Hamilton City Council
Te kaunihera o Kirikiriroa

council report

Committee: Strategy & Policy Committee **Date:** 06 December 2012

Report Name: Managing Demand for Water **Author:** Tim Harty

Report Status	*Open*
Strategy, Policy or Plan context	*3 Waters Strategy*
Financial status	*Amount $26.464m over life of LTP*
Assessment of significance	*Having regard to the decision making provisions in the LGA 2002 and Councils Significance Policy, a decision in accordance with the recommendation is considered to have a high degree of significance*

1. Purpose of the Report

2. To update Council on the outcomes of the Managing Demand for Water report.

3. To confirm the outcomes of the report and obtain Councils approval of the proposed scenario to be adopted for implementation.

4. Executive Summary

5. In 2011 as part of the development of the 2012-22 10-Year Plan staff undertook a high level analysis of the options and costs to install City Wide Universal Water Metering (UWM) (the Thomas Report).

6. The outcome of the report was a series of recommendations for managing water demand in the City. Key to this was an initial water loss program followed in the later years by the installation of UWM. This would push out past the 10 year window any requirement for large scale traditional plant improvement or construction projects that may be required to meet the demand forecasts.

7. Staff recommended this approach to Council via the 10-Year Plan discussions and funding was made available to undertake the leak detection works. Funding provision was also made to reflect the need for a large scale water intervention project that would be required mid 10-Year plan cycle.

8. Further funding provision was also made available in year one of the 10-Year Plan to undertake a more detailed analysis of what a water intervention project may entail, based on a detailed analysis of water demand issues, water availability and security of supply issues.

9. The report has now been completed and focuses on developing a number of possible scenarios that Council could implement to manage water demand into the future. It builds on the scenarios developed in the Thomas Report and developed further potential options based on more in depth analysis of National and International best practise in this area. It also looks at

Central and Local Government policy and drivers affecting and influencing water demand management to provide context to the discussion.

10. Following the development of these scenarios, a number of separate analysis occurred:

- The first was a simple Fatal Flaws approach, whereby scenarios that did not cross a pre determined set of key requirements were removed from further detailed analysis
- The second was a detailed Multi Criteria Analysis (MCA) process that ranked each scenario based on its attributes and outcomes.
- Thirdly a high level Net Present Value (NPV)
- A high level risk assessment

11. These MCA and other analysis allowed the scenarios to be ranked in terms of attractiveness to the City. All of the top six options had the introduction of UWM as part of the process.

12. The top two ranked scenario included a new initiative referred to as "Proactive Demand Management (PDM)". A PDM program would include additional demand management measures over and above what is currently funded to improve water efficiency such as water audits of non-residential customers, a residential showerhead retrofit rebate program, a residential water leak assistance program, and mandated efficiency targets for new residential properties.

13. The report also highlighted risks with the security of supply for the City, some of which already have solutions in place to address (low river intake).

14. There continues to be significant risk associated with future security of supply due to restrictions on the allocation of water. Recent changes in Regional Plans and Policy have been closely followed by staff and the recent Regional Policy Statement (RPS) hearing outcome is less than favorable in this regard.

15. Staff continue to work with the Waikato River Municipal Users Group (WRMUG) in the water allocation space and support the groups view that an appeal needs to be lodged to the RPS to ensure that the water allocation debate for Municipal supply is adequately addressed.

16. The analysis shows that it is some time before UWM need to be installed and as this analysis is based on a number of assumptions each 10-Year Plan deliberation is another opportunity to assess these assumptions and review the timing.

17. Recommendation/s from Management – Recommendation to Council

18. That the report be received

19. That Universal Water Metering be considered as an appropriate water demand management measure for the City at some point in the future

20. That evaluation of the delivery method, timing and costs for installation of Universal Water Meters be considered through each subsequent 10-Year Planning process

21. That Council appeal the relevant outcomes of the Regional Policy Statement

22. Attachments

23. Attachment 1 - Managing Demand for Water Table

24. Key Issues

25. Background

26. Hamilton City's water demand has been rising over the years and is now approaching a point where demand will exceed the existing infrastructure's capacity to supply water. This is particularly relevant in the summer months when demand is almost double that of an average winter's day.

