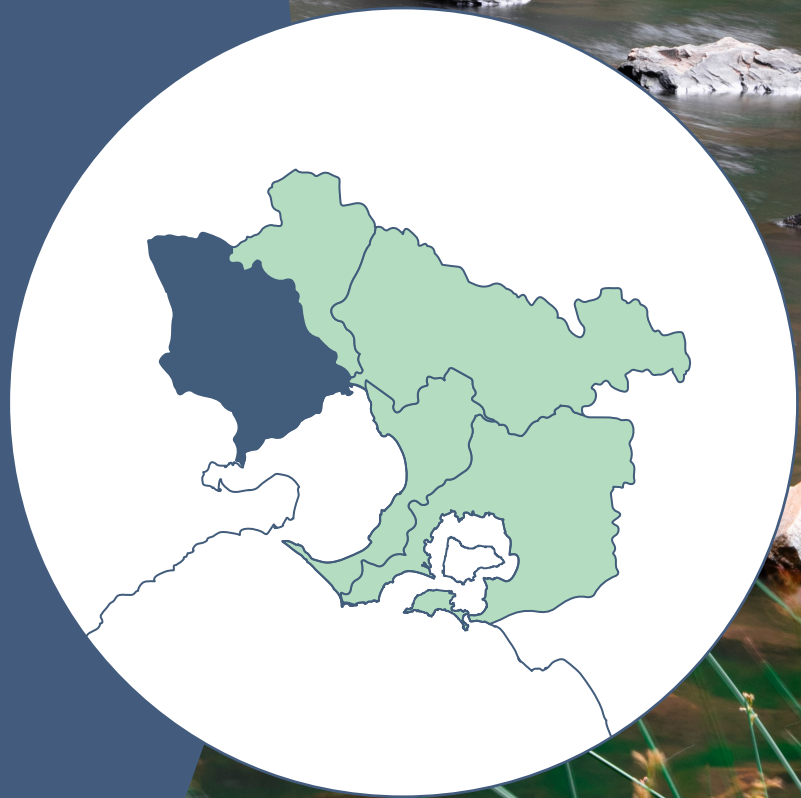


Werribee Catchment Integrated Water Management Plan

Actions for Delivery



April 2024

Acknowledgement of Victoria's Aboriginal communities

The Werribee Integrated Water Management (IWM) Forum proudly acknowledges Victoria's Aboriginal communities and their rich culture and pays its respects to their Elders past and present. The Werribee IWM Forum also recognises the intrinsic connection of Traditional Owners to Country and acknowledges their contribution to the management of land, water and resources.

We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

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Acknowledgements

The Werribee Catchment Integrated Water Management Plan: Actions for Delivery has been developed by the Werribee Integrated Water Management (IWM) Forum. Members of this Forum include the Chief Executive Officers, Executive Directors and Managing Directors of the following organisations:

Brimbank City Council
Bunurong Land Council Aboriginal Corporation
Greater Western Water
Hobsons Bay City Council
Macedon Ranges Shire Council
Melbourne Water
Melton City Council
Moorabool Shire Council
Southern Rural Water
**State of Victoria, Department of Energy,
Environment and Climate Action**
State of Victoria, Victorian Planning Authority
**Wadawurrung Traditional Owners
Aboriginal Corporation**
**Wurundjeri Woi-wurrung Cultural
Heritage Aboriginal Corporation**
Wyndham City Council

This plan represents the collective aspirations and intent of these organisations and has been developed through a collaborative process. The plan development process was facilitated by the Department of Energy, Environment and Climate Action (DEECA) and overseen by the Werribee IWM Forum Working Group. The plan has been developed with assistance from E2Designlab. Action prioritisation and the development of a supporting digital dashboard was undertaken with the assistance of Aurecon.

The Werribee IWM Forum is grateful to the Werribee IWM Working Group for the time and technical expertise they dedicated to guide the development of this plan.

The Werribee IWM Forum acknowledges the Traditional Owners as original custodians who have managed land and water sustainably over thousands of generations and who maintain an active connection to Country. Traditional Owners hold the knowledge, stories, custodial obligations, and cultural expertise that has always ensured the health of waterways and Country. Each Traditional Owner group within the Werribee IWM Forum holds the cultural authority to speak for water, rivers, and Country within their traditional region.

Minister's foreword

Water is our most vital resource and is essential to the health and wellbeing of people and the environment. Water enhances community wellbeing, the liveability of our cities, supports economic growth and jobs across Victoria, and is deeply connected to Aboriginal culture.

Climate change and the rapid increase in population and urbanisation are placing considerable pressure on water supplies, damaging our waterways, land and marine environments, and threatening amenity and ecological and human health. The need to adapt and improve liveability and resilience of our cities and towns is critical.

The Victorian Government's Integrated Water Management (IWM) Program addresses this need from a water perspective. It began with the release of the *IWM Framework for Victoria* in 2017 as a response to Chapter 5 of the Victorian Government's strategic plan for management of the State's water resources, *Water for Victoria* (2016), which recognises that IWM has a key role in positioning Victorian cities and towns to be liveable and resilient.

I want to acknowledge the continuing work to help progress our commitment to put IWM as the business-as-usual water management practice in Victoria. Establishment of 15 IWM Forums across the state is the first step towards delivering this commitment. IWM Forums bring together many dedicated stakeholders with a wide range of expert and lived experience, including water corporations, local government representatives, catchment management authorities, Traditional Owners and the Victorian Planning Authority.

Partners of the five IWM Forums in Metropolitan Melbourne (Werribee, Maribyrnong, Yarra, Dandenong and Western Port) have also achieved significant progress towards mainstreaming the IWM approach to support thriving communities.

I congratulate the five Metropolitan IWM Forums for delivering the inaugural Catchment Scale IWM Action Plans. This is a huge collaborative achievement of the 50 partners involved in the Metropolitan IWM Forums over the past six years.

The Metropolitan Catchment Scale IWM Action Plans establish a clear direction to collaboratively implement IWM initiatives across organisational and geographic boundaries. These Plans demonstrate the immense power of collaboration. I look forward to this collaborative effort continuing as these Plans are delivered and the community experiences the positive impacts for generations to come.



The Hon. Harriet Shing MP
Minister for Water

Chair's foreword

The Werribee catchment is a unique part of Victoria's landscape – one of Victoria's driest catchments and witnessing rapid urban and regional development. More than ever, water needs to be at the centre of the land-use planning process to protect the natural character of the region, including its nationally significant irrigation districts, and the backbone of Werribee: the Werribee River.

The Werribee IWM Forum recognises our shared responsibility to plan for water differently if we are to position the region to be the most liveable and resilient places in the world.

As Chair of the Werribee IWM Forum, I would like to acknowledge the deep commitment of all Forum Members and the hard work of the Working Group members and DEECA staff to produce this *Catchment Scale IWM Plan: Actions for Delivery*.

The plan demonstrates a pivotal shift, where our endeavours are not just aspirational, but are focused on tangible delivery and meaningful outcomes. It provides a launching pad to guide investment in IWM over the next 10 years, with Forum partners working together to deliver on-the-ground IWM projects, unlock new investment opportunities, and address urgent challenges.

Now, as we work together to deliver the actions in this plan, we go beyond safeguarding water resources to directly improving water security, protecting the environment, and contributing to the enhancement of liveability, ensuring our communities not only survive but thrive.

We look to the future with a sense of purpose and anticipation. The challenges we face require sustained effort, and our dedication to key enabling policy work will be a continued focus as we look ahead.

As Lead Chair of the Metropolitan and Regional IWM Forums, I would like to acknowledge the tremendous contribution of the IWM Forum Chairs and Forum partners across Victoria who continue to work together to achieve meaningful and long-term change that we can be proud of.

They continue to collaborate to deliver catchment scale outcomes, often beyond their organisational boundaries and control, modelling the vision and collaborative leadership that is and will continue to be required this century, as we adapt to the impacts of climate change.

The partnership approach that has been the cornerstone of our success is a commitment we value deeply, and we look forward to its continuation into the future.



A stylized, handwritten signature in black ink, consisting of several loops and a long horizontal stroke extending to the right.

Rob Skinner

Chair of the Werribee IWM Forum

Lead Chair of the Metropolitan and Regional IWM Forums

Contents

Acknowledgements	iii
Minister's foreword	iv
Chair's foreword	v
Contents	vi
Integrated water management in the Werribee catchment	02
The Werribee catchment	03
Vision	03
Catchment condition and challenges	03
The role of IWM	05
Our journey	06
From planning to delivery	07
What we are aiming to deliver?	07
What is this plan?	08
How this plan was developed?	08
How will this plan be used?	08
Working with Traditional Owners	09
Priority actions to respond to catchment challenges	11
What are priority actions?	11
Impact of IWM actions on the Werribee catchment by 2050	12
Part of a bigger picture	13
Structural actions overview	15
Systemic enabling actions overview	19
Place-based enabling actions overview	21
Success stories	23
Reimagining Arnolds Creek	23
Werribee System Reconfiguration Project	24
Western Irrigation Network	24
Action descriptions	25
Useful resources	33
Glossary of terms	34









Integrated water management in the Werribee catchment

Victorians face a future with less water due to climate change and population growth. We need to act now and rethink the ways we manage our water resources.

Integrated water management (IWM) is a holistic approach to managing water that takes into account the interconnected nature of water and land systems and considers the social, cultural, economic, and environmental aspects of water use.

IWM can be applied at all scales, from waterway catchments to smaller suburbs and towns, and even down to individual streets and houses. Solutions identified through IWM can improve water security, reduce degradation of waterways and bays, reduce flood risks, rehabilitate ecosystems, create vibrant open spaces, and support peri-urban agriculture. This enhances climate resilience and improves the health and well-being of communities and the amenity and liveability of our cities.

