



# Werribee System Reconfiguration Project

Werribee Customer Engagement

Paper 2 – Customer Requirements

26 March 2024



## Paper Intent

The first Customer Reference Group (CRG) meeting on 13 March outlined the Werribee System Reconfiguration Project (WSRP) and the objectives the project aims to achieve with customer support. The WSRP will examine a sustainable irrigation supply with an opportunity for a broad range of stakeholders within the Werribee River catchment to achieve a positive outcome.

The second meeting aims to clarify customer requirements for future irrigation water supply for inclusion in a preliminary business case.

This paper includes historical water resource and water quality data to provide context, and to illustrate the challenges of climate change and declining river health. The paper also summarises the proposed discussion questions for Meeting 2.

## Water Resource Challenges

### The Werribee Catchment

The Werribee catchment is experiencing a gradual decline in water availability and water quality with a warmer and drier climate. Werribee Irrigation District customers have been impacted by climate variability historically, most notably during the recent Millennium Drought. Future climate variability and a drying climate are likely to increase the risk of supply interruptions and supply shortfalls.

The long-term average inflow into the Werribee River catchment has reduced from 95.4 GL/yr to 77.8 GL/yr (Long-Term Water Resource Assessment for Southern Victoria Basin-by-Basin Results, Department of Environment Land Water and Planning 2020 pp 133).

It is also noted that water availability was less than 50 GL/yr from 1997 to 2016. This period is heavily influenced by the millennium drought which illustrates the natural variability of the climate and the catchment runoff. Figure 1 shows the annual water availability data from the long-term water resource assessment.

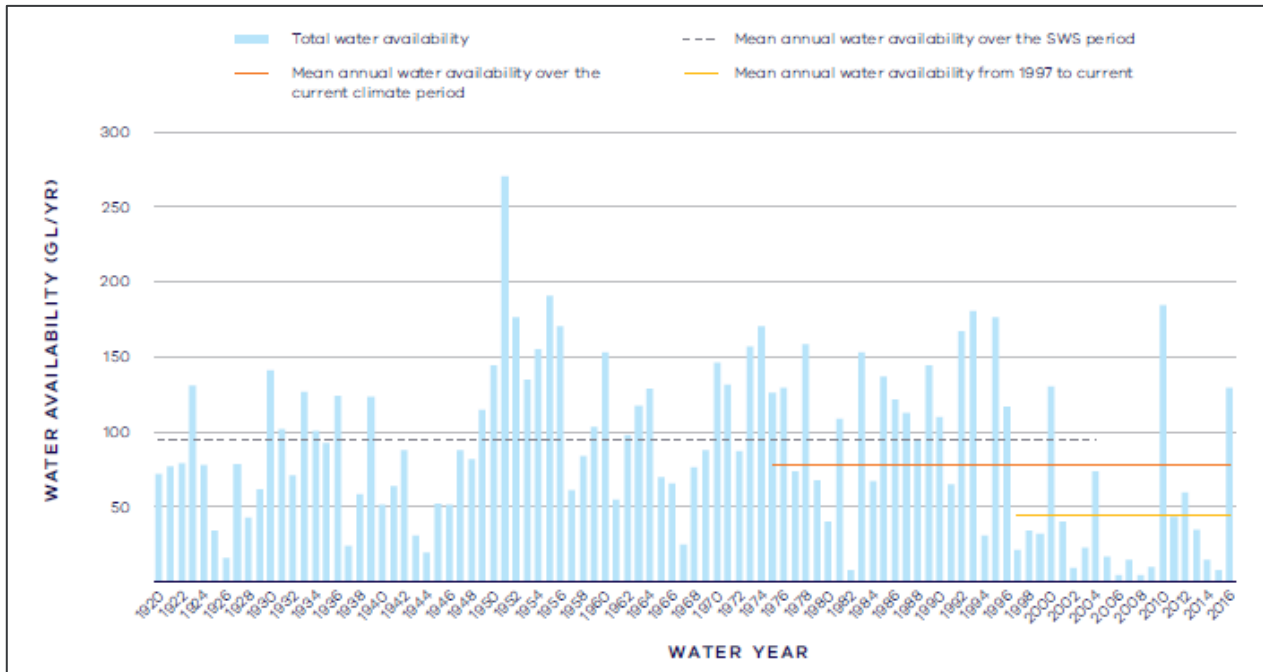


Figure 1 Werribee River catchment annual water availability 1920-2016

## Irrigation Allocation

The declining catchment inflows have led to a declining irrigation allocation.

Historical allocation data demonstrates this change. From 1976 to 2005, the High Reliability Water Share (HRWS) allocation reached 100% by December every year but one i.e. 96.7% reliable.

Since 2005 however, the HRWS allocation has only reached 100% by December for 10 years out of 18 i.e. 55% reliable. This has occurred while recycled water has been available, which has helped to reduce the demand on river water. This demonstrates the threat to irrigation security from climate variability.

The WID supply network is undergoing a significant upgrade known as the WID modernisation project <https://www.srw.com.au/initiatives/projects/werribee-irrigation-district-modernisation>.

Modelling undertaken for future scenarios under the WSRP has included the effects of modernisation on delivery efficiency. The modelling indicates that if the climate conditions since 2005 were repeated now (with modernisation in place), high reliability shares with 100% allocation would be reached by December in 12 years out of 18 (66% reliable). This is an improvement compared to pre modernisation; however it highlights there is still a significant shortfall in reliability due to the variable climate (particularly if a Millenium Drought was repeated).

