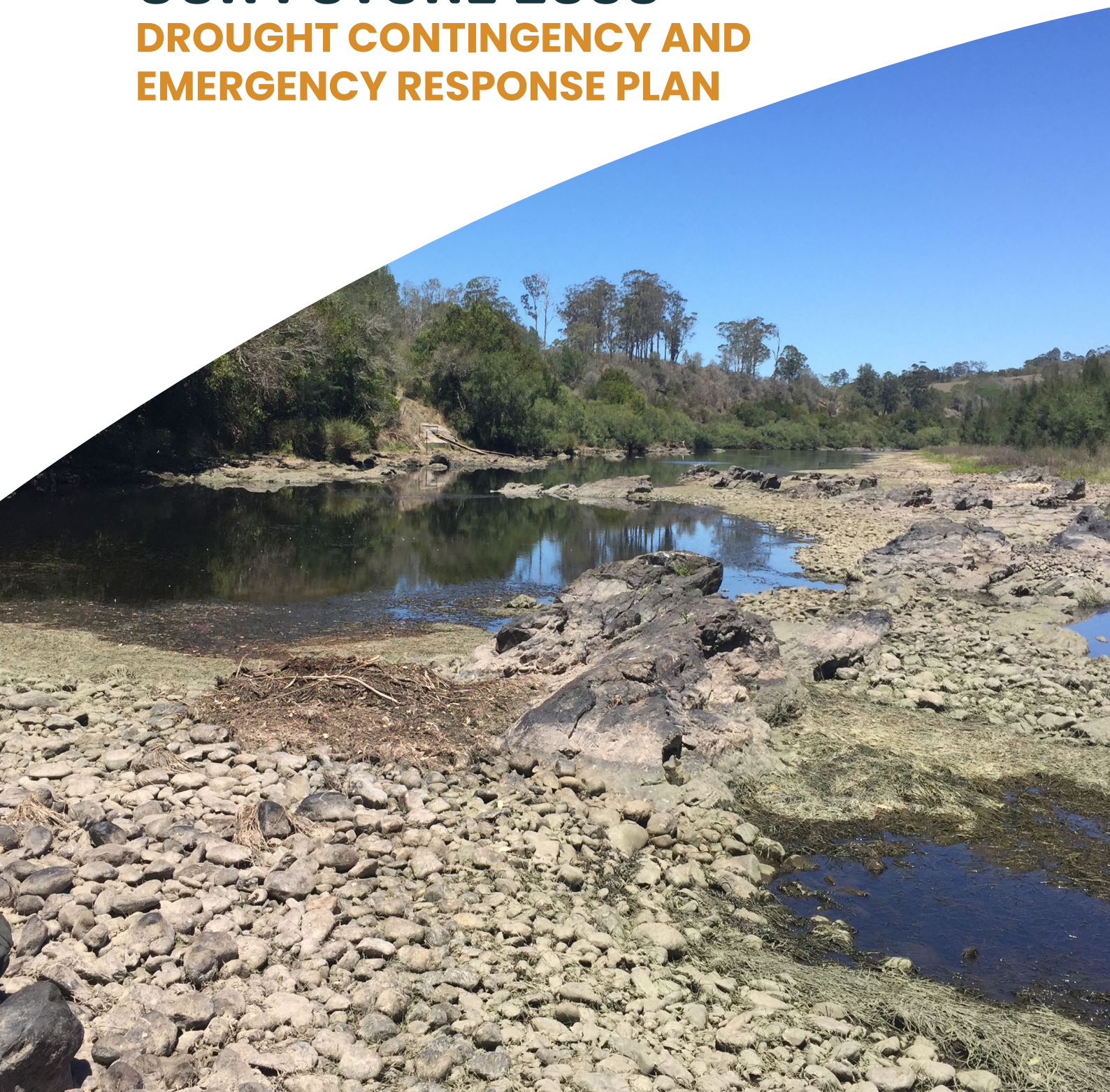


OUR WATER OUR FUTURE 2050

DROUGHT CONTINGENCY AND EMERGENCY RESPONSE PLAN



Acknowledgement of Country

We acknowledge the traditional custodians of the land and waterways, the Gathang-speaking people and pay our respects to all Aboriginal and Torres Strait Islander people who now reside in the MidCoast Council area. We extend our respect to elders past and present, and to all future cultural-knowledge holders.

Executive Summary

This Plan

This Drought Contingency and Emergency Response Plan (or Drought Management Plan) has been developed in order to:

- Provide guidance to staff when managing drought events
- Inform the community of the issues associated with drought management and the community's role during drought

MidCoast Council's (Council) Integrated Water Cycle Management Strategy, *Our Water Our Future 2050*, includes long-term plans to improve the water security of the MidCoast region. However, there will be a period of time between implementation of the strategy and the delivery of key infrastructure, due to the need to secure environmental and planning approvals, as well as design, construction and commissioning. This drought contingency plan addresses the water security challenge in the intervening years before the delivery of Peg Leg Creek Dam and the off-stream storages at Gloucester, Bulahdelah and Stroud.

This Drought Management Plan has the following uses with relation to drought management:

- Operational plan
- Authorised approach, that is, staff have the confidence that the actions in this plan have been authorised in advance
- Basis for government grant applications
- Basis of a public awareness and community communication program

This plan gives authority to Council's General Manager, in consultation with the Mayor, to declare a drought and implement the actions herein described.

This Drought Management Plan has been prepared with a view to providing Council with a comprehensive drought management strategy. The NSW Local Government PPRR (prevention, preparation, response and recovery) emergency management approach has been applied. This approach provides a strategic and systematic drought management process to reduce risk to the community and the environment. It involves effectively integrating implementation strategies before (i.e. prevent and prepare), during and after drought events.

Drought Prevention Strategy

Drought prevention actions are proactive measures that Council can undertake in order to increase resilience. Prevention actions may be activated implemented prior to drought or during drought declared stages. Preventative actions are provided in Section 2.

Drought Preparedness Strategy

Being prepared is essential to lessen the effect of drought and to enhance the capacity of Council and the community to cope with the consequences of drought. This drought management plan is part of the necessary preparedness. Further discussion is provided in Section 3.

Drought Response Strategy

Drought Triggers

Drought triggers are situations that activate staged response strategies according to the severity of the drought. The triggers are described in detail in Section 4.1.2 and summarised in Table 0-2, Table 0-3, Table 0-4, Table 0-5, Table 0-6 and Table 0-7 below. Flexibility may be appropriate for the alignment of individual triggers. This may involve slight delays and/or moving forward of individual scheme triggers to achieve a consistent service area approach where appropriate, and consideration of rural extractors' stage of ceased to pump arrangements.

Table 0-1: Drought Level & associated response strategy

Drought Level	Staged Drought Response Strategy
Permanent water conservation measures	0 - 5 % reduction in consumption - Consumption target of 170 L/person/day - Current average is 175 L/person/day
1 Moderate	- Reduce outside water use 5 - 10 % reduction in consumption - Consumption target of 160 L/person/day
2 High	- Reduce outside water use 10 -20 % reduction in consumption - Consumption target of 140 L/person/day
3 Very High	- Very high reduction of outside usage 20 - 30 % reduction in consumption - Consumption target of 125 L/person/day
4 Severe	- Eliminate all outside usage and limit indoor usage 30 - 40 % reduction in consumption - Consumption target of 110 L/person/day
5 Emergency	- Supply water only for health and safety 40 - 50 % reduction in consumption - Consumption target of < 95 L/person/day

Table 0-2: Manning Water Supply Scheme Drought Triggers

Level	Trigger
1 Moderate	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 90%
2 High	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 80%
3 Very High	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 73%
4 Severe	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 60%
5 Emergency	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage below gravity feed input level OR for specific water supply issue.

Table 0-3: Stroud Water Supply Scheme Drought Triggers

Level	Trigger
1 Moderate	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 100%
2 High	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 85%
3 Very High	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 75%
4 Severe	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 65%
5 Emergency	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 50% OR for specific water supply issue

Table 0-4: Gloucester Water Supply Scheme Drought Triggers

Level	Trigger
1 Moderate	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
2 High	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
3 Very High	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
4 Severe	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
5 Emergency	- Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency OR for specific water supply issue

Table 0-5: Bulahdelah Water Supply Scheme Drought Triggers

Level	Trigger
1 Moderate	Drawing only from storage in weir pool
2 High	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
3 Very High	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
4 Severe	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
5 Emergency	- Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation OR for specific water supply issue

Table 0-6: Tea Gardens Water Supply Scheme Drought Triggers

Level	Trigger
1 Moderate	As per Manning Water Supply Drought Level for consistency or location specific situation
2 High	As per Manning Water Supply Drought Level for consistency or location specific situation
3 Very High	As per Manning Water Supply Drought Level for consistency or location specific situation
4 Severe	As per Manning Water Supply Drought Level for consistency or location specific situation
5 Emergency	For specific water supply issue

Table 0-7: North Karuah Water Supply Drought Triggers

Level	Trigger
1 Moderate	As per Hunter Water ¹
2 High	As per Hunter Water ¹
3 Very High	As per Hunter Water ¹
4 Severe	As per Hunter Water ¹
5 Emergency	As per Hunter Water ¹

¹ MidCoast Council purchases water from Hunter Water and distributes via MidCoast Council assets located in North Karuah.

