	The proposed changes are contrary to the Resource Management Act that requires development to avoid, remedy or mitigate adverse effects. It is too onerous to expect no negative impact on a water source. Declining the increase in municipal water take to address future drinking needs would impact on the wellbeing on the community.	
		<b>Policy 1</b>				
8-13	Tauranga City Council		Retain WQ P1	Support	RLC has indicated in its submission that it supports plan change 9 and thus wants to make sure there are no changes to the provisions that would affect the municipal supply.	
		<b>Policy 2</b>				
8-14	Tauranga City Council		Retain WQ P2 TCC seeks clarification on WQ P2(d) objectives as this may possibly be referring to outcomes. Delete WQ P2(m).	Support	This is not practical for existing municipal water supply takes, particularly when urban communities do not have alternative water supplies available; and the urban populations are continually growing, thereby increasing water demand. Further, resource consents already have review clauses.	
		<b>Policy 3</b>				
8-15	Tauranga City Council		TCC seeks clarification on how this policy will work; and TCC also seeks an assurance that this policy does not apply to municipal water takes. Modify policy or add an advice note to ensure existing municipal water supply takes are exempt. TCC seeks that the limits used to determine over-allocation are to be based on WMAs and FMUs as set by WQ P2.	Support	Reasons stated in the submission	
50-36	Federated Farmers of New Zealand		Amend Policy WQ P3 as outlined below Replace opening paragraph in WQ P3 by deleting "Take steps to phase out over-allocation, where applicable, by 1 October 2027" and replacing with "Where a river, stream, lake or aquifer has been deemed to be over allocated through the flow and allocation regime set by a Freshwater Management Unit specific plan incorporated into Schedule [insert number] of this Plan, the following actions will be investigated"	Support	The date by which over allocation should be phased out should only be set once the Water Management Areas are established. This time frame would likely penalise those unfortunate consent holders whose consents come up for renewal first and benefit those whose consents come up for renewal last (by which time over allocation has been phased out. NPSFM does not set the time limits within which over allocation must be phased out. Words like "take steps" and "where applicable" do not provide any comfort to water users or consent holders.	
		<b>Policy 4</b>				
10 - 14	Oji Fibre Solutions and Norske Skog Tasman		Retain WQP4 as notified	Support	RLC has indicated in its submission that it supports plan change 9 and thus wants to make sure there are no changes to the provisions that would affect the municipal supply.	
13-18	Department of Conservation		Add at end;" including flows that are between 1.5 to 3 times the median flow to scour and flush periphyton and cyanobacteria accumulations,	Oppose	Requiring minimum flows to be 1.5 to 3 times the IMFR set in policy 5 is unrealistic. The proposed amendment is too specific and the drinking needs of people should take priority above the matters stated in the submission.	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			mobilise and transport bed material, trigger flow dependant aquatic life cycle processes such as fish migration, and provide for recreational and tangata whenua values".			
		<b>Policy 5</b>				
11-4	Bay of Plenty Regional Council		Insert 'minimum' as follows: "(a) Instream minimum flows: 90% of Q5 7 day low flow for each river or stream."	Support	It makes it consistent with RPS definition as referenced in the plan	The recommended amendments in the s.42 report aligns with the decision sought in this RLC's further submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
11-3	Bay of Plenty Regional Council		Delete 'allocation' as follows: "To use the following interim limits, until permanent limits are set through regional and/or sub-regional plans within each WMA:..."	Support	It clarifies that the limits relate to both allocation and flow.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC's further submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
8-16	Tauranga City Council		TCC seeks clarification on the linkage to the interim allocation table, and the Advice Note with a link to the assessment of the limits and current allocation status. TCC seeks assurance that existing takes, including the Waiorohi, Tautau and Waiari, are not affected. PC9 is to be amended to provide for flexibility in setting interim water allocation limits on a case by case approach rather than setting a precautionary interim level that is too high under Policy WQ P5. Delete or modify this policy accordingly.	Support	RLC have an interest in making sure any amended limits provide for future growth and aligns with the concerns raised in RLC submission 60-1, 60-2 and 60-5: RLC can manage future demand within the existing systems by linking the different systems so that water can be sourced from under allocated sources to serve areas that are sourced from over allocated sources. If this approach is supported by PC9 and, then RLC will be able to comply with the existing water allocation limits in policy 5.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC's further submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
		<b>Policy 7</b>				
8-17	Tauranga City Council		TCC seeks flexibility on how interim limits are set for varying river sizes and sources of water supply, such as spring-fed water bodies. Delete reference to the word "robust" as review conditions are inherently robust. Amend Policy WQ P7 to recognise the importance of municipal water supplies.	Support	RLC supports the approach where volumes are measurable and flow levels are known. However, the proposed methodology under WQ P5 adopts an overly 'precautionary approach' which creates too much uncertainty, and potential problems for municipal water supply takes. This raises significant issues for the re-consenting of municipal water supply should one general approach be adopted for renewal of each take. This approach has no hierarchy of water takes, and fails to give priority for municipal water supply renewals	
		<b>Policy 8</b>				
60-11	RLC		Clarify under WQ P8 that the additional water required for municipal supply in fully allocated areas will always be considered a primary allocation.		RLC supports the option of providing secondary allocation in areas that are fully allocated as provided for in WQ P8. However, a lower reliability of surface water takes is not viable for municipal supplies. Municipal supplies, including increased volumes and takes (approved through future resource consents) need to always be considered to be a primary allocation	<p>The proposed amendments to Objective 8 in section 1 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC on Policy 8.</p> <p>The track-change version of the plan, the staff recommended under WQ P8 (b) further amendments as follows:  "the secondary take does not adversely affect the use of existing resource consents – including existing hydro-electric power schemes; and"</p> <p>RLC requests that it be amended as follows:  "...- including existing hydro-electric power schemes <u>and municipal supplies</u>".</p> <p>As directed by RPS WQ 3B (b) Municipal supply needs to be given priority and should be afforded the same priority as that of hydro-electric power schemes.</p>

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
						Refer to Appendix 3, Future Growth and Urban Development for further evidence or discussion relating to this matter.
FS to 60-11	TCC			Support		
	WBDC			Support		
	Federated Farmers			Oppose	To seek elevated priority for municipal water supplies is unfair to other users because it may conflict with other needs and values.	
		<b>Policy 9</b>				
8-19	Tauranga City Council		TCC seeks clarification on how any direct or partial connection between surface and groundwater will be established by BOPRC.	Support	Clarification would enable interpretation of the plan.	
		<b>Policy 10</b>				
60-5	RLC		<p>1. Amend WQ P10 as follows:            "To generally decline applications to take and use surface water or groundwater, where the water resource is allocated above the limits identified in, WQ P5 unless the application is:            (a) A renewal of an existing authorised take that is:            (i) At the same or lesser rate and volume of take; and            (ii) Assessed as a reasonable and efficient rate and volume of take; or            (iii) <u>An additional rate and volume for municipal supplies, provided the increase is supported and justified by way of a Water Management Plan prepared in accordance with Schedule 7; or</u>            ...            (d) Supported by a detailed assessment of environmental effects which demonstrates:            (i) That the proposed take is reasonable, efficient and will meet WQ O3 or WQ O4;            (ii) Consideration has been given to alternative water supplies, rates of take and timing of take;            (iii) Water conservation measures are proposed for times of low water flows or aquifer levels; and            (iv) The extent to which the proposed take will result in social, economic, cultural or ecological benefits.            (v) <u>For municipal supplies, that linking water systems from over and under allocated water sources will effectively manage any constraints in providing for the demand on the various allocated water resources.</u></p>		<p>RLC in principle supports the interim limits set in WQ P5. It is however considered that the interim limits set are a too conservative for the reasons stated below.</p> <p>BOPRC has published a recent report<sup>1</sup> which identifies the various WMAs, including the allocable limits based on the interim limits specified in PC9 and also the currently allocated volumes. The report also identifies those surface water bodies and aquifers which have 'remaining allocation', those which are over-allocated, and those for which there is insufficient information available. RLC has reviewed RLC's current consents to determine whether they are in fully or over allocated catchments. It showed that three of our water sources are in over-allocated areas, of which the largest supply is from the Rotorua Lakes WMA (Utuhina Stream).</p> <p>This limits future growth, whilst it has not yet been established if the existing or increased takes have unacceptable adverse effects on the water resource. It therefore does not meet the overall objective of the Resource Management Act to manage natural and physical resources sustainably, whilst providing for communities to provide for their social and economic wellbeing and their health and safety.</p> <p>It is expected that the new limits set through policy WQ P2, will be able to allow for future needs and address this problem. However, in the interim, there should be a provision included in PC9 to allow for municipal takes to be above the set limits to provide for future demand, if it can demonstrate that any adverse effects are acceptable, including in those catchments where the water resource is allocated above the interim limits. RLC is content with being required to have a discretionary consent for such increased rates and volumes, but it would be necessary to amend policy WQ P10 to support such an application.</p> <p>RLC can manage future demand within the existing systems by linking the different systems so that water can be sourced from under allocated sources to serve areas that are sourced from over allocated sources. If this approach is supported by PC9, then RLC will be able to comply with the existing water allocation limits.</p>	<p>The proposed amendments to Policy 10 in section 9 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this submission of RLC.</p> <p>The proposed amendments to Policy 10 in the BOPRC s.42 report, track-change version of the plan, would satisfy this submission of RLC in part.</p> <p>The proposed section (h) requires "Sustains the relationship of Maori with their freshwater resources". For consistency across the plan, this should refer to "tangata whenua".</p>
FS to 60-5	TCC			Support in Part	Don't want to adhere to performance standards	

<sup>1</sup> <https://www.boprc.govt.nz/media/569495/new-small-final-assessment-of-water-availability-report.pdf>

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
	Ngati Rangiwewehi			Neutral		
	Federated Farmers			Oppose	Federated Farmers agree that the “hold the line” limits are too conservative and will limit future growth but we consider Federated Farmers’ proposed policy WQ P7 more appropriately addresses that the problems with WQ P10.	
48-20	Western Bay of Plenty District Council		Amend policy to use the wording ‘to require a comprehensive assessment for the take...’ and delete reference to “generally decline applications”. Council seeks flexibility in setting interim allocation limits.	Support	Until the correct limits are set for a water body under the WMAs procedure, Council supports a comprehensive assessment approach on a case by case basis. It is inappropriate to have a policy that indicates such a negative outcome for something to be assessed on its merits under the RMA.	
		<b>Policy12</b>				
8-22	Tauranga City Council		Retain WQ P12 and add a new policy to confirm that municipal water supply takes are to be given priority. Add an Advice Note for cross reference purposes.	Support	For reasons stated in the submission	
		<b>Policy13</b>				
8-23	Tauranga City Council		Retain WQ P13 as notified	Support	For reasons stated in the submission	
12-18	Whakatane District Council		Amend WQ P13(d) to read: "(d) Promoting the shared use and management of water, through water user groups, municipal water supplies or other arrangements where it results in an increased efficient in the allocation and use of water. "	Oppose	Shared use and management of water between different interest groups could be voluntary. Requiring shared use through a statutory requirement, is impractical. Efficient use of municipal supply is already assessed through resource consents and the proposed amendments would unnecessarily complicate plan change 9.	
		<b>Policy14</b>				
79-10	Ngati Rangiwewehi		Retain policy	Support	For reasons stated in the submission	
		<b>Policy15</b>				
8-24	Tauranga City Council		TCC supports Policy P15(e) regarding the value of investment being included in the assessment; particularly for municipal water supply take, storage and treatment facilities. TCC seeks greater emphasis on municipal water. TCC seeks clarification on what level of assessment is required for landscape effects for a water take. Delete reference to WQ P5 under WQ P15(m) unless flexibility is provided for in setting the interim limits. Amend WQ P15 to clarify that this applies to discretionary consents (only); given that other controlled activities and RDAs have their own criteria.	Support	The amendments provide clarification.	
		<b>Policy16</b>				
8-25	Tauranga City Council		Amend policy to describe how decision-makers may/should include one or more of the following measures as a condition on a resource consent unless circumstances determine that to be unnecessary. Add an Advice Note to	Support	The amendments would provide more clarity.	

