

# Recycled Water Strategy

## 2023-2026

Facilitating sustainable recycled water use in our region



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# Acknowledgement

Westernport Water acknowledges Aboriginal and Torres Strait Islander Peoples as First Nations People and that the land, sea and water are of spiritual, cultural and economic importance. We recognise that we provide services on the traditional lands of the Bunurong Peoples of the Kulin Nation. The Bunurong Peoples have managed the resources on Millowl for thousands of years. We acknowledge them and their continued connection to this place, as we go about managing the water resources today.



*Uncle Anthony Egan, Graham Gilbert (artist) and Uncle Jarrod West presenting the custom Aboriginal art for our Reconciliation Action Plan.*



# Executive Summary

The Recycled Water Strategy 2023-26 provides a pathway for recycled water production and use in our region for the next three years.

The Recycled Water Strategy (RWS) will inform and direct our decision making and initiatives to ensure we comply with our regulated obligations, and meet customer expectations for reuse in our region.

To develop the strategy, the following was considered:

- potential for growth of recycled water
- feedback from community consultation
- usage of Westernport Water land by development of infrastructure
- climate change

The strategy forecasts recycled water use for the next three years. Climate drivers, historical usage data, planned work and capital projects have been used to develop the forecast numbers. The strategy details the work required to achieve the forecast and the timeline.



*Pyramid Rock*

## Message from the Managing Director

I am pleased to present our Recycled Water Strategy for 2023-26.


The Strategy outlines our plans to increase recycled water usage at Westernport Water's treatment plants and more broadly across our service area. We are focused on expanding recycled water services to meet growing customer demand. At the same time, the Strategy plays an important role in our Climate Change commitments, particularly our response to achieve our goal of net-zero emissions by 2035.

The use of recycled water for non-drinking purposes reduces the demand on drinking water and is an important water conservation initiative. In addition, by increasing recycled water use we reduce the volumes of treated effluent released to Bass Strait.

By recognising treated wastewater as an asset, rather than a waste product, Westernport Water can offer a reliable, alternative water supply to our customers while providing social, economic and environmental benefits to our community.

Over the next three years we will embark on the actions outlined in the Strategy, including expanding on-site recycled water reuse at our treatment plants, extending the Class A recycled water network and installing wetland systems to improve treatment and wastewater quality.

Overall, the Strategy contributes to our vision to deliver sustainable water and wastewater services that improve the health and liveability of our community.



Dona Tantirimudalige

Managing Director

Westernport Water

28 April 2023

# Vision

Westernport Water leads through collaboration and innovation to deliver sustainable water and wastewater services that improve the health and liveability of our community.

## About our Recycled Water Strategy (RWS)

This strategy will guide the growth of Westernport Water's recycled water network and recycled water uptake over the next three years (2023-26).

We have committed to increasing recycled water usage while minimising production costs and implementing climate change adaptation measures. Our plans to increase recycled water volumes coincide with our commitment to safeguard public health and the environment in accordance with the requirements of the General Environmental Duty (GED). The strategy also contributes to our Climate Change Strategy and our obligations as a water corporation to reach net-zero emissions by 2035.

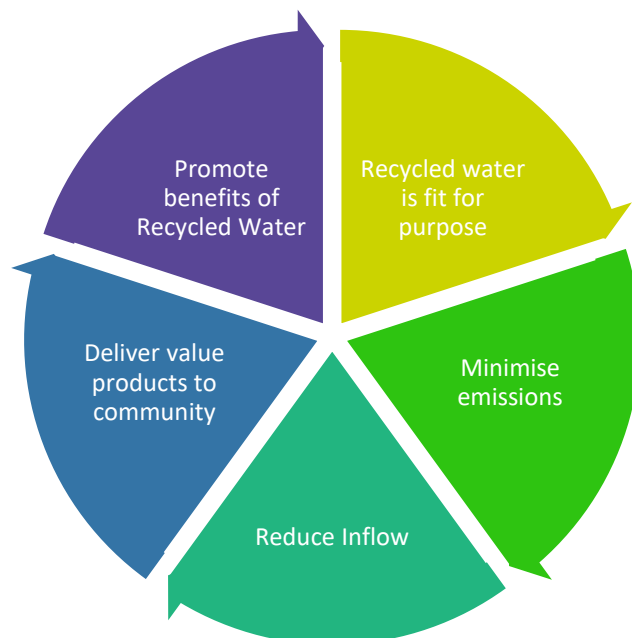


*Irrigation using Class A Recycled Water.*

## Our approach

A sustainable recycled water network will deliver a reliable, alternative water supply to our customers and community while providing social, economic and environmental benefits.

