



2017 Urban Water Strategy

Summary

What is the Urban Water Strategy?

The Urban Water Strategy is Gippsland Water's principal water resources planning document. It is a requirement of Gippsland Water's Statement of Obligations which is a directive from the Minister for Water. The Urban Water Strategy includes a stocktake of Gippsland Water's current water resources and water demands, and reviews and reports on current water supply risks such as drought, as well as a long term 50 year outlook of water supply-demand sustainability risks in the face of plausible scenarios that consider matters such as climate change and growth. At all stages of the 50 year planning horizon, Gippsland Water's ability to meet water supply-demand level of service targets for customers is considered. Where a water supply system is identified as being unable to provide an adequate level of service, either currently or at some point in the future, potential options to either increase water supply or decrease demand are considered and their required timing identified.

Forecasts of water resource availability into the future cannot be prepared with absolute certainty. Climate change science predicts a range of possible outcomes, with the range broadening into the future. Similarly, demand also cannot be forecast with complete confidence as many factors influence regional growth and associated water demands. The Latrobe Valley region in particular faces a future with a wide range of potential water demand outcomes. For this reason, a range of supply and demand scenarios are considered, using the best available information, leading to a range of possible timings for each water system requiring action to maintain an adequate level of service.

Where it is identified that action is required in the short term to ensure adequate levels of service are provided and maintained, the best solution after rigorous assessment is programed into the next price submission period. Actions identified as being required in the medium to longer term however, are not locked into planning schedules. Instead, trends in supply and demand are monitored through a range of processes such as Gippsland Water's Annual Water Outlook, so that the appropriate timing and lead time planning can be refined as future uncertainties resolve. This approach is termed Adaptive Management and ensures that system reliability is balanced with appropriate and timely investment.

The 2017 Urban Water Strategy also includes a greater focus on the overall water cycle. This builds on the 2012 Water Supply Demand Strategy and aligns with the government's recently released Water for Victoria Water Plan, which aims to deliver increased focus on Integrated Water Management. This involves collaboration between the range of agencies whose responsibilities span the urban water cycle, with a view to maximising investment efficiency for communities by identifying opportunities to provide solutions that have multiple water cycle benefits and reduce overall costs.

Accordingly, this Urban Water Strategy also brings together a body of knowledge on sewer systems and their future outlooks, stormwater systems, urban green space priorities, and community views on expectations for drought management and urban liveability. Integrated Water Management will be an ongoing journey for the water sector, and the information presented in this Urban Water Strategy is preliminary in nature and subject to further development in liaison with communities and local councils.

Community engagement has further developed and matured in the preparation of this Urban Water Strategy, in line with water sector direction and government expectations. Gippsland Water undertook a revised approach, adopting learnings from the 2012 Water Supply Demand Strategy, to undertake engagement that utilised a range of approaches that provided the community with a range of options depending on the level of engagement they sought. Online surveys provided convenient accessibility, while focus group sessions allowed for depth of conversation.

What has changed since 2012?

Gippsland Water prepared its first Water Supply Demand Strategy in 2007, with a revised Water Supply Demand Strategy released in 2012. While the Urban Water Strategy builds on those earlier strategies, there have been some key changes.

New Climate Data

Gippsland Water has undertaken the climate change outlooks for the Urban Water Strategy in accordance with the *Guidelines for Assessing the Impact of Climate Change on Water Supplies in Victoria (Department of Environment, Land, Water and Planning 2016)*. These guidelines bring together the latest climate research as it applies to Victoria's water resources. Compared with similar guidance that informed the 2012 Water Supply Demand Strategy, the 2016 guidance recommends:

- The adoption of a current baseline that reflects the climate since 1975, rather than the long term record;
- A milder medium climate change scenario; and
- A wider range of climate outcomes spanning the low to high scenarios.

