

# PLANNING FOR WATER CONSERVATION AND DEMAND MANAGEMENT

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## ABSTRACT

Water plays an essential and integral role in everyday life but its true value is often overlooked, as are the consequences of what would happen if we no longer had access to it. Despite New Zealand being relatively water rich in international terms, regions are becoming water stressed and consideration is being given to better conserve, protect and allocate such a precious resource.

Proposed Variation 6 to the Waikato Regional Plan introduces a new approach to the allocation and use of the region's freshwater. Whilst municipal water supplies are given the highest priority, there is a requirement for suppliers to demonstrate that the water is used efficiently. Suppliers are required to prepare and implement a Water Conservation and Demand Management Plan.

MWH assisted HCC with obtaining a new long-term resource consent to secure a municipal water supply for Hamilton until 2044. To support HCC's water permit application, the Council prepared a Water Conservation and Demand Management Plan (WCDMP) which incorporates New Zealand and international best practice in the sustainable management of municipal water.

The Plan developed in conjunction with MWH:

- addresses the requirements as set out in the Regional Plan Variation 6 as well as the RMA, Local Government Act and HCC's own policies and plans;
- is simple to use;
- provides a level of information needed for Council to make robust decisions;
- provides a road map for Council to develop sustainable water conservation and demand reducing tools and policies;
- ensures the social, environmental, cultural and economic needs of the City and surrounding areas are understood and incorporated;
- sets operational rules to manage elevated water demand in times of drought.

The paths that HCC undertook to develop the WCDMP provided Council with the opportunity to propose a stepped water take regime to be implemented through the resource consent. So often water permit holders "bank" their allocations of water until such time that they are required, reducing the availability of water allocation for other users in the short term. The innovated stepped take developed within the WCDMP highlights Council's appreciation of other river water users and sets a high benchmark standard for those who follow HCC in their own water allocation applications.

This paper will describe HCC's journey towards more sustainable municipal water management. It will discuss the requirements of proposed Variation 6, the resource consent process, and the challenges facing all water users in securing their current and future water needs.

## KEYWORDS

**Water Allocation, Water Conservation and Demand Management, Municipal Water Supply, Resource Consent Planning, Stepped Water Take, Water "Banking"**

# 1 INTRODUCTION

Water is a vital but scarce resource. Through an integrated consulting solution, MWH NZ Ltd (MWH), Hamilton City Council (HCC) and Simon Berry Barrister have successfully secured the long-term future of Hamilton City's water supply, and created a 'blueprint' for other municipal water supplies in New Zealand.

This project shows the success possible by allocating significant appropriate resources in the first phases of the project life cycle. The journey described is one which the disciplines of engineering, legal and planning have played an equal role.

This project began with achieving priority for municipal water supply in Variation 6 of the Waikato Regional Plan, included the development of a comprehensive Water Conservation and Demand Management Plan and culminated in the granting of a 35 year consent for water take from the Waikato River – the longest consent possible under the Resource Management Act.

This innovative project includes the unique use of 'stepped water take' which means water not required immediately for municipal supply can be allocated to other users in the interim, resulting in major environmental and social benefits. The sophisticated Water Conservation and Demand Management Plan includes a detailed Action Plan to efficiently manage water demand, devise targets and KPIs and manage potential drought conditions.

The Hamilton City Council 35 year water supply infrastructure project is a best practise example of how various disciplines (engineering, planning, legal) and stakeholders (Council, iwi, private sector) can collaborate to achieve high quality outcomes for the good of the entire community.

This project has ensured a continuing water supply for the city of Hamilton, and created a framework for long-term allocations for municipal water supplies that could be used throughout New Zealand.