Table 0-8: Drought contingency and emergency response action plan

Scheme	Emergency response
All	Community engagement and education program around water conservation, with ambitious water efficiency targets tied to each restriction level
Manning	Temporary increase in extraction yield from Nabiac Borefield – up to 18 ML/d once Stage 2 upgrade is complete and approvals gained. Emergency approval may be required from NSW Minister for Water (currently Minister for Water, Housing and Homelessness)
	Temporary desalination plant Water drawn from Wallamba River with brine pipeline to ocean discharge (or alternate desalination site near Hallidays STP)
Gloucester	Water carting from Tea Gardens
Bulahdelah	Water carting from Tea Gardens
Stroud	Water carting from Tea Gardens

Demand-Side Actions

Demand-side actions are intended to reduce the water consumption, matching the demand to the diminishing water resources. Restrictions on the use of water are the main actions. Details are provided in Section 4.3.3.

Supply-Side Actions

Supply-side actions aim to supplement the existing water resources with additional water sources. Details of these actions are provided in Section 4.4.

Drought Response Team

The Water Resilience Team will meet as the Drought Response Team during periods of water restrictions as part of the drought response. The team is responsible for managing the activities during drought. Table 4-8 in Section 4.2.2 lists the roles and the responsibilities of the team.

Monitoring

A continuous monitoring program will be implemented during drought to track the availability and quality of water, the demand, and the effectiveness of the response plan. Details are provided in Section 3.4.

Drought Recovery Strategy

The recovery process is set out to support affected communities in the reconstruction of the physical infrastructure and the restoration of emotional, social, economic and physical wellbeing. The recovery actions are described in Section 5.

Contents

Acknowledgement of Country	i
Executive Summary	ii
1 Introduction	1
1.1 Context	1
1.2 This Plan	2
1.3 Drought Planning	3
1.3.1 Objectives of Drought Planning	3
1.3.2 The PRRR Approach	3
2 Drought Prevention Strategy	4
2.1 Overview	4
2.2 Short-Term Actions	4
2.2.1 Water efficiency and education	4
2.2.2 Leakage Reduction	6
2.2.3 Customer feedback	7
2.2.4 Collaboration with irrigators	7
2.2.5 Increasing water security in the short term	7
2.2.6 Drought Water Pricing	9
2.3 Long-Term Actions	9
2.3.1 Manning Water Supply Scheme Long-Term Actions	10
2.3.2 Tea Gardens Water Supply Scheme Long-Term Actions	11
2.3.3 Bulahdelah Water Supply Scheme Long-Term Actions	11
2.3.4 Gloucester Water Supply Scheme Long-Term Actions	12
2.3.5 Stroud Water Supply Scheme Long-Term Actions	13
2.3.6 North Karuah Water Supply Scheme	13
3 Drought Preparedness Strategy	14
3.1 Overview	14
3.2 Exercising Drought Management	14
3.3 Data Availability	14
3.4 Monitoring	15
3.5 Consultation	15
4 Drought Response Strategy	16
4.1 Drought Strategy Action Plan	16
4.1.1 Overview	16
4.1.2 Drought Triggers	16
4.2 Drought Management Team Roles and Responsibilities	21
4.2.1 Activation and Setting Restriction Level	21
4.2.2 Drought Response Team	21
4.3 Demand-Side Action Plan	23
4.3.1 Water Restrictions	23
4.3.2 Demand Targets	24
4.3.3 Demand-Side Activities	24

4.4	Supply-Side Action Plan	29
4.4.1	Staged Action-Plan	29
4.5	Monitoring During Drought	30
4.6	Communication	31
4.6.1	Community Engagement	31
4.6.2	Agencies	32
4.6.3	Other water users and key stakeholders	33
5	Recovery Strategy	34
6	Water Supply Schemes	35
6.1	Location	35
6.2	Alternate Water Supply Options	36
6.2.1	Emergency Temporary Desalination	36
6.2.2	Increased use of recycled water	36
6.2.3	Water Carting	36
6.3	Drought Restrictions History	37
7	Regulatory Framework	38
7.1	MidCoast Council	38
7.2	Water Sharing Plans	38
7.3	Fire Fighting Requirements	38
8	Related Documents	39

Version	Purpose of Document	Reviewed by	Date
1	Internal and DPE Review	MidCoast Council and DPE	May 2023
2	Draft for public exhibition		June 2023

1 Introduction

MidCoast Council (Council) is responsible for delivering safe, secure, efficient, sustainable, and affordable water supply and sewerage services to 40,000 households across the MidCoast.

1.1 Context

In the summer of 2019 – 2020, the MidCoast region experienced a drought like no other.

The combined impact of the worst drought on record and the ‘*Black Summer*’ bushfire crisis triggered the longest continuous period of water restrictions in the MidCoast region, with restrictions in place for five months and 20 days. Level 4 restrictions were also introduced for the first time. Extraction from the Manning River ceased and the level in Bootawa Dam fell to an alarming 30% capacity. The town of Gloucester required water carting from Tea Gardens to service the population with water. At the time, we also had to consider options for new sources of water.

The response highlighted two key learnings: that the events were a reminder for Council to consider a wider range of water security measures, and that our community is willing to collaborate and adapt to change if the need arises.

Following the 2019-20 drought, we have conducted a comprehensive review of our drought response strategy and implemented the following:

- Community education programs that highlight the value of water and promote more efficient water use to collaboratively conserve water
- Increased use of recycled water for stock watering and open space irrigation
- Initiated the Nabiac Borefield expansion project
- Formation of Council’s Water Resilience Team, dedicated to improving the water security across the MidCoast region
- Undertaken a comprehensive review of the Integrated Water Cycle Management (IWCM) Strategy, the long-term strategic plan for the sustainable and affordable delivery of urban water services over the next 30 years.

This Drought Management Plan (DMP) has been developed in order to:

- Provide guidance to staff when managing drought events
- Inform the community of the issues associated with drought management and the community’s role during drought

In relation to drought management, the *Regulatory and assurance framework for local water utilities* recommends that Local Water Utilities should:

- Undertake tactical planning to respond to drought as a component of the strategic-level approach to water security planning
- Engage with its customers and community to obtain feedback on its proposed responses to drought
- Undertake planning for drought that is consistent with its planning for incidents, emergencies and extreme events
- Consider risk holistically across its whole business when planning for drought.

This DMP, together with the IWCM Strategy and associated community engagement actions, ensures sound management in the strategic planning outcome area of planning for drought.

1.2 This Plan

This DMP provides a combination of long-term and short-term management actions to respond to drought incidents and nominates who is responsible for acting upon those situations. The aims of this plan are to:

- Ensure that timely warning can be provided to the appropriate authorities and other stakeholders (including customers) in a drought event
- Provide relevant information for use in response to a situation when water availability becomes a concern
- Identify customer groups who have different requirements during droughts, for example hospitals and schools
- Outline procedures to Council staff so they can respond to and mitigate drought related issues
- Enable timely warning to appropriate personnel to implement appropriate actions
- Document how Council will manage the water supply scheme during water shortages due to drought

This plan has several uses:

- As an operational plan for water supply management during drought
- As an authorised approach to drought management enabling staff to act knowing that necessary actions have been endorsed beforehand
- As the basis for government grant applications to address the needs identified in this plan

- As the basis of a public awareness and community communication tool for use by Council to demonstrate transparent and responsible drought management

The plan includes strategies specific to the MidCoast water supply.

1.3 Drought Planning

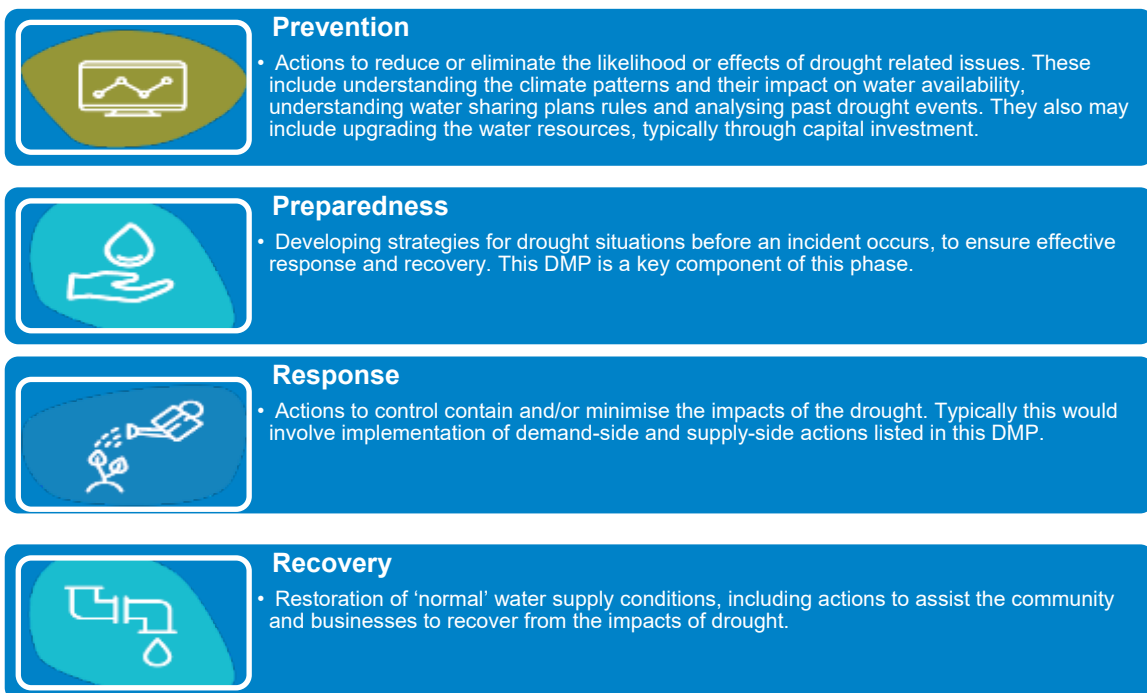
1.3.1 Objectives of Drought Planning

Drought planning is an emergency response plan that aims to reduce the impact of water scarcity on the community, business, economy and environment.

