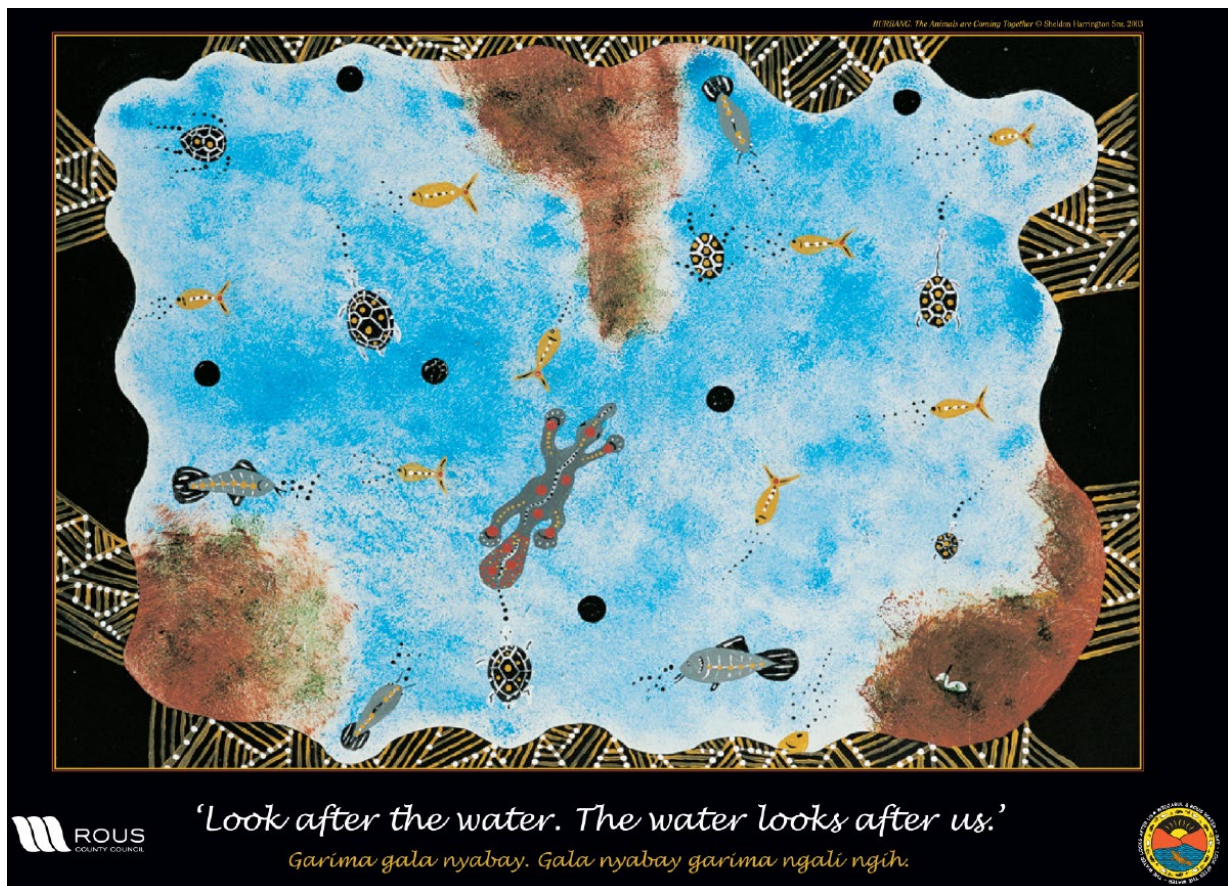


Rous Regional Demand Management Plan: 2023 – 2026



Final draft for public exhibition

June 2022

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Hydrosphere Consulting acknowledges the Bundjalung peoples, Traditional Custodians of the lands discussed in this report and pay tribute and respect to the Elders both past and present and emerging of the Bundjalung nations.

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**JOB 22-003: DEVELOPMENT OF REGIONAL DEMAND MANAGEMENT PLAN:
ROUS REGIONAL DEMAND MANAGEMENT PLAN**

REV	DESCRIPTION	AUTHORS	REVIEW	APPROVAL	DATE
0	Draft for RCC review	R. Campbell	M. Howland	M. Howland	12 Jan 2022
1	Updated with feedback from RCC and constituent councils	R. Campbell	M. Howland	M. Howland	22 June 2022

EXECUTIVE SUMMARY

This Regional Demand Management Plan (RDMP) describes the water supply demand management initiatives to be implemented by Rous County Council (RCC) over the next four years (2023 - 2026). This RDMP builds on the initiatives and successes of demand management actions implemented by RCC since 1995 and aims to continue to deliver comprehensive and effective water conservation programs throughout the region. The aim of the RDMP is to implement economically, socially and environmentally sound measures to achieve defined outcomes in water efficiency and conservation over the long term.

The RDMP includes a combination of top-down demand management measures and innovative behaviour change components that aim to enhance the success of the plan through a measurable and persistent reduction in water supplied to the region by allowing individuals and households to:

- Create a situation where they are facilitated to choose their own reasons for change.
- Form their own plan for change using both existing and potentially new tools.

The top-down measures and behaviour change components will complement the supply measures adopted in the *Future Water Project 2060*. The objectives of demand management in the region are to reduce normal consumption and average supply requirements and therefore reduce the urgency of water source augmentation. Demand management actions aim to increase awareness of the value of water and level of customer consumption and encourage a change in behaviour to more water efficient practices. Pilot programs will be used to test uncertainties and prove effectiveness of potential new or modified actions. Sufficient resources will be allocated by RCC and the constituent councils to ensure successful outcomes of the RDMP actions and related demand management initiatives.

This RDMP includes the following actions:

- RES: Residential Customer Programs.
- NRES: Non-Residential Customer Programs.
- DMR: Data Collection, Monitoring and Reporting.
- EDU: Education and Engagement.
- RDMP Monitoring and Evaluation.

RCC and the constituent councils will implement a cooperative and positive approach to delivery of this RDMP.

The RDMP actions will require resources and funding for program development, marketing and promotion, data collection and monitoring, implementation of actions and ongoing review. A summary of the expected funding requirements is provided in Table 1.

Monitoring and evaluation are essential tools for the implementation and ongoing improvement of this RDMP. A committee (staff from RCC and the constituent councils) will oversee the plan implementation and ensure the actions specified in the RDMP are completed. The committee will also be responsible for assessing if the plan is meeting its objectives and how best to adapt the plan to incorporate the latest knowledge, experience and technology in a process of continuous improvement. This RDMP will be reviewed and updated in four years (by December 2026).