## 2 PROJECT SCOPE

In October 2006 Environment Waikato (EW) notified Variation 6 (RPV6) to the then Proposed Waikato Regional Plan. RPV6 replaces the previous water allocation and use chapters of the Proposed Regional Plan. The municipal suppliers that take water from the Waikato River joined together to provide a collaborative response to these changes. This Group consisted of Watercare Services Ltd (Watercare), Hamilton City Council (HCC), Waipa, Waikato and Taupo District Councils, with Simon Berry providing legal advice and MWH's Paula Hunter providing planning advice. The Group is collectively known as the Waikato River Municipal Users Group (WRMUG). The WRMUG supported in principle EW's approach to the management of water for municipal supply, however, there was opposition from competing interests for the Water from the Waikato River that had the potential to undermine or restrict the ongoing security of supply for municipal water.

The decisions on RPV6 were notified in November 2008 and the WRMUG was very satisfied with the outcomes it collectively achieved. The Group secured very supportive provisions in the Waikato Regional Plan that give security for, and priority to, water takes for municipal supply provided that supply authorities justify the volume of water required and demonstrate the water will be used efficiently. These requirements can be achieved the preparation and implementation of a Water Conservation and Demand Management Plan.

The second part of the project was the assistance provided to Hamilton City Council (HCC) in obtaining a 35 year resource consent (the longest consent duration provided under the RMA) to renew the Council's existing water take and provide additional water to meet the City's needs for the long term.

In preparation for the hearing and to enable HCC to rely on the priority afforded municipal supply under the proposed RPV6, MWH's Emily Botje assisted HCC in the development of the Water Conservation and Demand Management Plan in accordance with the requirements of RPV6.

HCC, its legal advisors, and MWH also developed a comprehensive and sophisticated suite of consent conditions that include provision, through a 'stepped take' regime developed in the Water Conservation Demand Management Plan, for EW to allocate in the short term (six yearly intervals) the water not required for municipal use. The stepped take regime implemented through the consent conditions requires regular reporting and reviews is considered leading edge in New Zealand. The water take hearing was held in January 2009, with the

decision notified in February 2009. EW granted the consent with the conditions proposed by HCC and for a term of 35 years as requested.

This award entry covers:

- Securing very supportive provisions for water for municipal supply in RPV6,
- Developing a comprehensive Water Conservation and Demand Management Plan to support HCC water take application.
- Securing a long term consent for the future water supply for Hamilton City and the development of a stepped take regime to address ‘water banking’ issues.

### **3 COMPLEXITY**

#### **3.1 LEGISLATIVE ENVIRONMENT**

This project has been undertaken in accordance with a complex legislative and policy environment that includes international commitments such as Agenda 21; national statutes (Health Act 1965, Local Government Act 2002, Resource Management Act 1991, Draft National Policy Statement for Freshwater Management, National Environmental Standards; Regional Planning Instruments), the Waikato Regional Plan and HCC’s own plans and strategies – (Environmental Sustainability Strategy and the District Plan).

*Please see Appendix A for an illustration of how these link together in this project.*

Ensuring the project aligned with the numerous policy frameworks and met all regulatory requirements was a complicated task that required an integrated engineering, planning and legal approach. The evidence of the success (through the work of the WRMUG) can be seen in the establishment of a regulatory framework in RPV6 that positively promotes the provision of water for municipal supply and in obtaining a long term consent for HCC’s water supply through the application of the new RPV6 provisions and innovative approaches to water allocation and demand management.

A further complexity was the need to satisfy the expectations and requirements where possible of those that had submitted (Watercare, Genesis and Tainui) on HCC’s water take application. The main thrust of the three submissions related to HCC demonstrating that:

1. it would operate its water supply network as efficiently as possible;
2. its future demand projections were robust;
3. it would only take the water allocated if and when required; and
4. it would ensure that both Council and the community would use the water efficiently.

The other legislative complexity was the need to co-ordinate the review processes under the RMA (established through the consent conditions on HCC’s water take that have been designed to ensure continuous improvement in terms of the conservation and efficient use of water) with the processes established under the Local Government Act for the preparation and review of HCC’s Long Term Council Community Plan (LTCCP). It was critical that these two processes were aligned to ensure that physical works and activities required for demand management and network upgrades in terms of the RMA are programmed and funded in the LTCCP.

