



FutureWater
PROJECT 2060



FUTURE WATER PROJECT 2060

Information for the community about the preferred options for securing the region's water supply.

WHAT IS THE FUTURE WATER PROJECT 2060?



The Future Water Project 2060 is Rous County Council's plan to secure the community's precious drinking water supplies over the next 40 years and beyond.

The project identifies the new water sources needed to ensure long-term water security for major parts of the Northern Rivers region. It builds on extensive investigations undertaken by Rous County Council (RCC) over the last few decades to find a viable solution for permanently increasing our water supply. It has been specifically developed through the outcomes of research and technical studies undertaken as part of the Future Water Strategy's 2014 key actions. RCC has adopted, and has commenced implementing an enhanced [Demand Management Plan](#). Water conservation and demand management is a long-term program and will be part of the solution, regardless of the option eventually chosen. Investigations into groundwater, water reuse and desalination, along with the consideration of previously explored options such as the Dunoon Dam underpins the Future Water Project 2060's proposal.

At the heart of this proposal is a two-step action plan. The first step of the plan is to maximise the benefit of the existing Ballina Shire Council owned Marom Creek Water Treatment Plant and better utilise the existing groundwater resources on the Alstonville plateau. This would provide an increase in the capacity of the region's water supply. While these short-to-medium-term demand needs are being met through groundwater sources, the planned second step, the Dunoon Dam project, will be progressed through further detailed investigations to determine its prospects for approval.



MESSAGE FROM THE CHAIR

Rous County Council

Cr Keith Williams

Ballina Shire Council

July 2020

Rous County Council plays an important role in our region. Supplying a sustainable and safe bulk water supply to our constituent councils is a job which requires strategic planning for our region's future. We need a reliable water plan that ensures the community can continue to thrive and prosper and the Future Water Project 2060 does this. The project is based on many years of investigation and developed out of an agenda set by the community. It has been developed through extensive technical studies and explorative works which were assessed on the criteria of Healthy, Reliability, Sustainability, Acceptability, Compatibility and Achievability.

The unprecedented drought in our region, bundled with the effects of continual population growth in this beautiful area, means water security must be at the forefront of our minds.

While there are still elements of the plan that need work, the Future Water Project 2060 has considered all feasible options and will continue to be refined as it is implemented.

We are pleased to present the Future Water Project 2060 to our community. We want to provide you with an exhibit of the work that has been done to date and provide all stakeholders the opportunity to comment on the plan and inform the final decision making.

Cr Keith Williams

Rous County Council Chairperson

BACKGROUND

In 2014, the Future Water Strategy identified three key actions to be taken in developing a delivery plan for water security. The key actions evolved through two detailed consultation processes with the community and constituent councils to determine what stakeholders' preferences were for water security options.

Through these consultations the Future Water Strategy identified that there needed to be investigations into groundwater, water reuse and the effects of water efficiency prior to a plan being made. In addition, it was identified that a decision was required as to whether the Dunoon Dam project should remain an option. These investigations have occurred and the Future Water Project 2060 is the resultant proposed plan to deliver our region's water security.



WHAT IS ROUS COUNTY COUNCIL'S ROLE?

RCC is a multi-purpose county council constituted under the Local Government Act 1993 to deliver bulk water, weed biosecurity and flood mitigation services to its constituent councils. It is the regional water supply authority, providing water in bulk from its principal supply source at Rocky Creek Dam. RCC provides this bulk water directly to the Ballina Shire, Byron Shire, Lismore City and Richmond Valley councils. We are responsible for providing safe and secure drinking water to over 110,000 people in an area of 3000 km².