Sub- mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			clarify that municipal water supplies need to be given priority to ensure that a secure and healthy drinking water supply is maintained at all times. Delete reference to “cease taking” under Policy WQ P16(d). Alternatively, replace this with ‘manage’ or ‘reduce’. Amend WQ P16 to clarify that this applies to discretionary consents (only); given that other controlled activities and RDAs have their own criteria.			
		<b>Policy17</b>				
60-6	RLC		Amend WQ P17 (c) as follows:  “When determining the duration of a resource consent to take and use water, to apply a: ... (c) Longer consent term if the take and use of water: ... (i) Enables the use or development of regionally significant infrastructure; or ... (iv) Enables the use or development of municipal supplies”		WQ P17 proposes a consent term of no more than 10 years for water bodies which are at or exceeding the interim limits in WQ P5 and 15 years for all other water bodies. PC9 also allows for longer term consents if the take and use of water enables the use or development of regionally significant infrastructure. RLC supports this last point, subject to including municipal supplies under this section.  A consent period of between 25 and 35 years is required to reflect the financial investment and to provide security of supply. It is best to secure a longer consent term to align with the design of long term infrastructure. It could take up to two years to renew or update consent conditions and providing for projected future demand through a longer consent term allows RLC to meet any sporadic, rapid growth and increased demand.	The proposed amendments to Policy 17(c) in section 3 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this submission of RLC.
FS to 60-6	Horticulture NZ			Oppose	Policy WQ P17 sets out a duration of the consent that is consistent with Policy WQ 8B(i) of the RPS.	
	Federated Farmers			Oppose	We do not agree that municipality water supply ought to be given priority. We consider longer terms may be appropriate and that the duration of the take is more appropriately as per Federated Farmers’ Policy WQ P15(n): <u>(n) The duration of the take:</u> <u>(i) Consent term of no more than 20 years for waterways which are at or exceeding the flow and allocation regime determined in accordance with Policy WQ P2;</u> <u>(ii) Consent term of no more than 25 years for all other waterways; except where the consent:</u> <u>1. Enables the use or development of regionally significant infrastructure; or</u> <u>2. Is for a non-typical activity such as dewatering and the access to, and use and development of, mineral resources; or</u> <u>3. Is demonstrated by the applicant to be appropriate in the circumstances.</u>	
	Ngati Rangiwewehi			Neutral		
	Whakatane DC			Support		
		<b>Policy21</b>				
12-21	Whakatane District Council		Retain policy WQ P21 unchanged.	Support	For reasons stated in the submission	
48-24	Western Bay of Plenty District Council		The Western Bay has five municipal water supply zones with associated water safety plans. Clarification is needed as to whether a WMP will be required for each zone or whether a local authority could apply for a single	Support	RLC considers that the Water Management Plan should be for the entire district. In order to provide this, it may require WMP-type assessments on the individual supply zones. However, clarification would assist plan users.	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			comprehensive WMP to cover the entire District.			
		<b>Policy 24</b>			<b>Refer to RLC original submission</b>	
60-8	RDC		Change the frequency of reporting for municipal supplies in WQ P24(f) and in the table that follows, to be monthly. The monthly report should include a summary and conclusions of the water take for the month, together with the data for the daily water take over the past month.		The proposed electronic reporting of water takes on a daily basis as per WQ P24 (f) and "Consent surface water rate of take equals or exceeds 2.5 litres" in the table that follows is impractical and inefficient. RLC can provide the raw data of daily takes to BOPRC, but that would require analysis by a water engineer. A monthly reporting to BOPRC is suggested that will include a summary of the raw data, together with the daily data.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this submission of RLC.
60-9	RDC		Clarify under WQ P24(f) and in the table that follows, that municipal water metering, reporting and accounting only relates to data captured where RLC takes water (at source) for supply to its district.		RLC understands that the metering provisions of PC9 (specifically WQ P24) do not relate to any 'within water reticulation system' metering, even if that water is used for non-domestic use. The definition of 'municipal water supply' on page 51 of PC9 makes it clear that it includes industrial, commercial and irrigation users who are supplied water by a territorial authority. Metering is only required for the RLC's water takes where it takes water for supply (at source) and these takes already will have meters installed. This needs to be made clear as a number of the requirements of Schedule 7 suggest a much more comprehensive metering system is anticipated within the reticulation system.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission and is supported.  Consequential to the s.42 amendments to Schedule 7, RLC is proposing a new criteria be included. If these amendments are accepted by the Committee, that would satisfy this submission of RLC.  Refer to Appendix 4, Water Metering for further evidence or discussion relating to this matter.
		<b>Policy 25</b>				
8-28	Tauranga City Council		Seek clarification on the following aspects: • How the freshwater management units will be established, • How limits will be set, and • How details of all abstractions will be determined. TCC seeks flexibility in setting allocation limits for varying river sizes and sources of water supply.	Support	RLC agrees that clarification if required on how the FMUs will be addressed, limits set and records determined of all abstractions. Flexibility in setting allocation limits for varying river sizes and sources of water supply is appropriate. This is necessary to ensure that the 'accounting system' is based on an acceptable limit according to the specific circumstances, as any general limit set under WQ P5 is too precautionary.	
		<b>Policy 27</b>				
12-23	Whakatane District Council		Retain policy WQ P27 unchanged.	Support	Reasons stated in submission	
		<b>Policy 31</b>				
60-12	RLC		Provide first priority allocation to municipal supply within WQ P31 list of water abstractors during times of low water flows or aquifer levels.		WQ P31 gives priority to water abstraction for domestic, sanitary and animal drinking needs, non-consumptive takes, municipal supplies and crop and rootstock survival (these not being in order of priority) during times of low water flows or aquifer levels.  RLC supports priority takes by the above water abstractors, but consider that there should be a further prioritisation set within those specified. We advocate for municipal supply to be the first priority amongst the uses mentioned in this list. The municipal supply provides water to the hospital, fire service, domestic and sanitation needs for the majority of water users, as well as to some rural areas and therefore it warrants being first priority in this list.	The proposed amendments to Objective 8 in section 1 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
FS to 60-12	Federated Farmers			Oppose	We do not agree that municipality supply which includes takes for commerce and industry should get a priority over the need of water for drinking, sanitation and health of humans or animals. We accept that municipality supplies where they provide for the drinking sanitation and health should at best be equal to such other takes but consider that other uses of municipality supplies should be excluded from any priority.	
	Ngati Rangiwewehi			Neutral		

Sub- mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
	TCC			Support		
	Whakatane DC			Support		
	Mercury			Oppose	This submission is opposed as the advice note in WQ P31 should be retained to state that the list is not in order of priority. If an order of priority is given under WQ P31 then a more robust discussion is required in relation to the priority order, including water required for the continued operation and security of electricity supply of existing renewable electricity generation activities, as sought in Mercury's submission.	
		<b>Rules</b>				
39-29	Royal Forest and Bird Protection Society NZ		All discretionary consents in over allocated areas should be subject to financial contributions	Oppose	It is premature to consider financial contributions whilst the Water Management Areas have not yet been identified.	
		<b>Rule 3</b>				
60-14	RLC		Correct reference to Rule 52 in the Advisory note under WQ R3, to clarify that it refers to rule 52 in the Regional Water and Land Plan.	RLC has not further interest in rule 3 and do not wish to be heard on this submission point.	General error	
		<b>Rule 6</b>				
60-7	RLC		Delete subsection "c" and allow increase in use, whilst consented allocation remains the same.		<p>The controlled criteria for municipal water supplies in subsection (c) in rule WQ R6, which would enable the BOPRC to impose restrictions on the taking of water when minimum flow or minimum aquifer levels are reached, is opposed for the reasons stated below.</p> <p>The municipal supply sourced from the Taniwha Springs needs to be re-consented in 2018 and will be subject to the restrictions on the taking of water during minimum flow. Reduced flows may result in adverse effects downstream from the take.</p> <p>Most of RLC's other existing consents will only lapse after the new WMA and limits have been identified and would thus not be subject to this provision. However, if the new limits don't account for future growth, the reduced flows could adversely affect the stability of the municipal supply. Since the WMAs and their new limits are unknown at this stage, RLC cannot support WQ R6 (c).</p> <p>In terms of water management at periods of low flow, RLC has advised the community to lower their use (garden irrigation, car washing, etcetera) during peak summer periods and that has been effective to date. RLC would like to maintain autonomy in the management of water supply from municipal water takes. We already aim to manage water supply in the most efficient way by controlling water pressure to reduce loss through leaks, etc.</p>	<p>The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this submission of RLC.</p> <p>The deletion of "cessation" of take during minimum flow is supported. Retaining "restrictions" of take during minimum flow can be assessed as part of Schedule 7. Schedule 7 drought management measures are reasonable and is thus supported.</p>
FS to 60-7	Whakatane DC			Support		
	Ngati Rangiwewehi			Neutral		
	Federated Farmers			Oppose	We consider that there should be a restriction or cessation of take when the instream minimum flow or minimum aquifer levels are reached. This is because municipality supply is used not just for	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
					domestic and sanitation reasons but also for industry and commerce.	
	Horticulture NZ			Oppose	The NPUDC does not provide an unfettered priority of resources to enable urban growth. HortNZ does not support the bundling of domestic and municipal water supply.	
60-13	RLC		Clarify that the municipal supplies under rule WQ R6 may be for the same volume and rate as previously consented, which includes an increase in actual use up to the consented, allocated volume in order to meet future demands.		Under Rule WQ R6, subsection 2, the taking and use of water for municipal water supply is a controlled activity provided that the application retains the same or lesser rate and volume of water authorised by the existing resource consent. RLC supports the controlled activity status.  However, it also requires the applicant to be subject to Schedule 7, which clearly anticipates that additional water may be needed to meet future demands for water, which in turn would necessitate an increase in allocation. RLC considers that Schedule 7 allows for the increase in the volume of actual use, whilst the consented or allocated volume remains the same as the original consent.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this submission of RLC.  The s.42 recommendation is preferred above the proposed amendments to Rule 6 in section 4 of Appendix 1, Joint Evidence of Territorial Authorities.
60-13	TCC			Support	TCC supports the controlled activity status for renewal of existing municipal water supplies; however TCC sought further amendments relating to existing consented takes as of 18 October 2016 and 'subsequent renewals'. Refer to TCC submission	
79-5	Ngati Rangiwewehi		That limits on the maximum pumpage are imposed on all municipal water takes consents	Support	Agree that annual maximum pumpage is a better measure than using daily maximum rate. Agree to the proposed limits as long as sensible methods for peak and annual take is set, which provides for future growth.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
79-5	Ngati Rangiwewehi		That water take applications for municipal water supply is supported by strong hydrological data focussed on the impact of the take at the point of take, rather than on the average across the waterbody	Support	Agree because when measurements are taken at a different point than the point of take, it produces a false measurement. Suggest that appropriate provisions are added to plan change 9 to address this issue.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
79-7	Ngati Rangiwewehi		Retain controlled activity status, subject to considering special conditions, specific to different water bodies	Support	Reasons stated in the submission	In addition to retaining the controlled activity status in Rule 6, RLC supports the proposed amendments in section 5 of Appendix 2, Joint Evidence of Territorial Authorities with relation to it being a non-notified application.
15-7	Bay of Plenty District Health Board		That Council adopts the proposed plan changes which will ensure that all applications to renew consents for existing municipal takes that meet criteria must be granted. That Council includes community drinking-water supplies registered with the Ministry of Health in the same manner as that proposed for municipal water supplies.	Support	Reasons stated in the submission	
11-21	Bay of Plenty Regional Council		Change 'Maori' to 'tangata whenua' as follows: "(g) The extent to which the applicant has consulted with tangata whenua and taken into account tangata whenua values."	Support	RLC supports the idea of consulting with iwi or hapu that have kaitiaki over a water source (manawhenua). Since there may exist uncertainties around where these manawhenua boundary fences are, the use of the term "tangata whenua" is supported. However, this needs to be defined because some people would still consider the use of 'tangata whenua' to mean either 'the people of the land' or maori, which is has a wider concept.	Accept staff recommendation to change reference of "Maori" to "Tangata Whenua".
50-91	Federated Farmers of New Zealand		Change the activity status for the take and use of water for existing municipal water supplies from controlled to restricted discretionary.	Oppose	RLC has made significant long term investment in the existing municipal water supply and a review of an existing consent should not be able to be declined.	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this further submission of RLC.
65-87	CNI Iwi Land Management Ltd		Revise WQ R6 by replacing the word "outlined" with the word "set" in clause 3 and adding clause (h) the	Oppose	There are exceptions where uses other than drinking and sanitation needs form part of the existing municipal supply due to it being part of a semi-urban area. Normal rural uses with high	The recommended amendments in the s.42 report would satisfy this further submission of RLC, as long as no further amendments are proposed to exclude non-domestic uses from municipal supply.

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			extent to which the supply is used for purposes other than domestic water use. Or words to like effect		water demand would not form part of a municipal supply due to the impracticability of such properties being serviced. There is therefore no risk of these uses being approved because of commercial or industrial uses being included in the definition of municipal supply.	
		<b>Rule 11</b>				
8-39	Tauranga City Council		Amend Rule WQ R11 - Discretionary to: Clarify that any review triggered by exceeding instream minimum flow limits applies to new takes enabling a review condition to be imposed. • Replace the reference to WQ P5 with WQ P2 to ensure that any review is based on the final limits for the WMAs.	Support	It would be inappropriate to review existing municipal water supply consents based on interim limits under WQ P5.	The s.42 staff recommendation aligns with the proposed amendments to Rule 11 in section 6 of Appendix 2, Joint Evidence of Territorial Authorities. If this is accepted by the Committee, that would satisfy these further submissions of RLC.
10-34	Oji Fibre Solutions and Norske Skog Tasman		Delete the following paragraph from WQ R11: "In relation to this rule, Bay of Plenty Regional Council may review resource consents for the take and use of surface water where the total volume of water authorised to be taken from a stream or river reach is greater than that provided for in WQ P5"	Support	Resource consents should only be reviewed as part of a full catchment review process where a new minimum flow and allocation limit has been set for a catchment in accordance with Policy WQP2 and the Schedule 1 process.	
39-38	Royal Forest and Bird Protection Society NZ		Change activity status for takes from over-allocated catchments to non-complying	Oppose	A non-complying status for municipal supplies would be onerous and is not appropriate, even in over allocated areas, especially since the Water Management Areas have not yet been identified. Policy 10 already indicates that discretionary consents are likely to be declined, with some exceptions.	
		<b>Schedule 7</b>				
60-10	RLC		<p>1. Clarify under criteria 2 and 6 of Schedule 7 that assessment of existing and future demand, as well as water saving targets will be formulated from the metering data acquired in accordance with WQ P24(f) (water metering for municipal supplies will be at the source). This will address any conflict between WQ R6 (limited to the same or lesser volumes) and these clauses (providing for increase in demand).</p> <p>2. Alternatively:</p> <p>a. Amend criteria 2 of Schedule 7 to also consider any proposed implementation plans to monitor future demands by sector, in order to acknowledge that sector metering of municipal supplies needs to be implemented over the long term due to the costs involved.</p> <p>b. Clarify under criteria 6 of Schedule 7 that metering for individual uses or zones is not required.</p>		<p>Overall, we consider that the requirements of the water management plan in Schedule 7 are reasonable. However, the following is of concern and the intent needs to be clarified:</p> <p>i. Criteria number 2 under Schedule 7 requires comprehensive assessment of existing and future demands per land use type (domestic, commercial etcetera).</p> <p>RLC can make an educated projection of future demands per land use type based on the existing water use data available (which is not per sector). To improve the data, RLC is in the process of installing district meters, which would monitor takes per sector, which may include different land uses within that sector. However, this is a 5 year program. Many Councils haven't yet prepared sector based demand forecasts, especially if they don't have universal metering or robust data management of water meter billing data and the costs involved and staging of this needs to be taken into consideration.</p> <p>ii. Criteria number 6 under Schedule 7 relating to water saving targets for council owned facilities, domestic demand targets and demand saving targets for commercial and industrial customers, is opposed.</p> <p>It seems that in order to comply with the criteria, RLC will need to install meters for individual users and that is too costly. RLC does have sufficient information to set targets for the different demands without providing meters for individual users. Even though RLC is in the process of installing sector meters, there will be different uses/zones within each sector.</p>	<p>RLC in general supports the recommended amendments in the s.42 report.</p> <p>However, consequential to the s.42 amendments to Schedule 7, RLC is proposing a new criteria or similar narrative be included as follows:</p> <p>19. <u>Where individual water metering is not available or proposed, the following will be taken into consideration:</u></p> <p>a. <u>Existing or planned alternative water efficiency measures</u>  b. <u>Financial feasibility of providing individual water meters (including investment proportionate to the scale of the activity)</u>  c. <u>Level of water loss due to inefficiencies in the reticulation system</u></p> <p>Refer to Appendix 4, Water Metering for further evidence or discussion relating to this matter.</p>