Key to meeting this range of legislative and policy requirements was the development of a robust and comprehensive Water Conservation and Demand Management Plan. The components of this Plan and its development are discussed in the Innovation Section.

#### **3.2 COMPLEXITY OF SOLUTION DEVELOPED**

This project also had to manage competing demands for water from the Waikato River – including electricity and irrigation needs. The key components in the development of the solutions that led to the securing of a long term water supply for the Hamilton City are:

1. The collaboration of the authorities (WRMUG) that take water for municipal supply from the Waikato River in the RMA process associated with the development of RPV6.
2. Successfully achieving the inclusion of provisions in RPV6 that support municipal water supply and that give priority to takes for this purpose over other takes provided municipal suppliers have prepared appropriate Water Conservation and Demand Management Plans.
3. A collaborative approach between HCC and MWH and with key stakeholders (Tainui, EW, Genesis, Watercare) in the development of the Water Conservation and Demand Management Plan to support HCC's water take resource consent application.
4. The preparation of the Water Conservation and Demand Management Plan enabled HCC to develop a comprehensive body of information regarding the performance water supply network, the volumes of water used and by whom, and future growth/demand projections. It has also enabled HCC to put in place a series of actions to ensure the ongoing improvement in the quality of this data and information, reviews of growth and demand projections and the development of water saving targets and KPIs and actions to achieve these.
5. HCC's Water Conservation and Demand Management Plan also provided the basis for the development of the stepped take regime which has been incorporated into HCC's water-take consent through resource consent conditions.
6. The integrated approach (engineering, legal and planning) to the development of the complex suite of consent conditions. These conditions not only introduced the stepped take regime, but also a range of review conditions with 'feedback loops' that included links to the LTCCP process. These links are important to ensuring the funding and programming of future water conservation and demand management works and activities required to meet water saving targets developed through future reviews of the Water Conservation and Demand Management Plan and reviews of consent conditions under the RMA.

## 4 INNOVATION

The major innovations in this project are:

1. **Integrated Project Team:** - the combined skills of engineering, legal and planning and the integrated, collaborative and inclusive approach adopted by the project significantly contributed to the successful outcome of the project.
2. **Collaborative Working:** - the informal alliance between the five Councils and Watercare (WRMUG) who take water for municipal use was fundamental in securing provisions in RPV6 that HCC's WCDMP subsequently adhered to. This continued with further work with Watercare, Genesis and Tainui who submitted on HCC's water take application. Throughout the project the project team worked with the consent authority (EW) on the development of the Water Conservation and Demand Management Plan and in the development of approaches and consent conditions. This was instrumental in obtaining the long term consent.
3. **Water Conservation Demand Management Plan:** - this is a comprehensive water life cycle management plan. Areas of innovation include:
  - **Action Plan:** this component provides HCC with a "roadmap" to reduce water consumption over time through development of water saving targets and KPIs with links to the LTCCP (funding allocation) and District Plan amendments (if required).
  - **Stepped take regime:** allows EW to allocate in the short term water not required by HCC for municipal supply and introduces monitoring and reporting to determine if and when future steps will be required. This provides certainty for HCC in terms of future water requirements and flexibility for EW to allocate water not currently required by HCC.
4. **Water Permit Consent Conditions:** - the water take consent conditions developed collectively by HCC, MWH and Simon Berry (in particular, review conditions and reporting requirements to feed into reviews) provide EW with the ability to ensure that HCC undertakes the necessary measures to conserve and efficiently use water. These reporting and review conditions have also been designed to achieve ongoing and continuous improvement in water conservation and efficient use by HCC and the community.
5. **Designing and Developing a Water Efficient City:** - As part of HCC's commitment to implementing its Water Conservation and Demand Management Plan, the Council has carried out an investigation into the opportunities to integrate Green Technologies in the development of a new growth area on the north eastern edge of the City.

Further details on each of these innovations are summarised below.