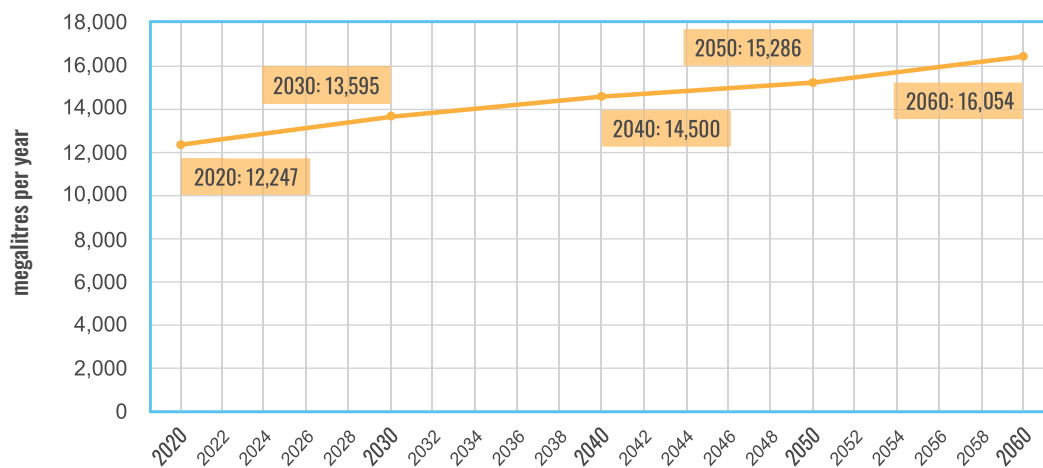
With this important role as bulk water supplier, RCC must ensure our community has a safe, sustainable and secure bulk water supply not only now, but also into the future. A changing climate means less reliable rainfall and hotter weather. At the same time, water use is forecast to increase as the population grows.

RCC's Future Water Project 2060 delivers water security for our region.

WATER SECURITY ISSUES AND DEMAND

Demonstrated by the recent drought, water security is an issue all Australian communities must consider. Demand for water in our region is predicted to rise to correlate with population growth. The forecast water supply demand graph below has been compiled using data from our constituent councils and projected out to 2060. Based on this analysis, demand is expected to exceed reliable supply by 5630 million litres per year by 2060.

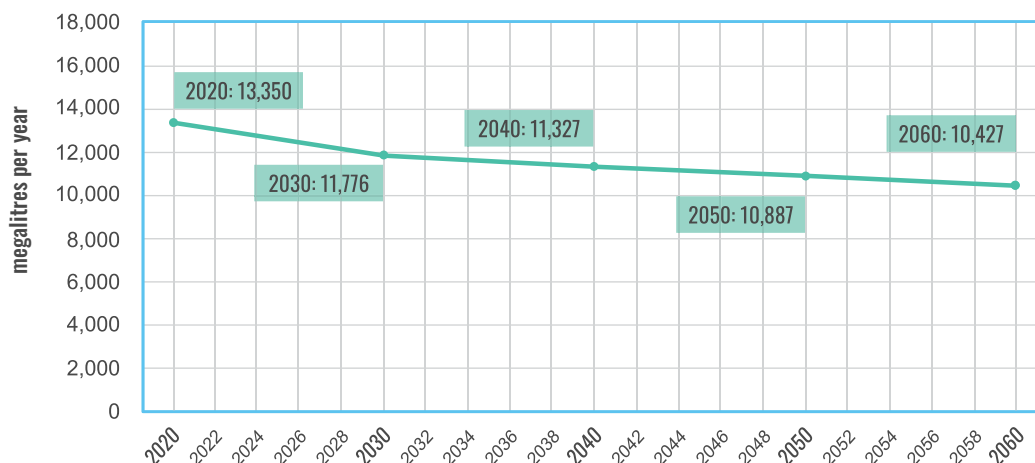
FORECAST WATER SUPPLY DEMAND



WATER SECURITY

Our water security refers to the certainty that our region's water needs can be met by a reliable supply without the community facing undue water restrictions.

The graph below shows the decrease in our reliable supply we can expect due to the effects of climate variability. Our water security is expected to decline by 22%.





FUTURE WATER STRATEGY 2014 OUTCOMES

KEY ACTION 1 - WATER EFFICIENCY

Demand management has been an integral part of our water supply asset planning and ongoing supply management in the region since 1995 and these initiatives have been successful in reducing water demand. RCC continues to prioritise investment in water efficiency activities that provide the best outcome. Although further reduction in per connection demand is likely to be more difficult to achieve in the future, we maximised the potential from our existing resources through the development of an enhanced demand management plan. The plan includes:

- ✓ **Monitoring, evaluation and reporting**
- ✓ **Water loss management**
- ✓ **Sustainable water partner program (businesses and community groups)**
- ✓ **Smart metering**
- ✓ **Recycled water**
- ✓ **Rainwater tank residential rebate program**
- ✓ **Community engagement/education – households, schools and high residential water users**

TOTAL INVESTMENT: \$1.77M since 2014

OUTCOME: The community and councils have been provided the tools to deliver increased water efficiency. Through this plan it is estimated the region would save up to 1800 million litres per year. Demand management measures will not achieve the water savings needed to defer water augmentation options.

