Drought Management Plan
2018

January, 2018
This Plan was adopted by Council 24th April 2018

Executive Summary

This Plan

This 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

Having a sound Drought Management Plan in place is part of the NSW Government best-practice management requirements for water supply.

Note: The term 'drought prevention' may appear inappropriate; as the common thinking is that a drought is caused by external forces. But for a utility, a drought is water shortage and therefore it can be prevented or delayed.

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

- Operational plan
- Resourcing strategy
- 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 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 Hay Shire Council can undertake in order to increase coping capacity. 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 for drought is essential to lessen the effect and to enhance the capacity of Hay Shire 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 Section 4.1 and summarised in the table below.

Table 1: Water Restrictions Triggers

RESTRICTION LEVEL	Trigger	Relax
1 Low	Permanent restriction	Never
2 Moderate	a) Short term loss (<2 days) of pumping capacity. b) Extended period of hot, dry weather. c) Leonard St reservoir minimum level <85% on two (2) consecutive days	a) Pumping capacity restored b) Weather reverts to "normal" c) Minimum daily level >90% for two (2) consecutive days
3 Moderate-High	a) Declaration of drought over LGA. b) River water quality unacceptable. c) River level limits pumping ability. d) Restriction in sympathy with neighbouring towns. e) Leonard St reservoir minimum level <85% on four (4) consecutive days. f) Leonard St reservoir minimum level <80% on one (1) day.	a) Drought declaration lifted. b) Water quality improves to acceptable level. c) River levels increase to acceptable level. d) Restrictions lifted in neighbouring towns. e) Minimum daily level >90% for two (2) consecutive days.
4 High	a) Reduction in water allocation to 50% by Water NSW. b) Leonard St reservoir minimum level <85% on six (6) consecutive days. c) Leonard St reservoir minimum level <80% on two (2) consecutive days.	a) Increase in water allocation above 55%. b) Minimum daily level >90% for two (2) consecutive days.

5 Very High	a) Reduction in water allocation to 45% by Water NSW. b) Leonard St reservoir minimum level <85% on eight (8) consecutive days. c) Leonard St reservoir minimum level <80% on three (3) consecutive days.	a) Increase in water allocation above 50%. b) Minimum daily level >90% for two (2) consecutive days.
6 Extreme	a) Reduction in water allocation to 40% by Water NSW. b) Leonard St reservoir minimum level <85% on ten (10) consecutive days. c) Leonard St reservoir minimum level <80% on four (4) consecutive days.	a) Increase in water allocation above 50%. b) Minimum daily level >90% for two (2) consecutive days.

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.

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 Management Team

A Drought Management Team will be set up as part of the drought response, and will be responsible for managing the activities during drought. Table 2 in section 4.2 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 4.4.2.

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.

Background Information

Background information on the water supply scheme, the climate, and the regulatory framework is provided in Sections 1, 7 and 8.

Contents

1 Introduction

1.1 Context

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

The NSW Government Best-Practice Management of Water Supply and Sewerage Guidelines (2007) require Local Water Utilities to have a sound Drought Management Plan in place and be ready to implement their plan when drought conditions arise. This plan satisfies the guidelines requirement.

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 as to respond to and mitigate drought related issues
- Enable timely warning to appropriate personnel to implement appropriate actions
- Document how Hay Shire 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 a resourcing strategy and staff allocation to manage 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 Hay Shire Council 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 PPRR Approach

This plan is based on a four-step approach referred to as PPRR (prevention, preparation, response and recovery) approach. The PPRR 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:

- **Prevention.** Actions to reduce or eliminate the likelihood or effects of drought related issues. These include understanding the climate patterns and their impact on water availability, understanding water sharing plans rules and analysing past drought events.
- **Preparedness**. Developing strategies for drought situations before an incident occurs, to ensure effective response and recovery. This DMP is a key component of this phase.
- **Response.** Actions to control contain and/or minimise the impacts of the drought. Typically this would involve implementation of demand-side and supply-side actions listed in this DMP.
- **Recovery.** Restoration of 'normal' water supply conditions, including actions to assist the community and businesses to recover from the impacts of drought.

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

2 Drought Prevention Strategy

2.1 Overview

Note: The term 'drought prevention' may appear inappropriate; as the common thinking is that a drought is caused by external forces. But for a utility, a drought is water shortage and therefore it can be prevented or delayed.

Drought prevention actions are proactive measures that Hay Shire Council can undertake in order to increase coping capacity. Prevention actions may be activated / 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.

Some prevention actions are described below.

2.2 Short-term Actions

2.2.1 Voluntary Water Restrictions

When the water source's availability is approaching the level that would trigger the implementation of water restrictions, Hay Shire Council will start a pre-activation of voluntary water restrictions (i.e. Implementation of water conservation measures).

Hay Shire Council will use the media to communicate the importance of using water saving measures, especially in times approaching drought.

2.2.2 Drought Water Pricing

Demand is affected by price.

Hay Shire 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.

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

2.3 Long-term Actions

Hay Shire Council's raw water supplies are drawn from the Hay Weir Pool. Council has very limited ability to influence the operation of that pool so therefore has very limited opportunity to control its water source.

Long term actions to minimise water shortages are restricted to ensuring, as practical as possible, its infrastructure is maintained to a high standard of reliability. Regular budgetary measures are provided to undertake maintenance and upgrading operations to achieve that reliability.

3 Preparedness

3.1 Overview

Being prepared for drought is essential to lessen the effect and to enhance the capacity of Hay Shire Council and the community to cope with the consequences of drought. This means that Hay Shire Council should have action plans in place ready to be implemented and have ongoing activities to prepare Council staff and the community for those situations, such as training exercises, monitoring and consultation.

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 Hay Shire Council to promptly obtain drought relief funds from relevant authorities
- Have well defined protocols of drought restriction activation and escalation

This DMP documents Hay Shire Council's preparedness in regards to 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 Hay Shire Council should undertake 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 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 Hay Shire Council in preparing for unconventional situations. In order to ensure a safe and sustainable water supply, the following monitoring is required.

- Drinking water daily demand
- Raw (non-potable) water daily demand
- Daily monitoring of water supply
  - Murrumbidgee River flows and depth at water intakes
  - Water levels at Water NSW dams (Burrinjuck & Blowering)
- Daily temperature and rainfall

3.4 Consultation

3.4.1 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.

Hay Shire Council will inform the community about the DMP 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.

3.4.2 Government Consultation

Consultation on the implementation of the Drought Management Plan would be expected to be with:

- Department of Primary Industries (DPI) Water
- NSW Health (especially in relation to water quality)
- Neighbouring Councils

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 DMP 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 Management Team.

The following sections describe the response strategy during drought incidents.