Work done by Gippsland Water

Gippsland Water has continued to work to improve water system reliability, implementing actions set out in the 2007 and 2012 Water Supply Demand Strategies. This has led to this Urban Water Strategy finding that the only water system in need of action in the next price submission period (2018-23) is the Warragul/Drouin part of the Tarago water system, with all other systems currently providing good reliability. Actions taken over the last 10 years include:

- Connecting Boolarra to the Latrobe system;
- Constructing a 30 ML water storage for Seaspray;
- Purchasing an increased share of Blue Rock Lake;
- After detailed assessment, resolving to truck potable water to Thorpdale as a permanent supply measure; and
- Moe to Warragul Interconnect Stage One (Yarragon to Darnum).

Additional Scope

The scope for the 2017 Urban Water Strategy, compared with the 2012 Water Supply Demand Strategy and as outlined in the *Guidelines for the Development of Urban Water Strategies and the Melbourne Water System Strategy*, has been considerably extended. The primary area in which the scope has increased is in the incorporation of sewer systems into the strategy. Providing a strategy that more comprehensively documents the whole

urban water cycle, inclusive of potable water, sewerage, stormwater, green space and urban liveability, as well as community views on these matters, helps to underpin future opportunities for Integrated Water Management and the associated opportunities.

Gippsland Water has therefore provided in this Urban Water Strategy a summary of each sewer system and an outlook of those systems with respect to capacity and growth. Gippsland Water has not been able to address every new aspect of the guidelines but has endeavoured to do so, as far as has been practical, with a fixed deadline. Gippsland Water will continue to work towards addressing those aspects of the guidelines that were not completed in time, as permitted under the guidelines.

Levels of Service

Gippsland Water has continued to adopt 95% annual reliability to stage one water restrictions as the target level of service for planning. This means that water supply systems will be planned so that on average over the long term, stage one water restrictions may be required at most once every 20 years. Higher stages may occur less often. This is a relatively high level of service but most of our systems are already performing at this level without contingency measures, the exception being Warragul/Drouin which relies on a water by agreement trade deal with Melbourne's three retail water corporations.

Gippsland Water engaged with the community on levels of service, with unsurprising feedback that low level water restrictions such as stage one and two have little impact on lifestyle expectations and that incurring low level restrictions more often than once every 20 years would not be unreasonable. At this stage, no change to level of service is planned, but this information may guide Gippsland Water in future conversations with communities where accepting a lower level of service may help delay expenditure on actions to increase supply.

Adopting a Medium Climate Change Scenario

The *Guidelines for Assessing the Impact of Climate Change on Water Supplies in Victoria* set out four possible climate change scenarios. Three are gradual climate change scenarios, named low, medium and high, which are applied to the current climate baseline. The fourth is a step change scenario named "post 1997" which reflects the possibility that a step change occurred in our climate around the commencement of the Millennium Drought.

The three gradual climate change scenarios are developed considering the range of outputs of 42 global climate models and while the Department of Environment, Land, Water and Planning has not attempted to apply a probability distribution to this suite of models in terms of their accuracy for Victoria, the medium climate change scenario is defined by having 21 climate models predicting a wetter future and 21 climate models predicting a drier future. Gippsland Water has modelled the impact on water supply systems of all of these scenarios to explore the range of possible climate future outcomes and the implications for each system. However, the primary scenario that has been adopted for planning is the medium climate change scenario.

Water Systems - Need for Action

Table 1 outlines the range of timings for action to address identified shortfalls in yield of Gippsland Water's water systems.

Table 1 – Identified timing for action to maintain service levels – water systems

Water Systems				
System	Medium climate change (stage 1 LOS) earliest time for action	Medium climate change (stage 1 LOS) latest time for action	All scenarios earliest time for action	All scenarios latest time for action
Briagolong	2053	2053	Now	Beyond 2065
Erica-Rawson	Beyond 2065	Beyond 2065	Beyond 2065	Beyond 2065
Latrobe	2065	Beyond 2065	2030	Beyond 2065
Mirboo North	Beyond 2065	Beyond 2065	2040	Beyond 2065
Sale	Beyond 2065	Beyond 2065	Beyond 2065	Beyond 2065
Seaspray	Beyond 2065	Beyond 2065	Beyond 2065	Beyond 2065
Tarago	2025	2028	2023	2035
Thomson-Macalister	Beyond 2065	Beyond 2065	2040	Beyond 2065

Note: LOS = Level of Service

The Warragul/Drouin part of the Tarago water system has been identified as being in need of action now (although a temporary supply agreement is currently providing relief until 2025 under medium climate change as listed in Table 1).