The Werribee catchment

Vision

The Werribee catchment is resilient and thriving. Our growing communities are supported, and the health of our diverse environment is enhanced.

Catchment condition and challenges

The Werribee catchment lies west of Melbourne and covers about 2,715 square kilometres, extending along the southern reaches of the Great Diving Range at the Wombat State Forest, south across dry, flat to gently undulating plains scattered with volcanic features, to where grasslands join wetlands on the western shoreline of Port Phillip Bay. Within the Werribee catchment are the traditional lands of the Wurundjeri Woi-wurrung and Bunurong, east of the Werribee River, and of the Wadawurrung to the west.

The Werribee River (Wirribi Yaluk (in Wadawurrung language) or Weariby Yalok (in Bunurong language) meaning 'backbone' or 'spine') flows from Wombat State Forest for about 110 kilometres south-east to Port Phillip Bay. Waterways in this catchment are diverse, ranging from large rivers to small ephemeral creeks.

Waterway health is strongly linked to land use, with the upper reaches of waterways in a more natural condition than those in the rural and urban areas. Sensitive tributaries in the previously undeveloped northern areas of the catchment, particularly in growth areas near Melton, are at risk from increasing urban runoff volumes where development is proposed. Water quality generally deteriorates downstream, due to agriculture and urban development and the resulting stormwater pollution. The Werribee River is also flow-stressed

with an environmental flow deficit of 12 gigalitres per year. Existing environmental entitlements for the river only provide minor flow relief in the system, and environmental volumes are forecast to further decline without intervention.

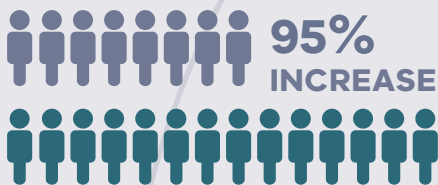
All waterways in the catchment flow to the western shoreline of Port Phillip Bay, which includes Wetlands of International Importance under the Ramsar Convention on Wetlands.

Agriculture dominates much of the Werribee catchment, with 67% of the area used to produce leafy vegetables, fruit and turf, as well as poultry, grazing and crops. The Bacchus Marsh Irrigation District (BMID) and Werribee Irrigation District (WID) in the catchment are major water users, and the impacts of climate change are already being felt. BMID is supplied from the Werribee River, while WID has both Werribee River and groundwater entitlements and supplementary supply of recycled water from Western Treatment Plant.

The presence of the Western Treatment Plant along with smaller treatment plants including those in Altona, Melton (Surbiton Park), and Bacchus Marsh means the catchment has substantial wastewater resources that could be used beyond what is currently delivered. By increasing alternative water supply to agricultural users or further expanding irrigated agricultural areas there is an opportunity to support economic growth in the region.

POPULATION GROWTH

723,000 2021
1,410,000 BY 2050



¹ State Government of Victoria (2019). Victoria in Future 2019 (VIF2019).

² State Government of Victoria (2022). Central and Gippsland Region Sustainable Water Strategy. Final Strategy.

The catchment has an estimated population of 723,000 people and is predicted to grow to 1.41 million by 2050¹. Significant areas are undergoing rapid development, and urban residential development will continue across the catchment for many years to come. Urban water security is a challenge due to rapid population growth and major development areas around Melton, Bacchus Marsh and Truganina. Victoria's Big Build also presents opportunities to apply the IWM approach in the provision of water services.

The catchment draws some of its potable water supply from local reservoirs and is increasingly reliant on the Melbourne water supply system. The future climate will be hotter and drier, with lower average annual rainfall expected to reduce inflows to reservoirs and decrease river flows, placing further strain on our current water supplies².

The Werribee catchment is the driest in the Greater Melbourne region and has low canopy cover compared with the rest of Melbourne, meaning that trees and open spaces are more dependent on irrigation to offer communities high quality green space. While there will be a reduction in average annual rainfall and more extreme temperatures, the catchment is predicted to see more frequent and intense rainfall events, which will increase the risk of flooding. These changes, combined with increased development and growing populations, will place more pressure on infrastructure, natural assets and water services in the catchment.

The role of IWM

Werribee is facing a hotter and drier climate; more severe and frequent storms, bushfires and floods; population growth; water scarcity; cost of living pressures; and the need to invest in new infrastructure while managing rising construction costs.

To meet this challenge, we all have a role to play on our shared journey toward improved resilience and sustainability. Together, we can achieve better collective value, leading to outcomes that positively impact every member of our community.

By managing the whole water cycle, we can achieve a wider range of outcomes including:



conserving our precious drinking water supplies by using alternative water supplies (such as high-quality recycled water) for fit-for-purpose uses



supporting greener, cooler streets and parks, and creating vibrant public spaces



contributing to healthier rivers, creeks, wetlands and our bay through improving the quality and flows of water through these systems



helping to mitigate flood risks



improving productivity and prosperity of agriculture and Victorian businesses.

By adopting the IWM approach, all these benefits can be delivered while providing the same or improved level of services for water supply, sewage and drainage. The strategic outcomes that IWM aims to achieve across the Werribee catchment are described on page 7.

Collaboration is key to the success of this plan

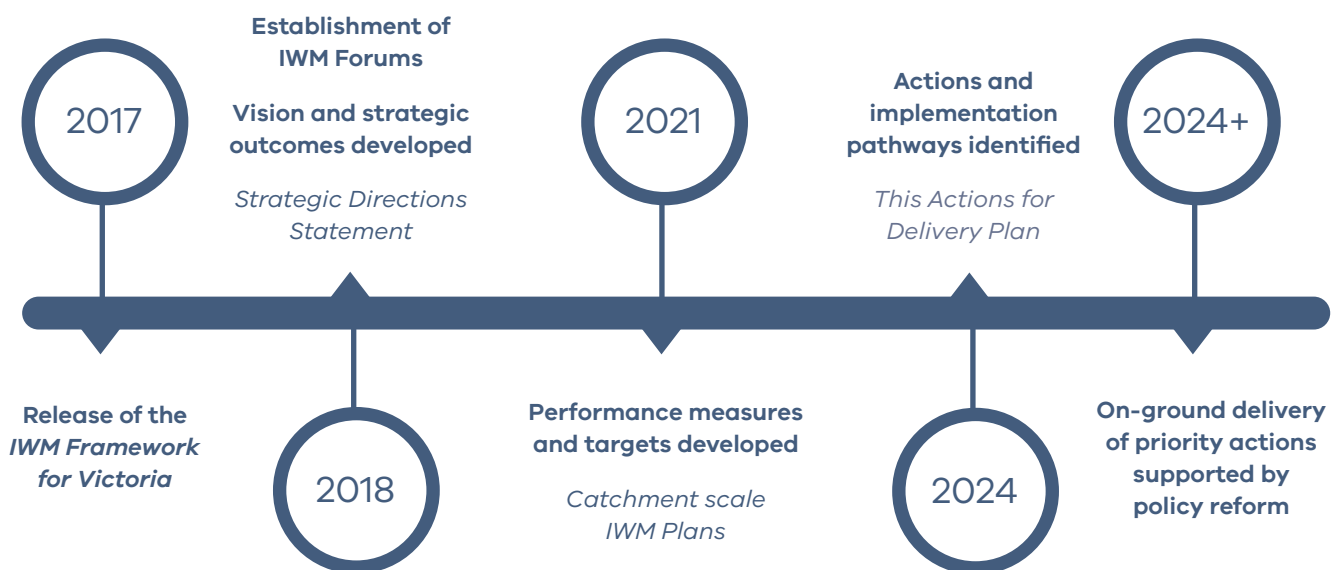
Creating a resilient and liveable future is a shared responsibility. Fourteen stakeholder organisations (referred to as IWM Forum partners) in the Werribee catchment are working together to respond to regional challenges and local issues. This approach embraces the co-delivery of on-the-ground outcomes to progressively transform the way we manage our urban water resources and catchments. In turn, this will deliver greater benefits for the region than can be achieved by any one organisation in isolation.

Our journey

Following the establishment of IWM Forums in Metropolitan Melbourne in 2018, each Forum collaboratively developed an agreed vision underpinned by 7 strategic outcomes. These are articulated in the *Strategic Directions Statement* for each catchment, published in 2018 and available on the [Victorian Government IWM website](#).

From 2019 to 2021, IWM Forum partners worked together through a rigorous and collaborative process to develop catchment performance measures and targets for each outcome area. These are articulated in the *Catchment scale IWM Plan: Targets Driving Outcomes* for each catchment, published in 2022 and available on the [Victorian Government IWM website](#).

Since early 2022, the forums have been developing a suite of strategic actions that deliver the greatest advances towards the targets. The priority actions are captured in the *Catchment scale IWM Plan: Actions for Delivery* for each catchment (this document) and will define the forward journey for each Metropolitan Melbourne IWM Forum. We will monitor and report on catchment and regional progress against the IWM targets.



IWM is a major pillar of the other local and regional planning strategies that are needed to achieve a liveable and resilient Melbourne. This plan bridges the gap between and across these strategies, in particular:

- *Central and Gippsland Region Sustainable Water Strategy 2022*
- *Water is Life: Traditional Owner Access to Water Roadmap 2022*
- *Greater Melbourne Urban Water & System Strategy: Water for Life 2022*
- *Flood Management Strategy for Port Phillip and Western Port 2021-2031*
- *Victoria's Climate Change Strategy 2021*
- *Healthy Waterways Strategy 2018-2028*
- *Melbourne Sewerage Strategy 2018*
- *Plan Melbourne 2017-2050*
- *Victoria's Housing Statement: The Decade Ahead 2024-2034*
- *Council Community Plans, Climate Change and Water Plans*
- *Open Space for Everyone: Open Space Strategy for Metropolitan Melbourne 2021*

From planning to delivery

We have taken the time to define what we want and our pathway forward. We are now ready to act and implement actions for the benefit of the Werribee catchment as well as the region.