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
					Many councils have only set a total demand and/or residential demand target and haven't yet prepared targets for each customer sector (especially council owned facilities).	
FS to 60-10	TCC			Support		
	Ngati Rangiwewehi			Neutral	Support precautionary approach to water allocation – as per kaitiaki flow	
60-16	RLC		Section 9(i) in Schedule 7 in the list of requirements of the Water Management Plans refers to a 'Policy 80B'. No such policy exists, either in PC9 or the current Regional Water and Land Plan. There was, however, a Policy 80B included in the earlier Region-wide Water Quantity Plan Change Discussion Document (July 2015), and the wording of that policy is similar, but slightly different as it includes a new clause (e), to the proposed Policy WQ P31. Clarify if the reference to Policy 80B was meant to be Policy WQ P31.		General error	The recommended amendments in the s.42 report aligns with the decision sought in this RLC submission. If this is accepted by the Committee, this would satisfy this submission of RLC.
31-52	Mercury NZ Limited		Amend Standard 9(i) as follows or words to like effect: "Steps to be taken to reduce consumption during water shortage conditions, including ensuring that commercial, industrial and irrigation users within the municipal water supply are restricted to a similar extent to which such uses would be restricted if they were not part of the municipal water supply network."	Oppose	With the amendments proposed by RLC (change reference of policy 80B to policy 31), all municipal supply users will be exempt from 9(i). Although the principle of what the submitter is proposing is understood, it is considered impractical to require a reduction of water take for a few uses (e.g. commercial) that form part of an overall system until individual metering is in place. Refer to RLC's submission 30-10 in this regard. RLC cannot make a distinction between uses when calculating the demand for water within its reticulation system as they all form part of a community e.g. a supermarket could be considered part of the primary needs of the domestic uses.	The recommended amendments in the s.42 report would satisfy this further submission of RLC, as long as no further amendments are proposed to exclude non-domestic uses from municipal supply.
65 - 93	CNI Iwi Land Management Ltd		Revise the definition as follows: "Municipal water supplies The Water Management Plan shall establish a long term strategy for the water requirements of domestic or municipal suppliers and their communities. It shall demonstrate that the volume of water required, including any increase over that previously authorised, has been justified and that the water take will be used efficiently and effectively. A Water Management Plan is required for the consent to continue, an existing take, a new application, and on review of consent."	Oppose	RLC support TCC submission 8-44 to WMPs to be provided on a voluntary basis for existing takes and thus oppose CNI's suggestion that this should be a requirement.	
8-44	Tauranga City Council		TCC supports the use of WMPs for new municipal water supply takes, as a means of compliance with low flow management; and to address matters relating to effectiveness and efficiency of the distribution network to minimise water losses. This can be provided on a voluntary basis for existing municipal water supply takes, and as a requirement for new consents and consent renewals.	Support	RLC agrees that WMPs should be on a voluntary basis for existing municipal water supplies and a requirement for new consents and consent renewals.	

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
		<b>Municipal water supplies</b>				
14-46	New Zealand Kiwifruit Growers		Amend Schedule 7 Municipal water supplies criteria as follows: Amend #2: "A comprehensive assessment of existing and future demands for water with regard to an assessment of reasonable population growth, economic drivers and climate change within the planning horizon to meet the following: a) Reasonable domestic needs. b) Public health needs in accordance with requirements under any Act of Parliament or regulation. c) Reasonable community needs (e.g. for public amenities). d) Reasonable commercial, rural supply and industrial needs. e) <u>The needs of other freshwater resource users in the region and impact on allocating water to domestic and municipal supply over other uses.</u> " Amend #2: "f) A justification for each of the assessments required by clauses a) to e) above including reference to any relevant planning instruments promulgated under the Resource Management Act 1991 that provide for future growth or relevant documents promulgated under the Local Government Act 2002 such as long term plans, growth strategies, <u>economic development strategies</u> or spatial plans." Amend #4: "How water reticulation networks are planned and managed to minimise their water losses as far as practicable, <u>including leak/loss detection and repair and unauthorised use investigation.</u> " Add, between #15 and #16: " <u>15A Strategies to separate the allocation and use of water for domestic (human drinking or human sanitation purposes) from other municipal users (industrial, commercial, agricultural). End users on the municipal supply should be defined and benchmarked to ensure the allocation and use is efficient. To support this water storage and reuse of non-potable water should be encouraged.</u> "	Oppose	RLC cannot consider the water needs of the whole district, if it only supplies to uses within the urban system. The need of other uses will be considered when the Water Management Areas are established.  The amount of water to be used by uses other than domestic and sanitation purposes, are already limited under subsection 15. There is no need to further split the allocation and use of water between these and other municipal uses.	
		<b>Definitions</b>				
8-40	Tauranga City Council	Municipal supply definition	Retain definition	Support	RLC supports that the supply may include industrial, commercial and irrigation supplies.	The retention of the Municipal supply definition as confirmed in section 7 of Appendix 2 Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
50-98	Federated Farmers of New Zealand	Municipal supply definition	Amend the definition of municipal water supply, by adding 'rural', as follows: "Municipal water supply - A reticulated water supply provided by a territorial authority primarily to meet	Support	RLC considers inclusion of the reference "rural" would not pose a risk of high water quantity rural users being subject to the same privileges as the basic domestic and sanitation needs. Due to impracticability, the rural farming activities are generally not supplied by municipal water reticulation systems. RLC does have	The retention of the Municipal supply definition without amendments as confirmed in section 7 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.

Sub-mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			domestic, drinking water and public health requirements. The supply may include industrial commercial, rural and irrigation supplies."		a few rural-type municipal supply users located in semi-urban areas such as Reporoa, and would therefore support the suggested amendment. These uses also have a domestic take element to them and are similar to domestic take. They may take more water at a point in time, but over a 24 hour period, don't use much more than any other domestic use.	Even though RLC supported Federated Farmers' suggestion to include "rural supplies" in the context of Rotorua district, it is acknowledged that this would not be the best approach in other districts. It is thus best not to include it in the definition that would apply to all districts.
65-92	CNI Iwi Land Management Ltd	Efficient allocation	Revise the definition of Efficient allocation as follows: In relation to freshwater allocation, including economic, technical and dynamic efficiency. And must be measured in conjunction with equity and sustainability.	Oppose	This definition was only provided for information purposes and was not part of the plan change. It is thus not appropriate to make a submission on it.	
8-43	Tauranga City Council	New definition: Regionally significant infrastructure	Add a definition for 'regionally significant infrastructure' that includes municipal water supplies	Support	This will have the same outcome sought in the RLC submission number 60-6	The proposed amendments to the Definition of Terms as outlined in section 2 of Appendix 2, Joint Evidence of Territorial Authorities, would satisfy this further submission of RLC.
13-28	Department of Conservation		Add new definitions: 1. Instream Minimum Flow Requirement : "The flow of water in a river or stream necessary to sustain aquatic life, water quality, recreational use, outstanding natural features or Maori cultural values." A Degree of hydraulic connection: "Direct: Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is greater than or equal to 80 percent of the maximum pump rate. High: Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is less than 80 percent of the maximum pump rate and the stream depletion effect of 150 days pumping at the average continuous rate required to deliver the seasonal volume is greater than or equal to 60 percent of the average continuous pump rate. Moderate: Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is less than 80 percent of the maximum pump rate and the stream depletion effect of 150 days pumping at the average continuous rate required to deliver the seasonal volume is (a) less than 60 percent of the average continuous pump rate; or (b) Has an overall magnitude greater than 5 litres per second. Low: Where the abstraction is not classified as having a direct, high or moderate degree of hydraulic connection." 3. Low flow: "Flows below the minimum flow" 4. Fresh Flows: "Flows between 1.5 and 3 times the median flow" 5. Channel forming flow: "Flow in the top 1% of	Oppose	The submitter is redefining minimum instream flow and this would adversely affect the municipal supply.	

Sub- mission Number	Submitter Name	Section Reference	Key point of Original submission	Support/ Oppose	Reason	Comments to Hearing Panel
			flows" 6. Seven Day Mean Annual Low Flow: is determined by adding the lowest seven day low flow for every year of record and dividing by the number of years of record (In any year the seven day low flow is the lowest average flow sustained over seven consecutive days).			
73-18	Fonterra Co-operative Group Limited		Add as new definition of "fully allocated" as follows: "In relation to surface water means the level aggregate abstraction from any point on a surface water body that is equal to, or exceeds the primary allocation available at that point on the water body as calculated by the Regional Council in accordance with WQ P5(b)) and which is published on the Council's website. Except that: For the purpose of the NPS FM over-allocation does not occur if the level of abstraction that exceeds the primary allocation complies with the provision for a secondary and/or water harvesting allocation determined in accordance with WQ P6 and WQ P8; and In relation to groundwater means the aggregate level of abstraction from an aquifer that is equal to or exceeds the allocation limit for groundwater calculated by the Council in accordance with WQ P5(d) and which is published on the Council's website."	Oppose	The proposed definition seems circular and could impact on the priority of municipal supply.	

## APPENDIX 2

### JOINT TERRITORIAL AUTHORITY EVIDENCE

In their submissions and further submissions, the Territorial Authorities (TAs), Rotorua Lakes Council, Tauranga City Council, Western Bay of Plenty District Council and Whakatane District Council, sought similar outcomes with regard to certain provisions of Plan Change 9. In order to assist the Committee, the TAs workshopped the various issues after the further submission period closed and agreed that the proposed amendments below would address their key concerns raised.

It is acknowledged that the staff recommendation in the s.42 report did align with some of the proposed amendments or recommended a similar outcome. Where RLC accepts those recommendations, it is noted in Appendix 1, List of RLC submissions. The relevant RLC submission number is listed below for ease of cross-reference.

RLC supports the Statement of Evidence by Richard George Harkness, provided on behalf of Tauranga City Council in as far as it is applied to municipal supplies in general.

#### **RLC further submission to submission number 48-11 (Refer to Appendix 3 for further evidence regarding urban growth)**

1. Amend Objective WQ O8 – to recognise the long term certainty and priority required for safe and adequate municipal water supplies, recognising the need to provide for future growth and urban development capacity.

WQ O8: Decision-making and allocation of freshwater resources in the Bay of Plenty recognises the:

- (a) Social, economic and cultural benefits from the use of water for domestic, marae or municipal water supply, including in particular essential drinking and sanitation requirements.
- (b) ..
- (c) ...
- (d) ...
- (e) The long term certainty and priority required for safe and adequate municipal water supplies, recognising the need to provide for future growth and urban development capacity.

#### **RLC further submission to submission number 8-43:**

Add to 'Definition of Terms' a description of "regionally significant infrastructure" which describes **municipal water supply** as being regionally significant infrastructure; on the same basis as is described in the proposed Bay of Plenty Regional Coastal Environment Plan and in the Bay of Plenty Regional Policy Statement.

#### **RLC submission number 60-6:**

3. Policy WQ P17(c) to be amended as follows

- (c) Longer consent term of **up to 35 years** if the take and use of water
- (i) Enables the use or development of regionally significant infrastructure; or
  - (ii) Is for a ... or
  - (iii) Is demonstrated by the applicant to be appropriate in the circumstances

**RLC submission numbers 60-7 and 60-13 (Note that the s.42 recommendation is preferred)**

4. Rule WQ R6 to be amended where a municipal water supply is a Controlled Activity providing the application relates to an existing take authorised by a resource consent as of 18 October 2016 **and subsequent replacement applications**; and retains the same or lessor rate and volume of water authorised by a resource consent as of 18 October 2016 **and subsequent replacement applications**;

...

**Not relating to any RLC submission, but supported by RLC**

5. BOPRC to confirm that Controlled Activities as non-notified, based RMA Amendment Act provisions.

**RLC further submission numbers 8-39, 10-34 and 39-38**

6. Rule WQ R11 for discretionary take and use of water to be amended where reference is made to a possible review of resource consents to take and use water from a stream or river, and the total volume of water authorised to be taken exceeds what is provided for under **WQ P2** (for WMAs); and not the interim thresholds of WQ P5.

**RLC further submission number 8-40**

7. Definition for municipal water supplies to be retained (exactly) as publicly notified.

**RLC submission number 60-3 (Refer to Appendix 3 for further evidence relating to urban growth)**

8. Amend WQ O5 as follows:

Plan to meet the water demand of land use changes, including urban growth and land use or intensification, taking into account ~~are planned to account for~~ water resources limitations of the location, particularly in areas with existing and projected high water demand, and limited water resources.

**RLC submission number 60-5**

9. Amend WQ P10 by either:

(i) Deleting reference to "~~generally decline applications~~" and replacing with the wording with 'to require a comprehensive assessment for the take...'.

OR

(ii) Alternatively, if the reference to "~~generally decline applications~~" remains unchanged, then amend WQ P10 as follows:

“To generally decline applications to take and use surface water or groundwater, where the water resource is allocated above the limits identified in WQ P5 unless the application is:

- (a) A replacement application for renewal of an existing authorised take due to expire that is:
  - (i) At the same or lesser rate and volume of take; and
  - (ii) Assessed as a reasonable and efficient rate and volume of take; or
- (aa) For a municipal take that exceeds the existing authorised rate and volume of take provided the application is subject to a Water Management Plan, which meets the requirements outlined in Schedule 7; or
- (b) For the harvesting of surface water under WQ P6; or
- (c) For secondary allocable flow under WQ P8(a); or
- (d) Supported by a detailed assessment of environmental effects which demonstrates:
  - (i) That the proposed take is reasonable, efficient and will meet WQ O3 or WQ O4;
  - (ii) Consideration has been given to alternative water supplies, rates of take and timing of take;
  - (iii) Water conservation measures are proposed for times of low water flows or aquifer levels; and
  - (iv) The extent to which the proposed take will result in social, economic, cultural or ecological benefits.

