

# Melbourne's Annual Water Outlook 2024

December 2023

## Acknowledgement

We respectfully acknowledge the Traditional Owners of the Greater Melbourne region as the original custodians of this land and water upon which we rely and operate. We recognise their continuing connection to land, waters and culture.

In the spirit of reconciliation and recognition of First Nations water knowledge and values, we remain committed to genuinely partnering with the Bunurong, Dja Dja Wurrung, Gunaikurnai, Taungurung, Wadawurrung and Wurundjeri Woi Wurrung Traditional Owner groups. These partnerships will ensure ongoing contribution of Traditional Owners to the future of water management while maintaining cultural and spiritual connections.

## Summary

### Current snapshot

#### 2023 in review

- Average flows into our storages over the winter-spring period.
- 161 litres per person per day residential water use.
- (Slightly above the target of 150 litres per day)
- October's rainfall was 114% above average.

#### Current

- 95% storage level
- Storage levels are high.

#### The year ahead

- No water restrictions expected.
- We're experiencing El Niño conditions.
- Hotter conditions expected.
- Melburnians are encouraged to make every drop count.

Storages are high now, but we need more water from new supplies in the future.

### Where Melbourne's water comes from

Melbourne's water comes from a system of rivers and reservoirs, supplemented by supply from the Victorian Desalination Plant in all but the wettest of years.

The plant has been supporting Melbourne's water needs since 2017, and has contributed 456.5 billion litres of water (around one year of supply) for the city.

### Enough water for the future

Water is a finite resource. We all need to do what we can to protect our precious drinking water supplies, now and into the future.

Together, the metro water corporations - Greater Western Water, Melbourne Water, South East Water and Yarra Valley Water - along with regional water corporations, work hard to make sure safe and reliable water is available for all Melburnians. That includes planning for the short, medium and long-term to meet the challenges we face.

## The challenges we face

- A changing climate: Victoria will be warmer and drier, with less water flowing into our dams.
- Growing population: The number of people in Melbourne could double by 2070.
- Our region is changing: We must balance environmental, economic and cultural water needs.

Storages can fall very quickly in dry conditions.

Keeping storages as high as possible means we have enough to reliably meet our current and future water needs.

Water supplied from the Victorian Desalination Plant is an important part of our water supply, with the plant able to supply up to one third of Melbourne's water use each year.

Regular use of desalinated water, even when storages are high, helps ensure Melbourne has enough water. It also provides a strong buffer in the event of drought, bushfires and extreme weather conditions.

## What you can do

Although Melburnians have already committed to make every drop count, there's more we all can do.

Find more [ways to save our precious water](#).

1. Shave a minute off your shower.
2. Turn off the tap when you brush your teeth.
3. Go easy with the hose and use a trigger nozzle.

If we each save a little, we all save a lot.

## Where Melbourne's water comes from

Melbourne's retail water corporations – Greater Western Water, South East Water and Yarra Valley Water, in partnership with Melbourne Water, our wholesale provider – work together to deliver water across the Melbourne metropolitan region (Figure 1).

Regular use of desalinated water helps keep storages high.

Our precious water is delivered from rivers and the Victorian Desalination Plant.

Our system of rivers and storage reservoirs across Melbourne and the surrounding region is largely fed by protected catchments in the Yarra Ranges and Upper Thomson River basin.

The Victorian Desalination Plant is a core part of our water system. That's because it can supply up to 150 billion litres of water every year, or around one third of Melbourne's annual water demand. On average, Melbourne's water use is approximately 50–70 billion litres higher than the available water flowing into our reservoirs from rivers.

In dry times, storage levels in our reservoirs can fall rapidly. Regular use of desalinated water helps make sure Melbourne has enough water, providing a buffer in the event of drought and extreme weather conditions.

Without desalinated water, it's very likely we would have experienced water restrictions in the years since the plant was built.

Use of desalinated water gives us the flexibility to adapt to current conditions to keep storages high, so we're prepared for future variability and growing water demands.

The Victorian Desalination Plant has supplied 456.5 billion litres of water since 2017.