27. Over the last four years Council has implemented a number of Smart Water initiatives that have seen summer demand decrease by around 10,000,000 litres per day. In the last 10-Year Plan round Council also committed funding in the short term to undertake more accurate water demand monitoring work and leak detection activities to control overall demand.

28. Notwithstanding this, demand is forecast to exceed treatment capacity in approximately 2019/20 and an allowance has been made in the current 10-Year Plan to progress an unspecified water intervention project to manage this issue. The funding scale and profile is based on a study undertaken in 2011 to better understand the cost and benefits of introducing universal water metering to the city (the Thomas Report).

29. The Thomas report outlines that HCC can expect an overall reduction in water demand of 19% of Peak Daily Demand following the introduction of UWM. This equates to approximately 18,000,000 litres of water per day.

30. There are also water allocation issues associated with the Waikato River system and the current Public Health Risk Management Plan considers the Cities total reliance on a single source of raw water a high level risk that needs mitigating.

31. Prior to any major intervention project progressing, staff were allocated funding to undertake a more detailed analysis of the options not only to better manage water demand, but also to address other key issues in regards to the City's water supply (such as water allocation) and security (the one source of raw water issue).

32. Managing Demand for Water Report

33. The purpose of the funding was to undertake a comprehensive study to determine the appropriate works, or suite of works, required to ensure that water demand is managed so that plant capacity is maximised, Council clearly understand supply based risks and that security of supply issues are clearly assessed.

34. MWH New Zealand was commissioned to undertake the study and the following objective was developed to guide the project.

"To identify the most effective option to manage water demand and the associated water supply volumes and security of supply for the City into the future utilising information available and national and international best practice."

35. The study was completed in November this year and used the work undertaken to inform the 2012-22 10-Year Plan (Universal Water Metering, Thomas International Consultants) process as a basis for analysis.

36. The methodology utilised in the report to determine the appropriate scenarios for moving forward was based on Multi Criteria Analysis process (MCA) were various scenarios are developed and tested against each other via a scoring and weighting method. This process is widely utilised nationally and HCC used the same process in the recent Southern Wastewater report.

37. The outcomes of the MCA process are articulated fully in the wider report. In brief, 11 separate scenarios (Attachment 1) were developed for comparison via the MCA. These were developed in a workshop environment and sorted via an initial high level fatal flaws approach and then a much lower level detailed MCA analysis.

38. The MCA process ranked the scenario's which were then run through an NPV analysis. The results of this analysis were added to the MCA outcomes to determine a final score for each of the proposed scenarios.

39. Report outcomes

40. Overall results

41. The top three ranked scenarios are as follows:

- **Scenario 8:** This Scenario assumes water loss reduction work will be carried out prior to UWM and a PDM program will run throughout the planning horizon. When supply augmentation is required, a new second WTP is constructed before the capacity of the existing WTP is increased.
- **Scenario 7:** This Scenario assumes water loss reduction work will be carried out prior to UWM and a PDM program will run throughout the planning horizon. When supply augmentation is required, the capacity of the existing WTP is increased to 140 mega litres per day (MLD) before a new second WTP is constructed
- **Scenario 5:** This Scenario assumes water loss reduction work is carried out prior to UWM and that when supply augmentation is required, a new second WTP will be constructed before the capacity of the existing WTP is increased. This is currently what is funded in the existing LTP.

42. The table below outlines fully the high level outcomes of the MCA workshop on each scenario and ranks them accordingly. Full risk profiling on options 7 to 11 was not undertaken as it was not considered of value to complete.

