



INTEGRATED WATER CYCLE MANAGEMENT

SIMPLIFIED STRATEGY

PART 2 –

March 2010



Executive Summary

Walcha Council has recently undertaken an Evaluation Study which formed Part 1 of an Integrated Water Cycle Management (IWCM) strategy for Walcha's water utility services. The IWCM process aims to optimise the urban water cycle involving water supply, sewerage and stormwater by minimising the impacts between the water services and the catchment and by integrating the water services with each other.

The Evaluation Study identified the issues which Council, as the local water utility, needs to address over the next 30 years. These issues were reviewed and validated by a Project Reference Group (PRG) representing the interests of the community.

The validated issues were separated into two groups; those for which Council, as the local water utility has responsibility to address and all other issues which are either the responsibility of another authority or Council's responsibility as a provider of services other than as the local water utility e.g. garbage disposal or stormwater. The issues were then given a high, medium or low priority by the PRG.

Since the Business as Usual scenario did not indicate that all IWCM issues are addressed, the options were either to complete the Simplified Strategy by developing the simplified scenario (no significant capital works within 10 years) or the Detailed Strategy with full scenarios. The IWCM Evaluation also developed a list of all technically feasible options or potential management actions to address the remaining IWCM issues that are not addressed by the business as usual scenario.

The IWCM Evaluation study for Walcha recommended that a Simplified Strategy be undertaken as Part 2 of the process.

This document details the actions required under the Simplified Strategy. These actions are summarised in Table 2 below.



Summary of actions required under the Simplified Strategy

IWCM Issue	Action Required	Estimated Cost	Timing
Algal Blooms occurring in off creek storage leading to failure to meet the desired LOS for water quality i.e. taste and odour.	Council to investigate if upgrading telemetry system to shut down intake pumps during periods of rapid rise in river levels will prevent the inflow of nutrients into the system or whether installing PAC treatment to remove taste and odour compounds and toxins is required.	\$2,000	2013/14
Inadequate information on Security of Supply.	Undertake a Yield Study for the catchment including climate correction of demand (use demand trend tracking model).	\$21,000	2011/12
No Demand Management Plan in place.	Prepare a Demand Management Plan.	\$14,500	2011/12
Non-compliance with ADWG chemical and microbiological standards for water quality.	Develop Water Quality management Plan in accordance with the 'ADWG Framework for the Management of Drinking Water Quality' Review management practices to adopt and implement a rigorous Standard Operating Procedure.	\$18,000	2010/11
Non-compliance with NSW Health water quality sampling frequency requirements.	Improve sampling techniques and reliability of transport to laboratory.		2010/11
OH&S issues at STP.	Commission an audit of STP to determine improvements or upgrading required to ensure OH&S, reliability and performance standards continue to be met. This audit may identify significant capital works required beyond 10 years.	\$6,000	2011/12
No Asset Management Plans for Water Supply and Sewerage infrastructure.	Prepare and implement robust, up-to-date Asset Management Plans for both Water Supply and Sewerage infrastructure.	\$30,000	2012/13
Inadequate information on condition of sewage gravity mains.	Undertake audit of asset condition for data input into Asset Management Plan.		2012/13
Effluent quality from STP does not comply with licence conditions.	Investigate performance of STP for data input into Asset Management Plan. Determine if stormwater infiltration is affecting effluent quality.		2012/13
High treatment and pumping costs of sewerage.	Carry out extensive investigation (including dye testing) to determine source of stormwater infiltration into sewer system. Additional budget provision for corrective work may be required.	\$6,000	2013/14



Levels of unaccounted water losses in the system appear to be high.	More accurate data is required to determine if this is an issue. An improved measurement technique to assess quantity of water delivered from WTP is required as a first step.	\$15,000	2010/11
No Drought Management Plan in place.	Implement all six Best Practice criteria. <ul style="list-style-type: none"> o Update Strategic Business Plan for water & Sewer o Update Developer Charge & Pricing o Drought Management Plan 	\$27,500	2013/14

The timing of actions has been staged over the period leading up to the first scheduled review in 2016 in order for them to be achievable by Council. The timing of actions generally follows the priority rankings assigned to the issues by the PRG.

The proposed staged expenditure to implement the required actions of the strategy is shown below.

Proposed staged expenditure to implement required IWCM actions.

Year	Proposed Expenditure
2010/11	\$33,000
2011/12	\$41,500
2012/13	\$30,000
2013/14	\$35,500
Total	\$140,000



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1. Introduction

The IWCM Evaluation has found that there are local IWCM water service issues needing actions which are not part of Walcha Council's adopted business as usual actions and plans.

The purpose of this IWCM Simplified Strategy is to clearly document how these identified IWCM issues will be addressed and managed in the future.