1.3.2 The PRRR Approach

This plan is based on a four-step approach referred to as PRRR (prevention, preparation, response and recovery) approach. The PRRR is a continuous process that involves effectively integrating implementation strategies before (i.e., prevent and prepare), during and after drought events with particular emphasis on response and recovery.

An overview of the four phases is provided below:



This plan describes the actions that Council will implement in the prevention, preparedness, and response and recovery stages of a drought incident.

2 Drought Prevention Strategy

2.1 Overview

Drought prevention actions are proactive measures that Local Water Utilities can undertake in order to increase coping capacity. Prevention actions may be implemented prior to drought or during drought-declared periods. This will be determined at Council's discretion.

During drought, existing water resources are expected to decrease at a rate dependent on the respective water demand rate at a particular water restriction level. While current water resources are diminishing, other supply options may be considered as potential alternatives for supplementary or emergency water sources.

It should be noted that common thinking is that a drought is caused by external forces only. But for a utility, a drought is water shortage and therefore it can be prevented or delayed. Strategies to address drought generally fall into one of three categories: storage solutions, new water sources and demand management.

2.2 Short-Term Actions

2.2.1 Water efficiency and education

The MidCoast region already has a relatively low average usage per person per day. This has been influenced by initiatives including the second step water usage charge, the previous Smart Water Rebate Program, uptake of more water efficient devices, the requirements for new developments under the Building Sustainability Index (BASIX), including uptake of rainwater tanks, and improvements in water behaviour. However, Council is targeting improvements in water efficiency, both at the customer level and to reduce leakage in the network.

One of the clear messages we heard from young people in our area was around increased personal responsibility for water efficiency and doing more at home to use less water. In line with this, a *'permanent water conservation program'* will be established as part of Council's water efficiency strategy. These include:

- Don't spray in the middle of the day
 - You won't lose so much to evaporation and your plants will get more
 - Use sprinklers and irrigation before 9am and after 5pm
- If you can't avoid watering in the middle of the day, use a handheld hose with trigger nozzle, a watering can or a bucket
- If you must use water on paving, windows and buildings; please use a bucket and mop or a high-pressure low volume cleaner

- Wash your vehicle on the lawn or other porous surface

Council is committed to working with the MidCoast community to reduce water use via an ongoing water education and behaviour change program. This program has the following goals:

1. To foster a sense of pride and ownership in the MidCoast's natural water sources
2. To reduce water use across the MidCoast LGA
3. To increase understanding among stakeholders of Council's water and sewer services
4. To establish an informed conversation about the need to consider climate-independent water supply options on the MidCoast

These goals will be achieved with the following objectives:

- To educate stakeholders about the source of their water
- To build stakeholder understanding of fundamental water-related terms and concepts
- To inspire stakeholder appreciation for the MidCoast's natural water sources
- To promote water-efficient behaviour
- To promote water-efficiency measures
- To educate stakeholders about emerging water-efficient technology.
- To educate stakeholders about the connection between their properties and Council's water and sewer networks
- To educate stakeholders about what their water and sewer accounts pay for and build confidence in Council's ability to manage their water and sewer services.
- To inform and educate stakeholders about Council infrastructure projects
- To educate stakeholders about the need to protect the sewer system
- To educate stakeholders about climate-independent water sources
- To inform stakeholders of the increasing need to explore climate-independent water sources.
- To address natural bias when considering recycled water supplies and the opportunities for potable reuse

This will be achieved through a range of actions, including:

- Council's roles of Water Education and Communication Officer and Water Resilience Officer

- Ongoing social media education program, including Facebook and Instagram
- Water source information on customer accounts and quarterly billing newsletter items
- Natural water source signage on public water assets
- Water-saving signage for hotels, motels and resorts
- Fridge magnets for householders
- Information on Council website
- E-newsletters to subscribers
- Educational videos, working with schools, National Water Week events, downloadable online learning material, colouring-in and art competitions
- Displays and pop-up information at community events
- Community tours of treatment plants
- Schools Clean Up Day activities
- Whizzy visits to early primary school groups, including giveaways with Whizzy visits
- Working with large water users and non-residential customers, including providing advice on how to be more efficient in different types of businesses

Council is also targeting reducing the amount of water used at Council sites and operations, including:

- Using recycled water at treatment plants for potable substitution, where available
- Identifying efficiencies in water use, such as more efficient irrigation systems and irrigation programs and water mains flushing
- Disinfection of repaired and new water mains using ozone rather than chlorination

When the water source's availability is approaching the level that would trigger the implementation of water restrictions, Council will use the media to communicate the importance of using water saving measures, especially in times approaching drought.

2.2.2 Leakage Reduction

Council will target reducing leaks in the networks by:

- Implementing projects and programs supported by the Regional Leakage Reduction Program:

- Pressure reduction, including identification of high-pressure zones and use of pressure reducing valves
- Active leakage control
- Non-revenue water reduction, including awareness training for staff
- Installing smart water meters for large water users and customers with long poly-line connections where there is risk of leaks is high. This is a continuation of the residential smart meter rollout that was undertaken at Stroud Road
- Installation of bulk flow meters to monitor flows and find leaks
- Reducing losses at Council sites by installing smart meters at treatment plants and swimming pools, finding and fixing leaks.

2.2.3 Customer feedback

With declining water resources and poor rainfall outlook, customers and the community should be advised on the current usage and likely impending time that a drought maybe declared. This ensures the drought conditions and potential water restrictions are known by the public and they have an opportunity to change their behaviour early.

2.2.4 Collaboration with irrigators

Council will collaborate and coordinate with main irrigator user groups in the Barrington and Lower Manning and ensure the rural extractors are planning appropriate restrictions and cease to pump actions to preserve source water as long as possible.

2.2.5 Increasing water security in the short term

Council has identified the following improvements to the water supply system in the short term to access additional water during time of drought. These are either complete, underway or have been programmed for implementation, and are described below.

Manning Water Supply Scheme

- Works have been undertaken at Bootawa Dam to allow water to be sourced from below the gravity feed input level
- Intermittent operation of river pumps to extract any available water in the river
- Expansion of the Nabitac borefield and upgrade of the Nabitac water treatment plant to allow extraction and treatment of up to 18 ML/d

Tea Gardens Water Supply Scheme

No short term system improvements relating to water security have been identified for the Tea Gardens Water Supply Scheme as it has been deemed to have sufficient water security for the next 30 years.

Bulahdelah Water Supply Scheme

No short term system improvements relating to water security have been identified for the Bulahdelah Water Supply Scheme. Water could be carted to Bulahdelah from Tea Gardens (or the Manning Scheme once it has sufficient water security) if needed.

Gloucester Water Supply Scheme

No short term system improvements relating to water security have been identified for the Gloucester Water Supply Scheme. This scheme is run of the river with no off-stream storage infrastructure available. Water sourced from Barrington River is pumped from a trunnion which, as part of normal operations, is raised and lowered with respect to the river level. When river flow is low, the trunnion is lowered to a pool in the bottom of the river.

Water can be carted to Gloucester from Tea Gardens (or the Manning Scheme once it has sufficient water security) if needed.

Stroud Water Supply Scheme

No short term system improvements relating to water security have been identified for the Stroud Water Supply Scheme.

Water can be carted to Stroud from Tea Gardens (or the Manning Scheme once it has sufficient water security) if needed.

2.2.6 Drought Water Pricing

Council will consider the introduction of scarcity pricing before and/or during drought to reduce discretionary water use (possibly a two-step usage charge). The price signal also communicates to customers the seriousness of the event.

Council will monitor the impact of the pricing on the demand and assess the effectiveness of this action.

Trigger: The wider roll out of SMART meters would be critical to monitoring water usage and the application of drought water pricing.

2.3 Long-Term Actions

Council has adopted the level of service (LOS) rule '5/10/10' from the *Assuring future urban water security: Assessment and adaption guidelines for NSW local water utilities* published by the NSW Office of Water. It requires water security planning on the basis of:

- Total time spent in drought restrictions should be no more than 5 percent of the time
- Restrictions should not need to be applied in more than 10 percent of years, and
- An average reduction of 10 percent in water usage during restrictions

Secure yield modelling was undertaken for each of MidCoast's water supply schemes. The modelling showed that the Manning, Gloucester, Stroud and Bulahdelah schemes do not have sufficient water security for the next 30 years, taking into account predicted population growth and climate change impacts.

Council currently sources water from the Manning River when extraction is possible, i.e. when Manning River flow rates are healthy and river water quality is optimal. Water can be either treated directly at the Bootawa Water Treatment Plant or in stored in Bootawa Dam for treatment and distribution when needed. The scheme is complimented with ground water from the Napiac Inland Dune Aquifer which is treated at the Napiac Water Treatment Plant and can supply up to an additional 8 ML per day.

Once the long-term actions are implemented, this Drought Contingency and Emergency Response Plan will be reviewed. Water restriction triggers and consumption targets will be revised.