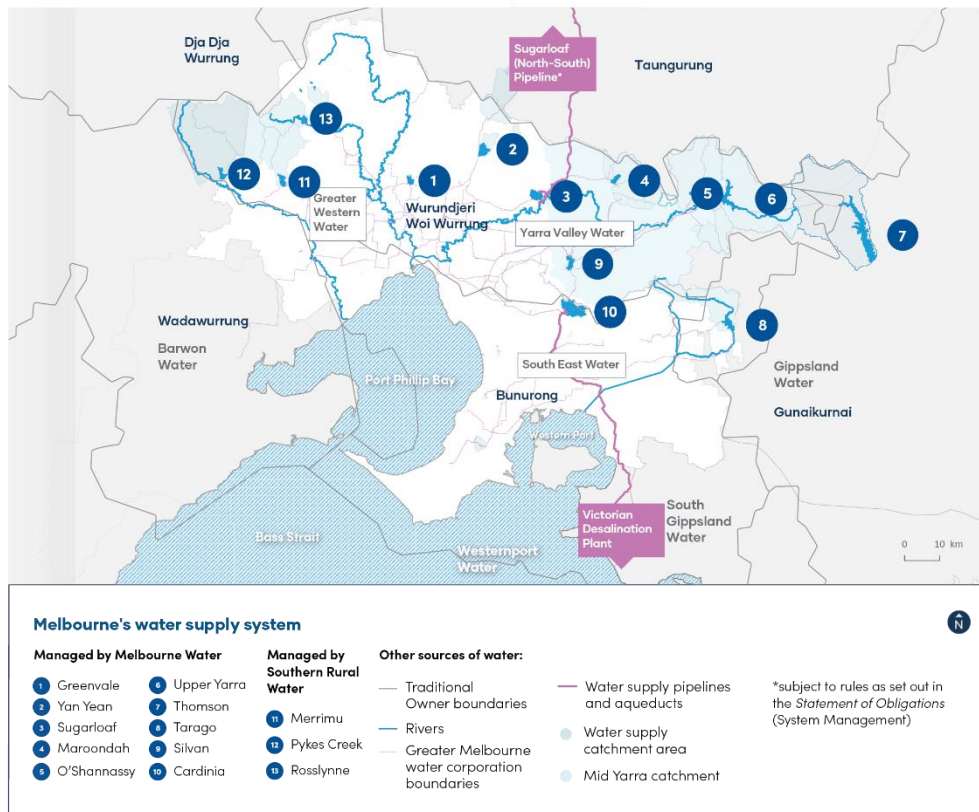


Figure 1: Melbourne's water supply system

What water corporations are doing:

### Helping customers monitor their water use and detect leaks

Water corporations continue to look at ways to empower customers to save water and operate more efficiently. By taking readings of their water use every 30 minutes, digital meters allow customers to track their use in near real-time, so they can take action to fix leaks and find ways to save water.

With over 90,000 digital meter customers already able to track their daily water usage, South East Water's leading digital meter rollout (including leak alert program) has to date saved our customers close to a billion litres of water and over \$4 million.

Over the next 5 years, South East Water has committed to delivering digital meters to 85% of our customers, so more can save water and money.

Replacing analogue meters with digital meters is a key 'water efficiency' initiative within the Greater Melbourne Urban Water and System Strategy (*GMUWSS*).

Find out more about the *GMUWSS* on page 16.

## 2023 in review

### Our water use

Melburnians are saving water and making ongoing commitments to water efficiency. We achieved residential water use of 161 litres per person per day (Figure 2) which accounted for 66% of Melbourne's total water use in 2022–23. This is lower than residential use in 2021–22 of 163 litres per person per day.

While this reduction in use is positive, given the increasing impacts of climate change and our growing population, it's more important than ever that we continue to use water responsibly.

That means we should each aim to achieve Melbourne's target of 150 litres per person per day.