4.1 Drought Strategy Activation Plan

4.1.1 Overview

The drought response strategy will be activated in an event when the water supply is so affected as to impede Council's ability to supply adequate quantities of safe, useable, water.

The main scenario that would activate a drought management response, including the introduction of supply restrictions, is water scarcity. Scarcity is defined in Table 1.

4.1.2 Drought Triggers

Triggers are the situations that will activate the response strategy plan. The triggers are based on progressive reductions in water availability. The triggers for implementing drought restrictions are provided in Table 1.

These triggers initiate demand-side actions which are expected to reduce the demand to a target daily demand. If the demand reduction is not achieved by the introduction of the restrictions for each level, the next level should be applied.

Table 1 lists water supply system drought triggers levels. The Relax column indicates the mark where the level can be relaxed, and the status changed to a lower level.

Table 1: Water Restrictions Triggers

RESTRICTION LEVEL	Trigger	Relax
1 Low	Permanent restriction	Never
2 Moderate	a) Short term loss (<2 days) of pumping capacity. b) Extended period of hot, dry weather. c) Leonard St reservoir minimum level <85% on two (2) consecutive days	a) Pumping capacity restored b) Weather reverts to "normal" c) Minimum daily level >90% for two (2) consecutive days
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4.2 Drought Management Team Roles and Responsibilities

4.2.1 Permanent Water Restriction (Level 1)

As a measure to reduce the wasteful usage of water during periods of high evaporation, Council has set Level 1 as a permanent restriction.

4.2.2 Activation and Setting Restriction (Levels 2 to 6)

Hay Shire Council General Manager (GM), in consultation with the Mayor, can proclaim levels of restriction higher than Level 1 under this drought management plan to be in force.

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

4.2.3 Drought Management Team

The GM will appoint the drought management team (DMT).

Table 2: DMT Roles and Preliminary Responsibilities

Chair	Levels 2-3: Infrastructure Manager Levels 4-6: General Manager
Responsibilities	▪ Coordinate the activities of the team ▪ Communicate with General Manager and Council ▪ Communicate with government agencies – high level
Incident Manager	Level 2 and above: Infrastructure Manager
Responsibilities	▪ Monitor and assess data ▪ Provide an assessment of the situation ▪ Brief the DMT Chair and General Manager ▪ 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, neighbouring Councils, 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	Level 2 and above: Infrastructure Manager or LEMO
Responsibilities	▪ Support the DMT Chair and Incident Manager with communication ▪ Prepare communication material as appropriate ▪ Prepare media statements for distribution in accordance with Council's Media Communications Policy ▪ Maintain media database including social networks ▪ Monitor and manage social networks communication
Administrative Support	Technical Support Officer
Responsibilities	▪ Record keeping ▪ Prepare progress reports as required for distribution to DMT members ▪ Provide administrative support, telephone answering, email first review and general office duties ▪ Attend and minute meetings
Support Team	Water & Sewerage Manager Senior Engineering Assistant
Responsibilities	▪ Support the Incident Manager and Chair

4.3 Demand-Side Action Plan

Commentary

The Town of Hay is serviced by dual water supply systems:

- **the filtered (potable) system provides the bulk of the water used internally in residential and commercial properties and for most evaporative cooling purposes. However, there is some usage of raw (non-potable) water in toilet flushing and evaporative cooling; and**
- the raw (non-potable) system provides, possibly, all water for external use in irrigating lawns, gardens, sporting fields etc. Firefighting capability is an important aspect of the raw water system.

Potable water usage fluctuates between about 23ML/month in mid-winter and about 32ML/month in mid-summer. The John Houston Memorial Swimming Pool is in excess of 50 years old and suffers significantly from leakage at a rate of about 1.5ML/month. With evaporation etc during the swimming season, potable water usage at the pool increases to about 1.7ML/month.

Much of the balance of the summer time potable water increase is attributable to the use of evaporative air conditioning, and, to some extent private swimming pool/spa operation.

Non-potable water usage fluctuates between about 13ML/month in mid-winter and about 170ML/month in mid-summer. Most of this increase is attributable to both private and public irrigation of lawns, gardens, sporting fields etc.

The imposition of usage restrictions during drought, or other water shortage, will have limited effect on the amount of potable water used as the bulk of the usage is internal and, basically, non-variable. On the other hand, restrictions on external water use will more effective and more easily monitored.

4.3.1 Water Restrictions

Water restrictions aim to reduce water demand by customers through regulating the type and duration of water-using activities. The levels of restriction are provided in Table 3

Table 3 – Restriction Levels

ACTIVITY	RESTRICTION					
	Level 1 (Low)	Level 2 (Moderate)	Level 3 (Moderate-High)	Level 4 (High)	Level 5 (Very High)	Level 6 (Extreme)
1.0 RESIDENTIAL						
1.1 Lawns & gardens	Watering by any method allowed, any time, any day, except between 11:00am & 3:00pm during Daylight Saving Period	Watering by any method allowed, any time, any day, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by any method allowed on odds & evens basis, any time, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by hand held hoses only allowed on odds & evens basis, any time, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by hand held hoses only allowed on odds & evens basis, and only between 7:00am and 9:00am	No external watering except with recycled water
1.2 Washing of buildings, paved areas, footpaths, driveways etc.	Permitted any time by hand held hose or pressure washer only	Permitted any time by hand held hose or pressure washer only	Permitted by hand held hose or pressure washer only and only between 8:00am and 10:00am	Not permitted unless necessary for health and safety reasons	Not permitted unless necessary for health and safety reasons	Not permitted unless necessary for health and safety reasons
1.3 Private swimming pools, spas etc.	No restriction	No restriction	Pools not to be filled except with Council approval. Top ups permitted	Pools not to be filled except with Council approval. Top ups permitted	Pools not to be filled except with Council approval. Top ups permitted	Pools not to be topped up with reticulated water. New pools not to be filled without approval
1.4 Vehicle washing (private)	Permitted any time by hand held hose or pressure washer only	Permitted any time by hand held hose or pressure washer only	Bucket washing & rinsing only	Bucket washing & rinsing only	Bucket washing of windshield, mirrors, lights and registration plates only	Bucket washing of windshield, mirrors, lights and registration plates only
1.5 Fountains & water features (private)	No restriction	No restriction	Top up of existing by hand held hose only. No filling of new facilities	Top up of existing by hand held hose only. No filling of new facilities	No top up or filling permitted at any time	No top up or filling permitted at any time
1.6 Water tanks	No restriction	No restriction	Top up from Council reticulation system not permitted for garden watering	Top up from Council reticulation system not permitted for garden watering	Top up from Council reticulation system not permitted for garden watering	Top up from Council reticulation system not permitted for garden watering