Scenario	MCA Scenarios Output (figure 4.1)		Key Evaluation Assessment Criteria (Table 4.1, Figure 4.1)Score			Scenario Risk Ranking of those evaluated (Top 6 Preference Ranked Scenarios plus Scenario 6 Table 3.2)
	Preference Ranking (1 highest 11 lowest)	Scenario Score Highest best)	Efficiency Water Use	Security of Supply	Lifecycle NPV Estimated Costs	

Scenario 8	1	4.78	5	5	3	Least overall risk with Scenario 3
Scenario 7	2	4.92	5	3	5	Next least risk after Scenarios 3 and 8
Scenario 5	3	4.05	4	4	2	Third most overall risk
Scenario 9	4	3.88	4	4	3	Fourth most overall risk
Scenario 4	5	3.53	4	4	3	2nd most overall risk
Scenario 3	6	3.32	4	4	2	Least overall risk with Scenario 8
Scenario 2	7	3.02	3	2	3	Not evaluated
Scenario 11	8	2.93	2	5	1	Not evaluated
Scenario 6	9	2.48	3	2	3	Most overall risk
Scenario 10	10	2.28	1	4	1	Not evaluated
Scenario 1 Status Quo	11	1.38	1	1	3	Not evaluated

43. Demand management

44. The top five ranked Scenarios, 8, 7, 5, 9 and 4, all include universal metering and volumetric charging which is widely viewed as fundamental to a water efficient regime, with a price that reflects the full costs of supplying water to consumers. The top five ranked Scenarios also all include a water loss reduction program which Council has already committed to via the 2011/12 LTP process.

45. The top two scenarios both include a Proactive Demand Management program to be introduced. This is a new proposal to Council and consists of measures such as water audits of non-residential customers, a residential showerhead retrofit rebate program and mandated efficiency targets for new residential properties. This aligns with best practices as it includes both an economic instrument (retrofit rebates) and a regulatory instrument (mandated efficiency targets) and structural changes (retrofits) and behavioural changes (water audits). This is priced at an additional $200k per annum over and above existing budgets in this area.

46. <u>Supply, source(s) and treatment</u>

47. The report considered the long term requirement for the City to secure water and the ability to treat and supply that water to meet anticipated future growth and demand needs.

48. In June 2009 Opus Consultants identified that the Waipa River was the most likely new source of raw water for the city and evaluated its treatment and conveyance needs.

49. Of the eleven Scenarios developed, Scenarios 3, 5 and 8 include new second source of water supply and associated treatment. This new second source is an alternative to upgrading the existing Waikato River supply source and Peacockes WTP and would be needed to meet increased demand.

50. <u>Security of supply (risk)</u>

51. This section of the report focused on development of a risk profile and looked to ensure that the city had sufficient storage to provide 7 days survival water supply (27ML), relocate existing Waikato River intake at Peacockes WTP to provide security in low flow drought conditions (at existing site).

52. Council has already confirmed the relocation of intake project within the current 10-Year Plan and lowering of water demand across the city will maximize available storage within existing and future reservoirs ensuring emergency supply is available. It is acknowledged that further work is required in the development of emergency planning responses and this is currently underway with results expected in early 2013.

53. The major difference between scenarios is future river sources (Waikato and Waipa) with sourcing from the Waipa long term giving a significant better long term security profile.

54. The key issue with utilising the Waipa (or the Waikato for that matter) is ensuring the ability to obtain the appropriate water take permit.

55. Two of the top three scenarios recommend utilising the Waipa River as an alternate water source for the city.

56. An overall key consideration from the findings of this project is that regardless of a new WTP on the Waipa or an upgraded Peacockes WTP is selected as a preferred option moving forward, neither are be required until approximately 2040.

57. Whilst the requirement to secure further water to service the city appears to be some way off, issues regarding water allocation as well as the recent outcomes of the RPS process mean that the City needs to consider the appropriate long term planning approach sooner rather than later.

58. Preferred scenario

59. Given the information and analysis undertaken, staff consider that the most appropriate scenario to move forward into the next 10-Year Plan process is scenario 5 (shown below).

60. This scenario allows for the current Water Loss work to deliver its water savings and then provides for the installations of UWM, commencing no earlier than 2016/17.