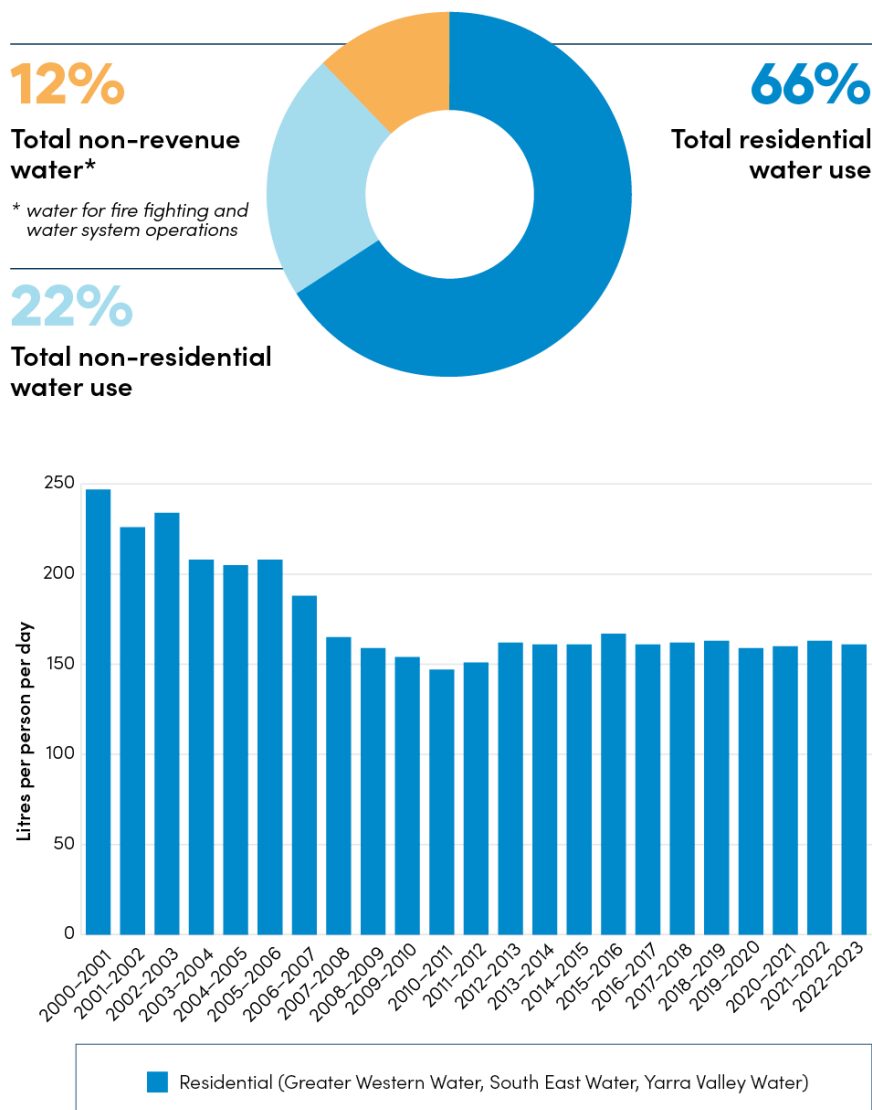


Figure 2: Water use in Melbourne

## Rainfall and storages

In 2022–23, Melbourne’s 4 major harvesting storages received 1,273 mm of rainfall (21% above the 30-year average) and 881 billion litres of inflows (83% above average).

That equates to almost 2 years of water use for metropolitan Melbourne\*.

The Melbourne retailers own 63% of the water held in Melbourne’s storages. The remainder is owned by other users, such as regional water corporations, the Victorian Environmental Water Holder and irrigators. There’s also a volume not able to be accessed under normal conditions as it would increase risks to our infrastructure or the quality of water we supply.

Our current high storage levels have been influenced by:

1. Three consecutive wetter-than-average years due to La Niña events
2. Desalinated water orders in most years since 2016–17
3. Ongoing water efficiency and conservation programs.

\*Based on 2022–23 water use

## How climate influences water storages

Victoria's climate and streamflow is highly variable, but within this variability we've experienced a warming and drying trend over recent decades.

Victoria's climate will continue to be variable with wet years and dry years, against a background drying trend. With a warmer future and projections of declining water availability, we can expect more frequent and severe droughts in coming decades and increases in extreme rainfall events.

The Bureau of Meteorology (BoM) Climate Outlooks forecast that Melbourne will experience a hotter summer (Figure 3).

In September 2023, the BoM declared an El Niño and positive Indian Ocean Dipole (IOD). The combination of these events typically leads to reduced spring and summer rainfall.

The BoM forecasts the positive IOD to persist until at least the end of spring, and the impact of the El Niño event to persist until at least the end of February 2024. The combination of these events leads to typically stronger and more widespread drying.

Warmer temperatures and lower rainfall tend to increase water use, particularly during summer, as more water is used to water gardens, parks and sports grounds.

Lower rainfall into storages along with the community using more water means our reservoir levels can drop quickly.