KEY ACTION 2 - GROUNDWATER

The groundwater augmentation option was selected as a priority, based on initial thoughts that the abundance and quality of water within the region's aquifers was high. Over 5 years RCC extended their investigations using electromagnetic imaging to determine soil geology and did test drilling for water sampling and assessment. Research improvements from the initial groundwater report provided much more in-depth analysis of groundwater as an augmentation option.



4 detailed working papers completed

5 investigation areas drilled and assessed - including surface geophysical assessments

2 desktop assessments completed

TOTAL INVESTMENT: \$1.96M

OUTCOME: Despite initial thoughts that a groundwater scheme was a viable and cost-effective option, the previous 5 years of extensive investigations have determined limitations to the groundwater option. The water quality of most aquifer locations was determined to be poor with high salinity. This means increased costs to treat the water and less water availability. The groundwater scheme would not provide a sufficient volume of water to meet demand in 2060.

KEY ACTION 3 - WATER REUSE

Investigations have been undertaken in relation to the water recycling option known as indirect potable reuse (IPR) of wastewater. It involves taking treated effluent from a wastewater treatment plant, putting it through an advanced water treatment process and then releasing it either upstream of an existing water supply (such as a dam) or into a groundwater aquifer.



Investigated whether potable water reuse is potentially viable

Assessed the additional contribution to our existing sources

TOTAL INVESTMENT: \$0.1M

OUTCOME: This source option is not currently in use in NSW but is being used in other parts of Australia. Whilst there is a national framework that considers the efficacy of an IPR scheme, given the unique operating environment of our system these key framework criteria cannot be easily achieved. This adds considerable uncertainty about the ability of a scheme to obtain approval.

This means that IPR is not viable as a key water source to meet demand as part of this project. RCC will continue to support further investigations into water reuse initiatives as a method of minimising ecological impact of effluent discharge into the environment, but not as a bulk potable water source at this stage.

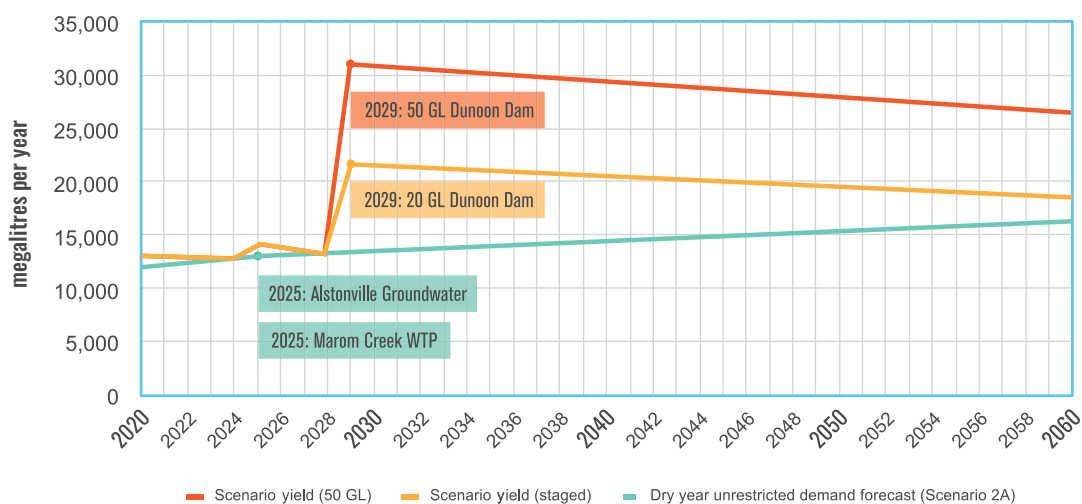
THE FUTURE WATER PROJECT 2060



We have considered all water augmentation scenarios to set out the most viable plan for permanently boosting Council's bulk water supply. The Future Water Project 2060 plan will ensure a secure and resilient water supply in the face of changing climate conditions and allow for continued regional growth for at least the next 40 years. It will also make sure Council does not need to burden the community with excessive water restrictions.

THE FUTURE WATER PROJECT 2060

The below graph shows the amount of water security provided by the Future Water Project 2060.



KEY ACTION 1 - AUGMENTATION TO MEET SHORT-TO-MEDIUM-TERM DEMAND NEEDS:

Marom Creek Water Treatment Plant and Alstonville Groundwater Aquifer

The first step will be to maximise the benefit of the existing Ballina Shire Council owned Marom Creek water treatment plant and better utilise the existing groundwater resources on the Alstonville plateau. This would provide an increase in the capacity to supply water for our region. This will involve RCC:

- securing the utilisation of Marom Creek Water Treatment Plant as a regional source option;
- completing plant upgrade works to ensure it can meet the demands for water within the supply area;
- redeveloping groundwater bores to allow optimised use of the Marom Creek Water Treatment Plant and provide drought resiliency; and
- undertaking ongoing monitoring to ensure environmental impacts are minimised.