The following principles underpin our approach:



	Recycled water costs less per kilolitre for consumers for appropriate (non-drinking) uses, rather than unnecessary use of potable water and associated costs. Reduces demand on the potable water system, particularly in dry years.
	Use lower classes of recycled water on WPW's treatment sites for irrigation (Class B and C) where it is appropriate to do so.
	Recycled Water production (Class B and C) are less energy intensive processes and are preferred where appropriate for climate resilience and a circular economy.
	Reduce inflow and infiltrations from stormwater which will reduce pumping, treatment and disposal costs.
	Support local businesses and community groups with recycled water where appropriate as a reliable water supply.

Figure 1 – Guiding principles for the sustainable development of recycled water in the region

## Alignment with other strategies and frameworks

### Climate Change Strategy

Our plans to increase recycled water use across both treatment plants aligns with the objectives of Westernport Water's Climate Change Strategy, which recognises recycled water use as a more resilient option and seeks to optimise the use of Class A, B and C recycled water for its intended use.

### Integrated Water Management (IWM) Framework

Through the IWM Framework, Westernport Water consults with the broader Victorian water sector to enable a shared vision for planning in urban locations and facilitate a greater understanding of the water cycle. The sharing of information and strategic directions of Westernport Water need to supplement this government initiative.



## Our recycled water commitments

### Increase baseline recycled water volume to 267ML per year (minimum)

Westernport Water has committed to achieving a baseline recycled water volume of 267 ML per year for the period 2023-28. This baseline comes from the average reuse volumes over the past five years, meaning that future years will need to improve on past performance.

Increasing recycled water volume also supports our commitment to reduce ocean discharge. Our target is no more than 1.2 tonnes of nitrogen discharged to the ocean per year.

Both these commitments support the customer outcome 'Reduce your environmental impact and adapt to climate change'.

It should be noted that during a high rainfall (90<sup>th</sup> percentile) year, both objectives are not applicable.

## How we forecast our water reuse

To forecast our recycled water usage, we utilised a model that takes into account both historical reuse volumes and rainfall data. With a notable difference in water demand during a high rainfall year compared to a median or dry year, it was important that we integrated this data into our model to generate accurate forecasts for recycled water usage during dry-to-median rainfall years as well as high rainfall years.

Other factors that have been considered in the forecast are upcoming projects and customer demand for increased volumes of recycled water.

The following chart shows the baseline for recycled water use (267 ML per year) as well as the forecast reuse WPW aims to achieve for a dry-to-median rainfall year and for a high rainfall year (90th percentile rainfall).