2.3.1 Manning Water Supply Scheme Long-Term Actions

Table 2-1 – Manning Water Supply Scheme long term actions

Current situation	Raw water is sourced from the Manning River and pumped to Bootawa Dam which is off-stream storage with a capacity 2,275ML. Raw water is also sourced from the Nabitac Inland Dune Aquifer. The current average year demand is 6,085 ML and the current secure yield of the Manning scheme, including the Nabitac system, is 6,096 ML/y. Expansion of the Nabitac borefield and upgrade of the Nabitac Water Treatment Plant (Stage 2 upgrade) is underway which will allow extraction and treatment of up to 18 ML/d. This will increase the secure yield but there will still be a deficit in coming years due to the operating constraints around extracting from the borefield. The upgrade is a short-medium term drought solution.
Description of solution	Design and construction a new off-river storage dam at Peg Leg Creek with a volume of at least 5 GL. The adaptive pathway (refer to IWCM Strategy) also identifies desalination and purified recycled water as long-term options should certain triggers be activated (e.g., approval not gained for a new off-river storage dam or a severe drought occurs in the short term).
Towns supplied	From Coopernook in the north to Pacific Palms in the south to Krambach in the west.
Secure yield	The new storage dam will add sufficient secure yield to cater for annual demands into the future. Secure yield without Peg Leg in 2051 has been estimated to be 5,807 ML and with an additional 5 GL of storage, it would be 12,571 ML. The average year demand in 2051 is estimated to be 10,695 ML.
Timing	The long-term solution for the Manning scheme is required as soon as practically possible as the secure yield deficit currently exists.
Benefits	The future long-term solution will secure the water supply for the entire Manning scheme. Securing our water supply for the Manning will have the added benefit of allowing us to move to a more sustainable extraction regime for the Manning River.
Issues	Some risk of severe water restrictions until Stage 2 of the Nabitac scheme is complete. The existing secure yield does not meet the current and future demands. The current situation carries a high risk of not being able to supply water during a drought period.

2.3.2 Tea Gardens Water Supply Scheme Long-Term Actions

The Tea Gardens Water Supply Scheme has sufficient secure yield and so has no water security issue.

Table 2-2 – Tea Gardens Water Supply Scheme long term actions

Current situation	Raw water is sourced from the Tea Gardens aquifer. Secure yield is 1,642 ML/year and estimated annual average demand in the year 2051 is 1,036 ML/year.
Description of solution	No secure yield solution required
Towns supplied	Tea Gardens and Hawks Nest

2.3.3 Bulahdelah Water Supply Scheme Long-Term Actions

Council is planning for an additional 200 million litres of raw water off river storage at Bulahdelah.

Table 2-3 – Bulahdelah Water Supply Scheme long term actions

Current situation	Raw water is sourced from the Crawford River Weir; a 228 ML on-river storage. This currently supplies a secure yield of 139 ML/year. The estimated annual average demand in the year 2051 is 173 ML/year
Description of solution	1x 200 ML off-river storage
Towns supplied	Bulahdelah
Secure yield	The new storage dam will add sufficient secure yield to cater for annual demands into the future. Secure yield without additional storage in 2051 has been estimated to be 139 ML and with an additional 200 ML of storage, it would be 179 ML.
Timing	1 x 200 ML storage dam by 2036
Benefits	The off-stream storage dam will lessen the risk of severe water restrictions and will secure the water supply for Bulahdelah.
Issues	Some risk of severe water restrictions until storage dams are constructed. The existing secure yield does not meet future demands. The current situation carries a high risk of not being able to supply water during a drought period over the coming years.

2.3.4 Gloucester Water Supply Scheme Long-Term Actions

Council is currently constructing additional treated water storages at Gloucester with reservoirs at Cemetery Road with a total volume of 7.5 ML. Whilst treated water storage is not considered in the secure yield value, it does provide some additional water storage for the town.

The long term solution is for a 250 ML off-stream storage dam to be constructed.

Table 2-4 – Gloucester Water Supply Scheme long term actions

Current situation	Raw water is sourced from the Barrington River. Water security was not achieved under present day conditions. Without intervention, it is likely that water security would also not be achieved under future state conditions where the town's demands are predicted to increase and where climate change may cause longer droughts. The estimated annual average demand in the year 2051 is 436 ML/year
Description of solution	Additional 250 ML of storage
Towns supplied	Gloucester and Barrington
Secure yield	The new storage dam will add sufficient secure yield to cater for annual demands into the future. Secure yield with additional 250 ML storage in 2051 has been estimated to be 463 ML
Timing	250 ML off-stream storage by 2034
Benefits	The additional storage will lessen the risk of severe water restrictions and will secure the water supply for Gloucester.
Issues	Some risk of severe water restrictions until additional storage is constructed. The secure yield relies on the 'run of the river' and there is a risk of not being able to supply water during a drought period.

The Barrington River ceased flowing during the 2019-20 drought and water had to be carted in from Tea Gardens to maintain supply. There is currently an agreement between Council and the Barrington Irrigators Group that extraction for irrigation will cease when the river flow is <15 ML/d at the Forbesdale river flow gauging station. This is undertaken on a voluntary basis to protect town water supply.

There is a Water Sharing Plan for the Manning catchment, which will apply on the Barrington River. This would see cease to pump rules implemented at the 98%ile, once off-stream storage is constructed at Gloucester.

2.3.5 Stroud Water Supply Scheme Long-Term Actions

Council is planning for an additional 100 ML of raw water storage at Stroud within the 30 year planning horizon.

Table 2-5 – Stroud Water Supply Scheme

Current situation	Raw water is sourced from the Karuah River and utilises an off-stream 50 ML storage and on-river storage of usage capacity of about 8 ML. This supplies a secure yield of 47 ML/year. The estimated annual average demand in the year 2051 is 135 ML/year
Description of solution	2 x additional 50ML off-river storages in stages
Towns supplied	Stroud and Stroud Road
Secure yield	The new storage dams will add sufficient secure yield to cater for annual demands into the future. Secure yield without additional storage in 2051 has been estimated to be 46 ML and with an additional 100 ML of storage, it would be 139 ML.
Timing	2 x 50ML storage dams within 30 years
Benefits	Once 100 ML of additional storage is constructed, there will be additional secure yield of 92 ML/year. The 100 ML storage will lessen the risk of severe water restrictions and will secure the water supply for Stroud and Stroud Road.
Issues	Some risk of severe water restrictions until storage dams are constructed. The existing secure yield does not meet the current and future demands. The current situation carries a high risk of not being able to supply water during a drought period.

2.3.6 North Karuah Water Supply Scheme

Water for the North Karuah Scheme is supplied by Hunter Water and Council will continue to manage the North Karuah scheme.

3 Drought Preparedness Strategy

3.1 Overview

Being prepared for drought is essential to lessen the effect and to enhance the capacity of Council and the community to cope with the consequences of drought. The major benefits of being prepared for incidents or having a sound drought management plan are:

- Having a pre-determined and agreed list of actions to be taken in case of drought situations, allowing for an effective implementation of those actions
- Allows Council to promptly obtain drought relief funds from relevant authorities
- Having well defined protocols of drought restriction activation and escalation

This Drought Management Plan documents Council's preparedness regarding incidents affecting town water supply. The actions described in this plan have been endorsed by Council, therefore in case of emergencies, the appointed staff can quickly activate relevant personnel required to take actions to respond to the problem, to acquire other resources required for drought management and to quickly implement the pre-determined drought response actions outlined in Section 4. The following sections describe some of the ongoing activities that Council undertakes in order to be prepared for drought situations.

3.2 Exercising Drought Management

In order to ensure the ongoing effectiveness of this plan and to prepare staff for emergency situations, a periodic program for exercising drought management will be developed and implemented in conjunction with other emergency training programs. These exercises will be a simulation of drought starting and intensifying, requiring actions.

3.3 Data Availability

The Drought Management Plan includes, as attachments, technical information (i.e. design, operational, maintenance plans) relevant to the water supply system. This is to ensure that in case of emergencies all relevant information is in one document facilitating an effective and prompt response to the problem. A schedule of attachments is provided in Section 9.

These attachments should be updated regularly, as the plans are modified.

3.4 Monitoring

Continuous monitoring of the water sources and water supply schemes is essential to understand the performance of the water sources and their capability of supplying demand. Monitoring of these parameters assists Council in preparing for unconventional situations such as increased water use due to bush fires. In order to ensure a safe and sustainable water supply, the following monitoring is required:

- Drinking water daily demand
- Daily available supply from each source
- Daily monitoring of water supply source (include as relevant)
- Water level at bores
- River flows and depth
- Water level at dam(s) / reservoirs
- Daily temperature and rainfall

3.5 Consultation

Engagement with the community is a critical element of an effective drought management program, as it ensures customer acceptance and behavioural changes, required to reduce water demand.

Council has involved the community, regulators and other groups on discussions around long term solutions during the process to review the Integrated Water Cycle Management Strategy, *Our Water Our Future 2050*, and also during customer surveys. The community will be informed about the Drought Management Plan and the drought action plans in place. This will assist the community to understand the critical importance of drought management actions and the need to conserve water.

Regular meetings will be held with other users sharing the river and aquifer / water sharing plan in order to explore areas of common interest in respect to longer term drought management.

4 Drought Response Strategy

The response strategy consists of implementing appropriate actions to control, contain or minimise the impacts of droughts. The implementation of the Drought Contingency and Emergency Response Plan including identifying and reviewing situations, overseeing the implementation of supply and demand actions, approving media releases and reviewing operations will be the responsibility of the Drought Response Team.

4.1 Drought Strategy Action Plan

4.1.1 Overview

The drought response strategy will be activated in an event when the water supply is affected due to natural climate conditions.

The main scenario that would activate a drought management response, including the introduction of supply restrictions, is water scarcity. Scarcity for each of Council's schemes is defined in the next section.

4.1.2 Drought Triggers

Triggers are the situations that will activate the response strategy plan. These triggers initiate demand-side actions which are expected to reduce the demand to a target daily demand (Table 4-1). If the demand reduction is not achieved by the introduction of the restrictions for each level, the next level should be applied. Restriction implementation also considers situational demand analysis, season and forecast weather conditions.