ACTIVITY	RESTRICTION					
	Level 1 (Low)	Level 2 (Moderate)	Level 3 (Moderate-High)	Level 4 (High)	Level 5 (Very High)	Level 6 (Extreme)
2.0 COMMERCIAL & BUSINESS						
2.1 Lawns & gardens	Watering by any method allowed, any time, any day, except between 11:00am & 3:00pm during Daylight Saving Period	Watering by any method allowed, any time, any day, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by any method allowed on odds & evens basis, any time, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by hand held hoses only allowed on odds & evens basis, any time, except between 9:00am & 5:00pm during Daylight Saving Period	Watering by hand held hoses only allowed on odds & evens basis, and only between 7:00am and 9:00am	No external watering except with recycled water
2.3 Washing of buildings, paved areas, footpaths, driveways etc.	Permitted any time by hand held hose or pressure washer only	Permitted any time by hand held hose or pressure washer only	Permitted by hand held hose or pressure washer only and only between 8:00am and 10:00am	Not permitted unless necessary for health and safety reasons	Not permitted unless necessary for health and safety reasons	Not permitted unless necessary for health and safety reasons
2.4 Washing of new & used vehicles for sale	No restriction	No restriction	No restriction	Only in accordance with agreement made with Council	Only in accordance with agreement made with Council	Bucket washing of windshield, mirrors, lights and registration plates only
2.5 Emergency Services	Exempt	Exempt	Exempt	Exempt	Exempt	Exempt

ACTIVITY	RESTRICTION					
	Level 1 (Low)	Level 2 (Moderate)	Level 3 (Moderate-High)	Level 4 (High)	Level 5 (Very High)	Level 6 (Extreme)
3.0 COUNCIL PARKS & RESERVES						
3.1 Hay Park passive areas (considered to be an even number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.2 Hay Park – Nos 1 & 2 ovals (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.3 Hay Park – Nos 3 & 4 ovals (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering	No watering
3.4 Lawn Cemetery (considered to be an even number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.5 Gordon & Jean Tindale Park (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.6 Sturt Park (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering

ACTIVITY	RESTRICTION					
	Level 1 (Low)	Level 2 (Moderate)	Level 3 (Moderate-High)	Level 4 (High)	Level 5 (Very High)	Level 6 (Extreme)
3.7 Bridge approach (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.8 Pocock Park (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.9 Pool - external (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.10 Pool - internal (considered to be an even number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering
3.11 Lachlan St planter boxes etc.	Watering by any method, any day, except between 12:00 noon & 5:00pm	Watering by any method, any day, except between 12:00 noon & 5:00pm	Watering by any method, any day, except between 12:00 noon & 5:00pm	Watering by any method, any day, except between 12:00 noon & 5:00pm	Watering by any method, any day, except between 12:00 noon & 5:00pm	Watering by any method, any day, except between 12:00 noon & 5:00pm
3.12 Other parks (considered to be an odd number)	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation any day between 12:00 midnight & 9:00am	Watering by automated irrigation on odds & evens basis between 12:00 midnight & 9:00am	Watering by automated irrigation once weekly between 12:00 midnight & 9:00am	No watering	No watering

ACTIVITY	RESTRICTION					
	Level 1 (Low)	Level 2 (Moderate)	Level 3 (Moderate-High)	Level 4 (High)	Level 5	(Very High)
4.0 OTHER						
4.1 Withdrawal of water from Council's potable water standpipe	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee
4.2 Withdrawal of water from Council's raw water standpipe	No restriction – subject to payment of fee	No restriction – subject to payment of fee	No restriction – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee	No restriction if for internal domestic use only – subject to payment of fee
4.3 Access to Council's Truck Wash	No restriction – subject to payment of fee	No restriction – subject to payment of fee	No restriction – subject to payment of fee	For animal or human health purposes only as approved by Council	For animal or human health purposes only as approved by Council	For animal or human health purposes only as approved by Council

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 Hay Shire 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 Hay Shire Council will undertake to continually supply water to its customers during drought. Alternative water supply options are described in Section 6.3.2.

Table 4 lays out how supply actions are implemented as restriction levels are increased.

Table 4: Staged Drought Supply-Side Actions

Level	Supply Side Activity	Potential Daily Supply
Pre-activation	▪ Investigate the technicalities and legalities of improving water extraction at Leonard St pumping station by lowering intakes	Unknown
1 Low	▪ Investigate use of treated effluent to augment non-potable water for watering of public parks, gardens and sporting fields	Unknown
2 Moderate	▪ Negotiate access to water with owners of alternative water sources (e.g. Hay PID) ▪ Investigate groundwater sources including testing water quality (consult NSW Health) ▪ Investigate practicality of water carting to supplement supply	Unknown
3 Moderate - High	Design and prioritise engineering projects: ▪ bores ▪ treated effluent from Hay STP	Unknown
4 High	Construction of long lead time projects	Unknown
5 Very High	Construction of short lead time projects	Unknown
6 Extreme	Water carting	Unknown

4.4.2 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, weir levels)
- 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 (monthly)
    - Total Dissolved Solids (monthly)
    - pH (daily)
    - Alkalinity (monthly)
    - Algae levels (daily)
    - Taste and odour (on complaint)
    - Chemical analysis (monthly)
    - 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.

4.5 Communication Strategy

4.5.1 Community

Purpose

The purpose of the communication strategy is to:

- Communicate the restriction levels and expected behaviour
- Provide general information to the community and enlist its support and understanding of the actions taken by Hay Shire Council.

Channels

Some of the communication channels that may be used:

- Advertisements on radio, television and newspapers
- Council Newsletter
- 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
- ❑ Letterbox drop of the notice and Brochure or mail out to all residents and business. Include these with water bills
- ❑ Rangers carrying additional brochures to be passed out where they initially warn residents
- ❑ Announcement by the Mayor or General Manager
- ❑ Develop a program to make hotel and motel guests aware of the restrictions in place

Messages

Specific massages need to be developed to include:

- ❑ Restriction levels and what they mean
- ❑ Background / need
- ❑ Effort by Hay Shire Council and stakeholders (e.g. supply side projects)
- ❑ Contact for special cases / exemptions / additional information
- ❑ This is not a failure, but an event that occurs due to circumstances, and it is managed appropriately.