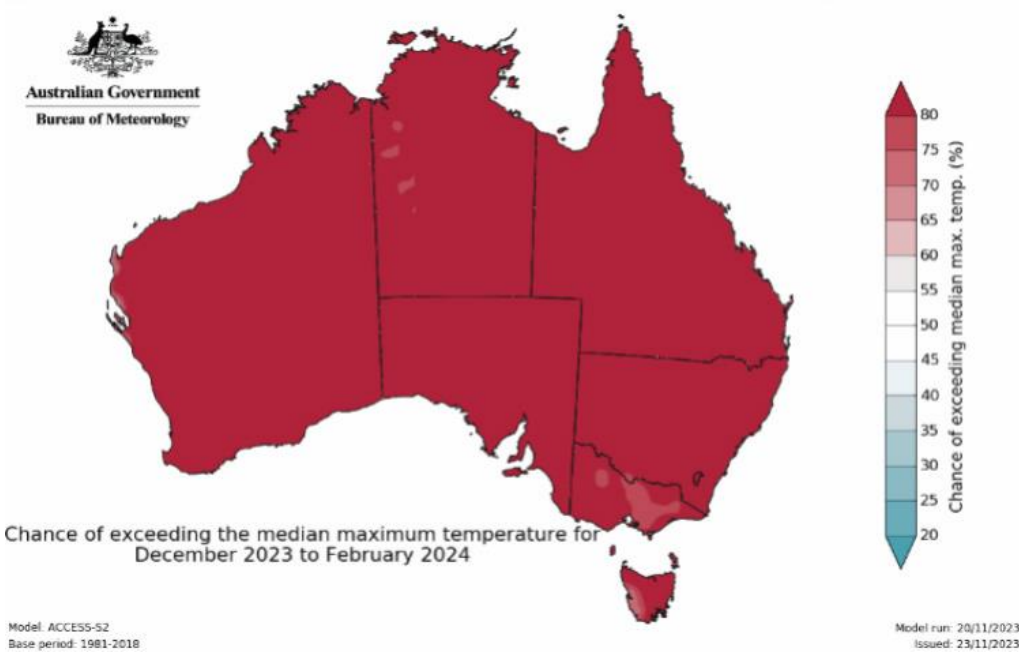
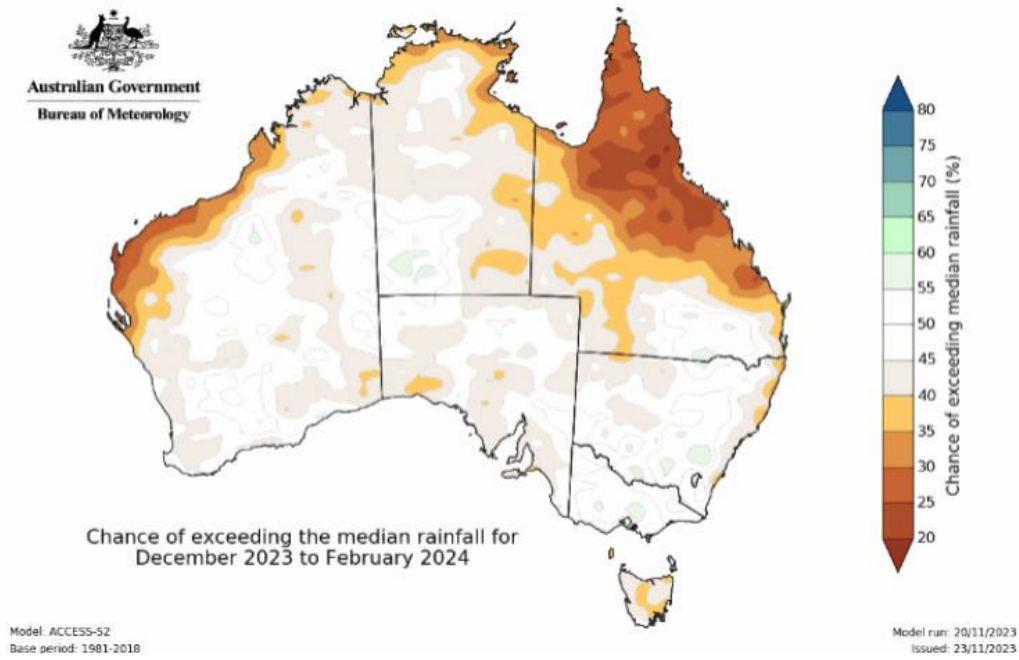


Figure 3: Seasonal rainfall and temperature outlook for December 2023 to February 2023

## The year ahead

### Storage position

Currently Melbourne's storages are nearly full (95.0% full as at 24 November 2023). This corresponds with the 'Be Responsible' zone in the Melbourne Water Outlook Zones (Figure 6).

Due to high storage levels, no water is being delivered from the Victorian Desalination Plant in 2023–24. Melbourne experienced average rainfall over winter and spring, resulting in average inflows into dams. A significant rainfall event in early October was a large contributor. Prior to this event, conditions were tracking below average.

Regular desalinated water orders give us the flexibility to adapt to current conditions to keep storages high, so we're prepared for future variability and growing water demands.

Under most scenarios, storage levels over the next 12 months are expected to remain in the 'Be Responsible' zone (between 75% and 100%).

Current storage levels 95.0% as of 24 November 2023.