What we are aiming to deliver?

Strategic outcomes

The *Strategic Direction Statements* articulate the IWM vision and strategic outcomes for each catchment. The IWM strategic outcomes are described in Figure 1. Each strategic outcome will play a significant role in shaping the liveability, prosperity and resilience of the community living in the Werribee catchment as well as the Greater Melbourne region.

Each priority action listed in this plan supports one or more of the IWM strategic outcomes, and will bring us a step closer to achieving Werribee's vision.

Indicators, measures and targets

Indicators, measures and targets further define the strategic outcomes for each catchment. These are articulated in the *Catchment scale IWM Plans: Targets Driving Outcomes*. These plans reflect important indicators and measures for IWM forum partners to adopt.



Safe, secure and affordable water supplies in an uncertain future



Effective and affordable wastewater systems



Existing and future flood risks are managed to maximise outcomes for the community



Healthy and valued waterways and marine environments



Healthy and valued urban and rural landscapes



Community values are reflected in place-based planning



Jobs, economic benefits and innovation

Figure 1. Strategic Outcomes

What is this plan?

The *Werribee Catchment Integrated Water Management Plan: Actions for Delivery* is one of five such plans: one for each of the catchments in Metropolitan Melbourne (i.e. Dandenong, Maribyrnong, Werribee, Western Port and the Yarra). Collectively, these are referred to as 'Catchment scale IWM Plans: Actions for Delivery'.

Each plan includes outcome-focused actions at a range of scales, which are complementary and reinforcing, to improve the resilience, liveability and sustainability of our urban areas and the environment.

The priority actions in this plan, combined with locally important projects, and new actions that will be identified in the future, are all part of how we will deliver our catchment and regional targets.

How this plan was developed?

These plans have been developed by the partners of the Werribee IWM Forum in collaboration with partners of the Yarra, Dandenong, Western Port and Maribyrnong IWM Forums. IWM Forums provide member organisations with a transparent process to enhance or accelerate IWM initiatives and coordinate IWM across organisational and geographic boundaries.

IWM Forum partners worked together to decide on the key actions to take forward as part of this plan.

How will this plan be used?

The *Werribee Catchment Integrated Water Management Plan: Actions for Delivery* will support water planning and management over the next 10 years (2024–2034), which will deliver clear outcomes for the catchment. It outlines a suite of priority projects agreed on by all organisations involved in the management of water, working together towards a common vision. Many more locally important projects are being pursued, which collectively contribute to the strategic outcomes of the catchments.

The plan will be used by IWM Forum partners to guide investment. It will be a living plan, to be reviewed regularly. Organisations will use their best endeavours to progress projects using the priority action lists for infrastructure planning and when making investment decisions. Future actions will be identified through updates to the plan.



- Vision and strategic outcomes for the catchment
- The case for putting IWM into practice
- Priority actions to deliver strategic outcomes for the catchment
- Performance indicators and measures to track progress towards each strategic outcome
- Outcome-focused targets, where relevant, to define the desired state by 2030 and 2050
- Priority structural and enabling actions to contribute to delivering outcomes for the Werribee catchment as well as for the Greater Melbourne region



Working with Traditional Owners

The holistic intent of the IWM approach means that it recognises the importance of land and water management within a system that is interconnected to resources, community, culture, spirituality and ancestry. This whole-of-system thinking is a common thread between IWM and Traditional Owners.

Traditional Owners have an intrinsic connection to Country and hold knowledge, stories, custodial obligations, and cultural expertise that has ensured the health of Country for millennia. This knowledge is critical to holistic water management, robust decision-making, and may help environmental water managers set priorities. When Country is healthy and cared for, it supports healthy people and healthy economies, which benefits everyone. Including Traditional Owner knowledge, values and objectives in water management are critical to healing Country, promoting Traditional Owners' self-determination, fostering meaningful collaboration, and ultimately embedding a holistic IWM approach in Victoria.

Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation, Wadawurrung Traditional Owners Aboriginal Corporation and Bunurong Land Council Aboriginal Corporation are Werribee IWM Forum partners who have been part of the IWM journey since the Forums were established in 2018. The Werribee IWM Forum acknowledges that Bunurong, Wadawurrung and Wurundjeri Woi-wurrung Traditional Owners seek legislative

and structural recognition of Traditional Owners sovereign responsibility to care for and manage Country, the right to the management of water and waterways, and the right to lead catchment and water-related decision-making on Country. The Werribee IWM Forum also acknowledges that Wadawurrung, Bunurong and Wurundjeri Woi-wurrung Traditional Owners seek the direct return of land and water for their self-determined use.

Although involvement in the Werribee IWM Forum has been limited recently, Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation, Wadawurrung Traditional Owners Aboriginal Corporation and Bunurong Land Council Aboriginal Corporation have extensive experience in land and water management in Victoria, including significant contributions to the development and current implementation of the *Waterways of the West, Central and Gippsland Region Sustainable Water Strategy (CGRSWS)* and *Water is Life: Traditional Owner Access to Water Roadmap*.

Since 2023, the five Metropolitan Melbourne IWM Forums have been trialling new approaches to engage with Traditional Owner groups outside the IWM Forum and Working Group meetings, including via one-on-one meetings coordinated by DEECA. The intent has been to work within existing Traditional Owner platforms and processes at the request of Traditional Owner groups and therefore provide more time efficient and meaningful opportunities for Traditional Owners to remain connected to IWM Forum activities.

Water is life: Traditional Owner Access to Water Roadmap

The Victorian Government is committed to working with Traditional Owners to increase their access to water and their involvement in water management. Launched by the Minister for Water in October 2022, *Water is Life: Traditional Owner Access to Water Roadmap (Water is Life)* provides an important framework to support Traditional Owner self-determination in water access and management. Water is Life sets out clear pathways to increase Traditional Owner roles, responsibilities and resourcing water management in Victoria, and commits to increase the volume of water returned to Traditional Owners for cultural, spiritual and economic use.

Central and Gippsland Region Sustainable Water Strategy

As statutory instruments required under the Water Act 1989, sustainable water strategies are an important tool for the Victorian Government to work in genuine partnership with Traditional Owners. In alignment with the *Victorian Government Self-Determination Reform Framework*, the *Central and Gippsland Region Sustainable Water Strategy (2022)* explicitly considers cultural, spiritual, social, wellbeing and economic outcomes for Traditional Owners through self-determination in water management.

This coordinated approach led to the development of a new systemic enabling action within this plan: **Systemic enabling action 1: secure funding and resourcing to enable Traditional Owners to make decisions and determine IWM priorities on their Country** (refer to page 27). This action aims to better support ongoing Traditional Owner involvement in IWM, and meaningfully work

towards restoring Traditional Owner rights and responsibilities in water management on their Country. This will require IWM Forum partners further investing and prioritising engaging with Traditional Owners to support this outcome. All registered Aboriginal parties across the five Metropolitan Melbourne IWM Forums and the IWM Forum partners support this action.

'The Bunurong cultural perspective does not separate water from Country, but instead considers water and places part of Bunurong Country and symbolic of the interconnectedness of life and people.'

Water 'connects us to our Country'; it travels through and with all Bunurong people, connecting us.'

Bunurong Land Council Aboriginal Corporation Nation Statement (Water is Life, 2022)

'We deeply respect our people of the past. Our Elders, children, men, women. We deeply respect their knowledge of Country, water, life, their care of the traditions and of each other, we stand with their spirit.'

Great spirit Bundjil told us to take care of the great life within the land. To only take what you need without selfishness. Wadawurrung shared their knowledge of singing, dance, trade, camps, fishing, hunting, paintings, and homes to us to protect for our future generations. We all need to help.'

Wadawurrung Healthy Country Plan 2020-2030

'Our aspiration is to be structurally involved in each level of government regarding the decision-making and management of our lands and waterways.'

We want this to be standard practice, not the exceptions.'

Aunty Margaret Gardiner, Wurundjeri Woi-wurrung Elder in Nation Statement (Water is Life, 2022)

Priority actions to respond to catchment challenges

What are priority actions?

Priority actions are important initiatives to help protect the region's distinctive character while delivering alternative water supplies for open space irrigation and agricultural purposes, and reducing stormwater pollutant loads to protect local waterways. Some are structural and others aim to resolve key water management barriers.

In September 2023, Forum Members agreed on 8 priority structural actions across the catchment. More information on these priority actions is provided in the 'Structural actions overview' section (page 15).

While progressing structural actions, IWM Forum partners recognise the need to simultaneously work towards resolving key barriers and challenges to the delivery of IWM, including funding, policy, regulation and, more broadly, governance, institutional challenges and planning.

There are 15 priority systemic enabling actions identified and listed in the 'Systemic enabling actions overview' section (page 19). Priority actions address key regional challenges and seek to support the widespread delivery of more structural actions. To deliver the necessary changes in industry practice, some actions will require a program of activities. It may take several years to progressively shift practice and unlock change.

Seven priority place-based enabling actions are listed in the 'Place-based enabling actions overview' section (page 21).

8 structural actions

(Page 15)

Structural actions provide benefits that can be quantified. They deliver on-the-ground infrastructure, such as an alternative water supply network, or natural assets, such as wetlands, raingardens, rivers, creeks, trees and vegetation.