## APPENDIX 3

### FUTURE GROWTH AND URBAN DEVELOPMENT

This evidence relates to the RLC submission and further submissions stated below, as well as consequential amendments to the following:

RLC submission numbers 60-1, 60-2 (Overarching), 60-11 (Policy 8) and

RLC further submissions to submission numbers 8-2 (Issue 2), 8-4, 12-6, 48-6 (Issue 8) , 8-6, 50-11 (Objective 1), 8-7 (Objective 3), 65-18 (Objective 5)

#### RLC Submission nr 60-3 relating to WQ O5

##### REGIONAL POLICY STATEMENT AND NPSUDC DIRECTION

The s.42 report (Page 102, paragraph 22) states that WQ O5 and WQ P27 are consistent with Policy WQ 6B of the Regional Policy Statement (RPS). RLC agrees that WQ P27 is consistent with the RPS, but considers WQ O5 to be inconsistent with the RPS. Relevant sections are underlined below to emphasize the difference in approach between the RPS and WP O5:

The RPS which states:

*“when applying for designations, plan changes, land use and/or subdivision consents the applicant should ensure that there is sufficient water available at the location to support the activity”.*

Objective WQ O5 states:

*“Land use changes, including urban growth and land use intensification, are planned to account for water resource limitations of the location, particularly in areas with existing and projected high water demand, and limited water resources”.*

Although the intent of O5 may be that you take into account water resource limitations in your planning (which RLC agrees with), it could also be interpreted to signal that you should not plan for land use changes unless there are sufficient water resources available. This is confirmed by WQ I2 and WQ I3, which clearly anticipate urban growth being limited, depending on water limitations:

*WQ I2 Increasing demand for water in the Bay of Plenty is placing pressure on streams, rivers, springs and groundwater.*

*Increasing water demand in the Bay of Plenty is evident due to increasing amounts of water being abstracted for irrigation, domestic water supply (e.g. life-style blocks), and municipal water supply as a result of population growth. Increased water abstraction is inappropriate where it may cause significant or cumulative adverse effects on the environment and the resulting availability of water resources may limit land use intensification or urban growth in some areas of the region.*

*WQ I8 The ability to provide for the growing social and economic needs of people is dependent on water being available.*

*Key social and economic activities in the region require reliable and secure access to water.*

Although, you cannot have urban growth without available water, there are many other methods to address water demands, that may be explored by various municipal supplies in the future or that could relieve the pressure on freshwater sources required by municipal supplies e.g:

- a) Water recycling, reclamation and reuse - Gray water that has been reclaimed from municipal wastewater, or sewage.
- b) Rainwater, dew or fog harvesting – accumulation and storage of rainwater, dew or fog for reuse, rather than allowing it to run off.
- c) Desalination - an artificial process by which saline water (generally sea water) is converted to fresh water

Restrictions on abstractions due to limitations on the availability of surface or ground water (Managed by BOPRC) is appropriate, but since these would trigger the need to look at alternative water sources as mentioned above, it is not appropriate for Plan Change 9 to limit urban growth, based on water resource limitations.

The last-mentioned scenario would be contrary to the RPS and the National Policy Statement of Urban Development Capacity (NPSUDC). The RPS only requires water to be available when you apply for land use changes, not when you plan for it. Rotorua district has been identified as a medium growth area under the NPSUDC:

- The NPSUDC provides direction to decision makers under the Resource Management Act 1991 (RMA) on planning for urban environments. There is a particular focus on enabling urban environments to grow and change in response to changing needs and provide enough space for their population to live and work. This can be through intensification of existing areas and growth into greenfield areas.
- The NPSUDC requires councils to provide in their plans enough development capacity to ensure that demand can be met and must be supported by infrastructure (PA1 and PA2). Development is dependent on infrastructure and decisions on infrastructure will shape the urban environment.

The s.42 staff report acknowledges (paragraph 25) that “With forward planning, Councils’ have a range of options available that will generally enable them to address water requirements for urban development”. It is thus not necessary to restrict forward planning or urban growth, based on available water resources. It should only require alternative sources to be sought.

The proposed amendments in Appendix 1, Joint Territorial Authorities Evidence better aligns with the aforementioned statement in the staff report and reflects the intent of the RPS:

Plan to meet the water demand of Land use changes, including urban growth and land use or intensification, taking into account ~~are planned to account for~~ water resources limitations of the location, particularly in areas with existing and projected high water demand, and limited water resources”.

### **RLC’s Further Submissions to submission numbers 8-11, 12-12 and 48-11 relating to WQ O8**

#### **RPS, NPS-FM AND NPSUDC REQUIREMENTS**

The proposed amendments in Appendix 1, Joint Territorial Authorities (TAs) Evidence requested the following amendment to WQ O8:

*“Decision-making and allocation of freshwater resources in the Bay of Plenty recognises the:*

(a) *Social, economic and cultural benefits from the use of water for domestic, marae or municipal water supply, including in particular essential drinking and sanitation requirements.*

(b) ..

(c) ...

(d) ...

(e) *The long term certainty and priority required for safe and adequate municipal water supplies, recognising the need to provide for future growth and urban development capacity*

The s.42 staff recommendation relating to WQ O8 in the track-change version of the plan is as follows:

*“Decision-making and allocation of freshwater water resources in the Bay of Plenty recognises the:*

*(a) Social benefits from the use of water for domestic, marae, or municipal water supply, including in particular essential drinking and sanitation requirements.*

*(b) Social, economic and cultural benefits that existing water takes contribute, which is often associated with significant investment.*

*(c) Tāngata whenua values and interests in the water body.*

*(d) Social, economic and cultural benefits that new water takes can provide.*

*(e) Benefits to be derived from the use of water for, or directly associated with, electricity generation from renewable resources.*

*(f) Long term certainty and priority required for safe and adequate municipal drinking water supplies*”

The staff report did not agree to include the TAs suggested words “recognising the need to provide for future growth and urban development” for the reasons stated below (Page 100, paragraphs 6, 7 and 8) for the following reasons:

“6. The NPS-FM 2014, identifies water supply as one of the ‘other national values<sup>35</sup>’ to be identified on a case-by-case basis depending on the respective FMU<sup>36</sup>.

Sub-notes: <sup>35</sup>The NPS-FM 2014 identified only two compulsory national values that shall be applied for all FMU, those are: Ecosystem health and Human health for recreation.

<sup>36</sup>Policy CA2(b) of the NPS-FM 2014.

7. Analysis on the section *“Recognising Existing users”*, provided responses to submissions received on proposed Objective WQ O8.

8. Objective WQ O8 aligns with the operative policy WQ 3B of the RPS, and it would be inappropriate to add further items that are not stated in the RPS. Operative Policy WQ 3B of RPS states in its explanation that

*“the scope of this [municipal use] priority is not unlimited and must be considered in relation to other matters listed in Policy WQ3B, especially efficient use and the availability of water for other uses. ...Demands on domestic or municipal water supply must not be seen as unlimited and should be constrained to avoid waste, uncontrolled consumption and associated cost”*

Also objective WQ O8(a) already requires decision makers to have regard to municipal water supply when allocating water”.

RLC would like to respond to the above comments in the s.42 report as follows:

## 1) Regional Policy Statement requirements

The amendments to WQ O8, suggested by the TAs aligns with the RPS – note the underlined section (b) of WQ 3B of the RPS and the “Explanation” below (The relevant sections are underlined for emphasis):

*Have regard to the following matters when allocating and reallocating water:*

- (a) Ensuring water in a water body is not over allocated;*
- (b) Giving priority to making water available to meet existing and reasonably foreseeable domestic and municipal water supply needs;*
- (c) The relative economic benefits of the proposed end use of the water, when allocation limits are exceeded, or are close to being exceeded;*
- (d) The cultural values of a water body;*
- (e) Requiring the volume of water allocated and taken to be reasonable and justifiable with regard to its intended use;*
- (f) The value of investments that existing consent holders have made which depend on the water abstracted;*
- (g) The availability of water for other uses; and*
- (h) The benefit to be derived from the use of water for, or directly associated with electricity generation from renewable sources.*

*Explanation:*

*...Domestic or municipal water supply is a principal user of water in the region and is to be given priority over other water takes. However, the scope of this priority is not unlimited and must be considered in relation to other matters listed in Policy WQ 3B, especially efficient use and the availability of water for other uses.”*

The amendments to WQ O8 as outlined in Appendix 1, proposed by the TAs, is merely asking to “Recognise” the need for future growth and priority required, not to disregard other users or water limitations.

When a municipal supply is upgraded to provide for future growth, it is making a long-term investment that has significant cost implications. A resource consent application will provide projections for future water demands and the proposed amendments to WQ O8 will enable decision makers to weigh future growth demands up against other existing users and availability of water resources.

## 2) National Policy Statement Requirements:

- a. Objective CA1 of the NPS-FM directs Policy CA2 (referred to in the s.42 report)

*Objective CA1*

*To provide an approach to establish freshwater objectives for national values, and any other values, that:*

- a) is nationally consistent; and*
- b) recognises regional and local circumstances.*

*Policy CA2*

*By every regional council, through discussion with communities, including tangata whenua, applying the following processes in developing freshwater objectives for all freshwater management units:*

*b) identifying the values for each freshwater management unit, which*

*i. must include the compulsory values; and*

*ii. may include any other national values or other values that the regional council considers appropriate (in either case having regard to local and regional circumstances); and*

RLC's submission is not seeking to add to the values outlined in Appendix 2 of the NPS-FM. Recognising future growth does not need to affect the compulsory values, ecosystem health and human health for recreation (Appendix 2 of the NPS-FM). As per Objective CA1 of the NPS-FM, it is seeking a national consistency, that recognise regional and local circumstances and to align with the other National Policy Statements as outlined below.

The NPS-FM recognises the need to provide for urban growth (economic opportunities) and the TAs suggested amendments are in line with the NPS:

National Policy Statement – Freshwater Management, 2014 and 2017 amendments, which came into force 7 September 2017 (The relevant sections are underlined for emphasis):

*Objective B5*

*To enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing freshwater quantity, within limits.*

*Objective C1*

*To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.*

*Policy C2*

*By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of: a) land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; ...*

Objective C1 and Policy C2 stipulates integrated management of freshwater and urban growth and the sequencing of urban growth and infrastructure. This cannot be achieved without recognising the need for future growth and urban development in WQ O8 (as requested in the submission):

- i. Future demand projections are required under section 16 of Schedule 7 of Plan Change 9. The proposed amendments to WQ O8 will enable decision makers to recognise future growth in line with these future demand projections.
- ii. Councils' reticulation system is designed based on long term demands. Councils undertake significant investments to meet future demands and require recognition of this when decision makers assess an application for future takes.

- iii. Without recognising water requirements for future growth, Councils cannot plan, budget or invest in long term infrastructure to meet the future growth demands.
- b. Local Authorities (Local and Regional Councils) have to provide for future growth and Plan Change 9 has to respond to that in accordance with Policy PC4 of the National Policy Statement for Urban Development Capacity (The relevant sections are underlined for emphasis):

*Local authorities shall consider all practicable options for providing sufficient, feasible development capacity and enabling development to meet demand including:*

- *Changes to plans and regional policy statements including zoning, objectives, policies, rules and overlays that apply in both existing urban environments and greenfield areas*
- *Integrated and coordinated consenting processes that facilitate development*
- *Statutory tools and other methods available under other legislation.*

WQ O8 thus need to enable decision makers to recognise future growth when assessing resource consents or allocating freshwater.

- 3) Although WQ O8(a) provide for the social benefit of municipal water supply, it does not specifically address urban growth. In the context of WQ O5 that, in its current form, could restrain planning for future growth due to limited resources, it is important that WQ O8 explicitly acknowledges the need to provide for future growth, when assessing resource consent applications.

The Committee is thus requested to adopt the suggested amendments to WQ O8 as outlined above and included in Appendix 1, Joint Territorial Authority Evidence and that consequential amendments are made to other parts of the plan in accordance with RLC submissions and further submissions.

## APPENDIX 4

### WATER METERING

#### RLC's submission numbers 60-9 (Policy 24), 60-10 (Schedule 7) and 60-1 (Overarching)

RLC supports the amendments to WQ P24 and Schedule as recommended in the s.42 staff report, requiring data logger or telemetry recordings of the take (at the water source), which is not available for individual water consumer meters.

Following RLC's submission relating to individual water metering, BOPRC has confirmed the intent of Plan Change 9, which aligns with the amendments in the s.42 report:

- 1) Individual water metering is not a requirement
- 2) There is an expectation that applicants will have individual water metering, since accounting of all water takes is promoted under Objective 10, Policy 2, Policy 13, Policy 16, Policy 24 and Section 2 and 6 of Schedule 7
- 3) Without individual water meters, an applicant may have difficulty to demonstrate that considerable consideration has been given with regard to water conservation. If individual meters are not available, BOPRC will consider the following:
  - a. If you have already achieved efficiency through other measures
  - b. Financial reasons
  - c. If you already have a low use
  - d. Metering to be appropriate to the scale of the activity

In the light of the above, there is a potential for the Regional Council to impose conditions relating to individual water metering when renewing consents. This is a very significant issue for Rotorua Lakes Council. As detailed in Eric Cawte's evidence below, it is not financially feasible for Rotorua to provide individual water meters and there are alternative methods available that have better environmental outcomes through improving the efficiency of the reticulation network.

**RLC is therefore seeking to include the following criteria in Schedule 7 to support an application for water take where no individual meters are available, thereby securing municipal supply as sought in RLC's submission:**

*"19. Where individual water metering is not available or proposed, the following will be taken into consideration:*

- a. *Existing or planned alternative water efficiency measures*
- b. *Financial feasibility of providing individual water meters (including investment proportionate to the scale of the activity)*
- c. *Level of water loss due to inefficiencies in the reticulation system*

**Although it is acknowledged that the s.42 report clarifies that individual water meters are not required, the following evidence, prepared by Eric Cawte, is included to support RLC's initial submission and to justify the inclusion of criteria 19 as outlined above.**

**STATEMENT OF EVIDENCE OF ERIC GEORGE CAWTE  
ON BEHALF OF ROTORUA LAKES COUNCIL**

**7 MARCH 2018**

---

**1. INTRODUCTION**

1.1. My full name is Eric George Cawte. I am the 3-Waters Services Manager at Rotorua Lakes Council (RLC.)

I hold a NZ Certificate in Civil Engineering and a National Diploma in Drinking Water Assessment. I have 33 years in the municipal infrastructure services industry, the Last 20 years with responsibility for water and wastewater operations and service provision at RLC. I am an active member of Water NZ's Water Services Managers Group and have previously served on that groups executive committee for ten years. I am currently a member of the Bay of Plenty Lifelines Group Executive Committee.

1.2 Below is the evidence in support of RLC's submission to Plan Change 9 water accounting requirements:

Importance Of A Strategic Plan For Water Efficiency

Rotorua Lakes Council recognises the importance of ensuring that water taken for municipal purposes is used efficiently and that one of its key responsibilities as a water supplier is to have and implement a planned programme of water conservation measures.

RLC supports the adoption of criteria for Reasonable and Efficient Use for water such as those contained in Section 7 so that suppliers can have access to guidance about measures that should be considered in adopting conservation strategies.