Contact List

Organisation	Name	Phone	Email
DPI Water	▪ Bernie Barnes	02 6942 7705	Bernie.barnes @dpi.nsw.gov.au
EPA	▪ Jason Price	02 6969 0710	Jason.Price@ epa.nsw.gov.au
NSW Health	▪ Kevin Prior		Kev.Prior@health.nsw.gov.au
Water NSW	▪ Steve Palmer	02 8281 7331	
Radio 2HayFM (Hay)	▪	02 6993 1205	
Radio 2QN (Deniliquin)	▪	03 5722 1566	
Radio ABC Riverina	▪ Anne Delaney	02 6923 4811	
Radio 2MMM (Griffith)	▪	02 6969 7860	
TV Prime 7	▪	02 6933 6300	
TV WIN 9	▪	02 6960 1199	
Hay Hospital	▪	02 6990 8700	
Hay Medical Centre	▪	02 6993 1900	
Hay W M High School	▪	02 6993 1408	
Haydays Retirement H	▪	02 6993 1680	
Hay Public School	▪	02 6993 1270	hay-p.school@det.nsw.edu .au
St Mary's Catholic School	▪	02 6993 1775	principal.hay@wf.catholic.ed
Hay Pre-school	▪	02 6993 1757	haypreschool@bigpond.com

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 revoking drought conditions. The DMT will cease operation, but 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 DMT 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 co-ordinate the recovery activities. This will be based on the drought recovery survey described below.

A drought recovery survey will be developed to evaluate the recovery process needed to restore the physical infrastructure and the restoration of emotional, social, economic and physical wellbeing. The drought recovery survey will assess the following criteria in order to determine the recovery actions required:

- **Ownership:** Determine the ownership of private or public asset and the source of assistance that may be available
- **Severity of impact**: Develop a scale to determine the severity of social, economic and financial impact to be based upon
- **Time to recover:** Evaluate a timeframe required to recover from the drought impact
- **Cost of impacts:** The financial loss due to the drought impact
- **Resources required:** Resources (financial and others) required to complete the recovery process

With the outcomes of the drought recovery survey, Hay Shire Council will be able to seek the appropriate resources to address the recovery needs. The recovery process will involve restoring the community to the point where normal social and economic activities may resume.

Hay Shire Council will not compensate private customers for costs or financial losses caused by the drought. Hay Shire 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:

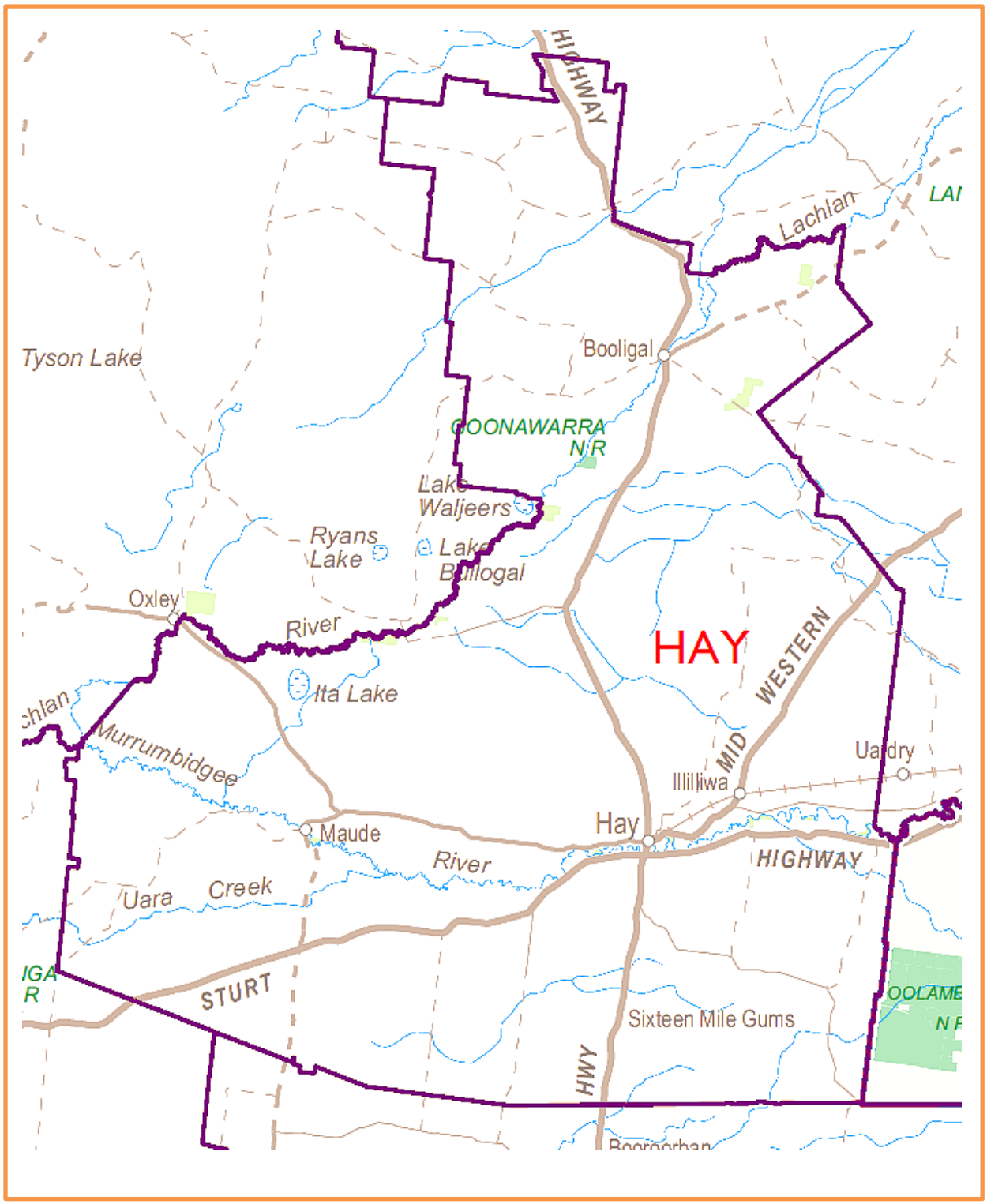
- Reviewing the Drought Management Plan and actions in the light of experience
- Government assistance
- Develop rehabilitation/recovery programs based on the drought recovery survey
- Ensure fire control programs are in place.

6 Water Supply Scheme

6.1 Location

Hay LGA covers an area of 11,348 km2 with a regional population of 2,999 people (2015 census). Hay town had an estimated population in 2015 of 2,293 people (Hay IWCM Strategy)

Figure 1: Hay LGA map



6.2 Existing Water Supply Schemes

Hay has dual water supply schemes with both drawing water from the Murrumbidgee River from separate intake points. The principal components of these schemes are shown below.

Figure 2: Hay Potable and Non-potable Water Schemes Principal Components

Schematic diagrams of both schemes are provided in the figures on the following pages.