Melbourne total system storage outlook  
(Projected from 24 November 2023)

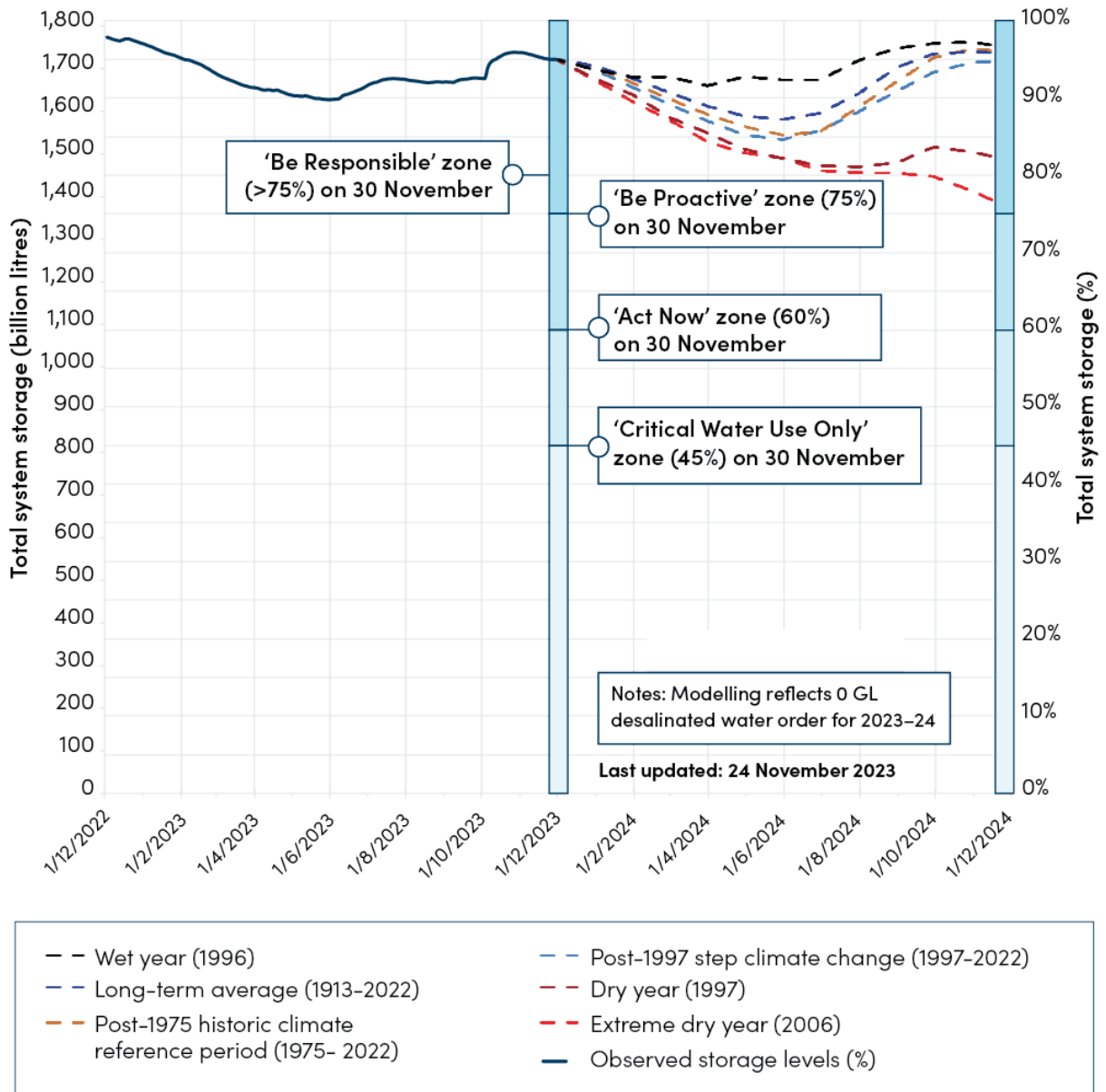


Figure 4: Melbourne total storage system

Greater Western Water local storage outlook  
(Projected from 24 November 2023)