## **4.1 COLLABORATIVE WORKING**

Collaborative working was key to the successful outcome of the RPV6 process and securing provisions that give priority for water takes for municipal supply over and above other users. The WRMUG also collectively developed a list of information to be included in a Water Conservation and Demand Management Plans and this was adopted by EW and included as information requirements in RPV6. *A copy of this list is contained in Appendix B.* All municipal suppliers who want to take advantage of the priority provisions in RPV6 must prepare their Water Conservation and Demand Management Plans in accordance with this requirement.

MWH's Emily Botje worked with a range of HCC staff in the development of the Water Conservation and Demand Management Plan. This ensured all information contained was factual and the action plans developed were workable and acceptable to all staff. This led to the adoption of the plan by HCC without change. HCC also consulted with key stakeholders including EW, Tainui, Genesis and Watercare throughout the development of the Plan.

HCC also followed a collaborative approach with the organisations (Tainui, Genesis and Watercare) who lodged submissions on its water take application and developed and negotiated an agreed set of conditions to address their concerns.

This collaborative approach continues with Emily Botje working with HCC to set up the Water Action Group. This group will include external stakeholders (Tainui) is now responsible for ensuring that the Action Plan developed under the Water Conservation and Demand Management Plan is appropriately implemented and regularly reviewed.

## **4.2 WATER CONSERVATION AND DEMAND MANAGEMENT PLAN**

The Water Conservation and Demand Management Plan developed meets criteria set in RPV6 and meets Councils responsibilities under the LGA 2002 in terms of review every three years coinciding with the LTCCP review process. Areas of innovation are described in further detail.

### **4.2.1 ACTION PLAN**

The Action Plan developed for HCC is unique as it captures the life cycle of Council's decision making approach whilst ensuring water consumption is reduced.

The plan is in two phases. The first is the identification of where Hamilton's water goes. HCC can now capture data over time to better understand its network, measuring peak daily demand and seasonal changes. One of the major managerial aspects of Phase One of the Action Plan was to develop a Water Action Group (WAG). This Group has members from all areas of Council operations, its objectives include the assimilation of information and water conservation practices. The second objective is to manage, develop and adopt key initiatives from Phase Two of the Action Plan.

Phase Two provides a time line and basis on which the WAG will complete consultation, report findings, develop and implement a number of water conservation and demand interventions.

HCC wanted to develop practices that did not wholly depend on the installation of domestic metering. Metering whilst driving reduction by implementing a financial incentive does not provide the householder with practical advice and skills necessary for a long term change in behaviour. Phase Two allows HCC to carry out a cost benefit and analysis on all the initiatives developed in the Water Conservation and Demand Management Plan. Once this is complete HCC has the opportunity to consult with the user groups to determine what will work for the City and the financial implications for each.

The timeline incorporates the LTCCP decision making and funding processes as well as acknowledging that to be successful other policies and plans within the Council will need to be changed (such as the District Plan, Development Manual, Policy's and Bylaws). By 2012/13 HCC will have a fully integrated suite of implemented tools that will continue to reduce the water required per capita into the future measured by those initiatives developed under Phase One.