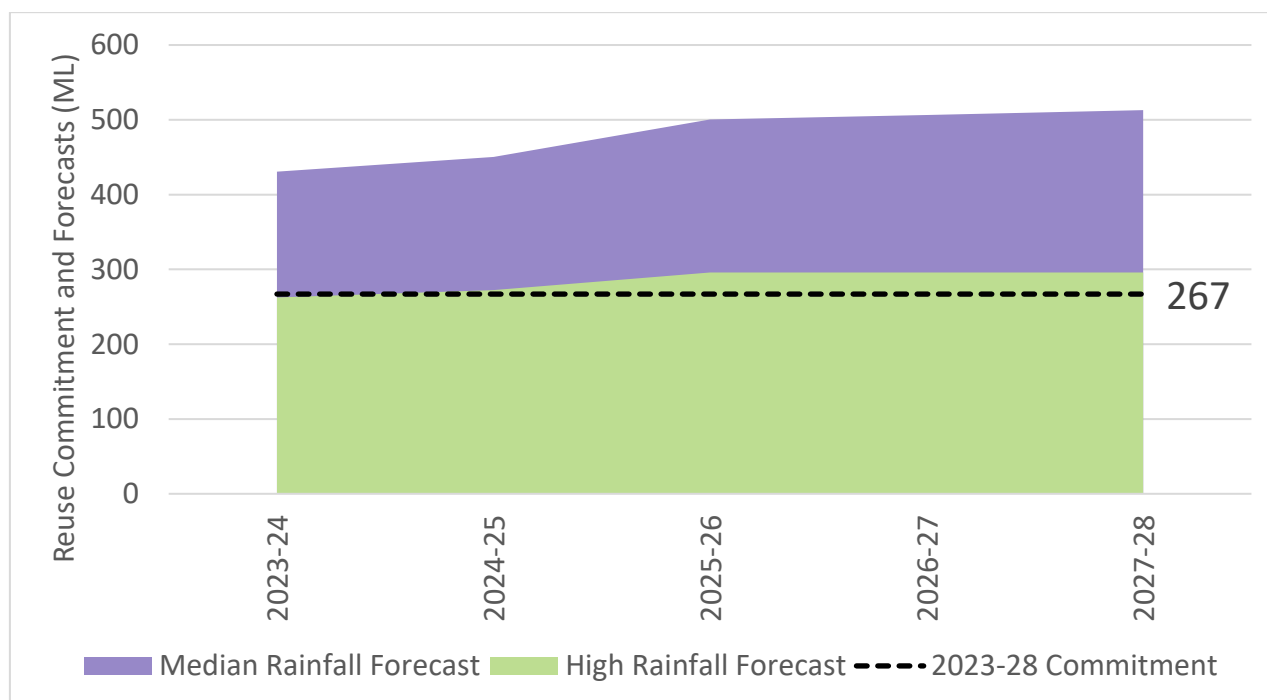


Figure 1 – Forecast reuse for median rainfall and high rainfall (90th percentile) years shown against customer commitment volume



## Opportunities and constraints

Opportunities	Constraints
<ul style="list-style-type: none"> <li>• Reduce demand on our drinking water system (for non-drinking applications) over: <ul style="list-style-type: none"> <li>○ peak demand periods such as public holidays and events</li> <li>○ the long term as population growth increases demand for water</li> </ul> </li> <li>• Promote reuse water asset and the benefits to the community and the circular economy</li> <li>• Review the actual costs of internal and external resources to manage the Class A plant, and the ongoing budgets to maintain plant</li> <li>• Communication, education and monitoring of both residential and commercial Class A customers annually to ensure compliance, and review customer recycled water communications plan</li> <li>• Review internal resources required to meet our compliance obligations under the conditions of the Health and Environmental Plan (HEMP)</li> <li>• Ensure quality of discharges into our sewerage system and by improving the quality of the influent, less pressure on RWTP, and processes to achieve the quality of effluent being discharged - particularly in summer months when nutrient loads to wastewater treatment plants are greatest</li> <li>• Implement applicable trade waste costs</li> <li>• Internal audit of trade waste compliance</li> <li>• Facilitate and encourage a circular economy, providing opportunity to improve crop yields and support local food production with affordable, fit for purpose recycled water supply that meets customer expectations</li> <li>• Increase the sustainability of our area by using recycled water to green community open spaces and replace potable water with reuse where applicable</li> <li>• Opportunity to expand recycled water supplies to meet customer expectations.</li> </ul>	<ul style="list-style-type: none"> <li>• Classes A, B &amp; C and intended use</li> <li>• Community perspective of Recycled Water</li> <li>• Customer understanding of appropriate use and risk of cross connection</li> <li>• Constraints of cost of infrastructure extension</li> <li>• Resource costs to maintain RWTP</li> <li>• Energy requirements for increasing recycled water production can be addressed through renewable energy at WWTP sites and ensuring recycled water end uses are fit-for-purpose (the appropriate recycled water quality/class is suited to its end use and customers are not using high cost high quality water when it is not needed)</li> <li>• Unknown customer interest for any classes of recycled water</li> <li>• Cost to agricultural customers to use external consultant to sample soil.</li> <li>• Wet weather events/wet summers La Nina ENSO cycle reduces demand and interest</li> <li>• Inflow in wet weather events, creates additional treatment of unnecessary volume of influent and disposal of effluent</li> <li>• Climate change will result in more frequent and severe rainfall events which will increase stormwater inflows to WWTPs and reduce demand for recycled water from customers who irrigate</li> <li>• WPW owned land to irrigate</li> <li>• Class A emissions generation.</li> </ul>