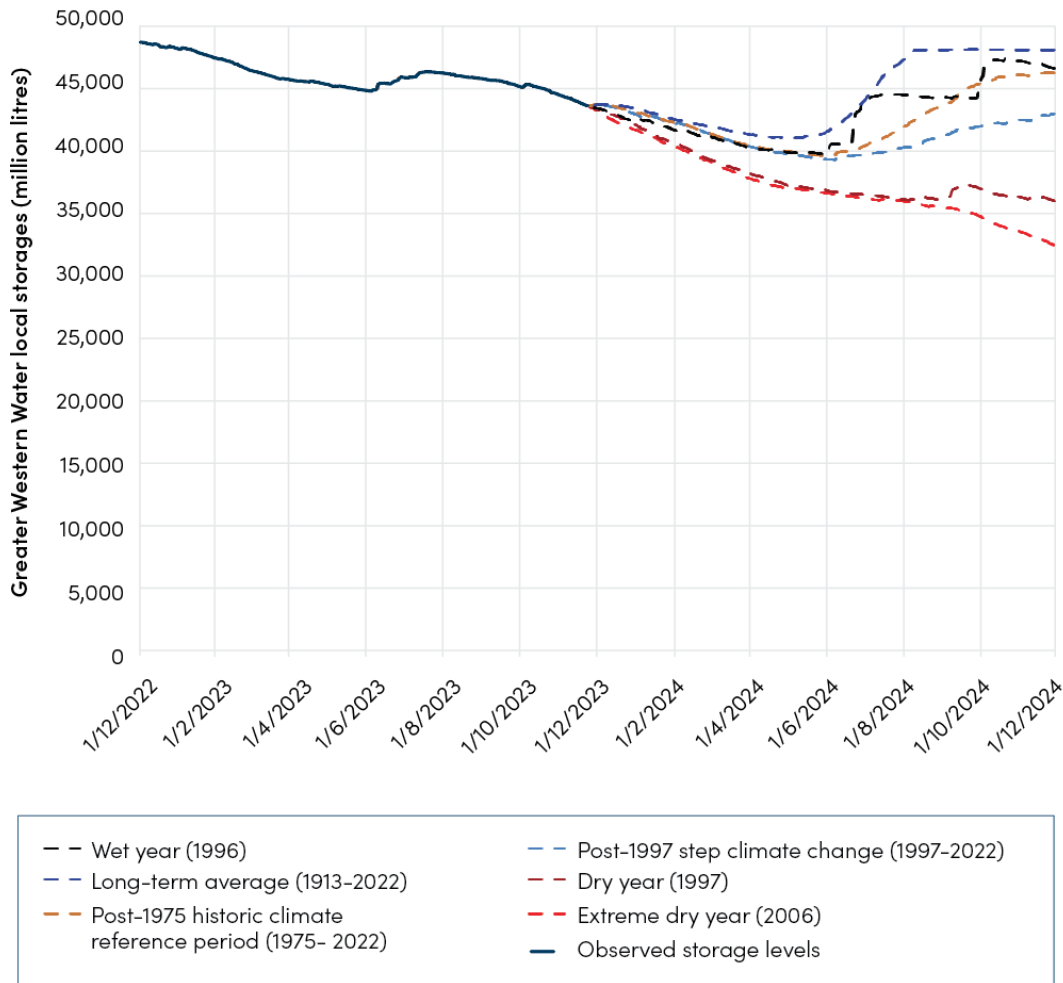


Figure 5: Greater Western Water storage outlook 2023

Even with currently high storages and regular water from desalination, under persistent dry conditions, storages can fall very rapidly. Once storages reach lower levels, water restrictions will almost certainly be required.

What water corporations are doing:

**Expanding recycled water distribution reduces impacts**

To respond to growing demand for recycled water in the Werribee catchment, Greater Western Water is expanding the West Werribee Recycled Water Scheme. This will include the construction of a 2.7 km pipeline to service the Werribee Open Range Zoo. A further stage will supply future developments in east Werribee.

Once completed, the project will deliver more than 400 million litres per year, enabling the zoo to expand without increasing the region’s demand for drinking water. The supply will reduce the zoo’s reliance on water from the Werribee River and improve environmental outcomes.

## Likelihood of restrictions

We assess and manage Melbourne's water security position through the Water Outlook Zones (Figure 6).

As of 24 November 2023, we're in the 'Be Responsible' zone. This means there's a very rare likelihood (<1% chance) of restrictions and therefore, we don't expect any restrictions in the coming 12 months.

Despite the very rare likelihood of restrictions, extreme events, emergencies or unavoidable system constraints can require water restrictions, to effectively manage demand. We continue to monitor and operate the water supply system to minimise the risk of restrictions throughout the year.

The 'Be Responsible' zone emphasises the need to continue to use water efficiently to keep storages high to ensure system resilience and to protect our water into the future.

We do this by continuing to talk to our community and customers to increase their knowledge about water and by planning to make sure we have enough water in the future.

Restrictions limit the water you can use in your garden. So, if restrictions are required in the future, the expected water savings will be lower than they were during the Millennium Drought. That's because our houses are getting larger and gardens smaller – and so we use less water in our gardens. It means it's even more important to look for ways to use water efficiently every day.

Check out 'what you can do' to make every drop count on page 17.