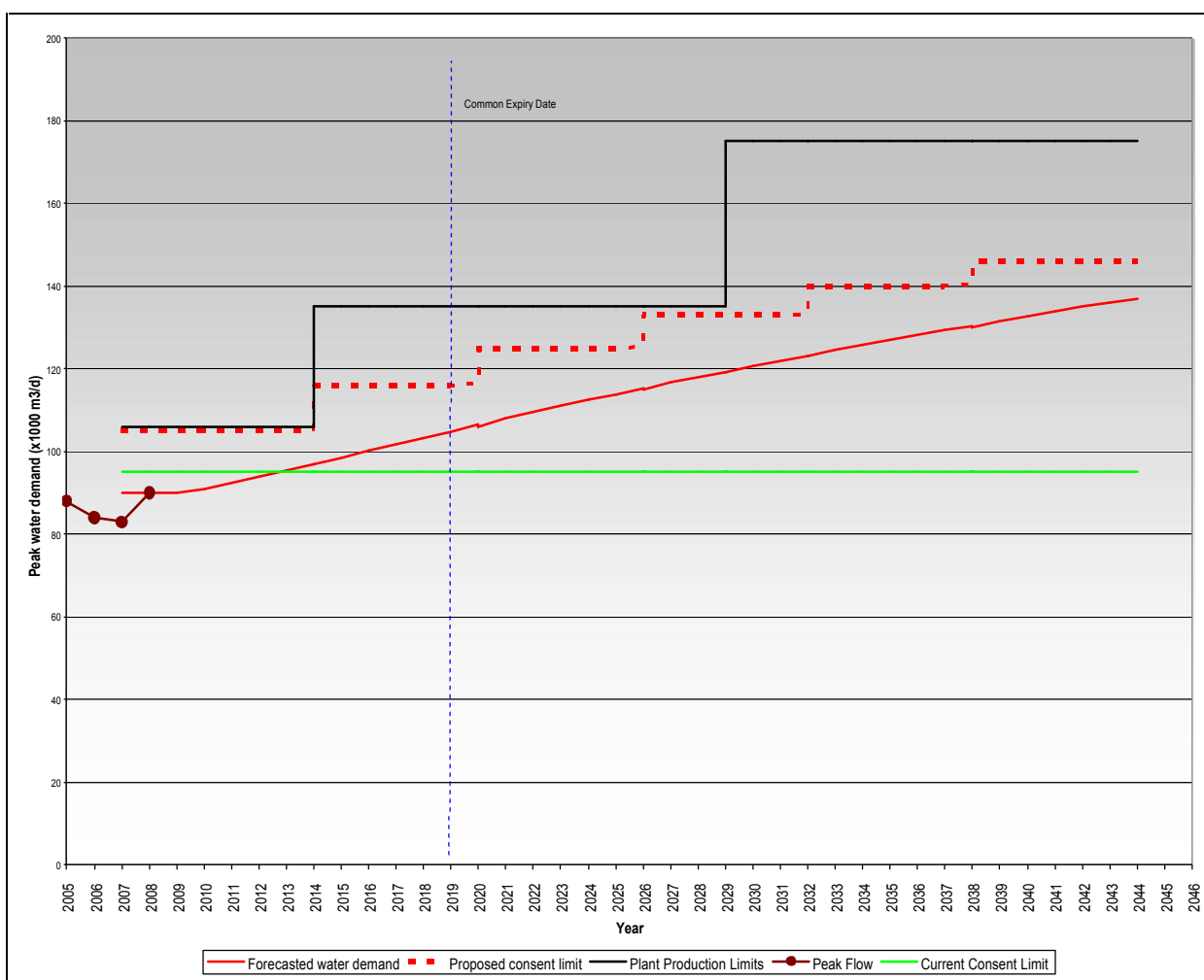
### 4.2.2 STEPPED TAKE

During the process of developing the Water Conservation and Demand Management Plan and the Action Plan, HCC was able to determine in detail the estimated volume of water required to provide for the City over the next thirty five years. This exercise resulted in the total water take applied for reducing from 194,000 m<sup>3</sup> / day to 146,000 m<sup>3</sup> / day, a reduction of 48,000 m<sup>3</sup> / day.

The outcome of this enabled HCC to propose a stepped take regime through conditions on its water take consent. Figure 1 demonstrates this stepped approach. This means that the volumes of water HCC has estimated to meet the demands of the City are in six year steps over the life of the consent so that the balance of the 146,000 m<sup>3</sup>/day which is not needed immediately can be allocated and managed by EW. The upshot is that HCC can have the confidence knowing that water will be available over a 35 year term, but the water that is not needed in the meantime remains available for allocation to other users.

It is believed that this stepped take regime which is supported by comprehensive review and reporting conditions is the first of its kind in New Zealand.