15 systemic enabling actions

(Page 19)

Systemic enabling actions help transition from conventional water management to IWM. Priority actions address key regional challenges.

7 place-based enabling actions

(Page 21)

Place-based enabling actions help address local and site-specific issues.

Impact of IWM actions on the Werribee catchment by 2050

We are already tracking what we have achieved and what we expect this plan to deliver for the Werribee catchment. For example, during the development of the IWM targets, the IWM Forums estimated the benefits of IWM projects delivered by 2019. Some of the key benefits expected by 2050 for the Werribee catchment are shown below, when combining the benefits we expect this plan to deliver with existing IWM benefits. For more details about the 2019 estimates, refer to the *Catchment Scale IWM Plan: Targets Driving Outcomes* (2022).



Figure 2. Expected benefits in the Werribee catchment by 2050 (represents the combination of IWM benefits delivered in 2019 and the benefits expected through the implementation of all priority structural actions)

Part of a bigger picture

IWM requires collective effort across the entire Metropolitan Melbourne region. In Metropolitan Melbourne, there are a total of 135 priority structural actions and over 50 priority place-based actions.

Collectively the actions will shape the liveability, prosperity and resilience of the region. These are significant impacts that would otherwise not be realised through a less collaborative approach.

If all priority actions are delivered across the 5 Metropolitan Melbourne Forum areas, we will diversify our water supplies, improve catchment and waterway health, and sustain local food production.

The estimates below represent the key benefits expected for the region, when combining the IWM benefits we expect from the 5 *Catchment-scale IWM Plans: Actions for Delivery* with existing IWM benefits.

Diversifying our water supplies

By 2030, we expect to deliver 42 GL/year of alternative water to substitute for drinking water, against a target of 53 GL/year. By 2050, this is expected to increase to 136 GL/year, against a target of 150 GL/year.

2030



79% of target met

2050



91% of target met

Increasing recycled water supplies

By 2030, we expect to deliver 67 GL/year of recycled water to customers, against a target of 85 GL/year. By 2050, this is expected to increase to 137 GL/year of recycled water, against a target of 230 GL/year.

2030



76% of target met

2050



55% of target met

Protecting our waterways from stormwater runoff

By 2030, we expect to deliver a 44 GL/year reduction in the volume of stormwater runoff entering waterways, against a target of 70 GL/year. By 2050, this is expected to increase to 79 GL/year, against a target of 197 GL/year.

2030



63% of target met

2050



35% of target met

Increasing water for the environment

By 2030, we expect to secure 43 GL/year of water for the environment to improve waterway health, against a target of 55 GL/year for the year 2032¹. By 2050, this is expected to increase to 56 GL/year.

2032



80% of target met

Supporting agricultural production

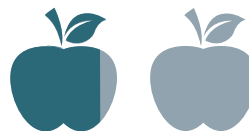
By 2030, we expect to deliver 43 GL/year of alternative water for agricultural production, against a target of 63 GL/year. By 2050, this is expected to increase to 54 GL/year, against a target of 112 GL/year.

2030



68% of target met

2050



48% of target met

Progress towards our targets

If we successfully deliver on this plan, we will be about 60% of the way towards meeting our 2050 targets. Some gaps still remain, particularly in reducing stormwater runoff. Over the next two years, the IWM Forums will continue to identify emerging opportunities in IWM.

Outside the IWM Forums, these gaps are also being addressed through local IWM projects, *Plan Melbourne*, *The Greater Melbourne Urban Water System Strategy*, and the *Central and Gippsland Region Sustainable Water Strategy*. We need to keep working together to meet our targets.

**Target/
outcomes
met**



**Priority actions identified
in this plan**

**Locally important
actions delivered
by organisations
and communities**

**Future actions
to be identified**

¹ The target for returning water to the environment comes from the *Central and Gippsland Region Sustainable Water Strategy*. The strategy does not include a 2050 target.

Structural actions overview

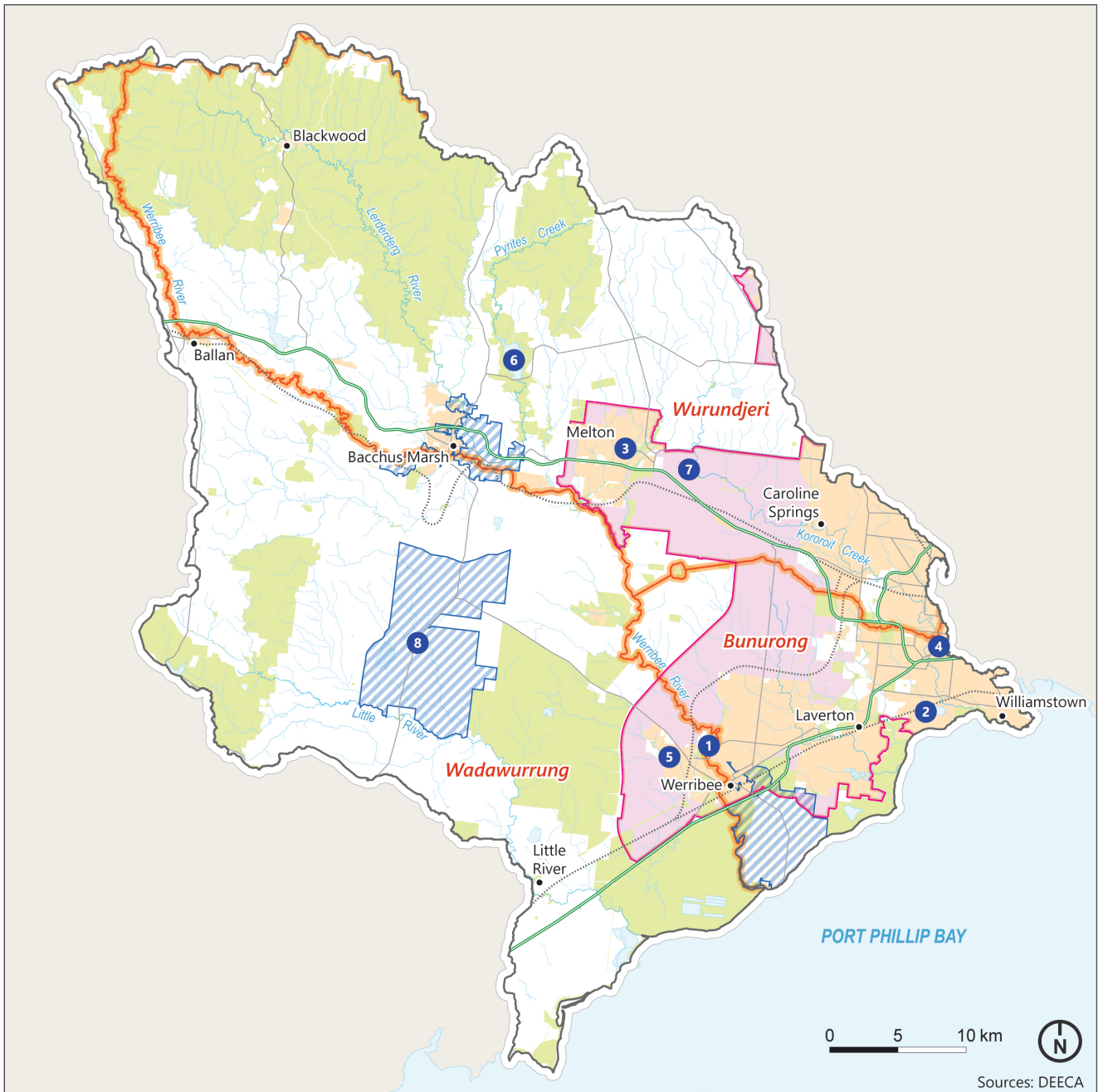
The next decade will see activities undertaken by Forum partners that will progress actions towards construction.

The 8 priority structural actions are at different stages of progress, from ideas development to feasibility and concept, business case, detailed design and construction. These are significant large-scale actions that will be complemented by many other local actions (not detailed in this plan). By their very nature, IWM actions deliver multiple outcome-based objectives (e.g. provision of an alternative water supply, water quality improvement, or waterway or landscape enhancement) and these are summarised in Table 1.

Figure 3 and Table 1 outline the priority structural actions for the Werribee catchment. A more detailed description of these actions is provided on page 25.

Across Werribee's 8 priority structural actions:





Priority Structural Actions Werribee Catchment

- Town
 - Freeway
 - Major Road
 - Rail
 - ~ River or Major Creek
 - ~ Minor Creek
 - ▨ Irrigation District
 - Urban Area
 - Growth Area
 - Urban Growth Boundary
 - Registered Aboriginal Parties
 - Reserve
1. Werribee System Reconfiguration Project
 2. Cherry Creek Stormwater Harvesting
 3. Melton Growth Areas Stormwater Harvesting
 4. Greening the Pipeline Zone 9 (Brooklyn) Masterplan
 5. Werribee Growth Areas Dual Pipe
 6. Bacchus Marsh Stormwater Harvesting Connection
 7. Melton Recycled Water for Open Space Irrigation
 8. Western Irrigation Network: Parwan Balliang Irrigation District Scheme

Figure 3. Map of priority structural actions for the Werribee catchment

Note: Locations of actions shown here are general in nature. IWM actions may apply across a larger area than shown.