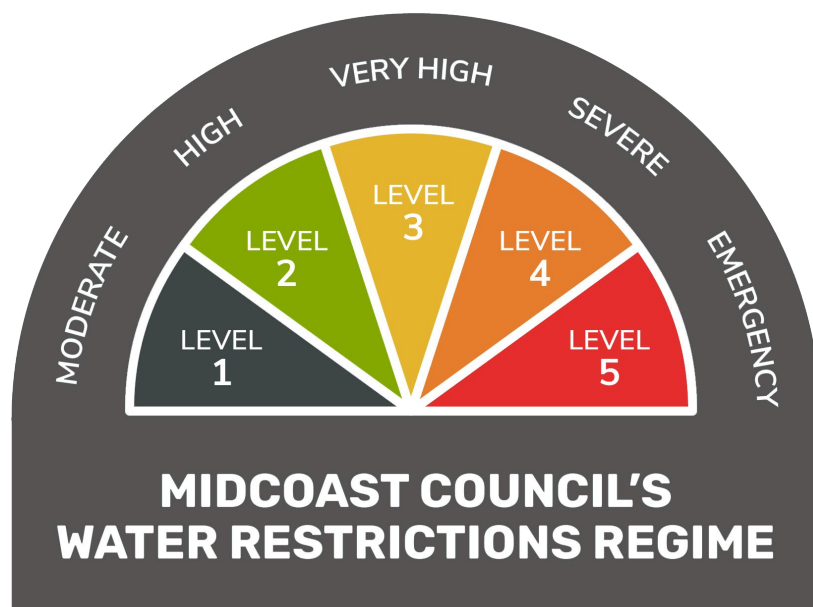


Table 4-1: Drought Level & Associated Response Strategy

Drought Level	Staged Drought Response Strategy
Permanent water conservation measures	• 0 - 5 % reduction in consumption • Consumption target of 170 L/person/day • Current average is 175 L/person/day
1 Moderate	• Reduce outside water use • 5 - 10 % reduction in consumption • Consumption target of 160 L/person/day
2 High	• Reduce outside water use • 10 -20 % reduction in consumption • Consumption target of 140 L/person/day
3 Very High	• Very high reduction of outside usage • 20 - 30 % reduction in consumption • Consumption target of 125 L/person/day
4 Severe	• Eliminate all outside usage and limit indoor usage • 30 - 40 % reduction in consumption • Consumption target of 110 L/person/day
5 Emergency	• Supply water only for health and safety • 40 - 50 % reduction in consumption • Consumption target of < 95 L/person/day

The triggers are based on progressive reductions in water availability. The triggers for implementing drought restrictions are provided in Table 4-2, Table 4-3, Table 4-4, Table 4-5, Table 4-6, and Table 4-7 for each of Council's water supply schemes.

NOTE: Previously, Council did not utilise Level 2 to align with water restriction levels that have been developed by other North Coast Councils. However, Level 2 was utilised during the 2019-20 and so has been adopted as part of this revised Drought Contingency and Emergency Response Plan.

Table 4-2: Manning Water Supply Scheme

Level	Trigger
1 Moderate	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 90%
2 High	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 80%
3 Very High	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 73%
4 Severe	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage < 60%
5 Emergency	- Manning River flow (@ Killawarra) < 35 ML/day AND - Bootawa Dam Storage below gravity feed input level OR for specific water supply issue

Table 4-3: Stroud Water Supply Scheme

Level	Trigger
1 Moderate	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 100%
2 High	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 85%
3 Very High	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 75%
4 Severe	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 65%
5 Emergency	- Karuah River (@ Booral) < 3.5 ML/day AND - Stroud Off-stream storage < 50% OR for specific water supply issue

Table 4-4: Gloucester Water Supply Scheme

Level	Trigger
1 Moderate	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
2 High	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
3 Very High	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
4 Severe	Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency
5 Emergency	- Barrington River (@ Forbesdale) < 30 ML/day or as per Manning Water Supply Drought Level for consistency OR for specific water supply issue

Table 4-5: Bulahdelah Water Supply Scheme

Level	Trigger
1 Moderate	Drawing only from storage in weir pool
2 High	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
3 Very High	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
4 Severe	Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation
5 Emergency	- Drawing only from storage in weir pool or as per Manning Water Supply Drought Level for consistency or location specific situation OR for specific water supply issue

Table 4-6: Tea Gardens Water Supply Scheme

Level	Trigger
1 Moderate	As per Manning Water Supply Drought Level for consistency or location specific situation
2 High	As per Manning Water Supply Drought Level for consistency or location specific situation
3 Very High	As per Manning Water Supply Drought Level for consistency or location specific situation
4 Severe	As per Manning Water Supply Drought Level for consistency or location specific situation
5 Emergency	For specific water supply issue

Table 4-7: North Karuah Water Supply

Level	Trigger
1 Moderate	As per Hunter Water ¹
2 High	As per Hunter Water ¹
3 Very High	As per Hunter Water ¹
4 Severe	As per Hunter Water ¹
5 Emergency	As per Hunter Water ¹

1 MidCoast Council purchases water from Hunter Water and distributes via MidCoast Council assets located in North Karuah

Table 4-8: Drought Contingency and Emergency Response Action Plan

Scheme	Emergency response
All	Community engagement and education program around water conservation, with ambitious water efficiency targets tied to each restriction level
Manning	Temporary increase in extraction yield from Napiac Borefield – up to 18 ML/d once Stage 2 upgrade is complete and approvals gained. Emergency approval may be required from NSW Minister for Water (currently Minister for Water, Housing and Homelessness)
	Temporary desalination plant Water drawn from Wallamba River with brine pipeline to ocean discharge (or alternate desalination site near Hallidays STP)
Gloucester	Water carting from Tea Gardens
Bulahdelah	Water carting from Tea Gardens
Stroud	Water carting from Tea Gardens

4.2 Drought Management Team Roles and Responsibilities

4.2.1 Activation and Setting Restriction Level

Council's General Manager, in consultation with the Mayor, can proclaim this Drought Contingency and Emergency Response Plan to be in force once the Manager Water Management and Treatment determines that Trigger 1 has been reached.

The General Manager, together with the Mayor, have the authority to change the restriction levels on the advice of the Chair of the Drought Management Team.

4.2.2 Drought Response Team

The Drought Response Team was established during the 2019-20 drought and is meets as the Water Resilience Team during periods of no water restrictions.

Table 4-9: Drought Management Team Roles and Responsibilities

Role	Position	Responsibility
Chair	Level 1-2: Manager Water Planning &	• Coordinate the activities of the team • Communicate with Council • Communicate with government agencies – high level
	Level 3-4: Executive Manager	
	Level 5: General Manager	
Incident Manager	Level 1-5: Manager Water Management and Treatment	• Monitor and assess data • Provide an assessment of the situation • Brief the Drought Response Team Chair and Council • Allocate roles to team members, including stand-ins • Prioritise tasks and develop response actions • Ensure adequate facilities and resources – both specialist and support • Communicate with stakeholders, rural extractors, neighbouring LWUs, government agencies and major customers – action level • Hold regular team meetings, and chair if the Chair is not available • Monitor the use of actions and their effectiveness • Monitor team member performance and take action if required • Determine completion of the response phase, and commence recovery • Post incident- coordinate review of incident and update of the Drought Management Plan
Communication Manager	Communications and Engagement Coordinator	• Support the Drought Response Team Chair and Incident Manager with communication • Prepare communication material as appropriate • Issue media statements and interviews if appropriate • Maintain media database including social networks • Monitor and manage social networks communication

Role	Position	Responsibility
Administrative Support	Business Support Officer	- Record keeping - Prepare progress reports for Drought Response Team members - Provide administrative support, telephone answering, email first review and - General office duties - Attend and minute meetings
Support Team	Water Education & Communication Officer	Support the Incident Manager and Chair
	Co-ordinator Water Quality & Process	
	Water Project Delivery Coordinator	
	Water Asset Planning Coordinator	
	Water Planning Engineer	

4.3 Demand-Side Action Plan

4.3.1 Water Restrictions

Water restrictions aim to reduce water demand by customers through regulating the type and duration of water-using activities. If not specifically mentioned otherwise, the restrictions of each level apply to all higher levels. For example, unattended hoses are prohibited for Level 1, and unattended hoses are also prohibited for the higher levels.

4.3.2 Demand Targets

Demand targets are shown in Table 4-9.

Table 4-10: Summary of demand targets per usage type

Usage type	Domestic	Commercial	Public
Permanent water conservation measures	5% 170 L/person/day	5%	5%
1 Moderate	10% 160 L/person/day	10%	30%
2 High	20% 140 L/person/day	30%	50%
3 Very High	30% 125 L/person/day	50%	80%
4 Severe	40% 110 L/person/day	>50%	100%
5 Emergency	50% < 95 L/person/day	100%	100%

4.3.3 Demand-Side Activities

Restrictions for drought levels are specified in Table 4-10, Table 4-11 and Table 4-12.

During severe drought or an emergency, restrictions are specifically nominated by MidCoast Council.