Table 1: RDMP implementation budget

Tasks, budget (excluding existing resources) and timing	Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
Residential customer programs				
RES1 - Behaviour change pilot program	\$40,000	\$100,000	\$50,000	\$20,000
RES2 - Residential rebate/incentive program	\$65,000	\$50,000	\$30,000	\$20,000
Non-residential customer programs				
NRES1 - Sustainable water partner program (existing)	\$80,000	-	-	-
NRES2 – Sustainable water partner program pilot program	\$20,000	\$150,000	\$150,000	\$150,000
NRES3 - Audit of council facilities and operations	-	-	\$75,000	-
Data collection, monitoring and reporting				
DMR1 - Standard definitions of connection types	\$35,000	-	-	-
DMR2 - Standard metering policy	\$25,000	-	-	-
DMR3 - Reporting of customer data and consumption	-	-	\$20,000	\$20,000
Education and engagement				
EDU1 - Education and engagement tools	\$40,000	\$35,000	\$35,000	\$35,000
EDU2 - Regional education officer	\$30,000	\$135,000	\$135,000	\$135,000
EDU3 - Education facility	\$20,000	-	-	-
Totals	\$355,000	\$470,000	\$495,000	\$380,000

CONTENTS

EXECUTIVE SUMMARY	I
1 INTRODUCTION.....	1
1.1 Purpose	1
1.2 Regional Water Supply	1
1.3 Development of the RDMP 2023 - 2026	4
1.4 Objectives and Focus Areas	4
1.5 RDMP Actions and Tasks	6
1.6 RDMP Coordination	6
2 RESIDENTIAL CUSTOMER PROGRAMS.....	8
RES: Residential Customer Programs	11
3 NON-RESIDENTIAL CUSTOMER PROGRAMS.....	13
NRES: Non-Residential Customer Programs	15
4 DATA COLLECTION, MONITORING AND REPORTING.....	17
DMR: Data Collection, Monitoring and Reporting.....	19
5 EDUCATION AND ENGAGEMENT	21
EDU: Education and Engagement.....	22
6 RELATED DEMAND MANAGEMENT INITIATIVES	23
6.1 Water Loss Management.....	23
6.2 Smart Metering.....	23
6.3 Water Supply Pricing.....	24
7 RDMP MONITORING AND EVALUATION.....	25
REFERENCES	26
APPENDIX 1 BEHAVIOUR CHANGE PILOT PROGRAM.....	27
APPENDIX 2 RCC SMART METERING INITIATIVE	35

FIGURES

Figure 1: Regional potable water supply systems.....	3
Figure 2: The benefit of the implement, evaluate, learn and adapt process	29

TABLES

Table 1: RDMP implementation budget	II
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1 INTRODUCTION

1.1 Purpose

At its December 2020 meeting, Rous County Council (RCC) resolved [61/20] to implement an enhanced demand management and water efficiency program that is:

- Based on better defined governance arrangements for RCC across the region.
- Based on evidence-based decision-making.
- Subject to prior, successful pilot testing programs.
- Able to address the issue of demand hardening by providing further water savings over and above those already being achieved through previous demand management initiatives.
- Based on the exploration and identification of innovative methods of engagement with the community on water efficiency and conservation.

This Regional Demand Management Plan (RDMP) describes the water supply demand management initiatives to be implemented by RCC over the next four years (2023 - 2026).

The *Rous Future Water Project 2060* (Hydrosphere Consulting, 2021) identifies new water supply sources to ensure long-term water supply security for the Rous region. RCC remains committed to responsible water use and ongoing initiatives aimed at reducing demand. Ongoing review and update of demand management activities is a key component of the *Future Water Project 2060*. Water demand management in the region is undertaken to support and maintain an effective, flexible and adaptable approach to efficient water use and water supply security.

This RDMP 2023 - 2026 builds on the initiatives and successes of demand management actions implemented by RCC since 1995 and aims to continue to deliver innovative, comprehensive and effective water conservation programs throughout the region. The aim of the RDMP is to implement economically, socially and environmentally sound measures to achieve defined outcomes in water efficiency and conservation over the long term.

1.2 Regional Water Supply

RCC is a special purpose council under the *Local Government Act 1993*. RCC provides bulk potable water to the urban areas of its constituent council local government areas (LGAs):

- Ballina Shire Council, excluding Wardell and surrounds.
- Byron Shire Council, excluding Mullumbimby.
- Lismore City Council, excluding Nimbin.
- Richmond Valley Council, excluding Casino and all land west of Coraki.

RCC also provides water supply services to rural and urban connections direct from the bulk supply trunk main system (RCC retail customers).

The RCC supply network extends from Ocean Shores in the north and Byron Bay in the east, west to Lismore and south to Evans Head (Figure 1). Ballina, Byron, Lismore and Richmond Valley Councils also supply potable water to other towns and villages within their LGAs from their local supplies (Wardell, Mullumbimby, Nimbin and Casino water supplies).

Residential consumption accounts for the majority of potable water supply demand in the region (76% of total demand). Residential connections include single and multi-residential dwellings with varying water efficiency as follows:

- BASIX connections – new and renovated residential properties that have been built under the NSW BASIX building sustainability scheme, where the property includes water efficient fixtures and fittings designed to meet a target reduction in consumption.
- Non-BASIX efficient connections – pre-2005 houses that have installed water efficient fittings and fixtures. This will include households that have accessed historical rebates offered by RCC and the NSW Government.
- Non-BASIX standard connections - pre-2005 houses which, at the time of building were fitted with inefficient water fixtures and have not undergone any renovation or conversion to efficient fixtures.

Non-residential water uses in the region include:

- Commercial/retail including shopping centres.
- Service industries including accommodation providers and restaurants.
- Industrial/processing including food production and processing.
- Health care including hospitals and nursing homes.
- Educational facilities.
- Rural uses including stock watering and irrigation.