Figure 3: Potable Water System - Hay

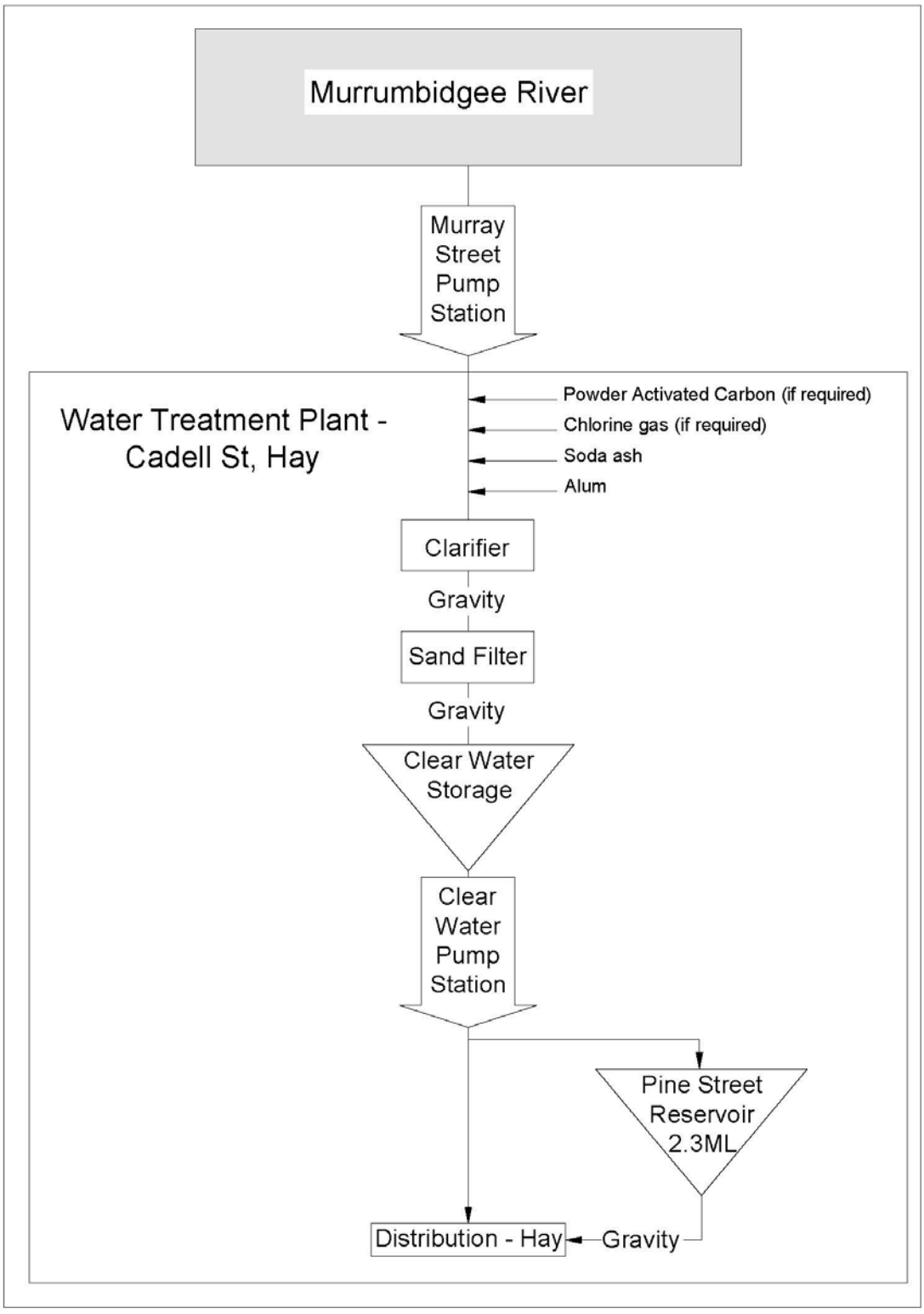
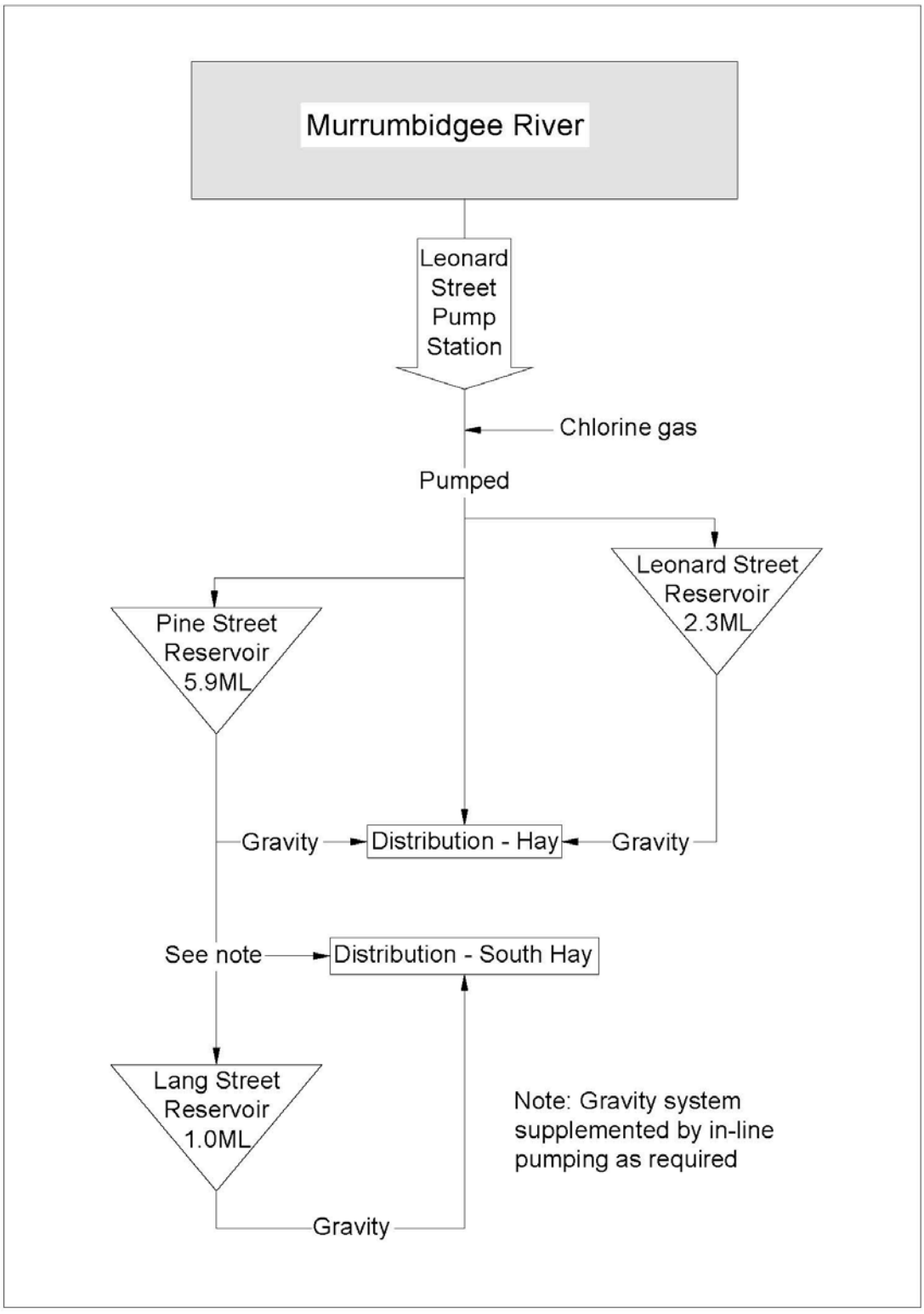