Rotorua Lakes Council's Water Conservation Strategy (attached as Appendix 5) outlines its programme of proactive measures in three areas:

- Analysis of production, usage and losses
- Management of the water distribution system
- Management of consumer demand

and is the subject of an updated report describing the progress that has been and is being made in implementing the strategy. This is attached as Appendix 6.

It is recognised that volumetric charging for water is an effective driver for efficient use, and so the last of the three areas in the strategy contains a section devoted to universal water metering and the charging for water to residential properties on the basis of volume consumed.

Water Metering Requirements – Fit for purpose

However, it should also be recognised that consumer behaviour is only one of several areas where inefficiencies can occur and that volumetric charging is only one of a number of tools that can be used to influence behaviour, as well as to provide information on consumption patterns.

It is important that local authority water suppliers carry out “rigorous evaluations of the costs and benefits of supply and demand strategy options, to choose the most cost-effective and sustainable options.”

(Local Government: Results of the 2008/09 Audits. Part II – Local Authorities. Planning to meet the forecast demand for drinking water – Office of the Auditor-General. February 2010.)

Rotorua Lakes Council has 9 water supplies – 3 urban and 6 rural residential or farming supplies. All rural supplies are universally metered with volumetric charging and the 2 farming supplies are also flow restricted. The 3 urban supplies which encompass Rotorua city have metering and volumetric charging for commercial and industrial consumers, with residential consumers unmetered.

Rotorua Lakes Council has periodically assessed the costs and benefits arising from extending metering and volumetric charging to urban residential consumers, and has also considered this option against the costs and benefits from other water conservation measures and projects.

In 2014 Council considered a project to reconfigure its larger urban supply networks, to enable better measurement and analysis of network leakage and on-property losses, and also to enable significant pressure reduction which is known to directly reduce leakage. Council determined that this project provided better benefits to water conservation in relation to cost than universal water metering, and this project is ongoing.

This decision followed a comparison between the estimated costs and benefits of this project and those accruing from universal metering. Some of the data and assumptions have been updated, and this has resulted in the following figures:

	<b>UNIVERSAL WATER METERING</b>	<b>NETWORK SECTORISATION</b>
Capital Installation Cost	\$7,300,000	\$1,643,000
Capital Cost Annualised	\$740,000	\$216,000
Annual Operating Cost	\$400,000	\$10,000
Potential Operating Cost Savings	<u>-\$110,000</u>	<u>-\$41,000</u>
Net annual cost	<u>\$1,030,000</u>	<u>\$185,000</u>
Average annual cost per urban consumer	<u>\$49.90</u>	<u>\$8.96</u>
Estimated annual reduction in water use/loss	<u>1,168,000 m3</u>	<u>1,026,000 m3</u>

### Necessity To Prioritise Spending Across Municipal Services

Operating and maintaining critical services and infrastructure such as water supply, wastewater and stormwater services account for only part of the budget demands of local authorities. Even within the 3-waters area, competition is strong for budgets to address issues such as increasing drinking water treatment requirements, more stringent wastewater discharge requirements, replacement of ageing infrastructure and catering for growth.

Whilst environmental considerations are extremely important, and it is ideologically desirable to undertake every measure that could contribute to a positive environmental outcome, the fact is that Councils must prioritise expenditure to achieve the most cost-effective outcomes. RLC is already

budgeting to fund \$47 million from ratepayers in the draft Long Term Plan for environmental outcomes for Lakes Rotorua, Rotoiti, Rotoehu, Rotoma and Tarawera.

It also needs to be recognised that the environmental, economic and service provision drivers may vary between different municipal water service providers. Examples of these drivers are: competition/allocation for resources, district growth projections and resulting requirement for capital additions to infrastructure, and performance of networks in terms of leakage and losses.

The districts within the Bay of Plenty Region have significant differences in the above drivers and it could be counterproductive if planning rules force all municipal suppliers down a common course of action such as universal water metering, when this may not be the most effective tool to achieve the best environmental outcomes.



# WATER CONSERVATION STRATEGY 2009

**ROTORUA DISTRICT COUNCIL**  
**WATER CONSERVATION STRATEGY 2009**

**I N D E X**

<b>1. INTRODUCTION</b>	<b>1</b>
<b>1.1. Overview of Rotorua’s Water Supplies</b>	<b>1</b>
<b>1.2. Why Have a Water Conservation Strategy?</b>	<b>1</b>
<b>1.3. Objectives</b>	<b>2</b>
<b>1.4. Document Structure</b>	<b>2</b>
<b>2. EXECUTIVE SUMMARY</b>	<b>3</b>
<b>2.1. Production</b>	<b>3</b>
<b>2.2. Distribution System Management</b>	<b>4</b>
<b>2.3. Consumer Demand Management</b>	<b>4</b>
<b>3. ANALYSIS OF PRODUCTION, USAGE AND LOSSES</b>	<b>6</b>
<b>3.1. Production</b>	<b>6</b>
3.1.1. Metering at Headworks	6
3.1.2. Zone Metering	6
3.1.3. Meter Maintenance/Calibration	6
3.1.4. Production Data	6
3.1.5. Actions	7
<b>3.2. Usage</b>	<b>8</b>
3.2.1. Metered Consumption (Rural and Urban Commercial)	8
3.2.2. Non-metered Consumption	8
3.2.3. Actions	9
<b>3.3. Losses</b>	<b>10</b>
3.3.1. Leakage, Unbilled and Unauthorised Consumption	10
3.3.2. Leak Detection	10
3.3.3. Mains Breaks	10
3.3.4. Actions	11
<b>3.4. Targets</b>	<b>12</b>
3.4.1. Actions	12
3.4.2. System Losses	12
3.4.3. Consumption and Wastage	12
3.4.4. Actions	13
<b>4. DISTRIBUTION SYSTEM MANAGEMENT</b>	<b>14</b>
<b>4.1. Pressure Management</b>	<b>14</b>
4.1.1. Actions	14
<b>4.2. Leak Detection Programme</b>	<b>15</b>
4.2.1. History	15
4.2.2. Current Practice	15

4.2.3.	Existing Targets	16
4.2.4.	Actions	16
<b>4.3.</b>	<b>Mains/Asset Maintenance and Replacement</b>	<b>17</b>
4.3.1.	Actions	17
<b>4.4.</b>	<b>Material/Fittings/Contractors Quality Control</b>	<b>18</b>
4.4.1.	Approved Fittings/Material Register	18
4.4.2.	Maintenance/Construction Quality Control	18
4.4.3.	Actions	19
<b>4.5.</b>	<b>Corrosion Control</b>	<b>20</b>
4.5.1.	Extent of Corrosion	20
4.5.2.	pH Adjustment	20
4.5.3.	Cathodic Protection	20
4.5.4.	Actions	20
<b>4.6.</b>	<b>Break and Leak Repair</b>	<b>21</b>
4.6.1.	Actions	21
<b>5.</b>	<b>DEMAND MANAGEMENT</b>	<b>22</b>
<b>5.1.</b>	<b>Education</b>	<b>22</b>
5.1.1.	General Advertising	22
5.1.2.	School Programmes	22
5.1.3.	Leadership by Example	22
5.1.4.	Alternative Supplies	23
5.1.5.	Actions	23
<b>5.2.</b>	<b>Pricing</b>	<b>24</b>
5.2.1.	Metering	24
5.2.2.	Non-Metering	25
5.2.3.	Actions	26
<b>5.3.</b>	<b>Auditing or Other Services</b>	<b>27</b>
5.3.1.	Identification of Leaks from Bills	27
5.3.2.	Large User Audits	27
5.3.3.	On-property Advice	27
5.3.4.	Actions	27
<b>5.4.</b>	<b>Regulation/Restriction</b>	<b>28</b>
5.4.1.	Routine Restriction Measures	28
5.4.2.	Emergency Restriction Measures	28
<b>6.</b>	<b>REFERENCES</b>	<b>29</b>

## **1. INTRODUCTION**

### **1.1. OVERVIEW OF ROTORUA'S WATER SUPPLIES**

Rotorua District Council operates and manages ten public water supplies, together supplying approximately 5,760,000 cubic metres of water annually to 57,500 consumers.

These supplies are:

- Central Urban
- Eastern Urban
- Ngongotaha Urban and Rural
- Mamaku
- Rotoiti
- Rotoma
- Kaharoa
- Reporoa
- Hamurana
- Okareka

Council has responsibilities under the Local Government Act 2002 and the Health (Drinking Water) Amendment Act 2007 to manage these water supplies, and achieves this through documents such as Long Term Council Community Plans, Annual Plans, Asset Management Plans and Water Supply Strategies for various areas.

### **1.2. WHY HAVE A WATER CONSERVATION STRATEGY?**

Although Rotorua District is blessed with abundant natural water sources, water is becoming an increasingly valued commodity. Rotorua District Council has a responsibility to residents to provide adequate supplies of drinking water for the District's needs into the future.

The value attached to water and associated increasing difficulties in obtaining rights for abstraction will combine with an increasing population to place pressure on the ability to provide adequate volumes of water.

It takes energy and costs money to treat and distribute water to meet New Zealand's Drinking Water Standards, and to treat and dispose of wastewater with the minimum of impact on our lakes and wider environment. Unconstrained demand for these services will exacerbate already heavy financial pressure on ratepayers, and unnecessarily consume resources.

There are a number of national, regional and local legislative and planning instruments which are drivers of the need for sustainable management of water supplies, including:

- Water Programme of Action – Ministry for the Environment (2003)
- Resource Management Act 1991
- Local Government Act 2002
- Operative Regional Policy Statements – Environment Waikato and Environment Bay of Plenty
- Environment Bay of Plenty and Environment Waikato Regional Water and Soil Plans
- District Plan
- Annual and Ten Year Plans
- Various Resource Consents

It is essential that Rotorua District Council takes all practicable steps to ensure that efficient use is made of the water it abstracts from the environment. A Water Conservation Strategy will assist in identifying and prioritising appropriate steps to achieve this.

### **1.3. OBJECTIVES**

The objectives of this Water Conservation Strategy are to:

- Build up an accurate knowledge of the current volume of water extracted by Council, and how it is utilised by the community.
- Set achievable targets for the reduction of wastage, losses and community water consumption.
- Identify current initiatives limiting wastage, losses and consumption.
- Identify and assess possible new initiatives or improvements to existing ones in terms of their potential effectiveness.
- Decide upon new or improved initiatives and set priorities and timeframes for these.
- Set timeframes for reviews of the strategy and its effectiveness in achieving its targets.

### **1.4. DOCUMENT STRUCTURE**

This document is set out in the following sections:

- Section 1 introduces the drivers for and objectives of this Water Conservation Strategy.
- Section 2 summarises the main action points of this strategy.
- Section 3 deals with the data gathering and analysis processes required to provide the information needed on which to base sound management decisions relating to water conservation.
- Section 4 covers management of Council's infrastructure and systems to minimise the loss and wastage of water (Supply Management).
- Section 5 describes covers areas that Council can be involved in to inform and influence consumer behaviour with respect to water use and wastage (Demand Management).

Sections 3-5 are set out in a manner which firstly describes current measures and practices, then discusses options for new initiatives and describes the actions to be taken.

## **2. EXECUTIVE SUMMARY**

Rotorua District Council operates and manages ten public water supplies. Various pieces of legislation impose responsibilities to efficiently manage these. For operational, cost, and environmental reasons, Council needs to ensure that efficient use is made of the water which it abstracts from the environment, and that wastage and losses are minimised to the full practical extent.

This document aims to assess current practices which contribute to water conservation, and to identify strategies to improve or enhance these. These practices and strategies have been grouped into three areas.

### **2.1. PRODUCTION**

Council records the amount of water taken from its sources, and as far as possible, measures or assesses how or where it is used. This enables an estimate to be made of losses and wastage.

An important part of a conservation strategy will be accurate measurement of usage and losses, and the setting of realistic and achievable targets for improvements.

The following actions have been identified in this area:

- Review flow metering at each site and upgrade if necessary. This will be done in conjunction with the water treatment upgrade. (2009)
- Review each network to determine the appropriate number and layout of metering zones.(completed)
- Ensure bulk (headworks and zone) meters are recorded in the asset register, and replacement and maintenance schedules are updated and followed. (ongoing)
- In conjunction with the backflow checking and installation programme, ensure that the appropriate consumer metering is in place. (2010-2012)
- Undertake a sample testing programme of domestic meters to assess their accuracy and practical lives. (2009-2010)
- From the testing programme above, develop an ongoing meter replacement programme. (2010)
- Continue with metered consumption trial on urban domestic connections, and review consumption assumptions. (2009)
- Implement a system to record and estimate hydrant and other bulk unmetered use. (2009)
- Implement systems to gather the data required to use the NZWWA Benchmarking Water Losses in NZ methodology, and make a full assessment of losses using this. This will include assessing losses from mains breaks and bursts. (2009)
- Analyse the potential effects of actions arising from this strategy to set and regularly review usage and loss targets. (2009 and onwards)

## **2.2. DISTRIBUTION SYSTEM MANAGEMENT**

Council's water pumping, storage and distribution network provides many opportunities for water losses from leakage, breaks and bursts, and unauthorised use.

Management plans, systems and structures are in place which contribute to an efficient system where losses are minimised, but there are still improvements which can be made. Actions to achieve this are:

- From 4.1.1 Actions. (2010)
- From the results of the "Benchmarking Water Losses in NZ" exercise, review the extent and priorities of the current leak detection programme. (2009-2010)
- Continue with review and updating of the Operations Manual and Asset Management Plan. (ongoing)
- Review mains replacement programme annually to target areas most in need. (ongoing)
- Complete the review of the Utilities – Castlecorp service agreement for Water Supplies. (2009)
- Complete the review of the Water Supplies Operations Manual. (2009/10)
- Carry out a full assessment of metallic corrosion-related network faults, and the cost of these using maintenance data. (2009/10)
- Assess the potential costs and benefits of carrying out pH adjustment to reduce metallic corrosion. (2010)
- Investigate applicability of cathodic protection for use on water assets. (2010)
- Ensure that public education programmes provide for and encourage feedback from the public on breaks, leaks and unauthorised use. (ongoing)

## **2.3. CONSUMER DEMAND MANAGEMENT**

The influencing of consumer water use will contribute greatly to water conservation objectives. Volumetric pricing can be very effective in reducing demand, but the capital infrastructure required to achieve this is at present prohibitive.