1.1 The Simplified IWCM Strategy

The Simplified Strategy is undertaken where the IWCM Evaluation establishes that the IWCM issues can be addressed without the need for significant capital works within the next 10 years. In the Simplified Strategy, IWCM issues are addressed by developing the simplified scenario. The proposed use of this strategy requires DWE concurrence to ensure it complies with the Best-Practice Management of Water Supply and Sewerage Guidelines, August 2007.

While comparing scenarios is not required for the Simplified Strategy, the Project Reference Group and community will still be interested in the cost associated with implementing the Simplified Strategy and the resulting impact on the Typical Residential Bill. Therefore the strategy should include the costs of its activities.

Ideally, the Simplified Strategy should also review Asset Management Plans to confirm that detailed costs for the next 10 years and best estimated costs for the remaining 20 years are included. In Walcha's case however, there are no Asset Management Plans in place and the preparation of detailed plans is included as an action in the Strategy.

1.2 The Simplified Scenario

The simplified scenario is where new options are brought together and are developed when the IWCM Evaluation determines that a Simplified Strategy is required, as in this case.

The simplified scenario uses some new, best-practice actions suitable for local conditions (eg. pricing, education, leakage reduction and rebates), some minor capital works and/or significant capital works beyond 10 years to address all the IWCM issues not addressed by the business as usual scenario.

To develop the simplified scenario, each remaining IWCM issue and the new action(s) or capital work(s) that will address it has been listed. To be included in the simplified scenario, each new action must have been agreed by the Project Reference Group to be relevant and acceptable through the short listing process. This includes all best-practice, minor capital and significant capital works beyond 10 years.



Developing the simplified scenario may require a process of assessing which actions are to be adopted. Use of the Decision Support System (DSS) Model will provide some further guidance on action assessment

Other relevant models include the Climate Correction Model and the Rainwater Tank Model. Whilst results of the Rainwater Tank Model have been included in the Evaluation Study, it is proposed that the Climate Correction Model be undertaken as an action in the Simplified Strategy.

Community and stakeholder consultation is also required to ratify and adopt the Simplified Strategy including the simplified scenario. If the simplified scenario addresses all remaining IWCM issues, then the process is complete. No scenario comparison is required.

1.3 Redefining IWCM Targets

The discussion of the IWCM targets usually takes place at the start of the IWCM process before the final list of IWCM issues is confirmed. However, after reviewing the issues and options, it is possible for a local community to redefine what it requires from its urban water service, especially if the cost appears to be excessively high. If the utility and community wish to review the existing targets of the urban water service, particularly looking at the balance of benefits and affordable cost to the customers, then this step should be discussed in a Project Reference Group workshop as early as possible in the IWCM process.

The IWCM process encourages the local community to define an urban water service that provides the minimum adequate service that meets all agreed targets (statutory, legal requirements and agreed levels of service) to minimise the cost to customers. Once this target review is completed, a new set of urban water service targets may be adopted. The new targets should be compared with the available data and information to redefine the IWCM issues. The IWCM process then continues to a solution.

The opportunity to review the IWCM targets as a result of assessing the costs of the preliminary solution is encouraged as early as possible in the IWCM process to keep the cost down and provide value for money. This can occur when the costs of the preliminary list of options are determined. If the preliminary Typical Residential Bill (TRB) resulting from addressing the identified IWCM issues is too high, then the cost of the more expensive options or the cost of options related to the less supported targets should be reviewed to consider if removing or reducing some targets would result in an acceptable TRB. The new list of targets may result in a simpler, but affordable urban water service. Figure 3 shows the steps.



2 Identified IWCM Issues from the Evaluation Study

The IWCM issues that were validated at the PRG workshop held in December 2009 and which Council as the LWU needs to address are summarised in Table 2.1 below.

Table 2.1 - Summary of identified Issues to be addressed by Council as the LWU.

Audit Component	Identified Issues	Priority	Proposed Management Option
Catchment	There have been incidences of algal blooms occurring in the off-creek storage during summer leading to failure to meet the desired level of service (LOS) for water quality i.e. taste and odour.	M	Likely due to “first flush” runoff following heavy rainfall or storms in the catchment. Council to consider upgrading telemetry system to shut down intake pumps during periods of rapid rise in river levels or installing PAC treatment to remove taste and odour compounds and toxins.
Water Resources	Security of supply has not been tested. A single source of supply in the upper reaches of the Macdonald River catchment may be vulnerable to the effects of a severe prolonged drought. The issue is the lack of adequate information	H	The effects of a severe prolonged drought have not yet been fully assessed and a yield study for the catchment is required prior to the next review in 2014. This is an identified data gap.
Urban Area	Test results show water quality does not comply fully with target of 100% compliance with ADWG for chemical and microbiological standards. Samples over last 5 years: 1 of 10 outside pH guideline. 1 of 10 outside turbidity guideline. 9 out of 186 outside total coliforms guideline.	H	Need to review management practices e.g. adopt rigorous standard operating procedures (SOPs).
	Water quality sampling does not meet target of 100% compliance with frequency requirements of NSW Health (52 micro samples, 2 chemical and 10 fluoride samples per year).	H	Need to improve sampling techniques and reliability of transport to laboratory.
	No asset management plans in place for water supply and	M	Preparation and implementation of robust, up-to-date asset