If by December 2020 the Marom Creek Water Treatment Plant option is not able to be secured, the development of the Woodburn coastal sands groundwater scheme will progress.

KEY ACTION 2 - AUGMENTATION TO MEET LONG-TERM DEMAND NEEDS: New 50 Gigalitre (GL) Dunoon Dam

The Dunoon Dam option has been identified as the lowest cost scenario while providing water security to 2060 and beyond. As the short-to-medium-term demand needs are being met through groundwater sources, the 50GL Dunoon Dam project will be progressed. The development of the short-to-medium-term augmentation options will provide time for RCC to continue to develop parts of the Dunoon Dam project that need further investigation prior to project approval. These investigations include:

- Cultural Heritage investigations and consultation
- Landholder consultation
- Determining ecological offset requirements
- State and Federal funding assistance options
- Geotechnical assessments

RCC possesses an enviable reputation as a natural resource manager with a proven track record in managing impacts from infrastructure projects. This is evident by the regeneration and management of the much-loved Rocky Creek Dam site and recreational area. We have an ongoing commitment to sustainable business practices and a history of strong traditional custodian and community relationships. RCC is committed to offsetting all impacts to an acceptable standard within our region, focusing on the Dunoon Dam water catchment area as we continue our reliable delivery of quality drinking water across the region.

FUTURE WATER PROJECT 2060 TIMELINE

The project timelines below identify key actions that are needed in the development of the Future Water Project 2060.

DUNOON DAM DEVELOPMENT STRATEGY

ITEM	PHASE*	ACTION NAME	DURATION YEARS	START	2020				2021				2022				2023				1st 2nd 3rd 4th
					1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	
1	1st phase	Community engagement	Project duration	2020																	
2	1st phase	Further develop engineering designs	1	2021																	
3	1st phase	Cultural heritage surveys	1.5	2021																	
4	1st phase	Low impact geotechnical investigations and ecological surveys	1	2021																	
5	2nd phase	Environmental impact statement	3	2022																	
6	3rd phase	Geotechnical investigation and survey	1	2023																	
7	3rd phase	Land purchases	2	2024																	
8	Final phase	Early construction works	1.5	2026																	
9	Final phase	Engineering design	1	2027																	
10	Final phase	Dam construction	2	2028																	
11	Final phase	Pipeline construction	1	2029																	
12	Final phase	Dam recreational facilities	1	2030																	