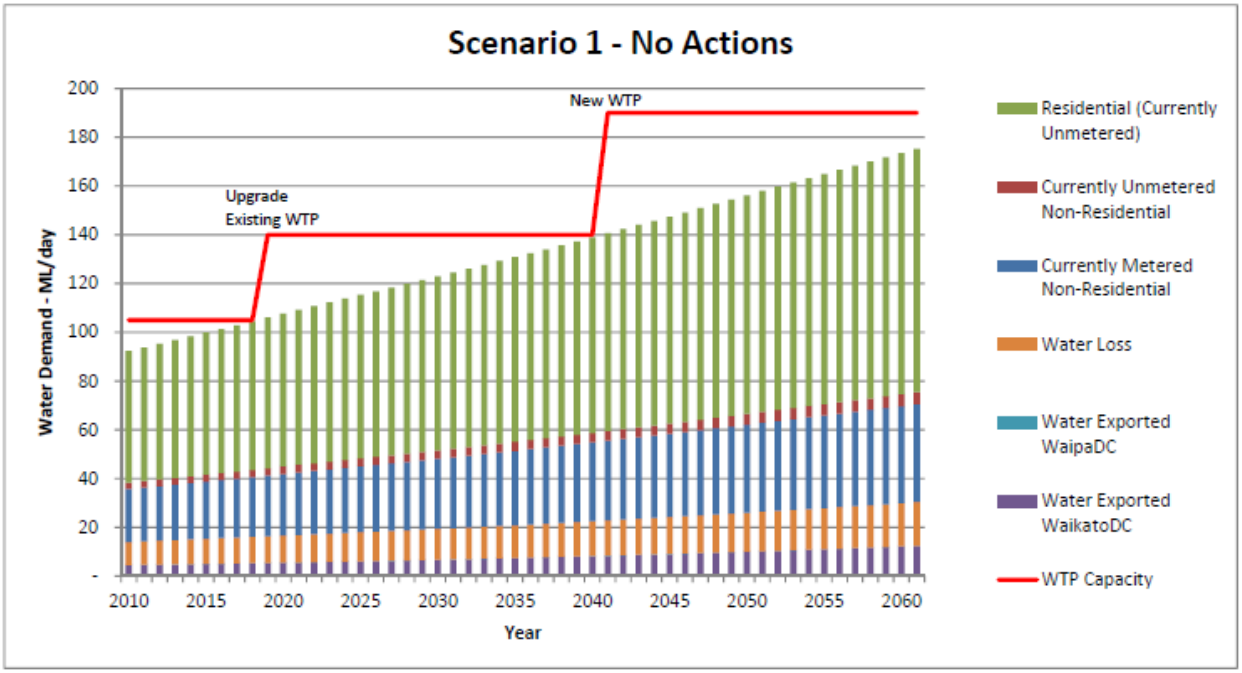
61. The preferred scenario also requires a new water treatment plant to be constructed on the Waipa River in 2040.

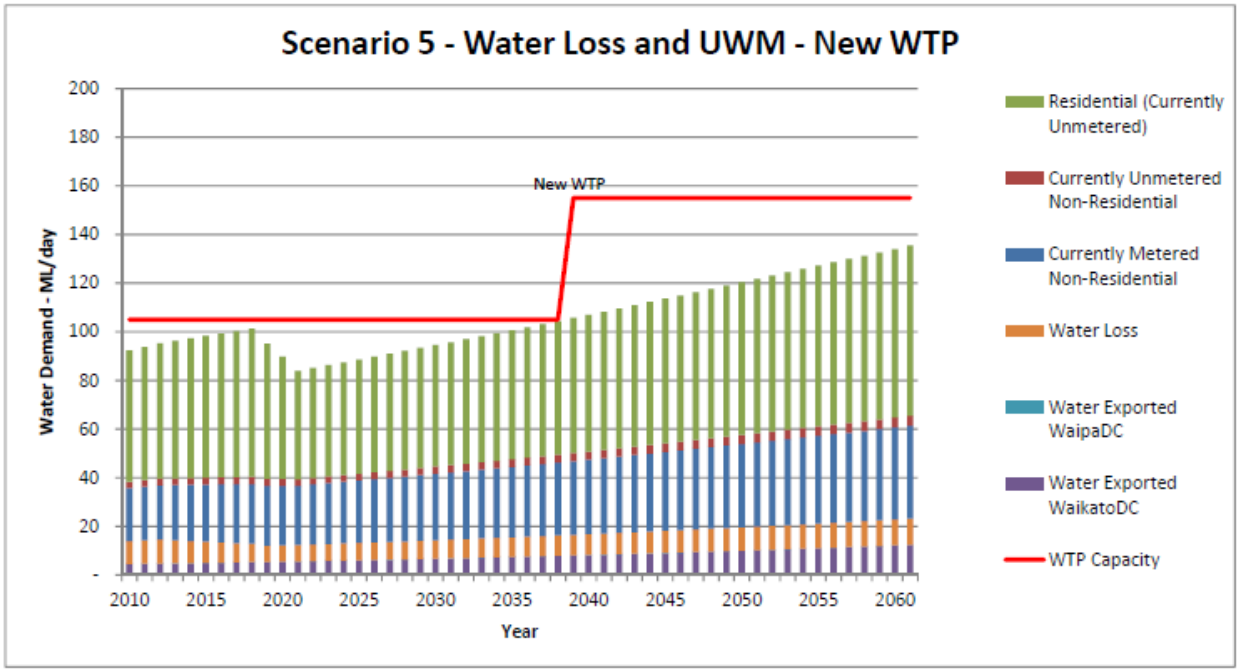
62. Further consideration of both the timing, type and funding stream for UWM can be undertaken in the 2015-25 Long Term Plan when further demand data will be available.