Table 4-11: Domestic Water Restriction Table

Restriction	Permanent water conservation measures (Target 5% reduction)	1 Moderate (Target 10% reduction)	2 High (Target 20% reduction)	3 Very High (Target 30% reduction)	4 Severe (Target 40% reduction)	5 Emergency (Target 50% reduction)
Outside uses						
Unattended hoses	Avoid	Total ban	Total ban	Total ban	Total ban	Total ban
Garden irrigation systems, including sprinklers	Use before 9am and after 5pm	15 minutes every second day¹ , outside 9am and 5pm as part of your 1 hour allocation	15 minutes every second day¹ , outside 9am and 5pm as part of your 30 minute allocation	Total ban	Total ban	Total ban
Hand-held hoses						
<i>Each of the uses listed below count as one hand-held hose</i>	Use a hand-held hose with a trigger nozzle or a bucket any time throughout the day. Buckets and watering cans can be used at any time.	One hose for up to 1 hour every second day¹ , outside 9am and 4pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used at any time.	One hose for up to 30 minutes every second day¹ , outside 9am and 4pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used at any time.	One hose for up to 10 minutes only every second day¹ , outside 9am and 4 pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used as part of 10 min allocation.	Total ban Only recycled or grey water to be used outside on garden and lawns	Total ban Only recycled or grey water to be used outside on garden and lawns
Car or boat washing	On lawn or porous surface where possible. Always use a trigger nozzle hose or low flow high pressure hose.	Trigger hose rinse only, bucket wash. On lawn or porous surface where possible.	Trigger hose rinse only, bucket wash. On lawn or porous surface where possible.	Trigger hose rinse only, bucket wash. On lawn or porous surface where possible.	NO car or boat washing. Only allowed for health and safety (e.g., windscreens and lights), buckets only	NO car or boat washing. Only allowed for health and safety (e.g., windscreens and lights), buckets only
Boat motor flushing	On lawn or porous surface where possible.	Up to 5 minutes on lawn area only	Up to 5 minutes on lawn area only	Up to 5 minutes on lawn area only	Permitted for 3 minutes on lawn area only	Permitted for 3 minutes only, using a container to recycle the flushing water
Topping up pools	Always use a trigger nozzle hose When topping up pool NEVER leave pool hose unattended. Use a pool cover to reduce evaporation	Topping up permitted with hand-held trigger nozzle hose as part of max 1 hour hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Topping up permitted with hand-held trigger nozzle hose as part of max 30 minute hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Topping up permitted with hand-held trigger nozzle hose as part of max 10 minute hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Swimming pools not to be topped up with town water ² . Use a pool cover to reduce evaporation.	Swimming pools not to be topped up with town water ² . Use a pool cover to reduce evaporation.
First fill of new pools (or refilling an existing pool from empty)	Always use a trigger nozzle hose. When filling up pool NEVER leave pool hose unattended	<i>For newly constructed pools see water restrictions for businesses - Construction.</i> Refilling an existing pool from empty is not permitted	<i>For newly constructed pools see water restrictions for businesses - Construction.</i> Refilling an existing pool from empty is not permitted	<i>For newly constructed pools see water restrictions for businesses - Construction.</i> Refilling an existing pool from empty is not permitted	Total ban	Total ban
Cleaning driveways, paved areas, windows, walls, and hard surfaces	Use a bucket, trigger nozzle hose or 9L (low flow) high pressure hose	Bucket only <i>For trades such as roof cleaners, driveway cleaners, window washers, painters - see water restrictions for businesses</i>	Bucket only <i>For trades such as roof cleaners, driveway cleaners, window washers, painters - see water restrictions for businesses</i>	Bucket only <i>For trades such as roof cleaners, driveway cleaners, window washers, painters - see water restrictions for businesses</i>	Total ban	Total ban
Watering of lawns and gardens	Use a hand-held hose with a trigger nozzle or a bucket any time throughout the day. Buckets and watering cans can be used at any time.	One hose for up to 1 hour every second day¹ , outside 9am and 4pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used at any time.	One hose for up to 30 minutes every second day¹ , outside 9am and 4pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used at any time.	One hose for up to 10 minutes only every second day¹ , outside 9am and 4 pm. <i>If you don't normally water outside, there is no need to start doing so.</i> Buckets and watering cans can be used as part of 10 min allocation.	Only use buckets or watering cans containing recycled or grey water	Only use buckets or watering cans containing recycled or grey water

Restriction	Permanent water conservation measures (Target 5% reduction)	1 Moderate (Target 10% reduction)	2 High (Target 20% reduction)	3 Very High (Target 30% reduction)	4 Severe (Target 40% reduction)	5 Emergency (Target 50% reduction)
New turf	Please read our <i>Turf Fact Sheet</i> You must apply for an exemption when installing new turf in water restrictions	Please read our <i>Turf Fact Sheet</i> You must apply for an exemption when installing new turf in water restrictions	Please read our <i>Turf Fact Sheet</i> You must apply for an exemption when installing new turf in water restrictions	Please read our <i>Turf Fact Sheet</i> You must apply for an exemption when installing new turf in water restrictions	Total ban	Total ban
Rainwater tanks (topped up with town water)	Comply with <i>permanent water conservation measures</i>	Comply with outside restrictions	Comply with outside restrictions	Comply with outside restrictions	Comply with outside restrictions	Comply with outside restrictions
Recycled water	Gardens only with recycled water	Gardens only with recycled water	Gardens only with recycled water	Gardens only with recycled water	Gardens only with recycled water	Gardens only with recycled water
Garden ponds	Filling or topping up permitted with hand-held trigger nozzle hose. Hose must be attended at all times	Permitted as part of 1 hour allocation every second day ¹ , Hose must be fitted with a trigger nozzle and attended at all times Watering can or bucket top ups at any time.	Permitted as part of 30 minute allocation every second day ¹ , Hose must be fitted with a trigger nozzle and attended at all times Watering can or bucket top ups at any time.	Watering can or bucket top ups only	Not permitted	Not permitted
Fountains	Before installing a fountain in your garden, please be aware that during water restrictions there is a total ban on filling/topping up your fountain.	Total ban	Total ban	Total ban	Total ban	Total ban
Inside uses						
Showers	<i>Be water wise. 5 min showers and consider collecting shower water in a bucket for use on garden</i>	<i>Be water wise. 5 min showers and consider collecting shower water in a bucket for use on garden</i>	<i>Be water wise. 5 min showers and consider collecting shower water in a bucket for use on garden</i>	<i>Be water wise. 4 to 5 min showers and consider collecting shower water in a bucket for use on garden</i>	4 min showers, stop start for hair washing. One shower per person per day. Consider collecting shower water in a bucket for use on garden or in toilet	2 min showers, stop start for hair washing. One shower per person per day. Consider collecting shower water in a bucket for use on garden or in toilet
Baths	<i>Be water wise</i>	<i>Be water wise</i>	<i>Be water wise</i>	<i>Be water wise</i>	Avoid using your bath if possible, 50mm depth maximum if required.	Avoid using your bath if possible. 40mm depth maximum if required.
Clothes washing	<i>Be water wise – full loads encouraged</i>	<i>Be water wise – full loads encouraged</i>	<i>Be water wise – full loads encouraged</i>	<i>Be water wise – full loads encouraged</i>	Full loads only permitted, consider recycling your grey water for your toilet or garden	Full loads only permitted, one load per person every 4 days, use economy or short cycle, consider recycling your grey water for your toilet or garden
Toilets	<i>Be water wise</i>	<i>Be water wise</i>	<i>Be water wise</i>	<i>Be water wise</i>	<i>Be water wise</i>	Per person – 3 x half flushes per day, and 1 x full flush per day
Dishwashing	<i>Be water wise – full dishwasher loads encouraged</i>	<i>Be water wise – full dishwasher loads encouraged</i>	<i>Be water wise – full dishwasher loads encouraged</i>	<i>Be water wise – full dishwasher loads encouraged</i>	Full dishwasher loads only permitted	Allow 15L – preferable to wash up in sink or one full dishwasher load, use economy or short cycle
Teeth brushing	<i>Be water wise. Do not leave tap running – use a cup</i>	<i>Be water wise. Do not leave tap running – use a cup</i>	<i>Be water wise. Do not leave tap running – use a cup</i>	<i>Be water wise. Do not leave tap running – use a cup</i>	<i>Be water wise. Do not leave tap running – use a cup</i>	<i>Be water wise. Do not leave tap running – use a cup</i>

1 - On odd or even days matching house numbers. NO domestic outside use on 31st of the month

2 - Consult your pool supplier for advice on managing your pool equipment. You could use the water caught in a bucket in your shower while waiting for the hot water to come through as pool top up water.

Table 4-12: Commercial/Industrial Water Restriction Table

Businesses should refer to the domestics/residential Permanent Water Conservation Measures outside of periods of water restrictions and to business water efficiency advice on our website.