Table 1. Overview of priority structural actions for the Werribee catchment

IWM action	Strategic outcomes						
Werribee system reconfiguration project							
Cherry Creek stormwater harvesting							
Melton growth areas stormwater harvesting							
Greening the pipeline Zone 9 (Brooklyn) masterplan							
Werribee growth areas dual pipe							
Bacchus Marsh stormwater harvesting connection							
Melton recycled water for open space irrigation							
Western irrigation network: Parwan-Ballieng irrigation district scheme							

Shade scale



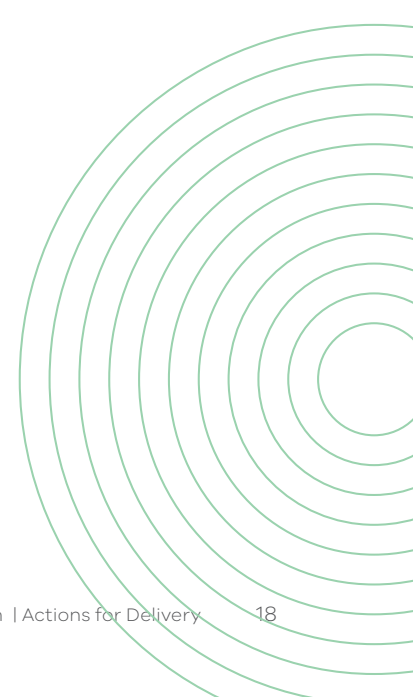
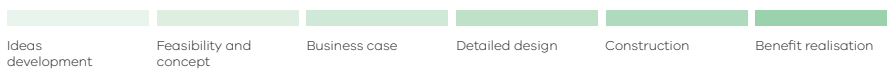
No Impact

Strategic outcome icons

Strategic outcomes are described on page 7.

Lead agency	Implementation partners	Status
Joint implementation	Melbourne Water, Southern Rural Water, DEECA, Greater Western Water	
Hobsons Bay City Council	To be agreed	
Melbourne Water	Greater Western Water, Melton City Council, DEECA	
Melbourne Water	Maribyrnong City Council, Hobsons Bay City Council, Brimbank City Council	
Greater Western Water	Wyndham City Council	
Melbourne Water	Southern Rural Water, Greater Western Water, Moorabool Shire Council	
Greater Western Water	Melton City Council, developers, Wurundjeri WWCHAC	
Greater Western Water	Southern Rural Water, EPA, Moorabool Shire Council, Melton City Council, Greater Geelong City Council, Melbourne Water	

Strategy opportunity status



Systemic enabling actions overview

These actions have been developed to tackle the systemic barriers to mainstreaming IWM such as funding, policy, and planning barriers. They work at a regional scale to assist in the delivery of on-the-ground structural actions.

Fifteen systemic enabling actions have been identified. These actions are listed in Table 2 in order of priority, as assessed by IWM Forum stakeholders. For each of the actions, the lead delivery agency, implementation partners and action status are noted.

Some systemic enabling actions will require a program of activities in order to deliver the necessary changes to industry practice. It may take several years to progressively shift practice and unlock change.



Table 2. Summary of priority systemic enabling actions for Metropolitan Melbourne

IWM action	Lead agency	Implementation partners	Status
Secure funding and resourcing to enable Traditional Owners to make decisions and determine IWM priorities on their Country	DEECA, water corporations and local governments	Traditional Owner groups*	
Build capacity across IWM Forum partners to plan and deliver IWM	DEECA, water corporations and local governments	All IWM Forum partners	
Develop an investment framework for IWM	DEECA	All IWM Forum partners	
Embed IWM in land-use planning and urban development	DEECA, Department of Transport and Planning	All IWM Forum partners	
Clarify roles and responsibilities for delivering IWM outcomes	DEECA	All IWM Forum partners	
Develop guidance for stormwater harvesting and infiltration	Melbourne Water, EPA, local governments	All IWM Forum partners, development sector	
Develop policy and regulatory support for increased use of recycled water and treated stormwater	DEECA	All IWM Forum partners, development sector	
Further develop the IWM resource hub to share data and information	DEECA	All IWM Forum partners	
Develop a water sensitive urban design (WSUD) asset maintenance framework	DEECA**	Melbourne Water, local governments	
Develop a framework for installation and maintenance of rainwater tanks	DEECA, water corporations	All IWM Forum partners	
Develop sub-catchment scale targets for total suspended solids and total nitrogen prevented from discharging to waterways	DEECA**	All IWM Forum partners	
Strengthen policy and regulatory support for urban greening	DEECA**	All IWM Forum partners	
Improve community knowledge and involvement in urban water management	Water corporations, DEECA	All IWM Forum partners	
Develop and deliver a water efficiency plan for Greater Melbourne	Water corporations	All IWM Forum partners	
Investigate opportunities to use recycled water and stormwater to improve environmental flows	DEECA, water corporations	All IWM forum partners	

Strategy opportunity status



Note: *Bunurong Land Council Aboriginal Corporation (BLCAC), Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (WWCHAC), Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC).
 Note: ** indicates that DEECA will collaboratively seek a lead organisation and partners to deliver this action.

Place-based enabling actions overview

Place-based enabling actions address specific challenges for the catchment and can significantly contribute to mainstreaming IWM. They work hand-in-hand with systemic enabling actions and priority structural actions, unlocking additional IWM opportunities.

Place-based enabling actions focus on understanding and identifying catchment-specific opportunities.

Seven place-based enabling actions have been identified. These actions are listed in Table 3 in order of priority as agreed by IWM Forum members. For each of the actions, the lead delivery agency and action status are listed.

Table 3. Summary of priority place-based enabling actions for the Werribee catchment

IWM action	Lead agency	Status
Undertake strategic assessments of catchment- scale spatial IWM opportunities – Werribee catchment	DEECA*	
Greater Western Water stormwater harvesting fund	Greater Western Water	
Assess open space irrigation for urban cooling opportunities	Greater Western Water	
Explore large-scale stormwater harvesting opportunities	Melbourne Water	
Support implementation of Flood Management Strategy for Port Phillip and Western Port – Action Plan 2021–2026	Melbourne Water	
IWM options for approval of precinct structure plans in the western growth area	DEECA*	
Integrated water cycle mass balance	Greater Western Water	

Strategy opportunity status



Note: * indicates that DEECA will collaboratively seek a lead organisation and partners to deliver this action.

Success stories

Since the release of the *Werribee Strategic Directions Statement*, IWM Forum partners are successfully delivering numerous projects, paving the way for the identification and delivery of future actions. The projects highlighted here are a selection of many success stories across the Werribee catchment. Delivery of many of these projects has been through collaborative partner investment including co-investment from the Victorian Government.

Reimagining Arnolds Creek

This project is recognised as a priority (Action 17) in the Werribee Integrated Water Management Forum's *Strategic Directions Statement*.

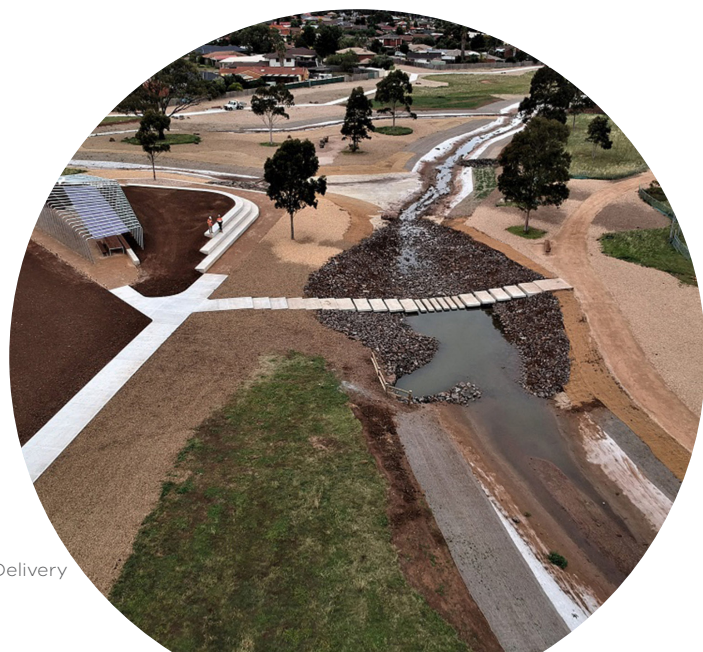
Arnolds Creek is in a highly urbanised catchment in Melton West and flows into the Werribee River. The area has a low proportion of public open space for communities to access and enjoy. The creek was characterised by a concrete channel with little in-stream habitat or ecological value.

Melbourne Water, in partnership with Melton City Council and the community, co-designed and delivered the naturalisation of a 1.4-kilometre length of channel to create a beautiful, natural meandering creek that supports important habitat values and is now home to growing populations of frogs, fish and waterbugs. According to data from the Victorian Biodiversity Atlas, there are 130 animal species and 129 plant species located within the Arnolds Creek corridor.

Over 200,000 native plants were planted to complement areas of existing native vegetation, providing high-quality landscaping along the parkland to better connect neighbourhoods to nearby schools, shops and community services. Additional shade provides urban cooling outcomes, creating more enjoyable spaces to play and relax. Arnolds Creek is now a highly valued asset that provides multiple environmental and community benefits while continuing to meet essential drainage requirements.

This project was the first among other waterway naturalisation projects in the Werribee region. It established a community-led approach and template for transforming Melbourne's stormwater channels and underground pipes back to natural waterways through Melbourne Water's Reimagining Your Creek program.

Together with a broader program of creek reimagining projects led by Melbourne Water, this project was the winner of the 2021 Australian Institute of Landscape Architects Victoria Award of Excellence for Infrastructure. Arnolds Creek was also a finalist for the Infrastructure Innovation Award (metro) in the Australian Water Association's Victorian Water Award.