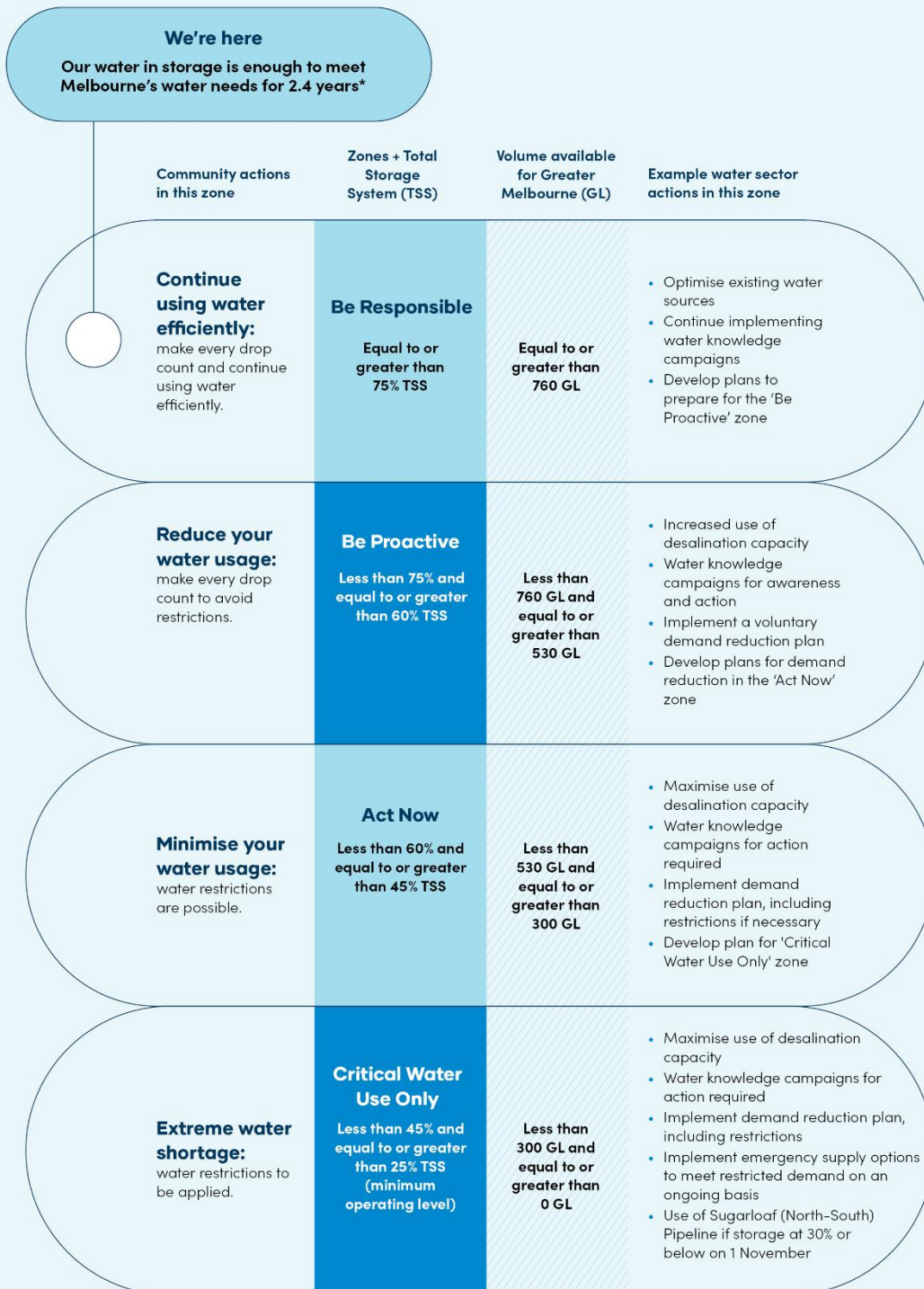
What water corporations are doing:

### **Reducing reliance on drinking water**

Water corporations continue to increase use of recycled water for non-drinking purposes. It's crucial for long-term water security. Yarra Valley Water is delivering Class A recycled water to more than 45,000 homes and businesses, mostly in Melbourne's booming northern suburbs.

The Aurora and Wallan recycled water treatment plants produce this water for non-drinking purposes, such as flushing toilets, watering gardens and car washing. Providing recycled water to new developments in the north helps save precious drinking water, with a typical residential property using about 25% less on average.

Yarra Valley Water is continuing work to expand our recycled water network to over 100,000 homes and businesses in the northern growth area.



\* Based on 2022-2023 water use in Melbourne

Figure 6: Water outlook zones

## Enough water for the future

A variable climate, population growth, additional needs of water and other factors influence long-term supply and demand for water. Our strategies and plans make sure we have enough water now and into the future. They also keep us accountable through delivery of actions in these strategies.

We aim to keep storages higher to improve our water security and system resilience against events such as bushfires, severe storm and rainfall events, and more frequent extended drought conditions.