Gippsland Water took four options to the community focus group sessions that would be likely to provide security for Warragul/Drouin into the medium to longer term. Not all of the options would be capable of addressing shortfalls alone, and some may form part of a solution suite. These options were:

1. Purchase a Bulk Entitlement to the Melbourne Thomson Yarra Pool, accessing the water via Tarago Reservoir.
2. Constructing a pipeline from Blue Rock Lake to Warragul, to utilise water resources held there by Gippsland Water.
3. Accessing unallocated groundwater in the Moe Swamp Basin for transfer and treatment at Warragul.
4. Development of "third pipe" or "purple pipe" reticulated recycled water networks in new developments for non-potable use.

Customer feedback on the above options has emphasised to Gippsland Water that while recycled water is recognised as having a poorer economy of scale compared with other options, as well as an inability to be a stand alone solution, Gippsland Water should still be actively investigating opportunities for fit for purpose use of recycled water.

Gippsland Water has not chosen the best solution or suite of solutions yet, and will continue to rigorously review the options, considering community views, to deliver the most appropriate solution during the 2018-23 price submission period.

Sewer Systems - Need for Action

Table 2 outlines the range of timings for action to address identified shortfalls in capacity of Gippsland Water's sewer systems.

Table 2 – Identified timing for action to maintain service levels – sewer systems

Sewer Systems		
System	Likely time for action	Constraint
Drouin	Now	Recent ongoing discharge non-compliance.
GWF Domestic	2035	Average plant capacity.
GWF Industrial	Beyond 2065	
Heyfield	2027	Winter storage.
Maffra	2027	Winter storage.
Mirboo North	Now	Winter storage and irrigation land constraints.
Moe	2026	Plant process capacity.
Morwell (west)	Beyond 2065	
Neerim South	2026	Plant process capacity.
Rawson	Beyond 2065	
Sale/Lochsport	2035	Lagoon and aeration system limits.
Seaspray	Beyond 2065	
Stratford	2057	
SWOP	Beyond 2065	
Warragul	2029	Plant process capacity and inlet works capacity.
Willow Grove	Beyond 2065	

Note: GWF = Gippsland Water Factory; SWOP = Saline Water Outfall Pipeline

The Drouin Sewage Treatment Plant was identified as being in need of action now to address capacity and compliance issues. A project is planned for the 2018-23 price submission period to address this. The Mirboo North Sewage Treatment Plant currently experiences a capacity constraint related to effluent disposal to irrigated land. A project, also in the 2018-23 price submission period, is planned for the installation of additional irrigation to address this constraint.

What is our Community telling us?

Other than the aforementioned messages on water restriction levels of service and the Tarago water system options, Gippsland Water heard views on a range of matters relevant to urban water planning. In particular the community expects that Gippsland Water will:

- Continue to develop education programs for the community on a range of water topics;
- Work to increase the utilisation of all components of the urban water cycle, especially wastewater, for use in fit for purpose applications; and

- Promote water efficiency in every way it can.

In addition, our community is telling us they are doing their bit. Over two surveys they have indicated significant take-up of water efficient appliances.