Figure 4: Non-Potable Water System - Hay



6.3 Water Sources

6.3.1 Existing Sources

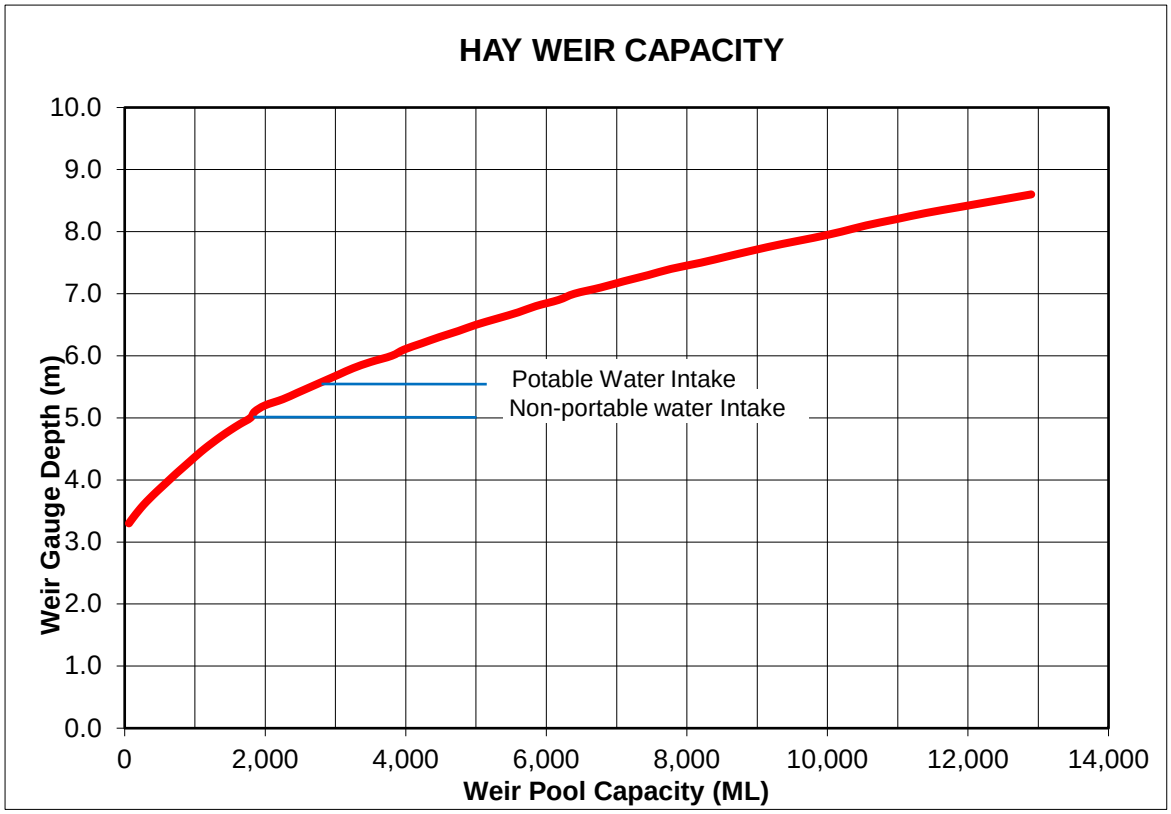
The Hay Local Government Area is situated within the Murrumbidgee River Catchment, an area of approximately 84,000 km^2 which is bordered by the Great Dividing Range to the east, the Lachlan River Catchment to the north and the Murray River catchment to the south. The average annual rainfall in the Murrumbidgee catchment ranges from over 1,700 millimetres in the Snowy Mountains to less than 350 millimetres on the Western Riverina plains surrounding Hay.

Both water supply schemes serving the Town of Hay draw their supplies from the Hay Weir Pool (on the Murrumbidgee River). The pool is operated principally for the purpose of water management for irrigation supplies and environmental flows.

Hay Weir Pool has a Full Service Level capacity of about 12,400 ML with approximately 9,500 ML available to the potable intake. There have been a number of occasions (notably June, 2003 and March, 2008) when water levels have fallen to such a point that emergency works such as de-silting and caisson construction) had to be undertaken to enable the non-portable intake to be lowered below river bed level.

Council holds a Specific Purpose Water Access Licence (WAL 006457) under the Water Management Act 2000 to extract up to 2,805 ML per annum from the Murrumbidgee River under the Murrumbidgee River Water Source Sharing Plan.

The following graph shows the correlation between weir pool levels and capacities.



6.3.2 Potential Sources

There is some use of groundwater by agricultural enterprises and for some rural domestic usage in the Hay LGA though there has not been any investigation of the potential for such sources to be used to augment the Hay water supply schemes.

The new Sewage Treatment Plant proposed to be built during 2018/19 has provision for the future development of an effluent treatment and recycling processes. Such development could, conceivably, take 12 months to be designed and constructed.

Water carting could provide a short term solution, though the nearest potable supplies are: Deniliquin (120km); Balranald (130km) and Griffith (150km). To supply Hay's permanent population (approx. 2,300) with a very basic allocation of 250 litres/person/day would require at least 15 b-double truck loads per day.

6.4 Water Demand

6.4.1 Water Pricing

Since 2008, Hay Shire Council has consistently received in excess of 75% of its water revenue from water consumption charges and is therefore compliant with DPI Water's recommendations.

6.4.2 Water Users

The town of Hay is the only residential community within Hay LGA supplied with reticulated water. There are 82 customers (mostly on small rural holdings) located close to Hay that are supplied with non-potable water only, through small diameter pipelines providing limited flow rates.

There are two villages: Maude (on the Murrumbidgee River) and Booligal (on the Lachlan River), each with populations in the order of 50 persons and the residents of which rely on rain water tanks, water carting and private pumping from the rivers for their water supplies.

The residents of Maude have a private water scheme reticulating non-potable water to contributors. Towards the end of the Millennium Drought, Council, with assistance from the State Government installed an emergency water supply bore in the Village of Booligal.

There are no significant users of water requiring special considerations during water shortages. Firefighting capability is provided by the non-potable reticulation network and could be compromised by reduced availability.

6.4.3 Current Water Usage

The recently completed IWCM Strategy provides the following data on Hay's water customer categories and demands.