# Existing Recycled Water Reliability

Recycled water was initially provided to customers during the Millenium drought period. Since the commencement of this recycled water scheme, the sewage treatment process at Melbourne Water's Western Treatment Plant (WTP) has changed to meet environmental requirements for discharge to Port Phillip Bay. Over this time there has also been an increase in algal growth within the lagoon systems.

WTP is unique in that Class A recycled water is produced following disinfection of water that has been treated through lagoons. This means there is currently no treatment process to remove algae from the recycled water.

Recycled water is not supplied when the levels of algae are above recommended levels and this impacts recycled water availability to customers.

# Irrigation Water Salinity

River water salinity levels are typically below 1000 uS/cm EC in periods of high inflows into the catchment which is often when allocation is high. During periods of low inflows and lower allocation, higher salinity levels are often observed in the river water.

Figure 2 provides historical data for salinity at the Werribee weir and more recently into the district at McMurrays weir.

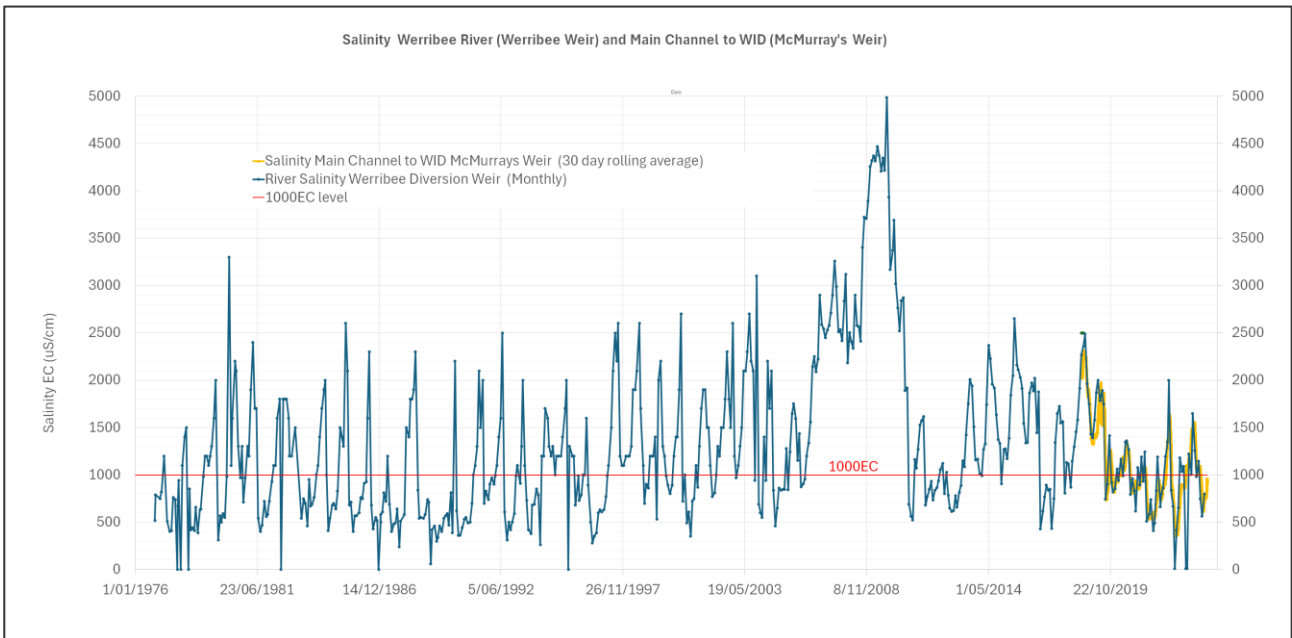


Figure 2 Werribee River Supply Salinity

Recycled water salinity levels have reduced slightly compared to when the scheme started but they remain higher than desirable at approximately 1850 uS/cm EC.

Existing recycled water customers can receive a blend of river water and recycled water when the river water is available. However, as river water becomes less reliable there will be fewer years when the river water and recycled water can be successfully blended. It also follows that for customers who only use river water, there will be more years where the allocation is less than 100% and salinity is higher than 1000 uS/cm EC.

## Future Customer Supply Requirements

As outlined in the first CRG meeting, the project is currently in the preliminary business case phase with work underway to apply for government funding to progress to a detailed business case. The cost of recycled water treatment is a significant part of the overall cost. We want to ensure that the assumptions used in the funding submission align with customer requirements.

The key questions customers are being asked to consider are:

- At the first CRG meeting, participants proposed a water quality objective of 600 mg/l EC. How should we interpret this requirement? Does it represent a maximum or an average over the year or another measure altogether?
- Do you or your customers have any requirements regarding water quality other than meeting regulatory standards?
- What is the peak weekly volume desired by customers as whole? (For example: total WID volume, ML/Ha or size of dam and number of fills for a given property size).
- What does a reliable supply look like? How should we measure reliability?
- If you received a reliable supply of recycled water with the desired salinity levels, what production uplift should we assume for the district as a whole?

A proposed treatment process, based on customers requirements will be taken to the third meeting for discussion and optimisation. This will be an opportunity to explore the balance between treatment cost and customer requirements.