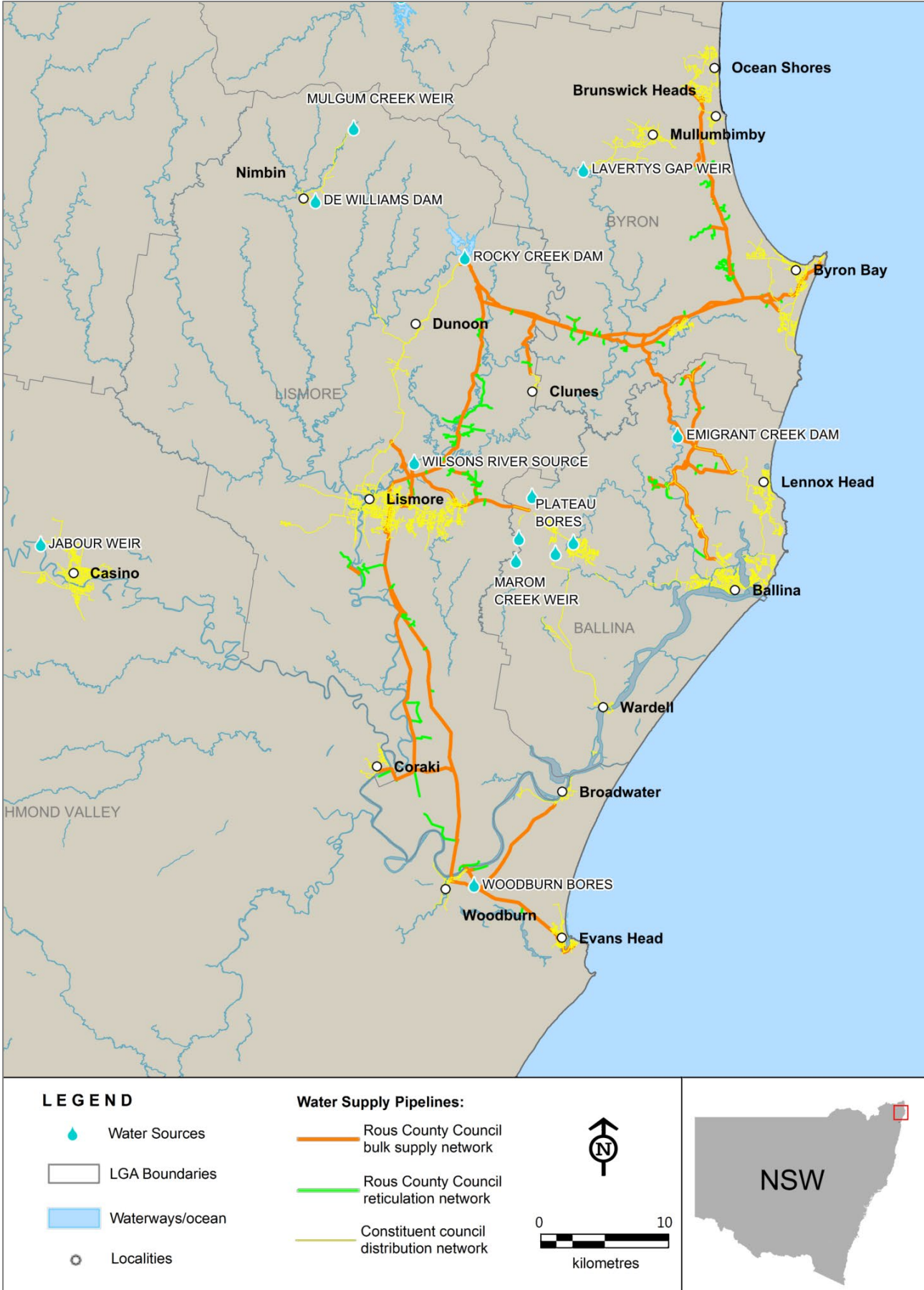


Figure 1: Regional potable water supply systems

1.3 Development of the RDMP 2023 - 2026

This RDMP for 2023 – 2026 was developed through:

- Consultation with RCC and the constituent councils separately and through the Regional Water Supply Agreement Liaison Committee (the Liaison Committee).
- Review of previous RDMP 2019 - 2022 implementation progress.
- Review of the demand management initiatives of other water utilities.
- Consideration of current indicators of demand and losses.
- Investigation of behaviour change applications in water supply demand management.

Background information is provided in a separate report (*Regional Demand Management Plan Review and Update. Background Information and Recommended Plan Components* (Hydrosphere Consulting, 2022) which documents the recommended RDMP components based on the outcomes of the above tasks. The recommendations were provided for consideration by RCC and the constituent councils at a workshop with the Liaison Committee in December 2021. The measures agreed at this workshop have been further developed as actions in this RDMP 2023 - 2026. Not all recommendations have been adopted in the new plan which has been developed considering the available budgets and human resources of RCC and the constituent councils. Multiple recommendations have been combined where appropriate in the design of the actions.

Prior to adoption of this RDMP 2023 - 2026, consultation with RCC councillors was undertaken (via a workshop) and a draft of the plan was provided to constituent council General Managers and key operational staff for review. The draft RDMP 2023 - 2026 was also placed on public exhibition during August/September 2022. Feedback from all stakeholders will be considered in the finalisation of this RDMP.

1.4 Objectives and Focus Areas

Previous demand management initiatives across the region have focussed on top-down measures including:

- Regulation - BASIX (mandatory rainwater tanks or recycled water connections) and standards for plumbing and water-related appliances through the water efficiency labelling scheme (WELS).
- Pricing - water supply tariffs are set by the individual councils to achieve full cost recovery and related best-practice requirements.
- Incentives - rebates for water saving fixtures, fittings, rainwater tanks and recycled water connections.
- Education and marketing - to inform people about the value and scarcity of water and the need for water conservation.
- Technical/engineering approaches - smart meters (limited application within the region to date), low-flow plumbing fixtures, insulation of hot water pipes, low water use irrigation fixtures, less water intensive gardens and alternative water sources.

This RDMP includes a combination of these top-down measures and complementary behaviour change components that aim to enhance the success of the plan through a measurable and persistent reduction in water use in all households in the region by allowing individuals and households to:

- Create a situation where they are facilitated to choose their own reasons for change.
- Form their own plan for change using both existing and potentially new tools.

The top-down measures and behaviour change components will complement the supply measures adopted in the *Future Water Project 2060*. A key driver of this RDMP is the economic benefit of deferring or downsizing new water supply works as much as possible. By reducing total water demand, the costs of building new water supplies and transferring and treating water are reduced and any capital investment required to meet the needs of growing communities may be deferred. An effective demand management strategy also has the potential to achieve reductions in the required capacity of new water supply infrastructure. This RDMP builds on the achievements of past demand management actions towards reducing water demand and deferring the need for new water supply sources.

Demand management programs will also result in environmental, social and economic benefits. The environment benefits from reducing the need for, or lessening the footprint required for water supply infrastructure can reduce the need for extraction from rivers and aquifers leading to increased river flow and improved river health.

An effective demand management program also has a strong community engagement focus. As water demand education and awareness activities promote the uptake of water efficiency measures and highlight water wastage, they also engage the community to be better advocates for water conservation and protection, with the expectation that water is supplied, delivered and used efficiently.

The objectives of demand management in the region are to reduce normal consumption and average supply requirements to reduce the urgency of water source augmentation. Demand management actions aim to increase awareness of the value of water and level of customer consumption. Innovative approaches will be used to improve the success of any actions over time. Pilot programs will be used to test uncertainties and prove effectiveness of potential new or modified actions. Sufficient resources will be allocated by RCC and the constituent councils to ensure successful outcomes of the adopted actions and related demand management initiatives.

The focus areas for this RDMP are:

1. Collection and analysis of detailed demand data - accurate identification of water demand in terms of customer sectors and uses and improved understanding of components of water losses.
2. Pilot programs focusing on changing behaviour of residents to use less water to complement other supply and demand measures and to test the community desire, costs and benefits of future residential retrofit programs for household and external water uses. Residential programs will also be designed to include components which support residents to identify and repair leaks.
3. Customer engagement programs targeting key business sectors, schools, older properties with inefficient fittings and fixtures, household leaks or high-water users with increased customer involvement, understanding and ownership of water efficiency requirements.

In parallel with the RDMP, RCC and the constituent councils will implement effective asset management and strategic planning activities including water loss management programs aimed at reducing water wastage through leakage and to assist with improved understanding of water supply and demand. Smart metering for RCC retail customers, in conjunction with the actions within the water loss management program will also further reduce water loss within the RCC bulk water network and assist RCC's retail customers to better understand water usage and identify leaks. Water supply pricing will be reviewed on an ongoing basis to support the objectives of this RDMP.

1.5 RDMP Actions and Tasks

Appropriate urban water conservation is a required outcome of the NSW Government's Best-Practice Management of Water Supply and Sewerage Framework and the *Water Management Act 2000*. In non-metropolitan areas in NSW, water is supplied by the local water utility (LWU), which in most cases is the local council. Demand management and water conservation measures are implemented by LWUs using a suite of measures usually defined in a Demand Management Plan or in its Integrated Water Cycle Management (IWCM) Strategy. In the Rous region, there are five LWUs (RCC and the four constituent councils). The actions in this RDMP will be coordinated by RCC on behalf of its constituent councils. The actions apply to the Rous regional water supply areas and RCC's retail customers. The actions will also support the constituent councils in the delivery of their local water supplies (Wardell, Mullumbimby, Nimbin and Casino). The constituent councils will develop IWCM Strategies addressing the water supply and demand management needs of their local supplies.