Equivalent Population Projection:

Population Components	2015	2020	2025
Permanent population (EP)	2,168	2,168	2,168
Visitor population (EP)	312	312	312
Non-residential population (EP)	600	609	623
Swimming pool (EP)	421	421	421
Total EP	3,501	3,510	3,524

Equivalent Connected Residential Property (ET) Projection:

Property Components	2015	2020	2025
Residential (ET)	1,058	1,068	1,082
Non-residential (ET)	444	448	454
Total ET	1,502	1,516	1,536

Unit Water Demands per Connected Residential Property (2015)

Demand	Potable Water	Non-potable Water
Average day (L/day)	546	1,183
Average year (kL/yr)	199	432
Peak day (L/day)	1,640	4,257
Dry year (kL/yr)	239	521
Peak to average ratio	0.33	3.6
Dry year to average ratio	1.20	1.21

Total Water Demand Projections

Water Supply	2015	2020	2025
Potable Water:			
• Average Day (kL/day)	836	831	826
• Peak Day (kL/day)	2,583	2,572	2,567
Non-potable Water			
• Average Day (kL/day)	2,510	2,525	2,543
• Peak Day (kL/day)	7,507	7,578	7,669

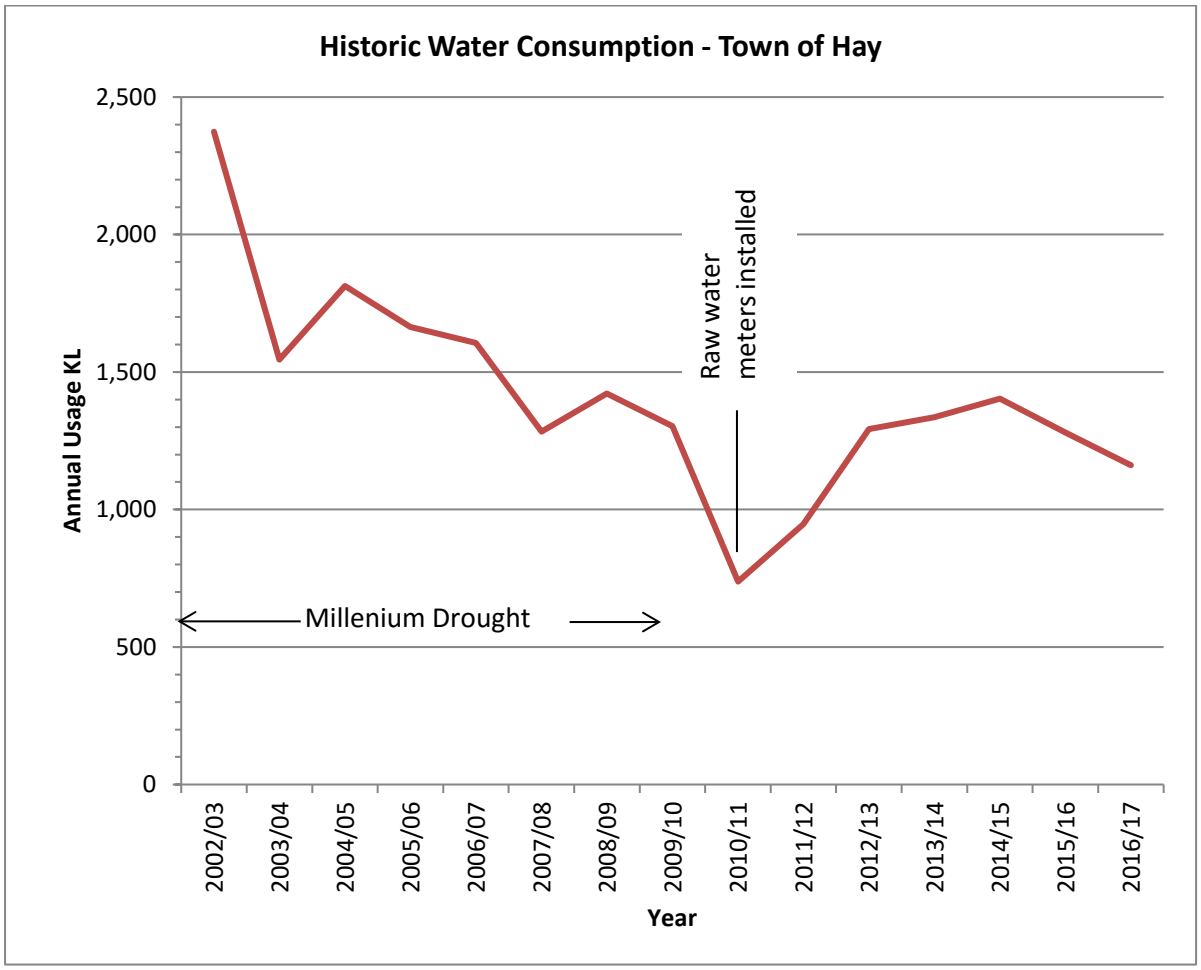
6.4.4 Historic Water Demand

Since the start of this millenium, Hay water demand has been impacted by two major events:

1. The millennium drought, which commenced late in the 1990's and extended through to early 2010 resulted in Council introducing usage restrictions in response to community pressure and reduced water allocations. These restrictions had the effect of reducing water consumption by nearly one third; and

2. Installation of meters to the residential consumers of non-potable water. Initial reactions regarding watering of lawns and, particularly, Council nature strips resulted in a significant drop in annual consumption to below 1,000 ML, this has now stabilised to about 1,200 to 1,400 ML/annum.

A graph of total water consumption in the Town of Hay over the past 15 years is shown on the next page:



6.4.5 Historic Water Demand

There are no significant high users of water in the town other than:

- Council owned public parks and playing fields which typically use between 50ML and 70ML of non-potable water per annum, and

- John Houston Memorial Swimming Pool which typically uses between 18ML and 20ML of potable water per annum.