Werribee System Reconfiguration Project

This project is Action 4-10 Reconfiguring the Werribee System in the Central and Gippsland Region Sustainable Water Strategy.

The Wirribi Yaluk, or Werribee River, is an important part of Country for Traditional Owners, including the Bunurong, Wurundjeri Woi-wurrung and Wadawarrung peoples. The Werribee River and its tributaries are highly valued waterways that support platypus, frogs, fish and stands of river red gums. The waterway corridor also provides a place where communities can relax and connect with nature.

The urban planning and water industries have partnered to address the challenges of water security in the Werribee catchment arising from drier conditions, reduced and more saline river flows and rapid urban population growth.

A business case is underway, which will examine all water sources in the catchment (river water, recycled water and stormwater) and demands (irrigation, environment, Traditional Owner uses and urban uses) to determine the best combination of supply options for the future. There is an opportunity to reconfigure the Werribee water supply systems to provide more climate-resilient water sources for non-drinking purposes and make better use of all sources of water and reservoirs in the local system to potentially:

- increase water security for farmers across the Werribee and Bacchus Marsh irrigation districts
- free up river water entitlements for Traditional Owners and environmental uses
- harvest stormwater from the Melton's growth area for re-use and to protect the local waterways
- improve waterway health through complementary works at Werribee weir.

Western Irrigation Network

This project is recognised as a priority (Action 19) in the Werribee Integrated Water Management Forum's Strategic Directions Statement.

The Parwan–Balliang area, in Melbourne's outer west, is significant farming area, supplying vegetables, wheat and barley to the city and beyond. The area has traditionally suffered from a lack of rainfall, which has limited productivity and agricultural expansion. The surrounding areas of Bacchus Marsh, Melton and Sunbury are among the fastest-growing populations in Victoria, leading to large increases in the volume of recycled water being produced. Repurposing this water to irrigate agricultural land, rather than discharging it into local creeks and rivers, will reduce the volume of recycled water that impacts the waterways and protect them for future generations.

The Western Irrigation Network will connect dryland farmers in the Parwan-Balliang area, near Bacchus Marsh, with a guaranteed supply of Class C recycled water. The first stage of the Western Irrigation Network is under construction. Once complete, the scheme will supply around 2.4 gigalitres of recycled water per year to farmers to irrigate pasture and crops. This volume will increase as irrigators adapt and expand production. By 2050, the network could deliver up to 18 gigalitres of safe, secure irrigation water supply to the area. With access to new, secure, climate-independent recycled water, farming communities can expand agricultural production, diversify into alternative higher-value crops and create new jobs.

This \$116.3 million project has been jointly funded by the Australian Government (\$48.1 million), the Victorian Government (\$65.6 million), Greater Western Water and other partners (\$2.6 million). Australian Government funding is provided through the National Water Grid Fund.

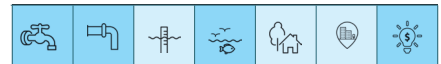
Action descriptions

This section provides a description of priority structural, systemic enabling and place-based enabling actions. For each action, an overview is provided together with details on the action status, lead agency and implementation partners.

Structural Action 1

Werribee system reconfiguration project

The Werribee catchment faces challenges to water security due to drier conditions, reduced river flows, higher salinity in the Werribee River and reduced water reliability for irrigation districts. The catchment is also experiencing rapid population growth, which will increase water demand and increase the generation of alternative water sources. This action investigates the feasibility of using high-quality recycled water to create a new agricultural irrigation district and allow exchange of irrigation entitlements, to improve the agricultural productivity of the region and help preserve potable water supply. Supply of recycled water will replace 10–12 gigalitres of drinking water per year by 2050. A further 20 gigalitres per year will support Traditional Owner uses and environmental outcomes, and the provision of high-quality recycled water supply to agricultural areas such as the Werribee and Bacchus Marsh Irrigation Districts. This will increase provisions for environmental water reserves and cultural flows in Pykes Creek and Melton Reservoirs.

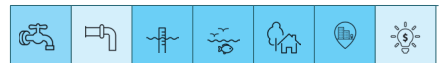


Status	Business case
Lead Agency	Joint implementation
Implementation Partners	Melbourne Water, Southern Rural Water, DEECA, Greater Western Water

Structural Action 2

Cherry Creek stormwater harvesting

Cherry Lake is a large constructed lake located in Altona. It is fed by Cherry Creek, which receives stormwater from a predominantly industrial catchment. The lake has a diverse range of indigenous vegetation and provides valuable habitat for a range of native fauna, including waterbirds and the Altona Skipper Butterfly. It is well used by the community for recreational activities such as walking, cycling, canoeing and fishing. The lake was originally built as a stormwater detention structure and currently delivers flood management, water quality and natural resource management outcomes. This action aims to assess the opportunity to harvest and treat stormwater from Cherry Creek for the irrigation of local sportsgrounds and open spaces.

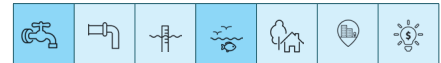


Status	Business Case
Lead Agency	Hobsons Bay City Council
Implementation Partners	To be agreed

Structural Action 3

Melton growth areas stormwater harvesting

Urbanisation in the Melton Growth Area is expected to increase by approximately 38% by 2040. This is expected to generate up to 33 gigalitres of stormwater runoff across the area. Urban runoff from these growth areas could be harvested for use in open space irrigation, environmental flows and other suitable end uses, reducing reliance on drinking water. This action will assess the feasibility of a new pipeline to transfer water from Melton Reservoir to Merrimu Reservoir to enable the use of harvested stormwater from the Melton Growth Area for irrigation and environmental flows.

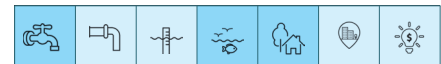


Status	Feasibility and concept
Lead Agency	Melbourne Water
Implementation Partners	Greater Western Water, Melton City Council, DEECA

Structural Action 4

Greening the pipeline Zone 9 (Brooklyn) masterplan

This action aims to transform the Main Outfall Sewer reserve in Brooklyn into a vibrant parkland connecting communities in Melbourne's west to the city. The project has been split into 9 zones for delivery, with Zone 5 under construction and Zones 4 and 9 at masterplanning stage. This action focuses on the implementation of greening initiatives in Zone 9, which is located along the Federation Trail bike path in Brooklyn. IWM has been incorporated into the masterplan to support vegetation growth and health, improve the quality of stormwater entering local waterways, reduce reliance on drinking water sources, and provide a unique space to meet, play and relax.

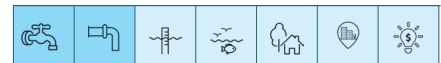


Status	Feasibility and concept
Lead Agency	Melbourne Water
Implementation Partners	Maribyrnong City Council, Hobsons Bay City Council, Brimbank City Council

Structural Action 5

Werribee growth areas dual pipe

High-quality recycled water is currently being supplied by Greater Western Water's Salt Reduction Plant in Werribee to homes and open spaces in Werribee and Wyndham areas through a dedicated 'purple pipe' recycled water system. An extension of the recycled water network in the growth areas of Wyndham Vale, Tarneit, Werribee Open Range Zoo, the future East Werribee Employment Precinct and the Upper Point Cook development will reduce reliance on drinking water sources and support liveability, urban greening and cooling in the region.

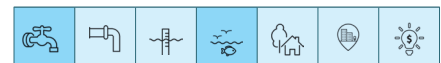


Status	Detailed design
Lead Agency	Greater Western Water
Implementation Partners	Wyndham City Council

Structural Action 6

Bacchus Marsh stormwater harvesting connection

It is estimated that the population of Bacchus Marsh will double over the next 2 decades to around 40,000 residents. This is expected to generate large amounts of stormwater runoff across the area. Harvesting urban runoff from these new growth areas provides opportunities to reduce drinking water usage by supporting the use of the stormwater for open space irrigation, environmental flows and other suitable end uses. This action will assess the feasibility of a new pipeline to link into the pipeline from Melton Reservoir to Merrimu Reservoir to enable the use of harvested stormwater from the Bacchus Marsh urban growth areas for suitable end uses.

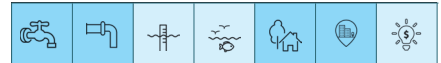


Status	Feasibility and concept
Lead Agency	Melbourne Water
Implementation Partners	Southern Rural Water, Greater Western Water, Moorabool Shire Council

Structural Action 7

Melton recycled water for open space irrigation

The lack of access to fit-for-purpose alternative water supply has been identified as a barrier to widespread public open-space irrigation. This action will explore the opportunity to supply recycled water to public open spaces in the western growth corridor in the City of Melton. The water will support the delivery of high-quality sportsgrounds, and urban greening and cooling in the region

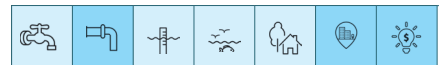


Status	Feasibility and concept
Lead Agency	Greater Western Water
Implementation Partners	Melton City Council, developers, Wurundjeri WWCHAC

Structural Action 8

Western irrigation network: Parwan–Balliang irrigation district scheme

The significant population growth taking place in the Bacchus Marsh and Melton areas will create a substantial volume of recycled water, which will need to be managed to minimise impact on the environment. The Western Irrigation Network will use this recycled water to create a new agricultural irrigation district. The use of recycled water in this way will protect the environment while keeping costs to agricultural customers low and will add to the local economy and improve the agricultural productivity of the region.



Status	Construction
Lead Agency	Greater Western Water
Implementation Partners	Southern Rural Water, EPA, Moorabool Shire Council, Melton City Council, Greater Geelong City Council, Melbourne Water

Systemic Enabling Action 1

Secure funding and resourcing to enable Traditional Owners to make decisions and determine IWM priorities on their Country.