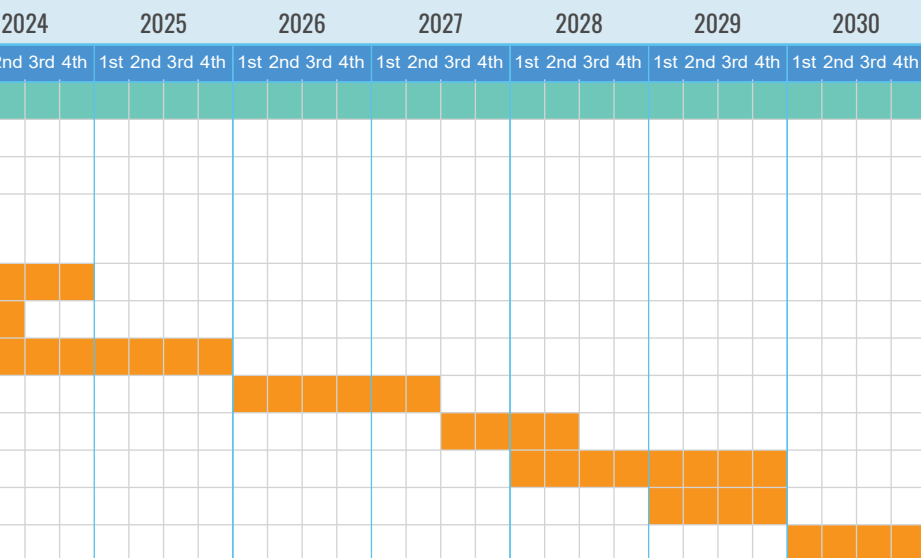
MAROM WATER TREATMENT PLANT AND ALSTONVILLE GROUNDWATER DEVELOPMENT STRATEGY

ITEM	PHASE*	ACTION NAME	DURATION YEARS	START	2020				2021				2022				2023				2024			
					1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
1	1st phase	Liaise with Ballina Shire Council	0.5	2020																				
2	1st phase	Secure the Marom Creek WTP as a regional water source	-	-																				
If not obtained by the due date commence with the development of the Woodburn coastal sands groundwater scheme as the next key action																								
3	1st phase	Finalise water scheme design	0.5	2021																				
4	2nd phase	Marom WTP upgrades	1.5	2021																				
5	2nd phase	Environmental impact assessment	0.5	2021																				
6	2nd phase	Geotechnical investigations and drilling	0.5	2022																				
7	3rd phase	Update licence details	1.5	2022																				
8	Final phase	Pipeline construction	0.5	2024																				

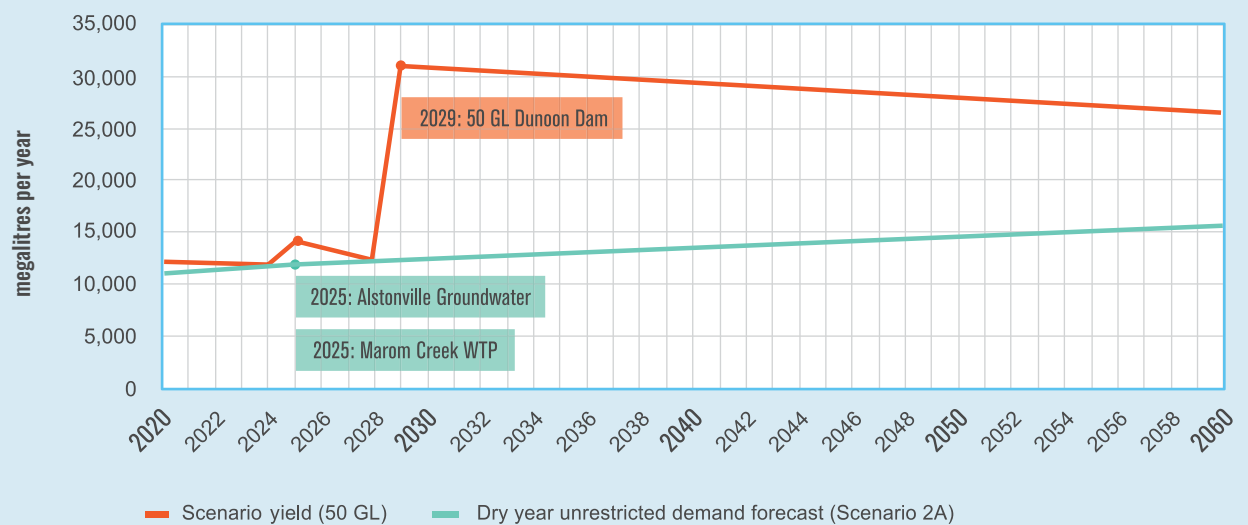
*Phases represent groups of key actions required to be undertaken concurrently

■ Long-term development process
 ■ Ongoing engagement activity
 ■ Short-term development processes
 ✕ Key decision by this date





DEMAND VS. YIELD



KEY NEXT STEPS

1A

Secure Marom Creek Water Treatment Plant as a short-to-medium-term regional water system augmentation source.

or

1B

Construct Woodburn coastal sands groundwater scheme as a short-to-medium-term regional water system augmentation source.

2

Commence with the early planning process for the 50GL Dunoon Dam project to secure water for 2060.

ACKNOWLEDGEMENTS

- The Traditional Custodians of current and future catchments, sits on Widjabal/ Wi-abal country of the Bundjalung nation. RCC acknowledges the Widjabal/ Wi-abal people's deep relationship with the land and water, and strongly values their traditional laws, knowledge and lessons about places and sustainability.

RCC is committed to the reconciliation process. For RCC, reconciliation means recognising the importance of working with the Traditional Custodians of current and future catchment and natural resource areas managed by Rous County Council.

- The NSW Government strongly encourages best practice management by water utilities throughout regional NSW, which includes Integrated Water Cycle Management planning. The NSW Government is proudly supporting this important planning work being done by RCC with co-funding of \$151,000 provided by the Safe and Secure Water Program.
- RCC's constituent councils of Ballina Shire Council, Byron Shire Council, Lismore City Council and Richmond Valley Council for their ongoing support.



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