## Meeting our commitments

A combination of capital projects and business initiatives are planned to achieve our recycled water commitments.

### Capital projects

Westernport Water's capital works program for 2023-28 includes projects that will increase recycled water usage and help meet our commitments.

Project	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	Total
Sustainable reuse and afforestation			-	-			\$1,003,500
King Road WWTP							
• Expansion of irrigation in site boundary (KRWWTWP)			\$105,000				
• Expand RW Pilot Customer (IWM Plan)						\$105,000	
Cowes WWTP							
• Options Assessment Irrigation		\$420,000					
• Extension of Class B (Repurpose decommissioned sewer main)	\$210,000						
44Ha Enviro Planting cost to be refined	\$157,500						
Preliminaries, review & internal project management	\$111,000						
Recycled water wetland storage	\$228,472	-	\$456,945	\$3,531,639	\$118,790		\$4,335,846
Wastewater systems future	\$390,884	\$377,855	-	\$744,542	-		\$1,513,281
Cowes Wastewater Treatment Plant - master plan upgrades - stage 3	\$100,899	\$1,144,196	-	-	\$100,899		\$1,345,994
Recycled water improvement program	-	-	\$540,540	-	\$250,000		\$790,540
King Road Master Plan Stage 2	\$180,569	\$85,985	-	-	\$220,696		\$487,250
King Road Effluent Pump Station	\$91,603	\$839,040					\$930,643
<b>Growth Total</b>	<b>\$2,027,916</b>	<b>\$1,608,036</b>	<b>\$1,380,616</b>	<b>\$5,864,412</b>	<b>\$690,385</b>		<b>\$11,571,366</b>

Table 1 - Budgeted initiatives to meet recycled water targets resulting from the Recycled Water Strategy 2018-2023

### Sustainable Reuse and Afforestation

This project will expand on-site recycled water reuse at Cowes and King Road Wastewater Treatment Plants by investigating options for increased irrigation and afforestation for carbon offsets. The project will also explore the Class B market for agricultural and industrial use.

### Recycled Water Wetland Storage

This project includes the design and construction of a series of wetlands to store an additional 60 ML of recycled water while improving water quality for the safe release to inland waterway Guys Creek. The wetlands would also be designed to provide a net 'sink' for carbon, while also improving wastewater quality, enhancing biodiversity, and allowing for potential recreational access in the future.

### Class A Recycled Water Futures

Currently, there are approximately 300 properties in San Remo serviced by Class A recycled water pipes, and growth potential for 2,000 more over the next 20-year planning horizon. However, there is no recycled water in San Remo. The recycled water network is currently being connected to the potable water network supplying customers with potable water in lieu of recycled.

This project proposal is for the design and construction of a scalable Class A sewer mining facility in a suitable location and at suitable capacity to supply Class A recycled water to San Remo customers.

### **Class A Recycled Water Extension (Seagrove Estate)**

Design and construction of a 1.35km extension to the existing Class A distribution system to fulfil our commitments to newly completed properties in Seagrove Estate.

### **Cowes Wastewater Treatment Plant Upgrade – Stage 3**

The third stage of the Cowes Wastewater Treatment Plant Upgrade involves an upgrade of the effluent transfer pumping system to increase capacity in response to growth; replacement of a step screen and the refurbishment of two clarifiers due to poor condition.