	sewerage infrastructure.		management plans is required.
	Office of Water inspecting officer has reported instances of OH&S issues at sewerage treatment plant.	H	Sewerage treatment plant requires investigation to determine whether upgrading, augmentation or replacement is required to ensure OH&S, reliability and performance standards continue to be met.
	Sewage overflows are higher than the state median per 100km of mains resulting in public health concerns. Information required on condition of gravity mains.	H	High levels may reflect the deteriorating condition of the gravity mains. Audit or investigation of asset condition required for data input into Asset Management Plan.
	High treatment and pumping costs of sewerage placing further upward pressure on the typical residential bill.	M	Council to carry out extensive investigation (including dye testing) to determine source of stormwater infiltration into sewer system. Additional budget provision for corrective work is required.
	Levels of unaccounted water losses in the system appear to be high.	M	More accurate data required to determine if this is an issue. An improved measurement technique to assess quantity of water delivered from water treatment plant is required as a first step.
	No demand management or drought management plan in place.	M	Need to implement all six Best Practice criteria.

2.1 Actions Required under the Simplified Strategy

Under the simplified scenario, utilities are encouraged to add actions to the business as usual scenario to create the simplified scenario that solves all the outstanding IWCM issues.

The options in the simplified scenario can include new or improved relevant best practice options, minor capital works or significant capital works beyond 10 years.

The actions that have been considered and assessed as actions to be adopted under the simplified strategy are shown below in Table 2.

The cost of each action has been estimated and timeframes for implementation have been added to reflect the priority given to each issue by the PRG. Actions have also been staged to take into account Council's



financial capacity to deliver the required action and to realistically achieve the outcome.

Table 2.2 -Summary of Actions required under the Simplified Strategy

IWCM Issue	Action Required	Estimated Cost	Timing
Algal Blooms occurring in off creek storage leading to failure to meet the desired LOS for water quality i.e. taste and odour.	Council to investigate if upgrading telemetry system to shut down intake pumps during periods of rapid rise in river levels will prevent the inflow of nutrients into the system or whether installing PAC treatment to remove taste and odour compounds and toxins is required.	\$2,000	2013/14
Inadequate information on Security of Supply.	Undertake a Yield Study for the catchment including climate correction of demand (use demand trend tracking model).	\$21,000	2011/12
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Effluent quality from STP does not comply with licence conditions.	Investigate performance of STP for data input into Asset Management Plan. Determine if stormwater infiltration is affecting effluent quality.		2012/13
High treatment and	Carry out extensive investigation (including dye	\$6,000	2013/14



pumping costs of sewerage.	testing) to determine source of stormwater infiltration into sewer system. Additional budget provision for corrective work may be required.		
Levels of unaccounted water losses in the system appear to be high.	More accurate data is required to determine if this is an issue. An improved measurement technique to assess quantity of water delivered from WTP is required as a first step.	\$15,000	2010/11
No Drought Management Plan in place.	Implement all six Best Practice criteria. <ul style="list-style-type: none">o Update Strategic Business Plan for water & Sewero Update Developer Charge & Pricingo Drought Management Plan	\$27,500	2013/14

2.2 Community and Stakeholder Consultation

Developing the Simplified Strategy requires a process of determining which of the proposed actions are to be adopted.

Community and stakeholder consultation is also required to ratify and adopt the Simplified Strategy including the simplified scenario. The process used in this strategy was to reconvene the PRG involved in the Evaluation Study phase to review the proposed actions under the Simplified Strategy.

A PRG workshop was held on 13 April 2010 to enable community and stakeholder input into the proposed strategy. At the workshop, the PRG endorsed the proposed actions to be taken under the Simplified Strategy but condensed the program from 5 years to 4 years so that actions deemed to be important to the process could be completed earlier.



3 Conclusion

A Simplified Strategy has been developed to address the IWCM issues identified in Part 1, the Evaluation Study.

Under the simplified scenario, actions were added to the business as usual scenario to create the simplified scenario that solves all the outstanding IWCM issues.

The proposed actions and costs were considered and assessed by the Project Reference Group (PRG). A program for implementation was recommended which reflected the priority given to each issue by the PRG and was staged to take into account Council's financial capacity to deliver the required actions.