63. Staff are also in discussions with a number of national and international agencies regarding Smart Water Meters and trials in the Sub Region are about to commence. Further developments are required in this area prior to Smart Meters being a cost effective and viable option for Hamilton.

64. Staff are currently reviewing the whole area of water allocation and availability with view of reporting to Council early in the New Year which will support the proposed RPS appeal and planning approach to sourcing water from the Waipa River.

65. Discussions at a Sub Regional level are also underway regarding timing of meter installations so that efficiencies can be maximise when the City progresses with this project.





66. Strategic alignment

67. The Vision of the recently adopted Sub Regional 3 Water Strategy is:

The delivery of integrated, sustainable and well managed Three Waters services for the sub-region Which ensures the cultural, social and economic needs of the community are met and the quality of the Waikato River is improved.

68. Two of the 9 strategic issues from the Strategy are applicable to this work. They are:

- Issue 2: Meeting future anticipated and planned for growth demands
- Issue 5: Ensuring quality, efficient and sustainable infrastructure
- Issue 7: The availability and allocation of water

69. It is believed that the work undertaken through the Managing Demand for Water work has addressed both these key issues

70. In relation to HCC, this project will meet the following outcomes and goals:

Outcome	**Goal**
Prosperous and Innovative	• Our City grows and prospers in a sustainable way
Outstanding City Leadership	• We operate efficiently and provide exceptional service
People love living here	• We value, preserve and protect Hamilton's natural, green environment • Hamilton is a safe city

71. Legislative requirements or legal issues

72. Central Government

73. In 2007 Independent Inquiry into Local Government Rating ('the Shand report') made seven recommendations relating to local government's actual set of rating tools. Chief among these was a strong encouragement for local authorities to introduce volumetric charging (metering) for water supply and wastewater disposal

74. The Land and Water Forum recommends potential reform of New Zealand's fresh water management, identifying shared outcomes and goals, and options to achieve them. Key forum recommendations include the introduction of new charging system stating that "efficiency and environmental gains will result from requiring water utilities to meter and charge users for their services on a volume-related basis".

75. In 2010 the Office of Auditor General conducted a performance audit of eight Local authorities regarding the planning in place to meet the forecast demand for drinking water. The basis of this audit was to understand approach for preparing drinking water demand forecasts to reduce the risk of under- or over-investing in infrastructure. A key outcome of this audit was that Water metering and volumetric charging can be used in several ways to improve the efficiency of water supplies and reduce the investment required from ratepayers. It reduces demand and can be used to identify leaks

76. Local Government

77. There are a number of legislative considerations that need to be considered as Council moves towards the installation of UWM. A majority of these lie within the Local Government Act (LGA) and are summarised below:

- Sections 76 to 81 require that options be evaluated as part of the decision-making process, including considering the benefits and costs of each option in terms of the

present and future social, economic, environmental, and cultural well-being of the district or region;

- Sections 82 to 89 set out the consultation process;
- Section 90 sets out the Policy on Significance;
- Sections 93 to 97 define the requirements for the Long Term Plan, which must be followed if Hamilton City Council decides to include a proposal for universal water metering in a Long Term Plan;
- Sections 102 and 103 define the requirements for Revenue and Financial Policies, which must be amended to allow for volume based water charges;
- Sections 123 to 125 define the requirements to make an assessment of water and other sanitary services;
- Sections 143 and 148 define the requirements for Bylaws, which must be amended as the current Water Supply Bylaw covers water charged as a rate;
- Section 181 sets out the requirements for construction of works on private land; and
- Sections 200 to 211 regarding Development Contribution.

78. Water allocation

79. In November 2010 the notified version of the PRPS contained a policy which required the management of water allocation to ensure that sufficient water is available to meet the reasonably foreseeable needs of people and communities. It proposed to prioritise applications for the take and use of water and gave domestic and municipal supply the highest priority.

80. While HCC are responsible for providing water for drinking and municipal use, it is WRC that controls allocation of water, through water take consent processes. Unfortunately, the priority provisions have not remained in the decisions version of the PRPS.

81. It is understood that part of rationale for deleting this policy and associated method, was the interpretation by WRC that the PRPS should be aligned with Regional Plan Variation 6 – Water Allocation, the decisions on which, were released following the notification on the PRPS.

82. The Waikato River Municipal Users Group (WRMUG) comprising HCC, Watercare Services (Auckland), Waikato District and Waipa District Councils, were involved in the hearings and Environment Court proceedings on Regional Plan Variation 6. They also collectively joined together to provided evidence at the PRPS hearings.

83. Collectively WRMUG have, through the Regional Plan Variation 6 proceedings and at the hearings on the PRPS, opposed the approach being taken to water allocation. The decisions version of the PRPS no longer has a policy position that prioritises water takes. This lack of certainty into the future, poses a significant risk to the City's ability to secure water supply for future generations.

84. The decisions version shows no recognition of WRMUG's or HCC's concerns, with WRC reasoning that the PRPS now reflects the policy direction of Regional Plan Variation 6.

85. HCC's existing water take consent secures water allocation for the next 35 years, for a certain quantum of water, is stepped upwards overtime in relation to predicted growth. It is an important priority for HCC to safeguard for future growth. HCC has obligations under both the Health Act and the Local Government Act to supply water to its community, and the provisions of the decisions version of the PRPS do not provide sufficient comfort that these obligations can be met.

86. HCC along with WRMUG, are currently considering appealing provisions of the PRPS. This would include challenging the water allocation policy and associated method and the lack of recognition of water management as an issue in the PRPS.

87. The detail of this appeal will be worked through in the upcoming weeks.

88. Privatisation of water

89. Under the LGA, Local Authorities have the mandate to supply water services to their respective communities.

90. Recent legal advice has confirmed that the concept of profiteering from water supply is inconsistent with the LGA in particular sections 10 and 11 as well as section 101 (3)(b).

91. Whilst changes to the LGA have allowed more flexibility in contracting out services and duration of those contracts, the fundamental aspects of water supply, such as pricing and policy, must be undertaken by the relevant Local Authority.

92. Therefore, even if Council decide to introduce UWM as a demand and equity tool in relation to water management, there is no ability to fully privatise the system as a whole. This clarity is provided to inform those who associate water metering with privatisation of water.

93. Environmental sustainability

94. HCC current Water Take consent requires the development of a Water Conservation and Demand Management Plan (WCDMP). The WCDMP outlines how Council intends to operate its water take, treatment and distribution network to ensure that the water taken from the river is used in an effective and efficient manner.

95. Central to the WCDMP is ensuring that the use of water within the city is minimised and that the community values water. Whilst the education programs currently in place are having the desirable affect on demand, UWM is widely known to curb overuse of water by placing a monetary value in front of the consumer, much in the same as that power and gas metering does.