This RDMP includes the following actions:

- RES: Residential Customer Programs.
- NRES: Non-Residential Customer Programs.
- DMR: Data Collection, Monitoring and Reporting.
- EDU: Education and Engagement.
- RDMP Monitoring and Evaluation.

Each action includes the required tasks to be implemented by RCC, budget expenditure and timing. The tasks to be implemented by the constituent councils are also provided. Some tasks will be implemented by existing staff resources and these costs have not been included. RCC's Water Sustainability Officer will be supported by internal and external resources required to implement the RDMP actions. The implementation of the RDMP actions will be a key component of monitoring and evaluation requirements.

1.6 RDMP Coordination

RCC will continue to coordinate:

- Data collection, monitoring and reporting with data provided by the constituent councils as required by the RDMP.
- Non-residential customer programs (the Sustainable Water Partner Program).
- Residential customer programs.

- Regional education and engagement programs.

RCC and the constituent councils will implement a cooperative and positive approach to delivery of this RDMP. RCC and the constituent councils will share information and collaborate at quarterly committee meetings (or as assessed and determined by the Committee). The status of RDMP tasks and data on customers, water supply and consumption will be reported by all councils at the committee meetings with standing agenda items including RDMP progress, demand indicators and sharing of lessons learned on RDMP actions and related demand management initiatives (e.g. water loss management, smart metering and pricing).

2 RESIDENTIAL CUSTOMER PROGRAMS

Based on data reported by the NSW Government, the average residential demand across the Rous region is higher than the NSW median although demand varies between the LGAs. The residential sector is the largest customer group in the regional supply area with approximately 85% of connections and 76% of demand (excluding losses, Hydrosphere Consulting, 2020) and will continue to be a focus of the RDMP.

RCC has subsidised residential plumbing inspection and retrofit/rebates programs between 1997 and 2008 and rainwater tank installation since 2003. The implementation of the WELS for the mandatory labelling of appliances and the BASIX requirements for new developments will continue to increase the market uptake of water efficient fixtures and appliances, particularly rainwater tanks, showerheads and washing machines. The BASIX requirements will address the demand reduction opportunities from rainwater tanks in new developments.

Rebates for rainwater tank installation in existing non-BASIX houses appear to be popular within the community, particularly during dry periods. Although rainwater tank rebates can assist with encouraging water efficiency in non-BASIX houses, many rainwater tanks in the Northern Rivers region were not refilled by rain in the drought of 2019/20. Customers relied on town water supplies during these times. In addition, rainwater tanks installed for internal uses are required to include potable water top-up systems and therefore potable water is used during extended dry periods.

The rainwater tank rebates offered in previous years do not generally provide value for money for RCC (for expenditure of public funds) and there are limited water savings particularly during extended dry periods. Due to the low cost-effectiveness, the rainwater tank rebate will be phased-out over the four-year RDMP and will only be offered to customers within the Rous regional water supply area. The total budget available for the rainwater tanks will be capped each year with applications approved on a first come - first served basis. Modifications to the rebate program will be considered during each annual review of the RDMP. Alternative cost-effective residential customer incentives will be developed during the RDMP implementation. The aim is to provide greater support to households by offering more appropriate incentives to meet their needs.

Pilot programs will be implemented to test the needs and benefits of residential incentive programs. A customised behaviour change program will be designed and implemented for a small sub-set of the residential water supply customers in each of the four LGAs to add to the success of other water supply and demand reduction measures and ensure sustained water efficiency behaviours are identified and supported. The pilot program will be developed using the behaviour change approach with the following objectives:

- To provide effective customer engagement and support.
- To increase community awareness of water sources, water scarcity and usage.
- To increase understanding of the community's perception of water use and tailor future demand management actions accordingly.
- To develop cost effective methods of supporting residential customers to achieve water efficiency.
- To establish baseline consumption and water use behaviour for different household types across the region.
- To support vulnerable or financially disadvantaged customers with older water-intensive products.
- To quantify potential water savings through various program measures.

- To develop targeted future incentive programs.

Background information on behaviour change is provided in *Regional Demand Management Plan Review and Update. Background Information and Recommended Plan Components* (Hydrosphere Consulting, 2022) and additional information on the proposed pilot behaviour change program is provided in Appendix 1.

Existing tools will be used as part of the pilot program and may be adapted as required based on the program findings. This includes the online water saving tool kit and interactive home water calculator, factsheets, information provided on the RCC website and the 160 L Challenge campaign and other tools provided by Smart Approved WaterMark promoting messaging around water conservation, efficiency and water literacy. The pilot program will also determine whether an improved water bill format should be developed (e.g. including detailed information on consumption, comparisons to regional targets and water saving advice) and whether it will be effective in achieving the program objectives. Any modified bill format would be rigorously tested on customers before implementation as part of the pilot program.

As a result of the pilot program, the residential customer program will be modified for inclusion in the next revision of the RDMP to include a broader range of products available through rebates and incentives that reflect the needs of residential customers.

RES: Residential Customer Programs

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
RES1 - Behaviour change pilot program		\$40,000	\$100,000	\$50,000	\$20,000
RES1.1	Confirm approach to behaviour change pilot program	Initial program design and identification of target groups			
RES1.2	Select behaviour change consultant	Contract awarded			
RES1.3	Develop/adapt tools	Tools identified and developed			
RES1.4	Test ideas and tools in focus groups		Initial focus groups		
RES1.5	Finalise program design		Final program design		
RES1.6	Data collection (program areas and region)		Collect and analyse water use data		
RES1.7	Implement, evaluate and adapt pilot program		Pilot program implemented in each LGA		
RES1.8	Program evaluation				Collect and analyse program data
RES1.9	Detailed analysis and design of future program roll-out				Program evaluation and reporting
<i>RES1 - Constituent council tasks</i>		<i>Initial program design with committee, identifying target groups, meter reading and data provision</i>		<i>Meter reading and data provision, program evaluation.</i>	

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
RES2 - Residential rebate/incentive program		\$65,000	\$50,000	\$30,000	\$20,000
RES2.1	Implement rainwater tank rebate program within RCC supply area	Rebates provided to regional water supply customers to agreed budget			
RES2.2	Develop future residential rebate and incentive program based on outcomes of pilot program (RES1)				Develop future program

3 NON-RESIDENTIAL CUSTOMER PROGRAMS

This RDMP includes a targeted and broader approach to delivery of the Sustainable Water Partner Program (SWPP) as this expenditure has been cost effective and the program provides valuable customer engagement. Promotion to high water users and specific priority industry sectors will be a focus. The program will be revised to include a broader range of products available through rebates to reflect the needs of non-residential customers.

The objectives of the SWPP are to assist non-residential customers to improve water efficiency and reduce water/sewer bills. The SWPP consists of three parts: water efficiency plans, water efficiency projects and recognition. The SWPP has been modified as follows:

- RCC will identify target business types that are likely to benefit from the program (e.g. “wet” businesses such as laundromats, hairdressers etc. and high-water users such as education facilities, shopping centres, tourist premises, aged care). RCC will promote the SWPP to these target businesses through a pilot program using existing tools established as part of the SWPP. Initially pilot programs will be developed with a subset (e.g. three) of each target business type across the region. The SWPP will be rolled-out to the businesses participating in the pilot program with the aim of refining the SWPP based on the outcomes of the pilot programs.
- Fully funded water savings plans will be available to all businesses included in the pilot program.
- Rebates for water saving projects identified in the water savings plans developed through the pilot program will be funded (50% of the cost of each approved project) to a maximum of \$15,000 per business. The range of water saving projects eligible for funding will be expanded to include all water efficient products certified by Smart Approved WaterMark and through the WELS program ([Products - Smart Approved WaterMark \(smartwatermark.org\)](#)). RCC will continue to promote recycled water usage where available as part of the SWPP pilot program with rebates for recycled water connections that replace potable water use.
- Mechanisms for ongoing monitoring and engagement will be developed with each participating customer as part of the SWPP pilot program to measure the success of SWPP initiatives.
- The SWPP will continue in its current form for high water users (>5 ML/a) for year 1 of the RDMP in parallel with the establishment of the pilot program and the program will remain available to high water users over years 2 – 4 of the RDMP.
- The total budget available for the SWPP will be capped each year with applications approved on a first come - first served basis.