Figure 1: HCC's Stepped Take



### 4.3 WATER PERMIT CONSENT CONSIDERATIONS

To mitigate environmental effects of its water take, to address concerns raised by submitters and to support the proposed stepped water take regime, a suite of monitoring, reporting and review conditions with “feedback loops” relating to water allocation, water demand management and monitoring effects on the Waikato River were developed. The timeframes for the monitoring, reporting and review requirements were carefully designed to ensure that:

- Sufficient time is allocated to produce and provide meaningful information and data;

- Sufficient time is available for HCC to undertake updates of the Water Conservation and Demand Management Plan and meet reporting requirements;
- Capital works or other initiatives required through the Water Conservation and Demand Management Plan update process can be incorporated into reviews of HCC's LTCCP;
- Sufficient time is available for EW to review reports provided by HCC and to determine whether to initiate any reviews of consent conditions;
- EW has current information on HCC's water allocation requirements in readiness for considering applications subject to the common expiry process in 2019 for that part of the Waikato Catchment from the Karapiro Dam to Ngaruawahia at the confluence of the Waipa River and the allocation of water from that part of the River.

#### **4.4 DESIGNING AND DEVELOPING A WATER EFFICIENT CITY**

HCC is committed through regulatory requirements, its Water Conservation and Demand Management Plan, and a range of voluntary commitments, to the conservation and efficient use of water. It is also committed to creating sustainable urban environments through quality urban design. These aims have been met in this project through investigating how future growth areas of the City could be developed to achieve water conservation and demand management through integrating sustainable design by adopting Green Technologies.

HCC is currently investigating Green Technology options that could be adopted in the future development of the Rototuna Growth Cell and including Council owned facilities. The investigations also consider a range of policy mechanisms to support the successful implementation of the potential options. The outcome of these investigations will then provide a 'blueprint' for the development of future growth areas of the City and in the longer term for brownfield developments and retrofitting existing developments.

### **5 DEPTH OF TECHNICAL/PROFESSIONAL EXPERTISE**

#### **5.1 THE TEAM**

The leading members (presented alphabetically) of the team, their skills, expertise and role provided is detailed below.

##### **SIMON BERRY**

Simon Berry is a specialist Environmental / Resource Management barrister who has more than 27 years experience in the Environmental Law field. He advises a range of clients, including local authorities and major corporations on issues relevant to the application of the Resource Management Act 1991 and related environmental legislation and regularly represents clients before Regional and District Councils and the Environment Court. He is also frequently appointed as an independent hearing commissioner. Simon has a particular interest in water related law and is the co-author of the Water chapter of the standard text on Environmental law.

Simon has worked on all aspects of this project, advising the Waikato River Municipal Users Group in their submission to Variation 6 and then HCC on their own resource consent to increase water take. Simon holds Bachelor of Laws (Honours) degree from the University of Auckland (1983).

##### **EMILY BOTJE**

Emily Botje is the Hamilton Manager of the Water and Waste Civil Engineering Group of MWH New Zealand Ltd. In this role Emily has built up a strong working relationship with the water engineering team within HCC. This relationship allowed Emily to work alongside various members of Council staff to develop an adoptable, workable long term WCDMP which met the requirements of RPV6 and the LGA 2002. Emily project managed a range of projects which all supported the development of the WCDMP including; MWH's involvement in the WRMUG and resource consent application, development of a drought management plan, investigations into how HCC currently charges for water, and contingency planning for water abstraction during times of severe drought. Emily holds a Bachelor of Technology in Environmental Engineering from Massey University (1996) and a Masters Degree in Business Administration from Canterbury University (2005).

## **TIM HARTY**

Tim Harty is the Treatment Plants Manager at Hamilton City Council. Tim has led HCC through the water allocation process from its conception. Tim was instrumental in the set up of the collaborative Waikato River Municipal Users Group which submitted the joint submission to RPV6. During the Resource Consent and development of the WCDMP Tim has driven a management culture change in how HCC manages their water supply. This includes engineering solutions to how HCC records and manages the flow of water though the City to how HCC plan on providing conservation techniques to all consumers of the water. Tim holds a Bachelor of Engineering (Environmental) with Honours for Canterbury University (1996) and is a Chartered Professional Engineer.