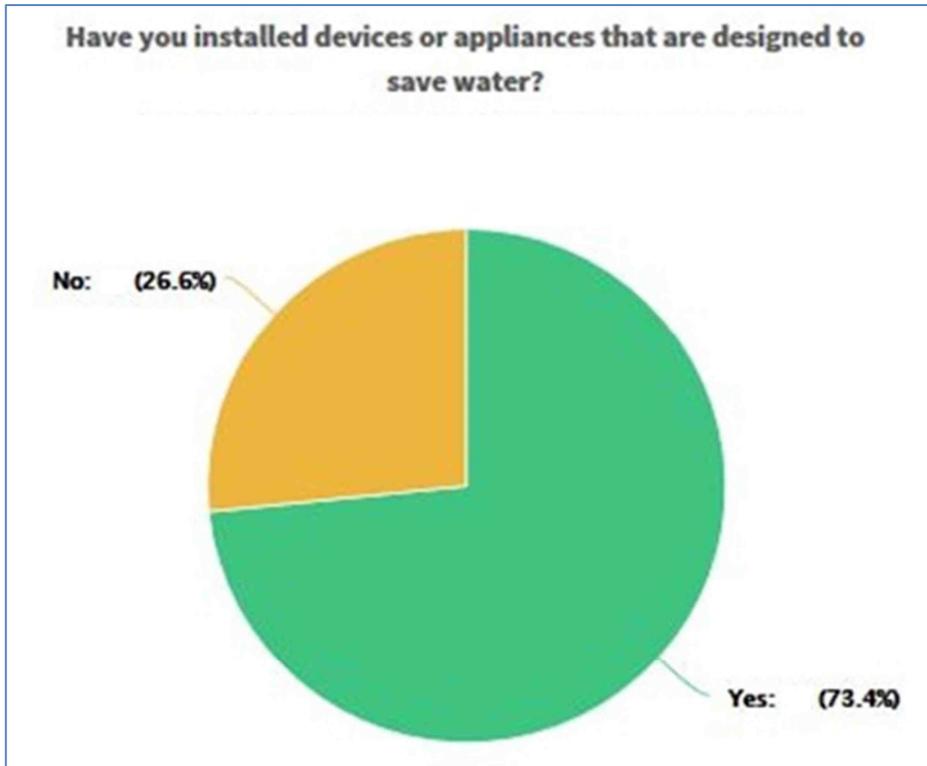


Figure 1 – Proportion of survey respondents who have installed water saving devices at home

Action Plan

Based on the work done in the preparation of this Urban Water Strategy, Gippsland Water proposes to undertake the following actions in the 2018-23 price submission period.

1. Complete the assessment of options for the Warragul/Drouin water system, selecting and implementing the most appropriate solution.
2. Complete the upgrade of the Drouin Sewage Treatment Plant.
3. Continue to promote water conservation and efficiency under the Target Your Use program.
4. Work with the Department of Environment, Land, Water and Planning and Southern Rural Water to improve the understanding of risks and sustainability of the Boisdale Aquifer during the Gippsland Region Sustainable Water Strategy five year review, or other process as appropriate.
5. Continue to monitor trends and report annually through the Annual Water Outlook, bringing forward action on other systems if required.
6. Actively participate in the upcoming Integrated Water Management forums (Water for Victoria Action 5.7) in conjunction with the Department of Environment, Land, Water and Planning, local councils and the West Gippsland Catchment Management Authority.

Liveability

The importance of the maintenance of public green space for sport and recreation has become more widely understood, especially in light of the experiences of many Victorian communities during the Millennium Drought. A growing body of research suggests that the loss of such amenity during dry periods can be detrimental to community mental health. Integrated Water Management recognises the nexus between the water cycle and public health and that it extends beyond safe drinking water and effective sanitation. Government has clearly expressed its vision for Victorian cities and towns in the Water for Victoria chapter 5, *Resilient and liveable cities and towns*. Accordingly, Gippsland Water placed focus on this topic during engagement with customers and local councils.

Drought Preparedness

The 2017 Urban Water Strategy now has a Drought Preparedness Plan which includes an update of Gippsland Water's Drought Response Plan, to which the Water Restrictions By-Law 16 refers. The water sector in Victoria is moving towards drought preparedness, instead of simply responding to drought. This has been emphasised during engagement with customers and local councils leading to preliminary discussions on priority community assets that would benefit from "drought proofing".

What if I want more detail?

Gippsland Water's website has been updated to include an Urban Water Strategy page. This page contains:

- This Executive Summary;
- The full Urban Water Strategy document;
- A fact sheet providing a high level summary of the water system supply and sewer system capacity positions; and
- A report outlining customer consultation outcomes from both customer surveys and focus groups.