### **King Road Wastewater Treatment Plant Pump Station Upgrade**

The effluent pump station at King Road Wastewater Treatment Plant requires augmentation to meet increase in demand for irrigation due to current and proposed growth within the area, to optimise system efficiencies, and to reduce operator intervention.

### **Cowes Wastewater Treatment Plant Civil, Mechanical and Electrical**

This program includes minor works such as variable speed drive and generator relocation and replacements, and replacement of Class A ultra-filtration membranes. Overall, this program ensures the operability of CWWTP, ensuring San Remo and Phillip Island customers have a reliable sewer service.

## **Operational initiatives**

A range of key operational initiatives will support our recycled water commitments.

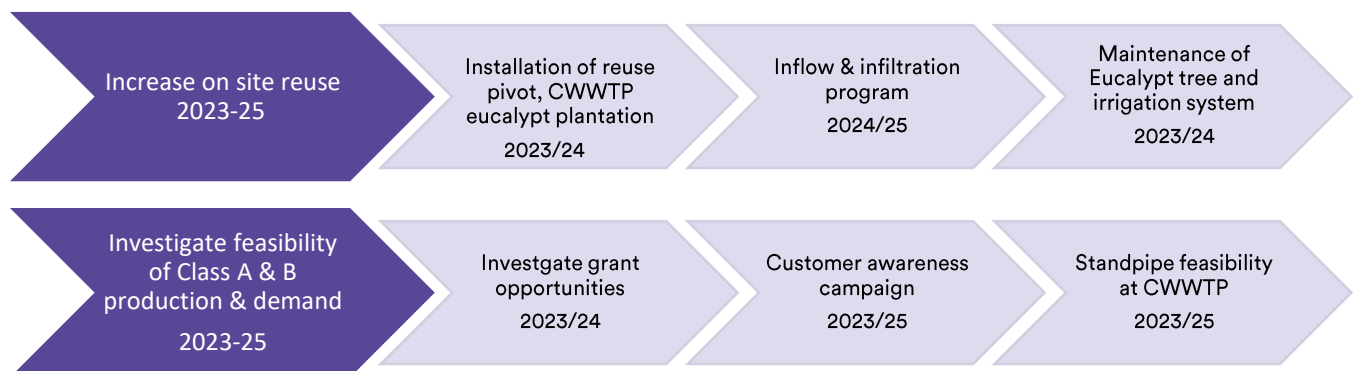


Figure 4 - Proposed initiatives to meet forecast

- Maintenance of eucalypt tree lot and related irrigation system at CWWTP to enable more onsite reuse of Class C recycled water.
- Installation of a reuse pivot or other irrigation infrastructure system at CWWTP to increase onsite reuse via pasture production.
- Capability assessment to ensure we can meet increased demand for Class B recycled water.

- Review of the Recycled Water Treatment Plant (RWTP) for feasibility of internal and external resources required, including costs.
- Inflow & Infiltration (I&I) as an ongoing program will enable effective monitoring and inform decisions around prevention methods of I&I (FY2024-25). Understanding the flow volume entering our treatment plants from stormwater and rain events will reduce unnecessary treatment on inflow volumes, minimising emissions and assist to meet our reuse and discharging volumes.
- Explore grant opportunities assist with recycled water customer infrastructure installation/expansion at sites to enable an increase in recycled water uptake.
- Investigate options for a campaign to raise awareness of recycled water options in our service area.
- Options assessment for a recycled water standpipe to be accessed by tankers at CWWTP to meet predicted customer demand.



*King Road Wastewater Treatment Plant*



## Glossary

Terms	Meaning
RWTP	Recycled Water Treatment Plan
KRWWTP	King Road Waste Water Treatment Plant
CWWTP	Cowes Waste Water Treatment Plant
HEMP	Health and Environmental Management Plan
RWQMP	Recycled Water Quality Management Plan
ENSO	El Niño–Southern Oscillation
GED	General Environmental Duty (from the <i>Environmental Protection Act 2017</i> )
IWM	Integrated Water Management
RWS	Recycled Water Strategy



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