Commitment to working in partnership with Traditional Owners is a key part of the *IWM Framework for Victoria* (2017). The IWM Forum partners will secure funding and resourcing to increase Traditional Owner self-determination and decision making in water management on their Country. This action is related to the *CGRSWS* and *Water is Life* strategies.

Status	Ideas stage
Lead Agency	DEECA, water corporations and local governments
Implementation Partners	BLCAC*, WWCHAC**, WTOAC***

Systemic Enabling Action 2

Build capacity across IWM Forum partners to plan and deliver IWM

Improve capacity of practitioners and managers to ensure IWM-related skills and knowledge are influenced by current evidence, policies and science, and actively maintained within IWM Forum partner organisations, to enable effective identification and delivery of IWM opportunities.

Status	In progress
Lead Agency	DEECA, water corporations and local governments
Implementation Partners	All IWM Forum partners

Note:

*Bunurong Land Council Aboriginal Corporation.

** Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation.

*** Wadawurrung Traditional Owners Aboriginal Corporation.

Systemic Enabling Action 3

Develop an investment framework for IWM

Develop a framework to improve how investments are made in IWM opportunities to best realise the multiple community and environmental benefits. This is CGRSWS Action 3-3: Maturing the IWM investment framework.

Status	In progress
Lead Agency	DEECA
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 4

Embed IWM in land-use planning and urban development

Identify and implement guidance and requirements for supporting IWM in land-use planning and urban development. This action is related to CGRSWS Action 3-9: Strengthen IWM in land-use and infrastructure planning.

Status	In progress
Lead Agency	DEECA, Department of Transport and Planning
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 5

Clarify roles and responsibilities for delivering IWM outcomes

Clarify roles and responsibilities of IWM forum partners and land-use planning and urban development sectors for delivering IWM outcomes articulated in the Strategic Direction Statements.

Status	In progress
Lead Agency	DEECA
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 6

Develop guidance for stormwater harvesting and infiltration

Develop guidance for cost-effective, practical solutions/approaches at different spatial scales to achieve the flow volume reductions articulated in the Urban Stormwater Management Guidance (EPA Publication 1739.1).

Status	In progress
Lead Agency	Melbourne Water, EPA, local governments
Implementation Partners	All IWM Forum partners, development sector

Systemic Enabling Action 7

Develop policy and regulatory support for increased use of recycled water and treated stormwater

Develop policy and regulatory enablers to improve uptake of recycled water and treated stormwater to supply a broader range of beneficial uses. This action links strongly to the following CGRSWS actions:

- Action 3-8: Use of recycled water and stormwater for greener, open spaces.
- Action 3-10: Develop template guidance for recycled water use to streamline approvals.
- Action 3-11: Identify priority projects to contribute to state of knowledge of emerging contaminants.
- Action 3-12: Improving stormwater regulations to support increased capture and use.
- Action 3-15: Develop a stormwater offsets framework.
- Action 3-13: Implement Melbourne Urban Stormwater Institutional Arrangements (MUSIA).
- Action 3-16: Embedding stormwater flow requirements.
- Action 3-17: Building community confidence in recycled water and stormwater.
- Action 3-18: Clearer guidance on recycled water accounting and reporting

Status	In progress
Lead Agency	DEECA
Implementation Partners	All IWM Forum Partners and development sector

Systemic Enabling Action 8

Further develop the IWM resource hub to share data and information

Further develop the IWM resource hub to share information to enhance knowledge and build capacity.

Status	Ideas stage
Lead Agency	DEECA
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 9

Develop a WSUD asset maintenance framework

Develop a water sensitive urban design (WSUD) asset maintenance framework by considering current organisational approaches to WSUD asset maintenance and best practice guidelines.

Status	Ideas stage
Lead Agency	DEECA*
Implementation Partners	Melbourne Water, local governments

Systemic Enabling Action 10

Develop a framework for installation and maintenance of rainwater tanks

Develop a framework for installation and maintenance of rainwater tanks to ensure rainwater tanks are installed and operated as intended.

Status	In progress
Lead Agency	DEECA, water corporations
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 11

Develop sub-catchment scale targets for total suspended solids and total nitrogen prevented from discharging to waterways

Develop sub-catchment scale targets for total suspended solids and total nitrogen prevented from discharging to all waterway reaches. The Healthy Waterways Strategy 2018 has sub-catchment targets for priority catchment areas and this work is complementary to the Healthy Waterways Strategy 2018 targets and the total suspended solids and total nitrogen targets for Port Phillip Bay and Western Port Bay.

Status	Ideas stage
Lead Agency	DEECA*
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 12

Strengthen policy and regulatory support for urban greening

Strengthen policy and regulatory support for urban greening, including planning controls for private and public open space to deliver urban greening that is supported by IWM. This could include fit-for-purpose water use and could maintain or increase onsite detention, permeability and canopy cover.

Status	Ideas stage
Lead Agency	DEECA*
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 13

Improve community knowledge and involvement in urban water management

Improve community knowledge and involvement in the urban water cycle, including IWM solutions. This action is related to CGRSWS Action 9-5: Building community knowledge and involvement in water management.

Status	In progress
Lead Agency	Water corporations, DEECA
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 14

Develop and deliver a water efficiency plan for Greater Melbourne

Develop and deliver a water efficiency plan for Greater Melbourne to ensure that Melbourne continues to focus on water conservation and efficiency to support the deferral of major system augmentations in the medium and longer term. This is GMUWSS: Water for Life Action 4.1.

Status	In progress
Lead Agency	Water corporations
Implementation Partners	All IWM Forum partners

Systemic Enabling Action 15

Investigate opportunities to use recycled water and stormwater to improve environmental flows

Investigate enabling the use of treated wastewater and stormwater to improve environmental flows. This is CGRSWS Action 8-22: Develop guidelines for using recycled water for the environment, and CGRSWS Action 8-23: Stormwater for the environment.

Status	In progress
Lead Agency	DEECA, water corporations
Implementation Partners	All IWM Forum partners

Note: * indicates that DEECA will collaboratively seek a lead organisation and partners to deliver this action.

Place-Based Enabling Action 1

Undertake strategic assessments of catchment- scale spatial IWM opportunities – Werribee catchment

Assessments of priority actions against the IWM targets identified in the *Werribee Catchment IWM Plan: Targets Driving Outcomes* show that further efforts are required in some areas to avoid falling short of delivering strategic outcomes for the Werribee catchment. A strategic assessment of catchment-wide IWM opportunities that address performance gaps will ensure that ongoing investment is directed where the greatest gains can be delivered. A key piece of work that is underway is the Integrated Water Cycle Water Mass Balance (Action 7), which will provide important data to underpin this action.

Status	Ideas stage
Lead Agency	DEECA*

Place-Based Enabling Action 2

Greater Western Water stormwater harvesting fund

Greater Western Water supports alternative water management schemes through the provision of a stormwater harvesting fund to co-deliver new place-based actions across the Greater Western Water service area (applicable to Werribee, Maribyrnong, Yarra and Coliban catchments). The proposed fund aims to support open-space managers to progress stormwater harvesting schemes to irrigate public parks, gardens, sportsgrounds and golf courses, and deliver a greener, cooler, more liveable west.

Status	In progress
Lead Agency	Greater Western Water

Place-Based Enabling Action 3

Assess open space irrigation for urban cooling opportunities

With a growing population comes increasing demand for potable water, greater areas of urbanised land and the need for high-quality community assets such as green open space.

Greater Western Water has undertaken an investigation to identify opportunities to provide alternative water (stormwater, recycled water and rainwater) to irrigate of active and passive open spaces across its service area, enhancing urban amenity and liveability as well as resilience to climate change. Greater Western Water will continue to work with councils to advance suitable irrigation opportunities that support greening and cooling objectives in the west.

Status	In progress
Lead Agency	Greater Western Water

Place-Based Enabling Action 4

Explore large-scale stormwater harvesting opportunities

Large-scale alternative water supply schemes offer the opportunity to improve water security and protect our environment, as well as enhance liveability and support communities to thrive. Melbourne Water explores stormwater harvesting opportunities to support large-scale stormwater harvesting networks. These include a range of potential sources at the sub-catchment scale and networks of multiple sources to supply a range of demand opportunities, including peri-urban agriculture, irrigation of ovals, sportsgrounds and golf courses, as well as cultural and environmental flows.

Status	In progress
Lead Agency	Melbourne Water

Place-Based Enabling Action 5

Support implementation of Flood Management Strategy for Port Phillip and Western Port – Action Plan 2021–2026

Climate change, sea-level rise and urban densification are increasing flood risk. The *Flood Management Strategy for Port Phillip and Western Port – Action Plan 2021–2026* sets the 10-year direction for flood management in the region and identifies key focus areas that will guide actions. Specific actions that are a priority to progress for the Werribee catchment are Actions 6.4 and 6.5.

- Melbourne Flood Strategy Action 6.4: Embed innovative, place-based approaches to deliver multiple benefits in new precincts (infill and redevelopment).
- Melbourne Flood Strategy Action 6.5: Identify high-priority catchments to reduce flood impacts through stormwater management projects and deliver projects in these areas.

These actions will help to plan for, avoid and reduce flood risks for the region.

Status	In progress
Lead Agency	Melbourne Water

Place-Based Enabling Action 6

IWM options for approval in precinct structure plans in the western growth area

The Western Growth Area of Melbourne is experiencing rapid population growth, placing pressure on an important food production region for the city. It is experiencing water resource constraints and significant impacts on highly valued waterways. A recently completed study investigated IWM options for the Western Growth Area at all scales of development to support informed decision-making around priority IWM options to integrate into urban development. There is an opportunity for state government, water corporations and councils to take forward recommendations of the study for specific precinct structure plan areas and reference these in the planning process to which developers respond.