An effective public education strategy remains the most practical area in which Rotorua District can reduce consumer demand. Identified actions in this area are:

- Engage assistance in developing a structured annual water conservation advertising programme. (2009)
- Engage a part-time environmental educator to promote water conservation. (2009)
- Ensure that all Council managers and staff are aware of the need for, and the tools available to minimise, water consumption in their areas of responsibility. (ongoing)

- Review expenditure at each Long Term Council Community Plan process to reassess costs/benefits of water metering. (ongoing)
- Assess the viability of undertaking water audits on the largest commercial consumers. This will require assessment of available resources. (2009)

### **3. ANALYSIS OF PRODUCTION, USAGE AND LOSSES**

#### **3.1. PRODUCTION**

##### **3.1.1. Metering at Headworks**

For resource consent compliance and management purposes it is essential to have accurate measurement of water abstracted from sources and supplied to the reticulation systems. All source abstraction points have a bulk meter to measure abstraction, with a method of collecting and storing real-time data, dependent on the size of the supply.

A project is currently underway to install ultraviolet disinfection treatment at all sources except Mamaku. A requirement of this treatment is accurate metering at the treatment plant.

##### **3.1.2. Zone Metering**

For some supplies, particularly the larger ones, it will be appropriate to divide the network into zones which are individually metered. This will assist in identification of areas with abnormal losses.

The extent of subdivision of networks into separately metered zones will depend on the size of the network and its layout.

Each network will be analysed to determine the appropriate number and location of zones and zone meters.

##### **3.1.3. Meter Maintenance/Calibration**

To ensure accuracy of production data, meters should be checked, calibrated and maintained regularly.

The NZWWA Water Meter Code of Practice will be used as a guide to ensure that checking is carried out at appropriate intervals.

All headworks and zone meters will be recorded individually in the asset register to ensure a record is kept of date of installation, age, and maintenance history.

##### **3.1.4. Production Data**

Data from meters at abstraction points and zone entry points is gathered either by weekly manual reading or electronic means, and entered into electronic spreadsheets.

This data is used to produce regular reports for internal use, and for supply to external agencies such as Regional Councils.

In conjunction with other data such as energy use and consumer meter readings, it is used to monitor and improve performance over a number of areas.

### 3.1.5. Actions

Review flow metering at each site and upgrade if necessary. This will be done in conjunction with the water treatment upgrade. (2009)

Review each network to determine the appropriate number and layout of metering zones.(completed)

Ensure bulk (headworks and zone) meters are recorded in the asset register, and replacement and maintenance schedules are updated and followed. (ongoing)

## **3.2. USAGE**

### **3.2.1. Metered Consumption (Rural and Urban Commercial)**

Current Council policy is that all connections in rural supplies and all non-residential connections in the three urban supplies are to be metered and have charges based on metered consumption. It is also policy that any new water supplies established shall have all connections metered. The effectiveness of metering all domestic urban use is discussed further in Section 5.2.

Meters are read every three months and water bills sent following these readings. This gives accurate data on individual and collective consumption provided that meters are within the required level of accuracy, and there are no illegal or unmetered connections.

#### Connections

It is necessary to monitor the installation of new connections to ensure that where appropriate, meters are installed. A system is in place to ensure this. There are probably a small number of connections that were historically installed without meters. A programme of backflow prevention device installation is being planned, and as part of this, all connections will be reviewed including their status regarding metering.

Areas which will require specific attention are the geothermally active areas of Whakarewarewa and Ohinemutu. There has been a historic practice of using reticulated water for the cooling of natural thermal bathing pools, resulting in excessive unmetered consumption in a number of properties.

#### Meter Accuracy

Meters may lose accuracy over a period of time, and this is one reason that water suppliers may elect to have a full replacement programme for all consumption meters after a set number of years. However, for Rotorua's small rural supplies, this can be a significant fixed cost for consumers which may not be warranted.

The NZWWA Water Meter Code of Practice specifies that meters 32mm and larger should be tested at a minimum of 6 yearly intervals. Most domestic or small commercial meters are 20 or 25mm, and there is no suggested replacement interval for these.

A more appropriate step for the rural supplies will be to test a sample of meters (5-10%) and make an assessment of the accuracy of the remainder from this. This sampling over time will give indication of an appropriate asset life for meters, and assist in determining a replacement programme.

### **3.2.2. Non-metered Consumption**

In areas where individual connections are not metered, it is necessary to make assumptions on the level of domestic consumption, as well as other uses such as hydrants, illegal connections, testing and flushing.

## Domestic

There is information available on appropriate levels of domestic water consumption. This has been gathered from communities which have been metered, and usually expressed in litres per capita per day.

From analysis of this available information, Rotorua District Council has adopted a consumption level for use in design and reconciliation of 225 litres per capita per day. However, all communities are different and it will be prudent to test the accuracy of this assumption.

It is proposed to carry out a trial in the urban area by selecting a number of households in different suburbs, placing a meter on these and monitoring consumption. This data will be used to review and if necessary adjust the existing assumed consumption level per capita.

## Hydrant Use

In addition to fire fighting, water is drawn from hydrants for the purposes of testing, flushing road construction and other uses. There is currently a system for assessing commercial use from hydrants such as construction or on-selling to rural properties which captures this use by metered stand pipes.

For other use such as testing by the NZ Fire Service, flushing by Castlecorp or testing and sterilising for new developments, a system requires setting up which will enable an estimate of the amount used to be recorded. Where possible, metered stand pipes will be used, but in other cases, a record of the time that a hydrant is flowed will be recorded, and an estimated flow rate applied to this to arrive at a volume used.

### **3.2.3. Actions**

In conjunction with the backflow checking and installation programme, ensure that the appropriate consumer metering is in place.	(2010-2012)
Undertake a sample testing programme of domestic meters to assess their accuracy and practical lives.	(2009-2010)
From the testing programme above, develop an ongoing meter replacement programme.	(2010)
Continue with metered consumption trial on urban domestic connections, and review consumption assumptions.	(2009)
Implement a system to record and estimate hydrant and other bulk unmetered use.	(2009)

### **3.3. LOSSES**

#### **3.3.1. Leakage, Unbilled and Unauthorised Consumption**

In any water supply network, there will be ongoing losses from leakage, wastage, unbilled and unauthorised consumption. A component of these losses, including leakage, will be unavoidable.

A methodology of identifying and assessing the extent of these losses is required in order to minimise them.

At present, Council assesses its total losses from reconciliation of bulk meters against actual and estimated consumption, which gives a relatively coarse assessment. As well as a greater degree of accuracy in assessing losses, it is necessary to identify individual loss components which include:

- mains leakage
- service connection leakage
- reservoir leakage and overflows
- customer meter under-registration
- theft (illegal connections, meter tampering)
- hydrant use (authorised and unauthorised)
- flushing operations

The NZ Water and Wastes Association has published the “Benchmarking Water Losses in New Zealand” manual and have conducted training sessions in its use. This document, based on international studies and experience, has a detailed methodology for identifying and assessing various loss components, and reporting them in meaningful terms. It also provides methodologies for establishing target levels of loss, and for benchmarking against water industry performance.

Council staff have been involved in the development of the manual and have taken part in training sessions on its implementation.

Some of the required data gathering is underway and it is proposed to begin implementing this methodology as soon as practicable.

#### **3.3.2. Leak Detection**

Council has a specific programme for assessing and locating leakage from the water networks. This is detailed in the network management area under 4.2 Leak Detection.

#### **3.3.3. Mains Breaks**

In addition to underlying losses from leakage and unknown consumption which may remain undetected for long periods, there are large individual leaks and breaks which occur from time to time, and are reported and repaired. Whilst it will not normally be possible to measure the water lost from these, it is important that where possible, some estimate is made of the loss.

A system will be set up which ensures that for each of these repairs attended by Castlecorp an assessment is made of the volume lost taking into account the estimated flow rates and the duration of the flow. This information can be added to routine reports.

Information from the public reporting such leaks and breaks will be recorded to assist in such assessment.

### **3.3.4. Actions**

Implement systems to gather the data required to use the NZWWA Benchmarking Water Losses in NZ methodology, and make a full assessment of losses using this. This will include assessing losses from mains breaks and bursts. (2009)

### 3.4. TARGETS

#### 3.4.1. Actions

The setting of targets for consumption, losses and conservation is the cornerstone of an effective strategy. However, prior work must be carried out to ensure that any targets set are meaningful, productive, and achievable.

A combination of the Distribution System and Demand Management actions will lead to the achievement of the targets, and an analysis of the potential effect of each of these is required to be carried out, and a priority assigned to these.

Bay of Plenty Regional Council Resource Consent No. 65465 to take water from the Waipa Springs for municipal water supply contains a condition requiring that Rotorua District Council shall submit a water conservation strategy containing specific quantified targets for reduction of domestic water consumption, wastage and loss within three months of the date of the commencement of that consent, which was 14 April 2009.

Work has been underway on gathering and analysing data on the potential of various activities for reduction in consumption, wastage and loss, in order to effectively plan and prioritise these actions. This work is ongoing, and the targets set at present will be reviewed as necessary.

#### 3.4.2. System Losses

The Rotorua Basin Water Supply Strategy 2006 has analysed the potential for reduction in losses over the various supplies in the Rotorua Basin. The approximate industry benchmark for total annual losses using a percentage system of total production is 15%.

The calculated losses for Rotorua's water supplies based on current information range from 13% to 35%, and the first aim is to bring these down to an acceptable level having regard to industry standards. The target for each supply is 15% losses.

All the measures required to achieve such reductions in losses cannot be implemented immediately and a gradual reduction through implementation of measures such as leak detection, pressure management and asset replacement can be planned for. Due to the range of existing loss levels, the practical time to achieve 15% losses will vary and therefore the following time frames are adopted:

Losses at May 2009	Target Annual Reduction in Losses
> 25%	2% p.a. until 25%
15 > 25%	1% p.a. until 15%

Over the next two years, it is possible that targets expressed in different parameters as per the NZWWA Water Losses Manual may be deemed more appropriate. If there is a change in target parameters, the above reduction timetables will be retained, but units converted as appropriate.

#### 3.4.3. Consumption and Wastage

The reduction of consumption and wastage relies almost entirely on public education and information, and how this is received by the consumers of each supply. On supplies without

universal metering, measurement of consumption and wastage and progress towards targets relies heavily on assumptions and estimates.

There is little data available on which to base realistic targets for the reduction of consumption and wastage. However, the Auckland Water Management Plan has a target of a 5% consumption reduction over 20 years in the Auckland region. This is a region which has universal metering already in place and so has the ability to measure progress towards such a target.

In the absence of the ability to separate out and measure any universal reduction in consumption, Council has made an assumption that a 5% target for reduction in consumption will be seen as a 5% reduction in overall production.

It is assumed that those supplies not universally charged on metered use will have greater initial potential to be influenced to conserve water and so the following targets have been set in addition to the loss reduction targets in 3.4.2.

	<b>Method of Measurement</b>	<b>Target Reduction per annum</b>
Universally metered supplies	Total metered consumption per connection.	0.25% (up to 5%)
Unmetered supplies	Total production	0.5% (up to 5%)

**3.4.4. Actions**

Continue work to more accurately identify losses and wastage and review the above targets and progress towards achieving them. (ongoing)

## **4. DISTRIBUTION SYSTEM MANAGEMENT**

### **4.1. PRESSURE MANAGEMENT**

The operating pressures of a water network can have a direct influence on the level of losses from the network and within private property. There is evidence showing that a reduction in operating pressure results in a corresponding decrease in the frequency of bursts and leaks.

The desire to reduce pressures to minimise losses needs to be balanced against the need to provide adequate minimum pressures for domestic uses, supply to elevated buildings, and fire fighting requirements.

The undulating topography of most water networks means that it is not practicable to maintain a specific pressure over the whole network. Rather, there is likely to be a specified range between a maximum and minimum values.

Rotorua District Council's current stated level of service for nearly all its supplies is to provide a minimum pressure at the property boundary of 30 metres head (294 kPa) under normal demand conditions. Because of diurnal and seasonal demand patterns, the pressures will be in excess of this for all but the peak summer demand days.

It is known that existing operating pressures range from 30 to 90 metres head in some areas. There is therefore scope for a reduction in operating pressures without impacting unduly on levels of service to consumers. However, the network changes needed to achieve pressure reductions can be costly and require careful planning to ensure that results are in keeping with expenditure.

A robust study into pressure management will require specialist input to effectively evaluate the costs and benefits of various measures; but given the potential savings, such a project is worthwhile to undertake.

#### **4.1.1. Actions**

<p>Commission a study into pressure management options and potential benefits and costs for Rotorua's supplies. From this, prioritise a programme of pressure management measures by each supply zone.</p> <p style="text-align: right;">(2010)</p>
---

## **4.2. LEAK DETECTION PROGRAMME**

### **4.2.1. History**

Council currently operates an annual leak detection programme in the Urban water supplies, and carries out leak investigation as required in all other supplies. Preliminary work in developing the programme was carried out in the late 1980's and early 1990's and involved the collection of essential base information, including:

- Compiling and checking as-built plans
- Mapping household connections
- Minimum use data
- Reservoir drop tests

Following this data collection phase, the networks were prepared, which involved:

- Dividing the networks into appropriate zones for individual night surveys
- Construction of pits and bypass valves

### **4.2.2. Current Practice**

Following quarterly meter-reading, an assessment is made of the Unaccounted-for-Water in each supply. This assessment is used to prioritise individual areas to be targeted.

Three main methods are used to determine the losses or leakage within a specific area. The use of each method is dependent on the network configuration and types of consumers, with each method giving a different level of detail and accuracy.

#### a) Meter Reconciliation

Quarterly consumer meter readings are totalised and reconciled against the bulk meter readings. This method is only suited to a fully metered supply, and used as a method to identify if further investigation is required.

#### b) Nightline / Correlation

The network is separated into distinct zones which can be isolated to give a single metered point of supply.

Each zone is monitored to record the Minimum Night Flow (MNF). The MNF is compared to the Target Night Flow (TNF) which is calculated from acceptable leakage values.

Noise loggers and correlators are used to identify the specific leaks within the zones which are repaired, before a final nightline is undertaken to ensure the TNF is achieved. This method is used predominantly for Urban supplies which are not fully metered.

#### c) Bulk Meter Nightline

This is similar to a Nightline / Correlation but applied to a whole network, and is generally used on smaller or rural supplies.

Until recently, nightline leak detection work has been limited to winter (low demand) periods. Current resourcing has enabled the Urban supplies to be covered every three years. Some new equipment and methodology is being trialled which may improve this.