## **PAULA HUNTER**

Paula Hunter is a Principal Planner with MWH New Zealand Ltd. Paula is a Fellow of the New Zealand Planning Institute; a former President of that professional body and has been awarded a Distinguished Service Award from the Institute. Paula has over 24 years experience including securing of major infrastructure resource consents throughout New Zealand and preparation and assessment of Regional and District Plans. Paula has been involved in this project from its conception. She provided planning advice and support to the Waikato River Municipal Users Group through submission process of RPV6. Paula also provided planning advice and support for HCC's application for the resource consent to take water from the Waikato River, reviewed of HCC's Water Conservation and Demand Management Plan and has recently completed an investigation for the use of green technologies, low impact urban design and development and the use of other water efficient devices in the planning of the Rototuna Growth Cell on the north eastern edge of Hamilton.

## **6 ELEGANCE OF THE SOLUTION**

The elegance of the solution is demonstrated by:

1. Securing a supportive regulatory framework in RPV6 for takes for municipal water supply;
2. Preparing a Water Conservation and Demand Management Plan in accordance with regulatory requirements that included comprehensive and robust information to support a stepped take regime and included short and long terms action to ensure the continuous improvement in water conservation and demand;
3. Developing a comprehensive suite of sophisticated monitoring, reporting and review conditions with "feedback loops" relating to water allocation, water demand management and monitoring effects on the Waikato River.
4. Meeting all regulatory requirements and securing resource consent for 35 years (the longest period obtainable under the RMA).
5. Commitment to implementing the Water Conservation and Demand Management Plan as evidence in the establishment of the Water Action Group and other investigation including Green Technology options for the Rototuna Growth Cell;
6. Demonstrating conscientious coordination of the disciplines within engineering, planning and legal fields;
7. Involving the Client's organisation in all phases of the development, securing key individual's buy in into a new management approach;
8. Highlighting water as a major issue for city growth;
9. Enabling the securing of funding through the LTCCP process to address actions in the WCDMP Action Plan.

## **7 ENVIRONMENTAL CONSIDERATIONS**

Hamilton is wholly dependent on the Waikato River for its water supply, as are Taupo and Waikato District Councils, and Auckland in part. The river is also used as a cooling mechanism for the Huntly power station and is key to agricultural users along its banks. During New Zealand's economic peak the number of dairy farms within the lower reaches of the river grew exponentially with several "super" farms requesting resource consents. Following the drought conditions of 2007/8 a practical water management plan for both short-term (drought management) and longer-demand management was shown to be vital.



To manage water demand, many councils have introduced universal water metering (at a cost) to quickly reduce demand and therefore defer large capital spend on new water infrastructure. This tool promotes the reduction in consumption by implementing an economic driver.

This project instead took the proactive approach of implementing a long-term managed plan to reduce consumption without the need for traditional engineering interventions such as metering.

The WCDMP provides a range of tools which HCC can select over time to reduce consumption, information to date indicates that these methods can also reduce water consumption to a similar level as metering without the need for installing expensive new capital infrastructure.

Many rivers in New Zealand are believed to be over allocated when the total sum of all consents to take are calculated. In real terms many consents are granted for future use and are “banked” by the owner until such time they are required. HCC’s approach to submit an application with a stepped take allows other users of the Waikato River access to the water on a short to medium term until such time the population within Hamilton grows to necessitate the additional take.

Key components of this project have involved decisions (submissions on RPV6) and consents (HCC’s water take) under the RMA. These have been very successfully obtained which demonstrates that this project meets the requirements of the RMA and will enable the sustainable management of natural and physical resources and will not result in any adverse effects on the environment.

## **8 MANAGEMENT SKILLS**

### **8.1 PROJECT MANAGEMENT**

This project required specialised project management skills to develop and manage the integrated project team (including engineering, legal and planning) as well as to ensure client’s needs were met and effective consultation was undertaken. Without the collaborative and integrated approach that was fostered through the project management the development of the WDCMP would not have been possible.