Status	On hold
Lead Agency	DEECA*

Place-Based Enabling Action 7

Integrated water cycle mass balance

The Integrated Water Cycle Mass Balance adopts whole-of -water-system thinking to develop adaptive pathways for future water investment in Melbourne's west. The adaptive pathways represent decision-point based investment profiles to address growth, climate variability, climate change, and growing community expectations regarding the environment. It explores additional opportunities that might be enabled through alternative uses of water sources (recycled water, stormwater, potable water and surface water) to supply diverse demands such as recreational, environmental flow, agricultural, urban drinking water, and to further enhance capacity to return water to Traditional Owners. Modelling to understand how all sources of water in the Werribee and Maribyrnong catchments can meet these demands over the long term, whilst providing multiple benefits to the community and environment, will help inform the critical decision points for future servicing pathways for the catchments.

Status	In progress
Lead Agency	Greater Western Water

Note: * indicates that DEECA will collaboratively seek a lead organisation and partners to deliver this action.

Useful resources

1. [Central and Gippsland Region Sustainable Water Strategy 2022](#)
2. [Flood Management Strategy for Port Phillip and Western Port](#)
3. [Greater Melbourne Urban Water & System Strategy](#)
4. [Healthy Waterways Strategy](#)
5. [Integrated Water Management Framework for Victoria](#)
6. [Living Melbourne: Our metropolitan urban forest strategy](#)
7. [Melbourne Sewerage Strategy](#)
8. [Municipal Association of Victoria Strategy 2021-2025](#)
9. [Open Spaces for Everyone Strategy](#)
10. [Plan Melbourne 2017-2050](#)
11. [Protecting Victoria's Environment - Biodiversity 2037 \(Biodiversity 2037\)](#)
12. [Victoria's Climate Change Strategy](#)
13. [Victoria's Housing Statement: The Decade Ahead 2024-2034](#)
14. [Water is life: Traditional Owner Access to Water Roadmap](#)
15. [Waterways of the West Action Plan](#)
16. [Werribee Catchment Strategic Direction Statement](#)
17. [Werribee Catchment IWM Plan](#)

Glossary of terms

Alternative water sources

Alternative water sources refer to any supplies other than Victoria's potable water network or 'grid'. Alternative water sources include rainwater, greywater, recycled water, groundwater, and stormwater. The use of alternative water sources needs to be safe, meet regulatory and environmental standards, and reflect community expectations.

Assets

Assets are resources that provide benefit. They include: infrastructure such as treatment plants, pipes and pumps; water assets such as dams, bores and wetlands; and community assets such as sporting facilities, public gardens and street trees. Natural assets (also known as natural capital) are assets of the natural environment, for example waterways and vegetation.

Biodiversity

The number and variety of plants, animals and other living beings, including microorganisms, across our land, rivers and oceans. It includes the diversity of their genetic information, the habitats and ecosystems in which they live, and their connections with other life forms.

Blue-green infrastructure

Green infrastructure refers to key vegetation features such as street trees, parklands, grassed sports fields and vegetated walls. Blue infrastructure refers to waterways, wetlands, recreational lakes, stormwater retarding basins and other water body features. Blue-green infrastructure brings these assets together through integrated approaches to deliver community benefits.

Catchment

An area where water falling as rain is collected by the landscape, eventually flowing to a body of water such as a creek, river, dam, lake or ocean, or into a groundwater system.

Climate change

A long-term change in the earth's temperature and weather patterns, generally attributed directly or indirectly to human activities such as fossil fuel combustion and vegetation clearing and burning.

Community

Includes individuals, public and private landholders, community groups and business owners.

Department of Energy, Environment and Climate Action (DEECA)

A department of the Victorian Government that supports Victoria's natural and built environment to ensure economic growth and liveable, sustainable and inclusive communities. The department assists several ministers, develops and implements state policies and programs, and oversees the administration of organisations, including catchment management authorities.

Ecosystem

A dynamic complex of plant, animal, fungal and microorganism communities and the associated non-living environment, interacting as an ecological unit.

Environment Protection Authority (EPA Victoria)

Victoria's environmental regulator is an independent statutory authority. The authority supports Victorians to prevent and reduce the harmful effects of pollution and waste on communities.

Environmental water

Water to support environmental values and ecological processes.

Flooding (stormwater)

Inundation by local runoff. Stormwater flooding can be caused by local runoff exceeding the capacity of an urban stormwater drainage system or by the backwater effects of mainstream flooding causing the urban stormwater drainage system to overflow.

Floodplain

Low-lying land adjacent to a river or stream with unique ecosystems dependent on inundation from flood events.

Flow

Movement of water – the rate of water discharged from a source, given in volume with respect to time.

Gigalitre (GL)

One billion (1,000,000,000) litres. One gigalitre is the equivalent of approximately 400 Olympic-size swimming pools.

Greater Metropolitan Melbourne Region

The Port Phillip and Western Port Bay catchment area, including the Werribee, Maribyrnong, Yarra, Dandenong and Western Port catchments.

Groundwater

All subsurface water, generally occupying the pores and crevices of rock and soil.

Growth areas

Locations on the fringe of metropolitan Melbourne designated in planning schemes for large-scale transformation, over many years, from rural to urban use.

Impervious area

A surface or area within a catchment that significantly restricts the infiltration of water. Impervious surfaces can include concrete, road surfaces, roofs and saturated ground such as a lake or pond.

Implementation partner

An implementation partner is an organisation that supports the delivery of actions and will commit agreed resources with the lead organisation to ensure timely progress of the action.

Infrastructure

Basic facilities and networks needed for the functioning of a local community or broader society.

Integrated water management (IWM)

A holistic and collaborative approach to managing water that brings together all elements of the water cycle, including wastewater management, water supply, stormwater management and water treatment, considering environmental, cultural, economic and social benefits.

Integrated Water Management Forum

A meeting of urban water management organisations to identify, prioritise and commit to the investigation of integrated water management opportunities.

Irrigation district

An area declared under the *Water Act 1989* that is supplied with water by channels and pipelines used mainly for irrigation purposes.

Lead organisation

A lead organisation will drive the action forward and liaise with implementation partners, as appropriate, throughout all stage of action delivery. They will commit the necessary resources to progress activities to deliver the action. They will communicate with partners to clearly define their roles, responsibilities, and resource needs.

Liveability

A measure of a city's residents' quality of life, used to benchmark cities around the world. It includes socioeconomic, environmental, transport and recreational measures.

Megalitre (ML)

One million (1,000,000) litres.

Open space

Includes land reserved for natural landscape, parklands, recreation and active sports.

Potable water

Water of suitable quality for drinking.

Rainwater

Water that has fallen as rain or has been collected from rainfall.

Recycled water

Water derived from sewerage systems or industry processes that is treated to a standard appropriate for its intended use.

Reservoir

Natural or artificial dam or lake used for the storage and regulation of water.

Resilience

The capacity of individuals, communities, institutions, businesses, systems and infrastructure to survive, adapt and grow, no matter what chronic stresses or shocks they encounter.

Runoff

The portion of rainfall that ends up as streamflow, also known as rainfall excess.

Stormwater

Runoff from urban areas. The net increase in runoff and decrease in groundwater recharge resulting from the introduction of impervious surfaces such as roofs and roads within urban development.

Sub-catchment

A minor waterway catchment within one of the major waterway catchments in the region. There are 69 sub-catchments defined by the *Healthy Waterways Strategy 2018* (Melbourne Water) in the Port Phillip Bay and Western Port Region. Sub-catchments are used as the spatial unit for the plan analysis.

Traditional Owners

People who, through membership of a descent group or clan, are responsible for caring for Country. Aboriginal people with knowledge about traditions, observances, customs or beliefs associated with a particular area. A Traditional Owner is authorised to speak for Country and its heritage.

Urban greening

Growing plants wherever possible in cities to contribute to urban vegetation coverage and provide a connection to nature.

Urban water cycle

The cycle of water through urban environments. Distinguished from the natural urban water cycle by the transfer of water through built infrastructure and the high runoff rates generated by impervious surfaces.

Wastewater

Water that has had its quality affected by human influence, deriving from industrial, domestic, agricultural or commercial activities.

Water corporations

Victorian Government organisations charged with supplying water to urban and rural water users. They administer the diversion of water from waterways and the extraction of groundwater. Formerly known as water authorities.

Water infrastructure

Facilities, services and installations needed for the functioning of a water system.

Water sector

Organisations involved in water management, including water corporations, local government and catchment management authorities.

Water Sensitive Urban Design (WSUD)

The planning, design and construction of urban development that aims to minimise the impact on the surrounding environment and waterways by treating and reducing stormwater flows, increasing soil moisture and urban greening, and providing an alternative water source.

Waterways

Rivers and streams, their associated estuaries and floodplains (including floodplain wetlands), and non-riverine wetlands.

Waterway health

Waterway health is an umbrella term for the overall state of key features and processes that underpin functioning waterway ecosystems (such as species and communities, habitat, connectivity, water quality, riparian vegetation, physical form, and ecosystem processes such as nutrient cycling and carbon storage).

Wetlands

Natural, modified or artificial areas subject to permanent or temporary inundation, which hold static or very slow-moving water and develop, or have the potential to develop, biota adapted to inundation and the aquatic environment. Wetlands may be fresh or saline.

For more information visit:

www.water.vic.gov.au/liveable/integrated-water-management-program



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