Based on the findings of the pilot program, the SWPP will be modified as required for implementation in future.

Non-residential incentive schemes will also be developed and implemented by each constituent council for high water users (non-residential customers) in the local supply areas through strategic planning (e.g. IWCM Strategy development), utilising the tools and experience of the RCC SWPP.

RCC and the constituent councils will audit council premises (including public pools, office buildings, depots, open space irrigation and tourist facilities) and operations (e.g. water infrastructure maintenance and council

roadworks) to identify potential improvements to water efficiency, showcase projects, demonstrate leadership and encourage customer water efficiency.

NRES: Non-Residential Customer Programs

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
NRES1 - Sustainable Water Partner Program (existing)		\$80,000			
NRES1.1	Continue to implement the SWPP targeting non-residential customers using > 5 ML/a (using current SWPP tools)	SWPP implementation			
<i>NRES2 - Constituent council tasks</i>		<i>Meter reading and data provision</i>			
NRES2 – Non-residential customer pilot program		\$20,000	\$150,000	\$150,000	\$150,000
NRES2.1	Identify target non-residential customers for pilot program	Initial program design and identification of target business groups			
NRES2.2	Develop/adapt tools	Tools identified and developed			
NRES2.3	Implement, evaluate and adapt pilot program		Pilot program implemented		
NRES2.4	Program evaluation		Collect and analyse program data		
NRES2.5	Detailed analysis and design of future program roll-out				Program evaluation and reporting
<i>NRES2 - Constituent council tasks</i>		<i>Initial program design with committee, identifying target groups, meter reading and data provision</i>	<i>Meter reading and data provision, program evaluation, identify potential projects in local supply areas</i>		

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
NRES3 - Audit of council facilities and operations				\$75,000	-
NRES3.1	Identify facilities and operations for audit			Facilities and operations identified	
NRES3.2	Audit of RCC and constituent council facilities and operations			Audits completed	
NRES3.3	Identify water saving projects				Potential water saving projects identified
<i>NRES3 - Constituent council tasks</i>				<i>Identify and provide access to facilities, meter reading and data provision</i>	

4 DATA COLLECTION, MONITORING AND REPORTING

Currently, monitoring and evaluation of demand management indicators and initiatives is primarily undertaken as part of RCC and constituent council business management reporting. The limitations with current demand reporting include:

- Inconsistencies between reporting of customer numbers and demand of the different councils.
- Inadequacies in billing systems which do not allow accurate and efficient reporting of customer numbers, connection types and hence detailed analysis of customer demand.
- Informal and irregular reporting systems.

There is an ongoing need for improved data collection, evaluation and reporting to implement an effective demand management program and provide meaningful information on the results achieved. All actions in this RDMP rely on accurate data to develop and communicate benchmarks and targets to the councils and customers as well as predict future demand. The focus of the actions is the development of a more accurate demand profile by customer types and the improvement of monitoring, evaluation and reporting mechanisms.

Improved data collection and analysis of all components of the water balance is required with improved systems to capture data. Once implemented, smart metering will assist RCC to provide near real - time data on the consumption of retail customers (Section 6.2). The water loss management programs to be implemented by RCC and by the constituent councils will include bulk flow metering to enable reporting of water supply in each service area/zone (Section 6). Further development of monitoring and evaluation programs is required to develop a greater understanding of the components of the water supply as well as the impact of demand management programs on residential and non-residential demand over time. This will consider the dynamics of the demand profile and other factors influencing demand trends such as climate, household composition, community attitude, water conservation behaviours and the level of water efficiency adopted within the community.

Water consumption data and number of connections from each LWU is required to enable per connection consumption-based reporting of water use within the region. While practices and categories vary between the councils, water supply customers are currently categorised primarily for billing purposes based on the meter characteristics. Current differences in defining connections make calculation and comparisons of water consumption across the region difficult. A consistent definition of connection types across all LGAs and consistent reporting of water consumption within these types is required to provide comparable and useful data. The councils will work together to develop and implement standardised definitions of connection types to ensure consistency across the region. Data from the residential and non-residential pilot programs (RES1 and NRES2) will assist with establishing baseline consumption and water use behaviour for the participating customers.

The objectives of monitoring and reporting are:

- To ensure timely, accurate and consistent reporting to assist with ongoing RDMP development and evaluation.

- To ensure consistency with existing reporting requirements and avoid duplication or additional reporting.
- Reporting of information on consumption to consumers on an ongoing basis.

As part of this RDMP, the councils will develop mechanisms to collect standardised data and a reporting program in accordance with the best-practice requirements to incorporate customer and consumption-based reports that include:

- Number of connections by customer/connection type.
- Number and type of connections with alternative water supplies.
- Number and type of connections with smart meters.
- Bulk water production by service area/zone (once data are available through district metering implemented as part of the water loss management program - Section 6).
- Total consumption by connection type in each service area/zone.

The councils will also work together to develop and implement a standardised metering policy across the region to assist with monitoring and reporting, particularly the demand of multi-unit residential and non-residential properties and rural connections and provide information on ownership and responsibilities. Separate metering of all existing multi-unit properties as required by best-practice may not be cost-effective. However, there is a need to understand the number of multi-residential and multi non-residential properties to better understand the demand of these properties and to implement actions relating to individual customers. RCC will implement smart metering for all retail customers as discussed in Section 6.2.

Regional demand forecasts will be updated in accordance with the *Rous Future Water Project 2060* actions with more accurate data collected through the RDMP implementation.

DMR: Data Collection, Monitoring and Reporting

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
DMR1 - Standard definitions of connection types		\$35,000	-		
DMR1.1	Review existing customer management systems and if feasible, develop consistent definitions of connection types across the region and identify required system modifications for each council.	Agreed definitions and systems to be implemented			
DMR1.2	Implement system modifications (RCC retail customer management system)		RCC retail customers are classified in accordance with agreed system.		
<i>DMR 1 - Constituent council tasks</i>		<i>Provide information and resources to assist with review, share knowledge and lessons learned</i>	<i>Implement agreed system within regional and local water supply areas</i>		
DMR2 - Standard metering policy		\$25,000			
DMR2.1	Review existing customer metering for all five councils, identify objectives and constraints, develop consistent policy for customer metering across the region.	Policy developed			
<i>DMR2 - Constituent council tasks</i>		<i>Provide information and resources to assist with review, share knowledge and lessons learned</i>	<i>Implement agreed policy within water supply areas</i>		