#### 4.2.3. Existing Targets

Existing trigger levels are set for action following the calculation of Unaccounted-for-Water. These are:

> 25 litres/connection/hour	Investigate immediately
15-25 litres/connection/hour	Program for nightline/noise logging
< 15 litres/connection/hour	Low priority, investigate other areas first

It is now accepted that expressing losses in litres/connection/hour for the prioritising of work is not necessarily the best method. In Chapter 1.3, details are given of the “Benchmarking Water Losses in NZ” Manual published by the NZ Water and Wastes Association. This contains a much more detailed analysis of water loss evaluation and the methods available.

#### 4.2.4. Actions

From the results of the “Benchmarking Water Losses in NZ” exercise, review the extent and priorities of the current leak detection programme. (2009-2010)
---

### 4.3. MAINS/ASSET MAINTENANCE AND REPLACEMENT

One of the fundamental reasons for carrying out maintenance and regular replacement on water supply assets is the minimisation of leakage and losses from the system.

Rotorua District Council's Asset Management Plan for Water Services is in place, reviewed regularly and has been approved through various audit processes.

Key features of this AMP which contribute to the strategy of water conservation are:

- Pump efficiency assessment
- Routine bulk delivery main inspections
- Reservoir inspections and repairs
- Mains replacement programme (\$1,000,000 per annum until at least 2016)
- Installation of riders to eliminate multiple road crossing connections

Details of the assessment and inspection/repair activities are contained in the Water Supply Operations Manual which is in the process of being updated to reflect current best practice. This will be an ongoing project.

#### 4.3.1. Actions

Continue with review and updating of the Operations Manual and Asset Management Plan.	(ongoing)
Review mains replacement programme annually to target areas most in need.	(ongoing)

## **4.4. MATERIAL/FITTINGS/CONTRACTORS QUALITY CONTROL**

### **4.4.1. Approved Fittings/Material Register**

Sound, watertight fittings and materials are vital for the minimisation of losses from the water networks. There are a variety of types and qualities of fittings and materials available, and a system is in place to ensure that only those materials which will provide ongoing integrity of the system are installed.

There is currently an approved fittings/materials register maintained by Rotorua District Council. Only fittings and materials on this list are permitted to be installed. Items are only added to this list after a rigorous evaluation process which includes:

- Evaluation against NZ and international standards
- Inspection by Asset Management and field staff
- Field trials
- Corrosion resistance testing
- Communication with other product users

Resistance to corrosion and useful service life in Rotorua's geothermal environment is a key consideration.

### **4.4.2. Maintenance/Construction Quality Control**

The correct installation and maintenance of the network is equally as important as materials quality. The following measures are in place and need to be retained and improved where appropriate into the future.

#### Control of Contractors

Council only has one contractor (Castlecorp) approved to carry out maintenance on water networks. Castlecorp are a business unit of Council with key staff who have been involved in maintenance and operation of the network for many years. Council policy is presently to carry out this work in-house, and there are no other local contractors with suitable resources to carry out this work. Castlecorp have a good ongoing training programme for staff to ensure standards are maintained

#### Approved Contractors

Council allows a small number of contractors to install new water connections onto mains for private clients. These contractors have all undergone an assessment and approval process, and their work is routinely audited.

#### Construction and Development Standards

Council, in conjunction with local civil engineering consultants and contractors has developed the Rotorua Civil Engineering Industry Standard. This contains standards and specification for the construction of new water infrastructure. Council's Resource Engineering section monitors and ensure compliance with this.

#### Maintenance Standards

The utilities asset managers have a service level agreement in place with Castlecorp to ensure maintenance and operation of the network complies with specified standards. These standards are

set out in an Operations Manual which forms part of the service level agreement. The Operations Manual and the service level agreement are in the early stages of a review which will need to be continued and completed.

In addition to management and monitoring of compliance with Service Level Agreement by Utilities, the Resource Engineering section also carries out an auditing role as an additional check on standards.

#### **4.4.3. Actions**

Complete the review of the Utilities – Castlecorp service agreement for Water Supplies.	(2009)
Complete the review of the Water Supplies Operations Manual.	(2009/10)

## **4.5. CORROSION CONTROL**

### **4.5.1. Extent of Corrosion**

The source waters of most of Rotorua's water supplies are relatively aggressive to metals commonly used in water fittings. Corrosion of metallic fittings resulting in leaks and failures is a relatively common maintenance problem. It is necessary to evaluate the role that the aggressiveness of water plays in these maintenance problems, and to consider whether remedial action is warranted.

The HANSEN asset management database holds data on faults and their causes, and an analysis of this data is necessary to confirm the number of faults in metallic fittings. This can be compared to data from other suppliers on their water aggressiveness and level of faults.

An assessment needs to be made of the cost of these faults and also the amount and cost of water lost as a result. The cost can be documented from maintenance records, but the water losses will unfortunately be a relatively coarse assessment based on estimates by maintenance staff.

### **4.5.2. pH Adjustment**

The addition of chemicals to adjust the pH of source waters is a common process to reduce the aggressiveness of the water. If the costs attributable to Rotorua's aggressive waters are significant, consideration needs to be given to implementing pH correction. This process will include an estimate of the cost of implementation, as well as investigation of the effectiveness and possible benefits.

As at January 2008, Council is in the process of implementing Ultraviolet light disinfection at most supplies, and will consider any further treatment processes required on completion of this project. However, in those supplies where alterations are required to physical layout for the UV project, provision is being allowed for space for possible pH correction equipment.

### **4.5.3. Cathodic Protection**

Cathodic corrosion protection is a process used to protect large underground metallic assets from corrosion. At present it is only used on one section of concrete-lined steel pipe between Ngongotaha and Fairy Springs Road.

Investigation should be undertaken into the possible role that this process could play in reducing corrosion on other metallic assets.

### **4.5.4. Actions**

Carry out a full assessment of metallic corrosion-related network faults, and the cost of these using maintenance data. (2009/10)

Assess the potential costs and benefits of carrying out pH adjustment to reduce metallic corrosion. (2010)

Investigate applicability of cathodic protection for use on water assets. (2010)

#### **4.6. BREAK AND LEAK REPAIR**

The prompt notification and effective repair of leaks, breaks and/or unauthorised use will contribute to the reduction of water losses. The public have a large role to play in providing information enabling early attendance to faults.

It is important that the public be advised and encouraged to report breaks and leaks promptly, and particularly in rural areas, to report any suspicious or obviously unauthorised hydrant use.

Public education programmes will include provision for this.

##### **4.6.1. Actions**

Ensure that public education programmes provide for and encourage feedback from the public on breaks, leaks and unauthorised use. (ongoing)
---

## **5. DEMAND MANAGEMENT**

### **5.1. EDUCATION**

#### **5.1.1. General Advertising**

Council currently carries out advertising related to water supply issues, with a particular emphasis on water conservation. Most of the budget is used on media advertising, in particular newspaper features prior to and during summer such as Conservation Week and World Water Day.

From time to time, especially in hot, dry weather, radio advertising has been undertaken for short periods.

Whilst these media have been effective in conveying conservation messages to the public during times of drought or shortage, it has not been determined what is the optimum level of advertising that would have a significant effect on consumption all year round.

In order to ensure that the most effective use is made of advertising budgets, and that they are at the optimum level, some professional input into the advertising strategy should be sought, and a consistent level of advertising planned.

Present budgets should be sufficient to develop and purchase a structured advertising strategy in local media. The effectiveness of this will need to be reviewed annually, and if necessary, budgets and methods adjusted.

Such input needs to consider the benefits of non-media advertising such as billboards, vehicles such as buses, sponsorship advertising and messages on rates bills and other Council correspondence, as well as Council's website.

Council currently has a number of resources such as brochures and booklets which are supplied to the public via correspondence such as rates bills and building consents. This will be continued with, and reviewed alongside the general advertising strategy.

#### **5.1.2. School Programmes**

School education programmes can be an effective way of distributing environmental messages throughout the whole community. Council currently carries out education programmes in several areas, including solid waste reduction and recycling, pollution and water conservation.

An education room has been developed at the Wastewater Treatment Plant as a focal point for environmental resources, and a budget is allocated for a part-time environmental educator who will coordinate the delivery of resources with an emphasis on water conservation and pollution prevention.

#### **5.1.3. Leadership by Example**

Council itself is a consumer of water in its various activities. Two of the more visible of these are Parks irrigation, and the Aquatic Centre.

Council needs to show leadership in all its water consumption areas by putting extra effort into applying appropriate parts of this water strategy.

#### **5.1.4. Alternative Supplies**

The use of alternative supplies for some household requirements can reduce individual household demand on municipal supplies, both for baseload and peak load.

Examples of these alternatives are roof water collection and grey water re-use systems for toilet, flushing, garden watering or outside use.

These systems, whilst having some limitations and being relatively expensive to install, can be promoted by Council along with other conservation measures.

#### **5.1.5. Actions**

- |   |           |
|---|-----------|
| Engage assistance in developing a structured annual water conservation advertising programme.   | (2009)    |
| Engage a part-time environmental educator to promote water conservation.  | (2009)    |
| Ensure that all Council managers and staff are aware of the need for, and the tools available to minimise water consumption in their areas of responsibility. | (ongoing) |

## 5.2. PRICING

### 5.2.1. Metering

At present only commercial/industrial consumers in the Urban water supplies, plus all consumers in the Rural supplies, are charged for water based on a volume of water consumed as read from individual meters. Domestic users in the Urban supplies are not metered. Council policy is that all consumers on any new water supplies will be metered.

Meters allow volumetric pricing and as such can drive customer water use efficiency. However, there are significant capital/installation, maintenance and administration costs involved. These costs can be reasonably estimated, but the benefits in terms of water saving are harder to predict.

A number of councils in New Zealand have meters installed for all consumers (Universal metering) and some information on their effectiveness as a water conservation measure is available.

Metering allows a number of pricing options to be considered, including increasing rates (where the price per unit increases as the quantity of use rises) or peak load pricing (e.g. higher unit rates in hot summers). Wastewater charges can also be levied based on water meter readings.

An analysis of the costs and potential benefits of universal metering has been carried out using a range of information and results obtained from experiences internationally and in New Zealand. this is summarised below:

#### a) Costs

The Rotorua Urban Water Supply area has approximately 19,250 domestic connections, nearly all of which are unmetered. In recent years, all newly-installed connections have been fitted with manifolds which allow easy meter installation. However, most would require excavation, dismantling and reconfiguring of the connection at meter fitting time.

The total cost of installing meters on all domestic connections is estimated to range between \$6.74 million to \$10.1 million, based on data from other already-metered communities. The ongoing annual depreciation charge for replacement of meters only is estimated to be between \$257,000 and \$321,000.

The annual reading and billing costs for these meters is estimated at \$140,000 per annum.

Therefore the total cost of metering is:

- Capital cost of \$6.7 million - \$10.1 million
- Annual operating costs of \$397,000 - \$461,000

#### b) Potential Benefits

The possible financial benefits of universal metering are the potential savings in water production and wastewater treatment costs; and the potential deferment of capital expenditure (both water and wastewater) planned to cater for growth in demand for these services.

From experiences of other water suppliers, it is estimated that an overall reduction in annual consumption of 5%-15% could reasonably be estimated for.

The marginal cost (variable cost) of water supply in the Urban area is estimated at 4 cents per cubic metre (m<sup>3</sup>). A 15% reduction in overall consumption is equivalent to 1,628,400m<sup>3</sup> per annum which results in an annual saving of \$65,136.

The marginal cost (variable cost) of wastewater pumping and disposal in the Urban area has been calculated at 12 cents per cubic metre. A 15% reduction in water consumption is expected to produce a reduction of 588,000 cubic metres in sewage volume, resulting in a potential saving of \$70,000 per annum.

An assessment of the Urban water supply capital improvements in the Ten Year Plan has been carried out, to determine to what extent these could be deferred by a 20% reduction in peak demand. It is concluded that there are no currently planned works that could be deferred in this case.

The Rotorua Basin Wastewater Strategic Plan (December 2007) has identified options for future upgrading of the wastewater system to cater for both growth and expansion to include rural communities. The strategy recommends further studies be carried out to determine details of upgrade budgets and timeframes. This work is required to be complete before any assessment can be made of the benefits resulting from deferment of wastewater capital expenditure.

As well as financial benefits, the benefits to the environment should also be considered. Whilst water is a precious resource which should not be wasted, it is naturally relatively abundant in the Rotorua basin and there is not the vigorous competition for the resource that may be found elsewhere in New Zealand. Environmental costs are adequately addressed under the Resource Management Act provisions when Resource Consents for water abstraction are issued.

Given the costs of universal metering, and the potential benefits accruing, there appears no justification for the implementation of volumetric water charges by water metering for Urban residential consumers at this stage.

However, the financial costs and benefits are subject to change over time, and the situation should be reviewed during the next Long Term Council Community Plan (LTCCP) process with respect to wastewater capital expenditure, and at subsequent LTCCP processes if expenditures in these areas are subject to significant change.

### **5.2.2. Non-Metering**

For areas or consumers without meters, financial incentives are limited to subsidies or giveaways to encourage the use of water saving measures.

These can range from financial assistance with the purchase of water-efficient appliances or plumbing fittings, to the giving away of small items designed to raise awareness of the desirability of conserving water.

In establishing the level of such financial support, it needs to be considered that a 20% saving in water for an average household would result in approximately \$3.00 per annum per household reduction in water production costs.

On a financial basis, this precludes all but the lower range of incentives which would most likely be best incorporated in an education programme.

### **5.2.3. Actions**

Review expenditure at each Long Term Council Community Plan process to reassess costs/benefits of water metering. (ongoing)

### **5.3. AUDITING OR OTHER SERVICES**

#### **5.3.1. Identification of Leaks from Bills**

Currently, the water billing software for metered consumers is able to automatically detect abnormal use and if high, print a warning to the consumer that there may be a leak on the property and to have it checked. Subsequently bills can be re-checked and followed up more proactively if the high use remains.

#### **5.3.2. Large User Audits**

Depending on the supply, a small percentage of large commercial users can account for a significant amount of the water used. Although metering provides a financial incentive for these users to conserve water, it may be cost effective to carry out water audits to assist them to reduce unnecessary wastage. To determine the potential effectiveness, an option would be to do a trial audit of a small number of users to assess the viability of wider work and to possibly set a threshold above which this will be effective. More investigation of this is required.