Restriction		1 Moderate (Target 10% reduction)	2 High (Target 30% reduction)	3 Very High (Target 50% reduction)	4 Severe (Target > 50% reduction)	5 Emergency (Target >50% reduction)
Nurseries, market gardens, turf farm irrigation	Irrigation Systems	Banned between 9am and 5pm	Banned between 9am and 5pm	Banned between 6am and 6pm	Apply for written exemption, water to be used and demonstrate how water saving is achieved and why alternate water sources are not available. Reduce stock, consider drought tolerant species, no new pottings.	Total ban
	Hand-held hoses	Anytime	Anytime	Anytime		Total ban, recycled water may be used
Commercial/ industrial production water		No restrictions on production water	Water only for essential production	Water only for essential production	Business designated by Council must implement and comply with Water Management Plan to achieve target	Business designated by Council must implement and comply with Water Management Plan to achieve target
Commercial/ industrial inside use, including preschools, child-care, hospitals, nursing homes, aged care, motels, caravan parks, hotels, clubs		Permitted	Permitted	Permitted	Business designated by Council must implement and comply with Water Management Plan to achieve target	Business designated by Council must implement and comply with Water Management Plan to achieve target
Commercial pools, including those in motels, caravan parks, etc		Topping up permitted with hand-held trigger nozzle hose as part of max 1 hour hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Topping up permitted with hand-held trigger nozzle hose as part of max 30 minute hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Topping up permitted with hand-held trigger nozzle hose as part of max 10 minute hose allocation time on your allocated water day ¹ . Hose must be attended at all times. Use a pool cover to reduce evaporation.	Apply for written exemption including water volume to be used and demonstrate how water saving is being achieved. Use a pool cover to reduce evaporation.	Total ban. Use a pool cover to reduce evaporation.
Commercial water features – topping up or filling		Total ban	Total ban	Total ban	Total ban	Total ban
Boat motor flushing, including surf clubs and commercial fishing		Up to 5 minutes on lawn or non-porous surface if possible	Up to 5 minutes on lawn area only	Up to 5 minutes on lawn area only	3 minutes maximum, apply for exemption, using a container to recycle the flushing water	3 minutes maximum, apply for exemption, using a container to recycle the flushing water
Public car and truck wash facilities		Permitted	Permitted	Permitted	Permitted only if recycled water used e.g., automated car wash that recycles water.	Permitted only if recycled water used e.g., automated car wash that recycles water.
Motor dealer vehicle washing	Machine washer with recirculation	Permitted	Total ban	Total ban	Total ban	Total ban
	Hand-held hoses and buckets	Trigger hose rinse only, bucket wash. On lawn or porous surface where possible.	Trigger hose rinse only, bucket wash. On lawn or porous surface where possible.	NO car or boat washing. Only allowed for health and safety (eg, windscreens and lights), buckets only	NO car or boat washing. Only allowed for health and safety (eg, windscreens and lights), buckets only	Only allowed for health and safety (eg, windscreens and lights), buckets only
	Car detailing	Permitted	Permitted	Permitted	Permitted using recycled water eg, from windscreen washing	Permitted using recycled water eg, from windscreen washing
Dams and tanks topping up		Only allowed where to be used for firefighting, domestic, commercial or industrial purposes	Only allowed where to be used for firefighting, inside domestic, commercial or industrial purposes	Only allowed where to be used for firefighting, inside domestic, commercial or industrial purposes	Only allowed where to be used for firefighting, essential inside domestic, commercial or industrial purposes	Only allowed where to be used for firefighting, essential inside domestic or public health purposes
Mobile water tankers – only filled between 8am and 8pm from <u>approved</u> point		Only allowed where to be used for firefighting, construction, inside domestic or public health purposes	Only allowed where to be used for firefighting, road construction, inside domestic or public health purposes, NOT landscaping	Only allowed where to be used for firefighting, road construction, inside domestic or public health purposes, NOT landscaping	Only allowed where to be used for firefighting, essential inside domestic or public health purposes, NOT landscaping or road construction (consider recycled water for these purposes) Water carters must inform Council of all water volumes and deliveries.	Only allowed where to be used for firefighting, essential inside domestic or public health purposes, NOT landscaping or road construction (consider recycled water for these purposes) Water carters must inform Council of all water volumes and deliveries.
Construction industry		Concrete and mortar mixing	Hoses used must be fitted with hand-held trigger to shut off flow when released	Hoses used must be fitted with hand-held trigger to shut off flow when released	Hoses used must be fitted with hand-held trigger to shut off flow when released, recycled water may be used for concrete mixing.	Hoses used must be fitted with hand-held trigger to shut off flow when released, recycled water may be used for concrete mixing.

Restriction	1 Moderate (Target 10% reduction)	2 High (Target 30% reduction)	3 Very High (Target 50% reduction)	4 Severe (Target > 50% reduction)	5 Emergency (Target >50% reduction)
General water dependant construction activities, including surface preparation	Hand-held trigger hose only	Hand-held trigger hose only	Hand-held trigger hose only	Hand-held trigger hose only. Business designated by Council must implement and comply with Water Management Plan to achieve target	Hand-held trigger hose only. Business designated by Council must implement and comply with Water Management Plan to achieve target
Cleaning - exteriors	Hand-held trigger hose only	Hand-held trigger hose only	Hand-held trigger hose only	Business designated by Council must implement and comply with Water Management Plan to achieve target. Consider waterless cleaning or capture and reuse water.	Business designated by Council must implement and comply with Water Management Plan to achieve target. Consider waterless cleaning or capture and reuse water.
Pet care	Permitted	Permitted	Permitted	Business designated by Council must implement and comply with Water Management Plan to achieve target. No hoses, bucket use only for washing and rinsing	Business designated by Council must implement and comply with Water Management Plan to achieve target. No hoses, bucket use only for washing and rinsing
Water for livestock	Permitted	Permitted	Permitted	Permitted, consider reducing stock, relocating stock, use of alternate water sources.	Permitted, consider reducing stock, relocating stock, use of alternate water sources.

1 - On odd or even days matching property address numbers. NO commercial outside use on 31st of the month (except for livestock and pet care)

Table 4-13: Public Areas Water Restriction Table

Restriction	1 Low (Target 30% reduction)	2 High (Target 50% reduction)	3 Very High (Target 80% reduction)	4 Severe (Target 100% reduction)	5 Emergency (Target 100% reduction)
Parks and gardens irrigation systems	User to develop Water Management Plan to achieve target	User to develop Water Management Plan to achieve target	User to develop Water Management Plan to achieve target	Recycled Water only	Recycled Water only
Sports grounds irrigation systems	User to develop Water Management Plan to achieve target	User to develop Water Management Plan to achieve target	User to develop Water Management Plan to achieve target	Recycled Water only	Recycled Water only
Public pools	Permitted	Permitted	Permitted	Permitted with water use reduction measures, including pool covers	Permitted with water use reduction measures, including pool covers
Garden ponds	Topping only by hand-held hose	Topping only by watering can or bucket to sustain fish or bird life	Topping only by watering can or bucket to sustain fish or bird life	Total ban	Total ban
Fountains and water features	Total ban	Total ban	Total ban	Total ban	Total ban
Bowling greens and golf courses irrigation system and hand-held hoses	1 hour per day, on greens only New turf need to apply for exemption –watering limited to 2 hours first 2 days then 1 hour every second day as per domestic.	1 hour per day, on greens only New turf need to apply for exemption –watering limited to 2 hours first 2 days then 30 min every second day as per domestic.	Hand-held trigger hoses on green only sufficient to keep grass viable New turf - alternative water sources only	Business designated by Council must implement and comply with Water Management Plan to achieve target. Can use alternate water source such as bore or recycled water.	Business designated by Council must implement and comply with Water Management Plan to achieve target. Can use alternate water source such as bore or recycled water.
MidCoast Council flushing water mains	Key areas only. Use ozone trailer where possible.	Only to maintain public health. Use ozone trailer where possible.	Only to maintain public health. Use ozone trailer where possible.	Emergency flushing only to maintain public health after mains break. Use ozone trailer where possible.	Emergency flushing only to maintain public health after mains break. Use ozone trailer where possible.

4.4 Supply-Side Action Plan

When drought occurs, actions must be taken to mitigate the effects of water shortage and to ensure that a reliable water supply is available to meet the health and safety needs of the community. Supply-side actions are actions taken by Council aimed at supporting the restrictions as well as preparing for worsening situations.

4.4.1 Staged Action-Plan

Drought management supply-side actions should be implemented while the community, guided by Council, takes action to reduce water demand using water restrictions. The supply actions are proposed to be implemented within a time frame so that water supply is sufficient to sustain the estimated water demand at the particular water restriction level. The supply-side actions are actions that Council will undertake to continually supply water to its customers during drought. Alternative water supply options are described in Section 6.3. Table 4-13 lays out how supply actions are implemented as restriction levels are increased.

Table 4-14: Large Scheme Staged Drought Supply-Side Actions (Manning Scheme)

Trigger	Action
Level 1 – Moderate Restrictions	Pumping to be conducted irrespective of electricity tariff and water quality Commence coordination and collaboration with rural extractors regarding river flows, forecast rainfall, extraction rates and agreed upon cease to pump (CTP) actions
Level 2 – High Restrictions	Pumping to be conducted irrespective of electricity tariff and water quality Assess feasible alternative water options (temporary desalination, un-used bulk dam water, importing water)
Level 3 – Very High Restrictions	Commence procurement and set up of on-site generator for operation of deep water recovery pump Initiate alternative water option(s)
Level 4 – Severe Restrictions	Test operation of deep water recovery pump Proceed and deploy feasible alternative water option(s)
Level 5 - Emergency Restrictions	Commence operation of deep water recovery pump Commence alternative water option(s)

Table 4-15: Small Scheme Staged Drought Supply-side Actions (Bulahdelah, Gloucester, Stroud)

Trigger	Action
Level 1 – Moderate Restrictions	-
Level 2 – High Restrictions	-
Level 3 – Very High Restrictions	Prepare to import bulk water via road from Tea Gardens – source food grade Isotainers or tentatively hire local water carters
Level 4 – Severe Restrictions	Deploy isotainers or secure use of local water carters
Level 5 - Emergency Restrictions	Commence importing bulk water

Supply-side actions for Tea Gardens Water Supply Scheme have not been considered as secure yield for the scheme is sufficient to meet demands.

Supply-side actions for North Karuah Water Supply will be undertaken by Hunter Water.

4.5 Monitoring During Drought

The following monitoring will be carried out during drought. Some of the items listed below are recorded on a regular basis as part of the water business requirements:

- Daily water demand
- Daily supply from each source (including non-drinking water)
- Daily monitoring of water sources (river flows, dam levels, groundwater table level)
- Daily temperature and rainfall
- Impact of restrictions on water consumptions
- Comprehensive testing of water quality from any emergency supply such as new bores before commencing supply. Assistance is available from NSW Health
- Ongoing water source quality:
 - Electrical conductivity (daily)
 - Total Dissolved Solids (daily)
 - pH (daily)
 - Alkalinity (daily)
 - Chemical analysis (daily)
 - Microbial analysis (weekly)

A chart showing the daily demand, restriction level, temperature and rainfall is to be prepared and updated at least weekly.