## Annual water outlooks

We release this annual water outlook every year to provide Melburnians with information on what the water industry is doing over the next 12 months to secure water supplies.

## Drought preparedness plans

Each water corporation has a drought preparedness plan. These plans comprise a series of interrelated long- and short-term actions, including drought response actions, to guide our response to continue to supply water to Melbourne in ongoing dry conditions.

## Central and Gippsland Region Sustainable Water Strategy (CGRSWS)

The *CGRSWS* considers the needs of urban communities, irrigators, Traditional Owners, and the environment across the central (including Melbourne) and Gippsland region. The *CGRSWS* provides strategic direction and policy setting at the regional scale.

- Read [more about the CGRSWS](#).

What water corporations are doing:

### **Upgrading reservoirs and expanding distribution to meet drinking water demand**

To keep providing Melburnians with a reliable and secure water supply into the future, bulk water supplier Melbourne Water continues to upgrade its reservoirs and expand its drinking water distribution networks.

That includes work underway to upgrade the water treatment plant at Yan Yean Reservoir, so it's able to supply up to 40 million litres per day into the future.

Construction is also underway for a new 20-kilometre pipeline and pumping station from the Yan Yean plant to a new service reservoir at Bald Hill, Kalkallo. The new pipeline has been designed and timed to meet growing water demands and improve supply reliability in the northern suburbs, while freeing up capacity to transfer more water to the west.

# **Greater Melbourne Urban Water & System Strategy (GMUWSS)**

The *GMUWSS* outlines how the metropolitan water corporations will work together over the next 50 years to keep supplying high quality water to a growing Melbourne. This strategy identifies multiple possible scenarios and options to meet our future challenges ahead of time.

- Find out [more about the GMUWSS](#).
- See below for a summary of our activities towards delivering the Minister's expectations and priority actions in the *GMUWSS*.

## **Overcoming our challenges**

Actions 2.1 and 2.4

We continually improve our understanding of water use in our systems and look for fit-for-purpose alternative supplies.

## **Ensuring a secure and sustainable water future**

Actions 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7

We consider and progress early readiness of all options to make sure we can supply Melbourne's water use now and into the future.

Options include:

- enhancing and expanding our existing system (including new manufactured water sources, like desalination)
- integrated water management (including using recycled water and stormwater for non-drinking uses, to reduce demand on our drinking water supplies)
- water efficiency (including finding ways to use less water in our homes, businesses, communities and distribution networks).

## **Water for Traditional Owners and the environment**

Action 5.5

We're working with the Victorian Government to support and enable the return of water to Traditional Owners and the environment in the short, medium and long term as our supply system evolves.

Through genuine partnerships, we'll work together to maintain and improve the health of Country and support the health and wellbeing of all First Peoples. We'll do this through partnerships with Traditional Owners, as the original custodians of the lands and waters, through water planning and management.

We've started work on the important commitments outlined in *CGRSWS* to identify opportunities to return water to Traditional Owners, remove barriers to water ownership and strengthen the role of Traditional Owners in water planning and management.



During 2022–23, 24 GL of water for the environment was delivered in the Thomson, Yarra, Tarago, Maribyrnong and Werribee rivers, compared to 47 GL in 2021–22. The releases meet priority watering actions to ensure protection of our rivers along with the plants and animals that rely on them.

### **Healthy environment and waterways**

Actions 6.1, 6.2, 6.5, 6.6

We're assessing the ongoing role that stormwater plays in fit-for-purpose use in our region. This includes consideration of large-scale stormwater harvesting schemes.

### **Partnerships, engagement and education**

Action 7.3

Each year the metro water corporations run their Make Every Drop Count campaign.

This promotes collective action, highlighting to customers that if we each save a little, we all save a lot.

What water corporations are doing:

#### **Helping schools identify leaks and educate on water efficiency**

Through water retailers' involvement in the Schools Water Efficiency Program (SWEP), we're helping 902 schools in greater Melbourne identify leaks and save water. SWEP involves the installation of data logger technology, allowing participating schools to continuously monitor and track their water use, while educating students on the impact using less can have, both at school and at home.

By participating in the program, schools saved more than 365.1 million litres of water and \$1.7 million in 2022–23. This represents a saving of 4 billion litres of water (and \$15 million) since SWEP started in 2012.

## **What you can do**

We all need to continue to look for ways to make every drop count, saving water, as well as reducing bills.

- Follow the [Victorian Government's permanent water-saving rules](#).
- Find more [ways to save our precious water](#).

Follow us on social media for ongoing tips and updates on water savings, water availability and plans to deliver water to meet Melbourne's growing needs into the future.