#### **5.3.3. On-property Advice**

At least one other water supplier employs full time staff dedicated to visiting residential premises to provide advice on water-savings and offer to carry out minor leak repairs such as tap washer replacement at no charge. Their highly-visible vehicle provides additional advertising on the roads. This is a significant cost and before further consideration is given to including this in a strategy, more information on the costs and potential benefits for Rotorua is required.

#### **5.3.4. Actions**

Assess the viability of undertaking water audits on the largest commercial consumers. This will require assessment of available resources. (2009)
---

## **5.4. REGULATION/RESTRICTION**

### **5.4.1. Routine Restriction Measures**

All but two of Rotorua District Council's supplies are "on demand" supplies, i.e. they can supply peak flow to all consumers without requiring flow restrictors or on-site storage. However, Council imposes maximum sizes of connections allowed for domestic connections which provide some restriction on instantaneous demand.

### **5.4.2. Emergency Restriction Measures**

From time to time, due to drought or operational problems with supplies, it may be necessary to control demand by introducing one or more emergency restrictions for individual or all supplies.

Decisions in the introduction of these will be made on an individual basis, giving consideration to the prevailing circumstances at the time, but they may include:

- Advertising
  - Letter drops warning of possible shortages
  - Sprinkler bans
  - Hose bans
- } Either total or alternative days of the week

## 6. REFERENCES

- “Promoting Customer Water-Use Efficiency” – A Planning Guide for Local Authorities  
AQUAS Consulting and Environment Waikato 2005
- The Auckland Water Management Plan: A Region-wide approach to the management of  
Auckland’s reticulated water resources 2004
- Hamilton City Council Water Demand Management Plan (Draft) 2007
- Savings in your H<sub>2</sub>O USE NZ Water and Wastes Association 2006
- Water Meter Code of Practice NZ Water and Wastes Association 2003
- Rotorua Basin Area Water Supply Strategy Harrison Grierson Consultants 2006
- Rotorua Basin Wastewater Strategic Plan Harrison Grierson Consultants 2007



# **Report of Progress Achieved in Implementation of Rotorua Lakes Council Water Conservation Strategy**

**February 2018**



## **1 Introduction**

The Rotorua District Council Water Conservation Strategy 2009 is the latest version of the strategy, being a revision of the original Water Conservation Strategy first adopted by Council in 2008.

The Water Conservation Strategy is intended to assist in identifying and prioritising appropriate steps to ensure that efficient use is made of the water Council abstracts from the environment, and a key feature of the strategy is a list of actions identified to be considered or carried out to achieve this.

This report is intended to provide an update on the progress Council has made to date in carrying out the actions identified and listed in the 2009 strategy, as well as other actions not specifically identified at that time.

The format of this report is primarily a simple list of the actions identified, with a brief explanation of the level of completion of each action. Where appropriate, there is further explanation of additional work that has been carried out as determined appropriate by Council.

In particular, Section 2 outlines in full the work carried out by Thomas Civil and Environmental Consultants and Council in planning and implementing a Water Loss Strategy, as well as providing reports on metering and water balancing. This work flows through to many of the action points throughout the Conservation Strategy.

A full copy of the 2009 strategy is also appended to provide background to the rationale behind each identified action.

## **2 Water Loss Strategy Project**

As Council worked through the implementation plan for the Conservation Strategy in 2010, it became apparent that external expertise would be required to assist in evaluating the effectiveness of some of the actions, in order to prioritise the resources to be directed to them.

Council engaged the services of Richard Taylor – Principal Engineer with Thomas Civil and Environmental Consultants to assist in implementing the NZWWA” Benchmarking Water Losses in New Zealand” methodology, and this led to the development of a Water Loss Strategy to be applied to the public distribution network.

Richard Taylor was previously Water Supply Manager at Waitakere City Council who had implemented a successful water loss reduction programme, and was also the NZWWA Water Supply Managers Group lead person in developing the” Benchmarking Water Loss in NZ” guidelines.

Specific review work and reports carried out by Thomas Civil and Environmental Consultants have been:

Urban Water Balance Review, (February 2011)

- Established the main areas of uncertainty in consumption and loss assumptions, and recommended improvements in data gathering and management.

Review of System Bulk Metering, (February 2011)

- Reviewed twenty nine bulk system meters, and recommended eight be replaced and five new meters be installed. This work has been completed.

Review of Large Customer Water Meters (February 2011)

- Reviewed the twenty largest water consuming businesses revenue metering installations for appropriateness and accuracy. Fourteen of these meters were subsequently replaced as recommended.

Water Loss Strategy (February 2011)

- Reviewed water loss targets and recommended the Sectorisation of the Urban Networks into District Metered Areas (DMA's) and real-time monitoring of flows into these areas.
- Also recommended the implementation of pressure reduction in DMA's where appropriate.

Council subsequently adopted the recommendations of the Water Loss Strategy and included \$1.6 Million in the 2013-2015 financial years for the Sectorisation and pressure work. This programme has been extended and is due for completion in 2018/19.

Richard Taylor has continued to be involved in updating and reviewing the sectorisation and pressure management programme, and providing advice into water demand and consumption reduction projections.

### **3 Strategy Implementation**

#### **3.1 Production**

Council records the amount of water taken from its sources, and as far as possible, measures or assesses how or where it is used. This enables estimates to be made of losses and wastage.

An important part of a conservation strategy will be accurate measurement of usage and losses, and the setting of realistic and achievable targets for improvements.

The following actions have been identified in this area:

<b>ACTION</b>	<b>IMPLEMENTATION PROGRESS</b>
<p>3.1.1 Review flow metering at each site and upgrade if necessary. This will be done in conjunction with the water treatment upgrade.</p>	<ul style="list-style-type: none"> <li>• Each site reviewed.</li> <li>• Meters replaced / upgraded between 2009 and 2012 at Waipa (Eastern), Ngongotaha, Mamaku, Rotoiti, Kaharoa and Wharepapa (Reporoa).</li> <li>• Additional bulk metering installed at Eastern pump station and Hemo, Utuhina and Okareka resevoirs between 2015 and 2017.</li> <li>• Electronic meters calibrated at Utuhina, Matipo, Waipa, Ngongotaha and Rotoiti in 2013 and 2018 in accordance with manufacturers specifications.</li> </ul>
<p>3.1.2 Review each network to determine the appropriate number and layout of metering zones.</p>	<ul style="list-style-type: none"> <li>• Completed for all supplies.</li> <li>• Detailed analysis completed in 2014 for all 3 urban supplies as part of Water Loss Strategy (Thomas Civil &amp; Environmental Consultants 2011).</li> <li>• Consultants continuing to review zoning as sectorisation progresses.</li> </ul>

ACTION	IMPLEMENTATION PROGRESS
3.1.3 Ensure bulk (headworks and zone) meters are recorded in the asset register, and replacement and maintenance schedules are updated and followed.	<ul style="list-style-type: none"> <li>All bulk meters are recorded in the HANSEN asset management system, which records replacement date. Annual replacement budgets are derived from this.</li> </ul>
3.1.4 In conjunction with the backflow checking and installation programme, ensure that the appropriate consumer metering is in place. (2010-2012)	<ul style="list-style-type: none"> <li>Backflow preventer programme deferred, so only largest consumer metering reviewed.</li> <li>Fourteen meters upgraded / replaced from a review of twenty biggest consumers.</li> <li>Reporoa backflow preventer, flow restrictor and meter review completed and full replacement carried out 2012/13.</li> <li>Fonterra Reporoa dairy factory (largest consumer on Reporoa Supply – 50% of peak flow) meter connected directly to SCADA system to enable real time monitoring</li> </ul>
3.1.5 Undertake a sample testing programme of domestic meters to assess their accuracy and practical lives. (2009-2010)	<ul style="list-style-type: none"> <li>Commenced in 2013 with small sample at Rotoiti. 22 new meters installed in series with old meters. Data indicated no major difference in accuracy.</li> </ul>
3.1.6 From the testing programme above, develop an on-going meter replacement programme. (2010)	<ul style="list-style-type: none"> <li>Analysis did not justify a major replacement programme.</li> <li>A steady rate of renewal occurs through failure and resulting unplanned replacement.</li> </ul>
3.1.7 Continue with metered consumption trial on urban domestic connections, and review consumption assumptions. (2009)	<ul style="list-style-type: none"> <li>Metered consumption monitoring on sample of urban domestic connections is on-going (36 meters).</li> <li>An additional 350 household meters were added to the sample group in 2013.</li> </ul>
3.1.8 Implement a system to record and estimate hydrant and other bulk un-metered use. (2009)	<ul style="list-style-type: none"> <li>System in place and data included in water use and losses calculations.</li> </ul>
3.1.9 Implement systems to gather the data required to use the NZWWA Benchmarking Water Losses in NZ methodology, and make a full assessment of losses using this. This will include assessing losses from mains breaks and bursts. (2009)	<ul style="list-style-type: none"> <li>System in place and data included in water use and losses calculations</li> <li>Across the ten separate systems, results have varied, with some loss indicators reducing but others increasing. This information is used to prioritise leak detection effort, and the sectorisation programme underway will assist in identifying the worst areas contributing to these overall losses.</li> </ul>
3.1.10 Analyse the potential effects of actions arising from this strategy to set and regularly review usage and loss targets. (2009 and onwards)	<ul style="list-style-type: none"> <li>“Water Loss Strategy” (Thomas) reviewed loss targets and set some revised targets based on performance indicators from the NZWWA methodology.</li> </ul>

### 3.2 Distribution System Management

Council's water pumping, storage and distribution network provides many opportunities for water losses from leakage, breaks and bursts, and unauthorised use.

Management plans, systems and structures are in place which contributes to an efficient system where losses are minimised, but there are still improvements which can be made. Actions to achieve this are:

<b>ACTION</b>	<b>IMPLEMENTATION PROGRESS</b>
3.2.1 Commission a study into pressure management options and potential benefits and costs for Rotorua's supplies. From this, prioritise a programme of pressure management measures by each supply zone.	<ul style="list-style-type: none"> <li>• Completed. "Water Loss Strategy for Rotorua District Council" Thomas Civil &amp; Environmental Consultants, February 2011.</li> <li>• Work programme in place and being implemented in 2013 – 2019 years.</li> </ul>
3.2.2 From the results of the "Benchmarking Water Losses in NZ" exercise, review the extent and priorities of the current leak detection programme.	<ul style="list-style-type: none"> <li>• Completed. Leak detection annual budget increased from \$76,000 in 2009/10 to \$178,000 in 2012/13 and is maintained at this level.</li> <li>• Priority areas are reassessed on an on-going basis.</li> </ul>
3.2.3 Continue with review and updating of the Operations Manual and Asset Management Plan.	<ul style="list-style-type: none"> <li>• The Asset Management Plan has been reviewed internally and externally and improved so that the information formerly in the Operations Manual is now comprehensively in the Asset Management Plan. Major external review and update in 2017. There is no longer a need for a separate Operations Manual.</li> </ul>
3.2.4 Review mains replacement programme annually to target areas most in need.	<ul style="list-style-type: none"> <li>• Review process in place.</li> <li>• Detailed in the Asset Management Plan and the prioritisation process is undertaken and recorded.</li> <li>• Annual mains renewal budget \$1.5M</li> </ul>
3.2.5 Complete the review of the Utilities – Castlecorp service agreement for Water Supplies.	<ul style="list-style-type: none"> <li>• Draft review completed.</li> <li>• Final contract currently (2018) undergoing external review.</li> </ul>
3.2.6 Complete the review of the Water Supplies Operations Manual.	<ul style="list-style-type: none"> <li>• No longer required see above 3.2.3.</li> </ul>
3.2.7 Carry out a full assessment of metallic corrosion-related network faults, and the cost of these using maintenance data.	<ul style="list-style-type: none"> <li>• Not proceeded with.</li> <li>• Low priority due to the fact that most fittings installed are now non-metallic.</li> <li>• Most will be replaced as part of ongoing mains replacement programme.</li> </ul>
3.2.8 Assess the potential costs and benefits of carrying out pH adjustment to reduce metallic corrosion.	<ul style="list-style-type: none"> <li>• As for above 3.2.7.</li> </ul>
3.2.9 Investigate applicability of cathodic protection for use on water assets.	<ul style="list-style-type: none"> <li>• As for above 3.2.7.</li> <li>• Is in use on one major asset.</li> </ul>
3.2.10 Ensure that public education programmes provide for and encourage feedback from the public on breaks, leaks and unauthorised use.	<ul style="list-style-type: none"> <li>• This is on-going.</li> <li>• All public communications include encouragement for the public to report breaks, leaks etc.</li> </ul>

### 3.3 Consumer Demand Management

The influencing of consumer water use will contribute greatly to water conservation objectives. Volumetric pricing can be very effective in reducing demand, but the capital infrastructure required to achieve this is at present prohibitive.

An effective public education strategy remains the most practical area in which Rotorua District can reduce consumer demand. Identified actions in this area are:

ACTION	IMPLEMENTATION PROGRESS
3.3.1 Engage assistance in developing a structured annual water conservation advertising programme.	<ul style="list-style-type: none"> <li>● On-going.</li> <li>● Advertising programme is planned in consultation with Council's Communications Manager and Environmental Educator.</li> </ul>
3.3.2 Engage a part-time environmental educator to promote water conservation.	<ul style="list-style-type: none"> <li>● Completed.</li> <li>● Environmental Educator employed since July 2009(20hrs/week) – full time since 2015.</li> <li>● Regular school and community group tours to water sources/treatment plants</li> </ul>
3.3.3 Ensure that all Council managers and staff are aware of the need for, and the tools available to minimise water consumption in their areas of responsibility. (ongoing)	<ul style="list-style-type: none"> <li>● In Place.</li> <li>● Site Managers receive water metered invoices charged to their cost centres.</li> <li>● Specific advice to managers when trends indicate excessive consumption.</li> </ul>
3.3.4 Review expenditure at each Long Term Council Community Plan process to reassess costs/benefits of water metering. (ongoing)	<ul style="list-style-type: none"> <li>● In place and on-going.</li> <li>● Report provided as part of Long Term Plan processes.</li> <li>● To date concluded that universal metering not cost effective. Resources directed into network improvements as explained in Section 2.</li> </ul>
3.3.5 Assess the viability of undertaking water audits on the largest commercial consumers. This will require assessment of available resources.	<ul style="list-style-type: none"> <li>● No formal programme of proactive auditing in place, mainly due to resourcing issues.</li> <li>● Trade waste staff now incorporated into the 3-waters team, and take note of and advise on water use practices during their site visits.</li> <li>● All metered consumers receive notification when trends indicate excessive or unusual consumption patterns.</li> </ul>