Monitoring is intended to provide effective management of the incident. Some or all of the data may be used as part of the communication campaign.

4.6 Communication

Council recognises strong and effective communication with our community and other stakeholders can deliver a range of benefits, including strengthening relationships, generating support and participation and improving community awareness of our programs, activities and services. Council has a dedicated Engagement, Communications & Education Team that engages with the community using a range of platforms including social media, digital media, community education, and the staff communications program. We will keep the community informed of activities that impact them and keep them updated during water restrictions periods and drought.

4.6.1 Community Engagement

Engagement with the community is a critical element of an effective drought management program, as it ensures customer acceptance and behavioural changes required to reduce water demand.

The community will be informed about the Drought Management Plan and the drought action plans in place via the Engagement, Communications & Education Team. This will assist the community to understand the critical importance of drought management actions and the need to conserve water.

A member of the Engagement, Communications & Education Team is part of the Water Resilience/Drought Response Team.

Purpose

- Communicate predicted commencement of water restrictions, when implemented the restriction levels, cessation of restrictions and expected behavior during restrictions
- Provide general information to the community and enlist its support and understanding to the actions taken by MidCoast Council

Channels

Some of the communication channels that may be used:

- Advertisements on radio, television and newspapers
- Press releases
- Social media

- Interviews / media conferences / presentation to community group meetings
- Signs in key locations and major roadways
- Place copies of the restrictions notice on common noticeboards around the town
- Have the restrictions explained in schools so that the message gets taken home
- Information on drought and water restrictions included with water bills, if an ongoing situation.
- Rangers carrying additional brochures to be passed out where they initially warn residents
- Announcement by high profile persons (e.g., Mayor)
- Develop a program to make hotel and motel guests aware of the restrictions in place

Messages

Specific messages developed by MidCoast Council for use during drought events include:

- Water restrictions may be required if conditions continue and expected date of commencement
- Waterwise message
- Restriction levels and what they mean
- What is being done by Council to mitigate impacts and manage the drought
- Contact details for additional information
- Restrictions are lifted



Drought, water restrictions fact sheets for residents and businesses, and FAQs are available at: [Water restrictions - MidCoast Council \(nsw.gov.au\)](http://www.nsw.gov.au/water-restrictions)

4.6.2 Agencies

Communications with external agencies, regulators and neighbouring utilities will be managed by the Incident Manager.

Purpose

Different communication is required for regulators and other government agencies, Council's water managers and neighbouring utilities in order to:

- Share resources for managing the drought

- Apply for regulatory and financial support as required
- Obtain access to alternative water sources.

4.6.3 Other water users and key stakeholders

Regular meetings will be held with other users sharing the river and aquifer / water sharing plan in order to explore areas of common interest in respect to longer term drought management.

Updated contact details for key stakeholders will be sourced from Council's integrated enterprise solution and will include:

- Schools
- Preschools
- Hospitals and Nursing Homes
- Community Service
- Media
- Community Facilities
- Retail
- Government Entities
- Community Groups
- Community Events
- Real Estate
- Motels
- Caravan Parks

5 Recovery Strategy

The recovery process will commence at the end of the response operations. The end of the drought should start with the General Manager/ Council revoking drought conditions. The Drought Response Team will revert back to the Water Resilience Team, and members will still be available to assist the Recovery Coordinator, mainly in debriefing and assessing the response.

A Recovery Coordinator will be appointed by the Drought Response Team to oversee the recovery process. The Recovery Coordinator will be responsible for:

- Preparing a response report and recommending actions based on the experience. The report will be submitted to the General Manager within 4 weeks of revoking the drought condition and to Council within 8 weeks. Once endorsed by Council, the report will become the main component of the preparedness stage.
- Assessing the remaining drought impacts and determining the appropriate personnel to coordinate the recovery activities. This will be based on the drought recovery survey described below.

Council will not compensate private customers for costs or financial losses caused by the drought. Council, however, will assist customers and co-ordinate activities associated with seeking compensation from other sources such as government and insurance companies.

When the drought period is considered over and the conditions return to normal, the following actions are to be considered:

- Reviewing the Drought Management Plan and actions in the light of experience
- Insurance compensation
- Government assistance
- Liaise with tax office to provide tax relief (reduction or delay of payment deadline)
- Develop rehabilitation/recovery programs based on the drought recovery survey
- Ensure fire control programs are in place
- Assist the community in resolving conflicts.

6 Water Supply Schemes

6.1 Location

Council's area of operations on the mid north coast of NSW extends from Crowdy Head in the north to Tea Gardens in the south and west to Gloucester – a total area of 10,000 km². Council provides services to some 40,000 homes and businesses, and play a role in the management and conservation of local water catchment areas.

Council's main water supply network is the Manning Water Supply Scheme, which serves customers from Harrington in the north to Pacific Palms in the south and west as far as Krumbach. Smaller water supply schemes operate at Tea Gardens, Bulahdelah, Stroud and Gloucester.



Figure 6-1: Location Map

6.2 Alternate Water Supply Options

6.2.1 Emergency Temporary Desalination

The establishment of an emergency temporary desalination plant at the Nabitac Water Treatment Plant to treat brackish water from the Wallamba River was designed and started during the 2019-20 drought. An alternative location would be close to the Hallidays Sewage Treatment Plant which could treat seawater.

There are package desalination plants in containers available for hire or purchase that could be used during a drought period. The planning, approvals and design requirements will be explored in a separate report to reduce lead times should the temporary option need to be implemented. This planning stage will also consider trigger levels for such a solution.

Management of the brine will be an important consideration and the design for any emergency desalination would ensure that brine is discharged to the ocean rather than the Wallamba River.

6.2.2 Increased use of recycled water

Recycled water from the Tuncurry and Hawks Nest Recycled Water Treatment Plants is suitable for irrigation with unrestricted public access and can be used for stock watering and road construction during water restrictions to reduce the potable water demand. This was done during the 2019-20 drought.

6.2.3 Water Carting

Bulk water carting to Gloucester, Bulahdelah and Stroud may be used when local systems are exhausted. Carted water would be sourced from Tea Gardens Water Supply Scheme. This was undertaken during the 2019-20 drought, with both Gloucester and Stroud supplies supplemented by water carting.

Bulk water carting by rail using food grade isotainers has also been investigated and was deemed not feasible for larger schemes such as the Manning.

6.3 Drought Restrictions History

Water restrictions have been applied for the following periods:

- 1994 - duration 9 weeks (14 October to December) and lowest dam level 52.8m (full supply 54.1m)
- 2002 - duration 8 weeks (9 October to 15 December) and lowest dam level 52.8m
- 2014 - duration 4 weeks (29 January to 3 March) and lowest dam level 52.8m (after 2002 drought a new philosophy of river extraction and dam management was implemented to limit extraction to avoid stopping river and utilizing dam storage to a greater extent)
- 2018 - duration 4 weeks (1 February to 2 March) and lowest dam level 52.1m
- 2019 - duration almost 6 months (2 September 2019 to February 2020), worst drought on record with Level 4 restrictions in place from 25 November 2019)

7 Regulatory Framework

7.1 MidCoast Council

Council delivers water under the provisions of the *NSW Local Government Act 1993*. Some aspects of the water business are carried out under the provisions of the *NSW Water Management Act 2000*. Council is empowered to restrict water supply (e.g., by public notice published in a newspaper circulating within the Council area) under the *Local Government (General) Regulation 2005*.

The *Local Government Act 1993* Section 637 reads: “a person who wilfully or negligently wastes or misuses water from a public water supply, or causes any such water to be wasted, is guilty of an offence”. The maximum penalty which can apply is:

- Maximum penalty: 20 penalty units
- Current penalty unit: \$110

Consumers who are identified breaching water restrictions in place may have their supply cut off or restricted by Council in accordance with Clause 144 of the *Local Government (General) Regulation 2005*.

This plan is administered by the Council. During drought, this plan will be overseen by the Drought Response Team (see Section 4.2). The implementation of this Drought Contingency and Emergency Response Plan will be the responsibility of the Drought Incident Manager.

7.2 Water Sharing Plans

Since the introduction of the *Water Management Act 2000*, the NSW Department of Planning & Environment (Water) has prepared water sharing plans for rivers and groundwater systems across New South Wales.

By setting the rules for how water is allocated for the next 10 years, a water sharing plan provides a decade of security for the environment and water users. This not only ensures that water is specifically provided for the environment through a legally binding plan, but also allows licence holders, such as irrigators, who require large volumes of water to plan their business activities.

7.3 Fire Fighting Requirements

Regardless of the water restriction actions, preference will be provided to accommodating firefighting requirements. Reservoirs have been sized so that the total volume is equivalent or greater to the Peak Daily Demand (for the area serviced by the reservoir) plus an additional third for firefighting.

If the emergency conditions last for more than 3 days, fire services will be directed to arrange alternate water source (e.g., water tankers) if appropriate.

8 Related Documents

Integrated Water Cycle Management Strategy – Our Water Our Future 2050
(AECOM and MidCoast Council, 2023)

Integrated Water Cycle Management Strategy - Options and Scenarios Report
(AECOM and MidCoast Council, 2023)

Including *Water Yield Assessment Report* (AECOM 2023) – Appendix H

Water Resilience Team Terms of Reference (MidCoast Council, 2023)

Environmental Management Plan - Nabitac Inland Dune Aquifer (MidCoast Council, 2022)