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
DMR3 - Reporting of customer data and consumption		-	-	\$20,000	\$20,000
DMR3.1	Provide data on retail customers and metered demand, bulk water supplied to constituent councils and bulk supply system losses	Quarterly data collection and bi-annual reporting			
DMR3.2	Develop standardised reporting of water balance data based on customer management system modifications (DMR1), smart metering and bulk flow metering to be applied across the region (through water loss management programs)			Water balance reporting procedure developed	
DMR3.3	Develop appropriate water loss indicators and targets			Indicators and targets developed	
DMR3.4	Reporting of water supply in each bulk supply service area/zone			Quarterly data collection and bi-annual reporting in accordance with reporting procedure and targets	
<i>DMR3 - Constituent council tasks</i>		<i>Provide quarterly data on customers and demand</i>		<i>Provide quarterly data on customers and demand in accordance with improved customer management system, bulk flow metering and reporting procedure</i>	
DMR4 - Monitoring of RDMP action status		-	-	-	-
DMR4.1	RDMP action status reported through committee	Quarterly meetings	Quarterly meetings	Quarterly meetings	Quarterly meetings
DMR4.2	Annual review of RDMP	Annual review	Annual review	Annual review	Annual review
DMR4.3	Progress reporting to Council	Bi-annual	Bi-annual	Bi-annual	Bi-annual
<i>DMR4 - Constituent council tasks</i>		<i>Provide data as required by RDMP actions, provide feedback on implementation of related activities (e.g. water loss management and smart metering), share knowledge and lessons learned</i>			

5 EDUCATION AND ENGAGEMENT

Education and engagement will continue to be a key focus of the RDMP to improve the success of other demand management measures, increase water literacy and encourage water efficient behaviour.

Education activities are directly linked to the customer engagement programs, encouraging and supporting water efficient behaviours. Education components will be designed to reach all customer sectors. The information available to customers (e.g. through websites, customer service centres and bill inserts) will be reviewed and updated regularly with links to consistent centralised information and outcomes of the residential and non-residential pilot programs (RES1 and NRES2). RCC will continue to subscribe to Smart Approved WaterMark (Smart Water Advice - Smart Approved WaterMark (smartwatermark.org)) collateral and resources. Other cost-effective methods will include the use of social media for information dissemination.

General education activities will include materials targeting households, non-residential customers and high residential and non-residential users as part of other RDMP programs. Education and engagement tools will be developed through the residential customer program (RES1 - behaviour change pilot program) and the non-residential customer program (NRES2 - SWPP pilot program) based on the identified needs of customers. Education activities will also include tourism accommodation providers and facilities as part of the non-residential customer program (NRES2 - SWPP pilot program) to target the large number of visitors to the region.

A regional resource for delivery of water cycle education programs will be developed and implemented including catchment health, water supply, wastewater management and stormwater management initially targeting schools but also wider community education. As school students are the customers of the future and can encourage water efficiency in the home, a targeted and well-resourced education program for primary and secondary schools will be developed and delivered directly by internal staff. This resource will utilise existing learning resources and tools including the augmented reality sandpit and catchment trailer and facility tours. RCC will prepare a concept design for the incorporation of a water engagement and education facility as part of the provision of broader engagement and education activities at RCC's consolidated operating site in Ballina.

Ongoing sustainable and sensible water use will continue to be promoted through voluntary permanent water conservation measures as Level 0 in the RCC drought restriction policy. This will assist with promoting sensible water use and support other program measures.

EDU: Education and Engagement

Tasks, additional budget (excluding existing resources) and timing		Year 1: 2022/23	Year 2: 2023/24	Year 3: 2024/25	Year 4: 2025/26
EDU1 - Education and engagement tools		\$40,000	\$35,000	\$35,000	\$35,000
EDU1.1	Review and update education and engagement tools	Ongoing review and update			
<i>EDU1 - Constituent council tasks</i>		<i>Provide links to tools provided by RCC</i>			
EDU2 - Regional education officer		\$30,000	\$135,000	\$135,000	\$135,000
EDU2.1	Define role and responsibilities of education officer	Roles and responsibilities defined			
EDU2.2	Recruitment	Education officer recruited			
EDU2.3	Regional education program		Regional education program developed and implemented		
<i>EDU2 - Constituent council tasks</i>		<i>Define roles and responsibilities through committee</i>			
EDU3 - Investigate feasibility of education facility		\$20,000	-	-	-
EDU3.1	Prepare a concept design which incorporates water education as part of RCC's consolidated operating sites.	Feasibility study			

6 RELATED DEMAND MANAGEMENT INITIATIVES

6.1 Water Loss Management

Water loss management is a critical component of demand reduction and current levels of losses are high. Water loss reduction will be a focus of RCC and constituent council asset management activities implemented separately to this RDMP.

A Water Loss Management Plan (WLMP) was developed for RCC in August 2019 (Detection Services Pty Ltd., 2019). Previous water loss reduction actions have resulted in significant improvement in the levels of losses within the bulk supply network. Further investment in bulk flow metering and data loggers, pressure management and active leak detection repair and evaluation will further reduce water losses. The capture of data on flow and pressure within the bulk supply system will also be improved through data loggers and telemetry. A comprehensive water loss program was adopted by RCC at its December 2020 meeting [61/20] for implementation over four years. A budget of \$1.9 million has been committed for implementation of the RCC water loss program.

Each constituent council will also implement a water loss management program building on existing programs and infrastructure already installed. Water loss management programs will be developed through strategic planning (e.g. IWCM Strategy development) and implemented by each constituent council. This will include data collection and water loss analysis, district flow metering and data analysis, pressure management, active leak identification, timely leak repairs and asset management.

RCC and the constituent councils will provide sufficient resources to implement their water loss management programs and set targets based on best-practice indicators (DMR3.3) and timeframes for water loss reduction.

6.2 Smart Metering

Currently, manual reading of customer water meters is undertaken for most of the Rous region on a quarterly basis. While this may be adequate for billing requirements it provides limited information on actual water use behaviour and leakage. In most areas, customer meters are remote or difficult to access and remote meter reading is employed in these areas.

As there is considerable benefit expected to result from smart metering, including synergies with other RDMP objectives/actions as well as interest from customers, smart metering will be a focus of RCC asset management activities to be implemented separately to this RDMP. A smart metering project has been developed for RCC's retail customers with an implementation period of two years. Given the distribution of RCC's customers across much of the region, there are likely to be efficiencies in collaboration with the constituent councils. Background information on smart metering is provided in *Regional Demand Management Plan Review and Update. Background Information and Recommended Plan Components* (Hydrosphere Consulting, 2022) and further information on the RCC smart metering program is provided in Appendix 1.

6.3 Water Supply Pricing

There are strong links between water supply pricing and water usage. Water supply tariffs are set by the individual councils to achieve full cost recovery and related best-practice requirements (metering with user - pays volumetric pricing, two-part tariff and stepped price increase for high water consuming residential customers).

RCC's bulk water sales revenue from the constituent councils and direct retail customers is calculated on the gross dollar yield required to fund bulk water supply activities. The constituent council contributions to the required revenue are calculated based on prior year consumption. This bulk pricing structure does not support water efficiency measures as there is no direct signal to customers related to consumption and no incentive for the constituent councils to reduce overall consumption or water losses.

Water supply pricing is likely to be a highly effective demand management tool but will be addressed separately to this RDMP as part of each council's financial planning. RCC will review the bulk pricing structure in consultation with the constituent councils considering options to support demand reduction signals and other demand management measures such as water loss reduction. In 2022/23, RCC will explore different models for bulk and retail supply pricing with the main aim of linking pricing to sales and hence provide a water conservation signal that the constituent councils and RCC could pass on to their customers.