96. Consultation

97. No formal consultation has been undertaken in the development of this report nor is considered necessary in the short term.

98. The Sustainability Working Group has had a number of briefs on the project as it has developed.

99. Discussions through staff contact with Tainui (HCC/Waikato Tainui Liaison Group) has seen the proposal raised, albeit at a high level. Much more discussion in this area is required.

100. An appropriate public consultation process will be developed if and when, UWM is rolled out across the City. Ensuring early community and key stakeholder engagement at an early stage was a key learning from Tauranga District Councils experience and staff have loaded some forward funding in the current 10-Year Plan to ensure this occurs.

101. Further consultation with targeted groups, interested parties and the wider community will need to be undertaken as any works progress.

102. Treaty requirements/implications

103. The importance to tāngata whenua of the Waikato River and other sources of freshwater is acknowledged by Council.

104. The Waikato – Tainui Raupatu Claims (Waikato River) Settlement Act and the Nga Wai o Maniapoto (Waipa River) Act further establish this importance and the part tāngata whenua play in the co-management of these waters and their associated Joint Management Agreements (JMA) being put in place with HCC and other local authorities.

105. Consistent with HCC's current approaches in working with tāngata whenua, their input will be sought as the preferred scenario is developed further.

106. There is also the national issue that has yet to be resolved regarding the ownership of water in New Zealand. This issue has not been taken into consideration at this stage due to the debate still progressing at a National level.

107. Implementation issues

108. There are a number of implementation issues that need to be addressed prior to the implementation of UWM.

109. The following is a non exhaustive list of those issues, that have been identified to date:

- Develop a communication and consultation plan to cover 3 stages: (i) before formal consultation on any 10-Year Plan; (ii) during formal consultation on any 10-Year Plan, and (iii) during implementation of the approved programme.
- Investigate the impact of transitioning from the existing water rating method to metered charging, and develop an acceptable means of transition using tariff modelling and customer focus groups for consultation. It is further recommended that a targeted rate (Uniform Annual Charge) for water supply be developed in the coming years to facilitate the transition to metered charging for those customers currently unmetered.
- Develop a hardship policy to assist low income households affected by the introduction of universal metering.
- Evaluate smart meters before making any final decision on the type of metering system. Set up a working group with power, gas and telecommunication utilities to explore synergies for smart metering. As a minimum allow for smart metering equipment in the meter box, to allow smart meters to be implemented at a later date.
- Consider establishing an Advisory Group to assist Council in determining the economic, social (including public health), cultural and environmental impact of its water strategy.

- It is also noted that if the proposal to implement universal metering is approved, the Water Supply Bylaw would need to be changed to reflect volumetric charges. Consideration should be given to using the Bylaw as a mechanism for reducing water use.

110. The current 10-Year Plan has sufficient funding in the lead up to the physical installation of meters to cover the items noted above.

111. Options (if applicable)

112. The MDW report outlines all options that were considered as part of this work and development of the preferred option.

113. Staff consider these to be a full and appropriated reflection of what is available to manage water demand within the city.

114. Financial and Resourcing Implications

115. Scenario 5 forms the basis of the current 10-Year Plan funding and therefore no increase or change is required.

Year	Funding
2016/17	$1.989m
2017/18	$2.069m
2018/19	$11.880m
2019/20	$10.383m
2021/22	$143k
Total	**$26.464m**

116. The top ranked scenario of the MDW report, scenario 8 (along with scenario 7), does require further funding in the short term. This funding is in the order of $200k per annum and is an allowance for implementation of the Proactive Demand Management program of works.

117. The implementation of Proactive Demand Management allows the installation of UWM to be pushed outside of the current 10-Year Plan window. This transfer of funds outside the current 10-Year Plan results in a reduction in debt payments for the city.

118. Staff consider it prudent to continue along the current demand management process and fully analyse demand and intervention requirements over the next and subsequent 10-Year Plan processes.

119. There is no funding allocation for the RPS appeal and at this early stage the scale of the appeal is unknown.

120. Risk

121. The MDW project included a requirement for a high level risk assessment of the Scenarios that HCC is likely to consider further to be undertaken. This resulted in an assessment on the top six ranked Scenarios from the MCA workshop (Scenarios 8, 7, 5, 9, 4 and 3).