Project management ensured:

- That all milestone deliverables were met and the project was delivered on time;
- The client at all stages of the project had a detailed understanding of the costs associated with each individual task;
- The project was delivered to budget;
- The deliverables exceeded the clients expectations with good reviews received from the hearing committee (*refer Appendix C*).

### **8.2 MEETING LEGISLATIVE DRIVERS**

Section 14 of the LGA 2002 sets out the principles relating to how local authorities should manage the supply of water specifically:

- I. A local authority should collaborate and co-operate with other local authorities and bodies as it considers appropriate to promote or achieve its priorities and desired outcomes, and make efficient use of resources; and*
- II. A local authority should ensure prudent stewardship and the efficient and effective use of its resources in the interests of its district or region; and*
- III. In taking a sustainable development approach, a local authority should take into account:*
  - *The social, economic, and culture well-being of people and communities;*
  - *The need to maintain and enhance the quality of the environment; and*
  - *The reasonable foreseeable needs of future generations.*

The WCDMP development without the short sharp implementation of major capital infrastructure meets and exceeds the requirements under RPV6 and section 14 of the LGA 2002, specifically:

- The WCDMP is a live document, identified review periods which tie into the LTCCP decision making process;
- HCC collaborated and cooperated with all other local authorities, power generators and local iwi who use the Waikato River. This will continue with the WRUG and the establishment of the Water Action Group (internal within different areas of Council) and the Waikato Tainui Water Liaison Group or similar;
- The stepped take request submitted to and accepted by HCC allows EW to administer prudent stewardship of the River, and allows for other users to take water in the short to medium term without affecting the future growth of the City;
- The action plan developed insures that the social, economic and cultural well-being of the City's residents and users of the River are integrated into the decision making process of Council both now and into the future;
- The initiatives presented in the WCDMP incorporate a range of tools which do not require major capital investment. Rather it promotes changes to management practices such as the District Plan thereby promoting innovation to water use for new developments within the City.

## 9 CONCLUSIONS

In conclusion the success of this project can be attributed to the following:

1. An integrated project team with the combined skills of engineering, legal and planning enabling Hamilton City Council to work with a collaborative team with an inclusive approach to water demand management whilst ensuring the needs of the city were met.
2. The collaboration of the five Councils and Watercare that take water for municipal supply from the Waikato River in the RMA process associated with the development of RPV6.
3. Successfully achieving the inclusion of provisions in RPV6 that support municipal water supply and that give priority to takes for this purpose over other takes provided municipal suppliers have prepared appropriate Water Conservation and Demand Management Plans.
4. A collaborative approach between HCC and MWH and with key stakeholders (Tainui, EW, Genesis, Watercare) in the development of the Water Conservation and Demand Management Plan to support HCC's water take resource consent application.
5. The preparation of the Water Conservation and Demand Management Plan enabled HCC to develop a comprehensive body of information regarding the performance water supply network, the volumes of water used and by whom, and future growth/demand projections. It has also enabled HCC to put in place a series of actions to ensure the ongoing improvement in the quality of this data and information, reviews of growth and demand projections and the development of water saving targets and KPIs and actions to achieve these.
6. HCC's Water Conservation and Demand Management Plan also provided the basis for the development of the stepped take regime which has been incorporated into HCC's water-take consent through resource consent conditions.
7. The integrated approach (engineering, legal and planning) to the development of the complex suite of consent conditions. These conditions not only introduced the stepped take regime, but also a range of review conditions with 'feedback loops' that included links to the LTCCP process. These links are important to ensuring the funding and programming of future water conservation and demand management works and activities required to meet water saving targets developed through future reviews of the Water Conservation and Demand Management Plan and reviews of consent conditions under the RMA.

## **ACKNOWLEDGEMENTS**

Simon Berry, Barrister

Paula Hunter, MWH

## **REFERENCES**