The constituent councils will continue to set a pricing structure that encourages demand reduction and supports the initiatives in the RDMP. Increased usage charges will be considered as the councils with high consumption charges generally have lower demand per customer.

7 RDMP MONITORING AND EVALUATION

Monitoring and evaluation are essential tools for the implementation and ongoing improvement of this RDMP. A committee will oversee the plan implementation and ensure the actions specified in the RDMP are completed (Section 1.6). The committee will also be responsible for assessing if the plan is meeting its objectives and how best to adapt the plan to incorporate the latest knowledge, experience and technology in a process of continuous improvement.

Success of the RDMP will be gauged through ongoing reporting of action implementation (including timing and completeness) as required by DMR4. Annual review of this RDMP (for the previous financial year activities) will be undertaken by September 30 of each year and will include:

- A review of demand data.
- An evaluation of the completeness and effectiveness of RDMP actions.
- Feedback from the customers and the constituent councils.
- An assessment of the impact of RDMP actions on RCC and the constituent councils in terms of costs, resourcing and operations.

Based on the results of the annual reviews, the RDMP may be revised to address any identified issues.

This RDMP will be reviewed in four years (by December 2026).

Demand targets (e.g. consumption for various customer groups, water loss indicators etc.) will be developed over the long-term once meaningful data are available through the implementation of the data collection actions in this RDMP. The next version of the plan (2027-2030) will rely on more accurate data and will include targets and key performance indicators.

REFERENCES

Detection Services Pty Ltd (2019) *Rous County Council Water Loss Management Plan*. August 2019, V2.

Hydrosphere Consulting (2020c) *Rous County Council Bulk Water Supply - Demand Forecast: 2020 - 2060*, October 2020.

Hydrosphere Consulting (2021a) *Rous Regional Supply: Future Water Project 2060, Integrated Water Cycle Management Strategy*, July 2021.

Hydrosphere Consulting (2022) *Regional Demand Management Plan Review and Update. Background Information and Recommended Plan Components*, February 2022.

APPENDIX 1 BEHAVIOUR CHANGE PILOT PROGRAM

Behaviour Change Pilot Program

Detailed information on behaviour change practice and investigations undertaken as part of the development of the RDMP is provided in *Regional Demand Management Plan Review and Update. Background Information and Recommended Plan Components* (Hydrosphere Consulting, 2022). An outline of the proposed methodology for the residential behaviour change pilot program is provided below.

Aims

The aim of a behaviour change program is to change the behaviour of residents to use less water and achieve a target (say 160 L/person/day) in the participating households in the first instance. Later in the staged approach, this target would be for the whole region. A target may also be reducing water loss (leakage). The voluntary behaviour change approach will be implemented in parallel with the current supply and top-down measures implemented across the region which will continue to play an important role. The voluntary behaviour change approach uses an individual's goals and drivers to 'help people to help themselves' which will complement these supply and top-down measures. Once the behaviour change approach is implemented, the infrastructure measures will be easier for people to understand and the right balance of top-down measures will also be easier to implement.

Staged Approach

A strategy that involves implementing, evaluating, learning and adapting includes defining outcome measures and the method of evaluation (impact vs process) and exploring opportunities where 'uncertainty' and 'flexibility' are embraced. This will reduce risk in future resource allocation and decision-making and scaling up will be easier when appropriate (Figure 2). By adapting and being flexible in the first stage of implementation, uncertainty will reduce over time making resource allocation more reliable. Similarly, flexibility can reduce over time because there will be more knowledge about the way the initiative fits the application.

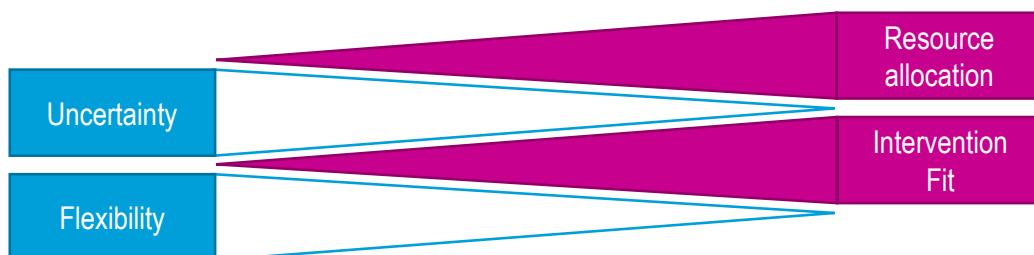


Figure 2: The benefit of the implement, evaluate, learn and adapt process

A pilot program will be used as a staged framework for larger programs or initiatives to be implemented after the conclusion of the 2023 - 2026 RDMP.

Program development

The following principles will be used to develop the voluntary behaviour change approach and ideally achieve sustained change:

- A co-design approach where the councils and customers collaborate to design a program. A co-design approach is one where people who will use a particular service or product are involved in the design of that service or product. This means that the design of the package of measures and the

way they are introduced needs to include the key stakeholders (RCC, the constituent councils) as well as the residents who will be targeted. The focus groups and discussions with the councils suggests that there are sufficient differences between council areas (and residents) that this process should be undertaken in each council area separately. After an initial approach has been planned, the focus group will be used in each of the target areas to help refine the details of the intervention and the likely tools that will be needed to assist long-term change.

- An approach based on 'implement, evaluate, learn and adapt' to ensure that the program has maximised water reduction results in both the short and long term.
- A program of individual conversations with individuals and households about their water use, complemented by available tools and information to assist them with change.

Tools

A tool is anything that assists a person or household to make a change:

- Information e.g. the impact of water losses in a household, how to detect leaks, how much water is used in a shower (can be delivered on paper or via specific links to a website). Information will be specific to the needs of the person (i.e. if they want to understand how much water is used in the shower, they do not need large amounts of information on other issues).
- Services e.g. water use audits.
- Technology e.g. smart metering, low flow shower heads.

Existing resources and potentially new/adapted tools will be used. Existing information is available on the council websites e.g. water saving tips. Branding of these tools will consider the best approach to reflect local conditions which will be tested during the focus group sessions. The current format of water bills as a change mechanism will also be tested during the initial program setup.

Target groups

Since the aim is to start with a small study, modify as needed, and then roll it out across the wider region, each LWU will nominate a small, clearly defined target group of households. Ideally this group has some type of social interaction so that behaviour can be reinforced by 'trusted others' rather than only the program's representatives. Examples might be:

- Working with particular groups to involve First Nations communities (e.g. local Aboriginal land councils or corporations). The approach needs to be tailored to the community.
- Choosing an interactive community group such as:
 - A club (e.g. Rotary).
 - An over-50s community/estate.
 - A school community.
 - People associated with a community centre.

The target group could be of any size, but ideally should involve at least 50 - 100 households so that sufficient data is obtained to measure the success of the program. In each case the target should include all people in the nominated group, not a sub-sample. Where possible, a control group should also be selected.

Some initiatives might be run together with local groups or community activities, while others might fit in with state programs which can produce funding opportunities or implementation savings. Examples of potential partners could include:

- Garden centres who can provide waterwise plant and soil advice.
- Existing garden education programs.
- Community support programs e.g. Anglicare. These groups are likely to encourage the development of tools to support their clients.
- Organisations where language and culture could be used as a conduit for changing water use behaviours.
- Local schools in the target area.
- Existing RCC and constituent council Aboriginal advisory groups.