122. As all six Scenarios include UWM, a further Scenario (Scenario 6) was included in the risk assessment to identify the possible implications of not adopting UWM.

Level of Risk	Rank	Scenario
Most Overall Risk	1	Scenario 6
	2	Scenario 4
	3	Scenario 5
	4	Scenario 9
	5	Scenario 7
	6	Scenario 8
Least Overall Risk	6	Scenario 3

123. This analysis identified three separate areas of risk that require further consideration:

- Communication and public perception around the introduction of UWM
- Risks associated with the City's reliance on a single source of supply
- Long term availability of water to service growth

124. Communication

125. A full and comprehensive communications strategy is a key part of the development of the UWM program. Learning from other authorities who have undertaken this work is key in determining the nature of this communication process moving forward, including early engagement with the community.

126. Single source of supply

127. The single source of supply risk for the city is being managed at an operational level with the introduction of emergency managing plans as well as demand management as outlined with the MDW report.

128. Council's Public Health Risk Management Plan (PHRMP) also has security of supply as a high risk item as outlined in the table below.

Source and Abstraction				
Source water receives unacceptable levels of microbiological contamination				
3.2.1.1	Unknown contamination sources in the catchment	Almost certain	Minor	High
3.2.1.2	Council plans class activities as permitted and hence consent conditions do not exist	Almost certain	Minor	High
3.2.1.3	Known contamination sources present in the catchment but limited control on these activities	Almost certain	Minor	High
Source water receives unacceptable levels of chemical contamination				
3.2.2.1	Unknown contamination sources in the catchment	Almost certain	Minor	High
3.2.2.2	Council plans class activities as permitted and hence consent conditions do not exist	Almost certain	Minor	High
3.2.2.4	Heavy rain leading to significant change in the quality of the river	Likely	Moderate	High
Insufficient water available for abstraction				
3.2.3.1	Drought	Possible	Catastrophic	High

129. Availability of water

130. The longer term issue is ensuring access to sufficient water to cater for the city's growth.

131. The recent submissions by the Waikato River Municipal Users Group (WRMUG) to the Regional Policy Statement requesting priority access to water for municipal suppliers as well as other supporting polices has not been accepted. Staff are recommending that Council appeal this portion of the RPS decision and support further action by WRMUG.

132. To support this view, staff are currently reviewing the whole area of water allocation and availability with a view of reporting to Council early in the New Year.

133. If an appeal is not lodged in relation to water allocation, HCC will lose the opportunity to be involved in negations and formal Environment Court processes on the matter. The current provisions do not provide security of supply for any future water takes.

Signatory

Authoriser	Chris Allen, General Manager City Infrastructure Group

Option Category	Component	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10	Scenario 11
		Baseline Thomas Scenario 1	Thomas Scenario 2	Thomas Scenario 3	Thomas Scenario 4 (BAU)	Thomas Scenario 5	Proactive DM	Proactive DM with UM and WTP Upgrade	Proactive DM with UM and new WTP	Scenario 4 - additional reservoir	Scenario 1 - with new WTP rather than upgrade existing WTP	Scenario 6 - with new WTP rather than upgrade existing WTP
Demand Management	Smart Water Use Programme	x	x	x	x	x	x	x	x	x	x	x
	Water Loss Reduction				x	x	x	x	x	x		x
	Proactive Demand Management Programme (Water use audits, retrofits etc)						x	x	x			x
	Universal Metering and Volumetric Pricing		x	x	x	x		x	x	x		
Supply, Source and Treatment	Upgrade existing plant to 140 MLD before constructing new 50 MLD WTP on Waipa River	x	x		x		x	x		x		
	Construct new 50 MLD WTP on Waipa River before upgrading existing plant capacity			x		x			x		x	x
Security of Supply	Additional reservoir storage to provide 7 days survival supply (27ML)									x		
	Relocate existing intake to provide security in low flow drough conditions (at existing WTP site)	x	x	x	x	x	x	x	x	x	x	x