6.4.6 Dry Year Annual Demand

Extrapolating from information in the IWCM Strategy the Unrestricted Dry Year annual demands are as shown below:

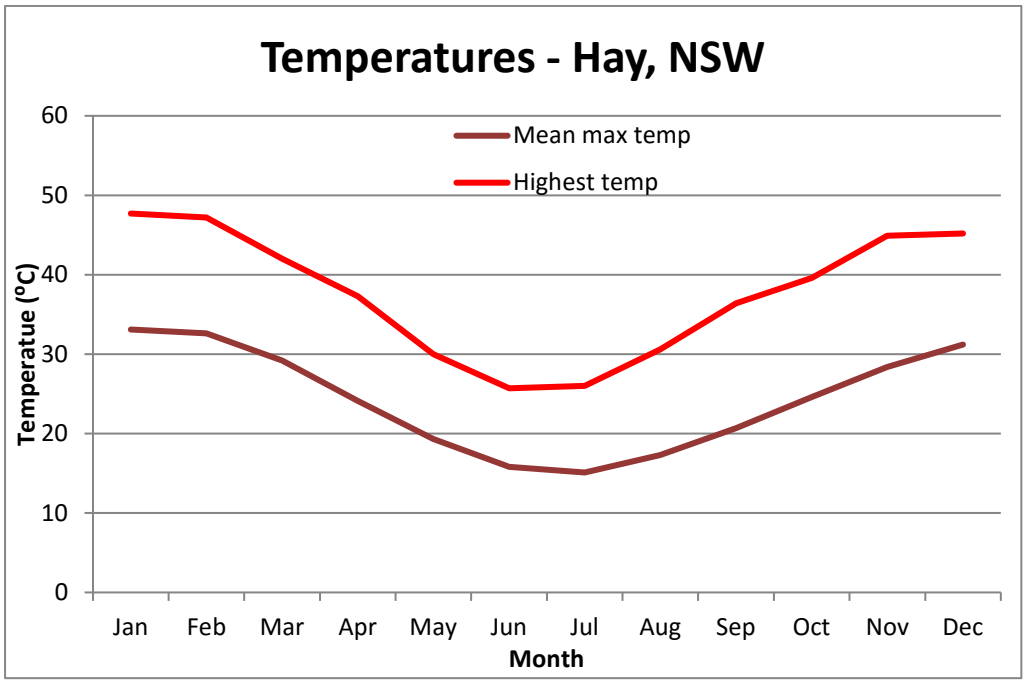
Supply	2015	2020	2025
Potable (ML/yr)	353	351	349
Non-Potable (ML/yr)	1,063	1,083	1,093
TOTAL (ML/yr)	1,416	1,433	1,441

7 Climate

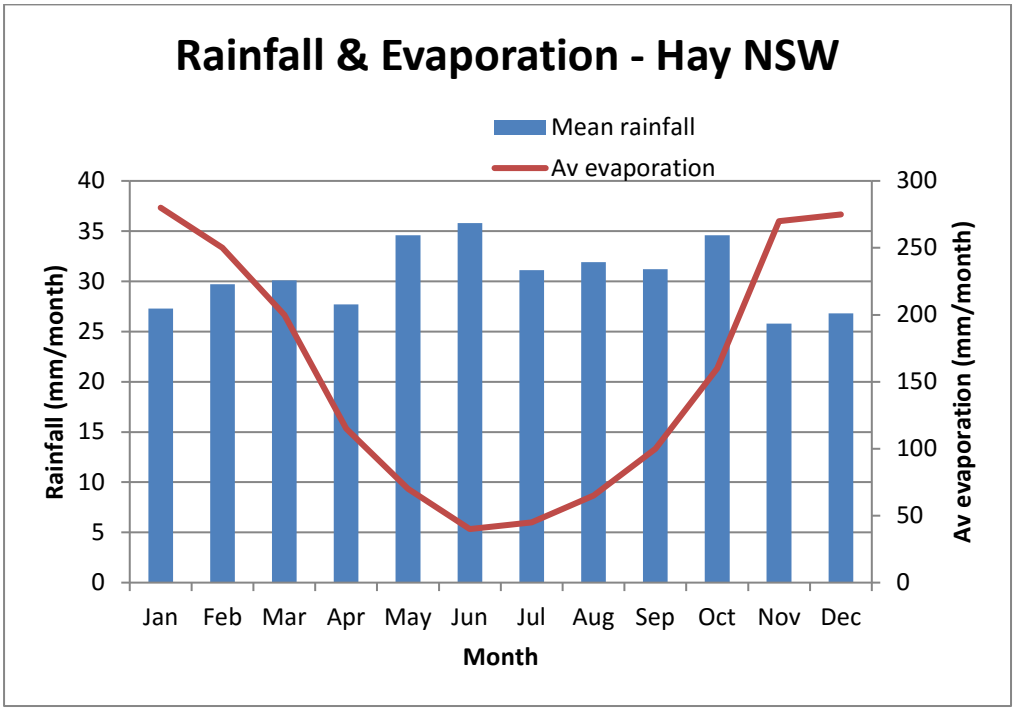
7.1 Rainfall, Evaporation and Temperature

The following graphs indicate the important climate data relating to the Hay water supply schemes:

Temperatures



Rainfall & Evaporation



7.2 Climate Change

The recently completed IWCM Strategy provides the following expected percentage change in demand due to climate change:

Supply	Demand	Increase in demand due to climate variability
Potable	Peak Day Demand (kL/day)	+1.40%
	Dry year demand (ML/da)	+3.10%
Non-potable	Peak Day Demand (kL/day)	+3.60%
	Dry year demand (ML/da)	+3.40%

7.3 Drought Restrictions History

The imposition of moderate water restrictions in 2006, 2007 and 2008 (towards the end of the Millennium Drought) saw a reduction in consumption of approximately 20%. Not long after the end of the drought, Council introduced meters to the residential users of non-potable water and the level of consumption has stabilised at about 2/3rds the usage at the turn of the century.

7.4 Supply-Side Historic Actions

The only historic actions undertaken by Council in regard to improving water supply during drought has been the construction of a supply bore at Booligal. Apart from use for firefighting purposes, the bore has not been put into regular service.

8 Regulatory Framework

8.1 Hay Shire Council

Hay Shire 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*. Hay Shire Council is empowered to restrict water supply (e.g. by public notice published in a newspaper circulating within Hay Shire 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 (as per September 2014) 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 Hay Shire Council. During drought, this plan will be overseen by the Drought Management Team (see Section 4.2). The implementation of this Drought Management Plan will be the responsibility of the Drought Incident Manager.

8.2 DPI Water

8.2.1 General

DPI Water works with partner agencies and with the community to provide a reliable, sustainable supply of water for households, irrigators, farmers, industry and the environment.

For regional NSW, DPI Water provides managerial, technical and financial support through Goals 21, 22 and 5 of the State Plan NSW 2021, the Country Towns Water Supply and Sewerage Program and the Regional Water and Waste Water Backlog Program.

Available water determinations are made for each water source generally at the start of a water year (on 1 July). The licensed volume or the percentage of the share component is defined by DPI Water. Since the introduction of the *Water Management Act 2000*, DPI Water is preparing water sharing plans for rivers and groundwater systems across New South Wales.

8.2.2 Water Sharing Plans

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.

The Water Sharing Plan for the Murrumbidgee Regulated River Water Source was originally made on 27 December, 2002 and replaced on 1 July, 2016. Under this plan Council has an entitlement of 2,805 ML/year.

8.3 Fire Fighting Requirements

In spite of the water restriction actions, preference will be provided to accommodating firefighting requirements.

In the event that 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.