Program components

Once the target group has been selected, the following steps are involved:

- Group discussions to determine the best initial approach - these would take the form of discussions with the leader to get their recommendations on how to have conversations with all households in the group but would also include a focus group in each council area and some short informal conversations with target people to check that the approach is likely to succeed. Note that more than one approach could be needed. Recruiting at least one person from a household might be undertaken by letter, visits, attendance at a meeting, a social media group, phone or something else suggested by the group.
- An initial approach to let people know about the program - the initial approach will simply alert the person/household that there is a program and that their household has been targeted and that they will be approached or can approach someone to be involved. The wording of this approach would be tested to be sure that the message received is the one intended.
- Initial measurement of water use at the target households - measurement of water use over time (e.g. per month) and calculated as a daily average will be undertaken for each household in the target group.
- Initial conversation with one person from each target household beginning with a short survey about appliances, water use and awareness and followed by a discussion about their ideas on change (e.g. 'things they want to change by have not got around to'), tools required and process of change for their household.
- Feedback given to the household in a form decided on at the outset of the program. At the end of the conversation participants would be told that they will receive feedback on their water use before and after the conversation, compared to other people in their group so that they can see the effects of the changes they make.

- At least one, but preferably two follow-up conversations to discuss the feedback, listen for any further changes they would like to make and offer any further tools for ongoing change.
- At the end of the coaching/conversation phase, participants would receive feedback on the overall achievements of the program in their area.

A region-wide survey to establish specific barriers and enablers for change will not be undertaken in the current program for several reasons:

- An individual approach will be adopted where barriers and enablers are explored at an individual or household level.
- It is very easy to get biased results from a survey due to insufficient or biased sampling.
- Region-wide results are not always directly relevant to the target groups.

Data requirements

For each household in the target area data would be collected including:

- Number of people in the household.
- Household and related outdoor characteristics (garden, pool, lawn etc.)
- Water use for a nominated period - for simplicity, this period could be quarterly to match meter readings but extra reads can be undertaken to provide a more rigorous analysis.
- Ideally water use for previous years at that household would be compared so that seasonal variation could be accounted for.

The measurement of water use has two purposes - monitoring the success of the program and making it possible to give participants feedback on their own water use and to compare it to others in their region. Measurement will be recorded before the commencement of the program, during its implementation and after. Ideally, these details should be obtained for all households in the target area (whether they participate or not) so that good forecasts for a roll-out program are available. It is important that measurement of water use by households (and per person) is robust to provide:

- A reporting mechanism to clearly show the impact of the program.
- Feedback to participating households (their own water use compared to others in the region).
- Comparisons of water use on bills in language that is easily understood.

During the program water use will be provided for each participating household on a regular basis. This will enable them to understand where they are using water and the impacts of the changes they are making. During and following the completion of the pilot program, measurement will continue in the same way and data will also be provided to participants on an ongoing basis.

Marketing and communications

A marketing and communications program will be developed to ensure that the program is clearly understood. Messages will be catchy and rigorous testing will be done to show that people understand what changes are required and can easily act on them. A brand will be developed and tested in the focus groups.

The skills of the council communications teams will be combined with simple and cost-efficient tools to develop an easily understood message/branding.

It is recommended that for the four years of the RDMP (2023 – 2026) the focus is on testing existing marketing tools (e.g. Facebook and websites). There are two key ways to use these media:

- Providing information (people participating in the program can be directed to a Facebook or website link that provides with local information relevant to their council area).
- Providing an outlet for stories. Participants can use a Facebook group to share stories of how they have changed, often promoting much greater change than can be achieved through larger scale approaches.

The reactions of participants will be closely monitored in the pilot program with minor changes made if needed to facilitate greater change.

Reporting

Following the completion of the pilot program, all data will be evaluated and recommendations will be provided for consideration in the future roll-out of the program outcomes across the region (including rebates, incentives, marketing, engagement and other tools).

APPENDIX 2 RCC SMART METERING INITIATIVE

RCC Smart Metering Initiative

RCC is planning to roll out smart metering across its retail water customers in 2022/23. This will provide these customers with a platform that can provide more timely data and customisable updates and alerts about water usage and leakage events. Customer awareness and engagement programs related to increasing familiarity with the use of new mobile applications and other tools will be implemented during 2023/24, with the aim of empowering customers to inform themselves with more timely water use data and be in a better position to understand their own water use patterns, cost implications, and respond more effectively to water leakage events on their property.

A smart metering pilot project was undertaken through 2014 to 2017 with ten businesses who were considered high water users (greater than 5ML/a). The project was successful in obtaining water savings of between 10 to 15% for those businesses who were adequately engaged and motivated.

The previous RDMP 2019 - 2022 proposed a study to be undertaken in 2018/19 to review technologies and suppliers for smart metering infrastructure and software. That RDMP contemplated developing a business case for the roll-out of smart metering across the region. During this period, two constituent councils have proceeded with trials of smart metering, but all have remained open to the option of shared implementation components across a broader regional approach if an opportunity to do that arises. Whilst this may not result in a fully cohesive regional smart meter solution envisaged as an option in earlier issues of the RDMP, it may still involve some shared procurement activity, use of similar platforms, and at the very least, knowledge sharing of implementation experiences between RCC and the constituent councils.

A smart metering project has been developed for RCC's retail customers with a total budget estimate project cost of \$1.1 million and an implementation period of two years. A Project Manager was engaged by RCC in late 2021. Analysis of system requirements commenced immediately and information sharing with the constituent councils on the project, approach and timeline occurred prior to the end of 2021. Specification development will occur early in the 2022 calendar year and include an emphasis on coordinating with constituent councils to identify any opportunity to benefit from involvement in the RCC smart meter roll out.

The RCC project also has a side constraint related to the existing "walk by / drive by" wireless metering arrangements (including field data collection hand-held devices and back-office software functionality) no longer being supported by the original supplier. Failure of these legacy systems without support could impose a requirement for RCC to revert to manual reading until the new smart meter installations are operational. Minimising this risk is a significant driver in the overall RCC smart meter project timeline and for this reason, options for extending the Rous smart meter roll-out to other constituent councils will need to be undertaken in such a way that RCC's implementation roll-out is not significantly delayed.

Despite this, RCC envisages that with timely and responsive interactions between RCC and the constituent councils, particularly in 2022, options such as a common procurement process, shared evaluation of suppliers and staged multi-client implementations under a single head supply contract of multiple parts are all possible mechanisms for the constituent councils to benefit from the RCC implementation without the project timeline being unduly delayed.

Given the distribution of Rous's customers across much of the region, there are likely to be efficiencies in sharing communication infrastructure (at a minimum) if the constituent council chooses to join in that area. Further to the smart metering project, a project with Richmond Valley Council has been identified to extend

the smart metering installation to Woodburn and surrounding areas to better inform planned bulk water main augmentation within the area. The demand and consumption data that would come from this project would better inform this augmentation and may allow the deferral of the augmentation for several years.

Smart metering for RCC retail customers, in conjunction with the actions within the WLMP, represent the best value for money opportunities to further reduce water loss within the RCC bulk water network.

Improving the engagement of RCC customers with their water usage and related costs, through provision of better tools (mobile applications, customisable alerts and data), secure platforms supporting more timely data capture and customer messaging related to these improvements, remains the prime driver for the RCC smart metering initiative.