Western Port Catchment Integrated Water Management Plan

Actions for Delivery

April 2024

Integrated Water Management Forums

Supported by

VICTORIA State Government | Energy, Environment and Climate Action

Acknowledgement of Victoria's Aboriginal communities

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

Bass Coast Shire Council

Baw Baw Shire Council

Bunurong Land Council Aboriginal Corporation

Cardinia Shire Council

City of Casey

Frankston City Council

Melbourne Water

Mornington Peninsula Shire Council

South East Water

South Gippsland Shire Council

South Gippsland Water

Southern Rural Water

State Government of Victoria, Department of Energy, Environment and Climate Action

Victorian Planning Authority

Westernport Water

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

The Western Port 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 Western Port 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 Western Port Integrated Water Management (IWM) Forum is at a pivotal point, where our endeavours are not just aspirational, but are focused on tangible delivery and meaningful outcomes.

As Victorians face a future with less water due to climate change and population growth, IWM is more critical than ever. These challenges require water to be at the centre of urban planning processes.

As Chair of the Western Port IWM Forum, I take this opportunity to celebrate the remarkable accomplishments of our Forum and Working Group members since the Forums were established in 2018. Over the last five years, we have achieved significant milestones towards embedding IWM in urban planning processes. We have created a shared vision that underpins the agreed strategic outcomes for the Western Port catchment and importantly developed indicators, measures and targets to track progress towards delivering these outcomes.

I extend my heartfelt appreciation to all the participants who have actively engaged in our Forums and acknowledge the exceptional leadership demonstrated by all partner organisations.

Forum Members, through their support and commitment to this process, have shown a collective vision to deliver better social, economic and environmental outcomes across the catchment – walking the talk on planning and delivering IWM solutions for the communities and environment of the Western Port catchment. By working together to deliver catchment scale outcomes, often beyond organisational boundaries and control, modelling the vision and collaborative leadership that is required, Forum members are supporting communities to adapt to the impacts of climate change.

Sincere thanks also to the Department of Environment, Energy, and Climate Action (DEECA) for their outstanding leadership, technical advice, and unwavering support. Their role is instrumental in navigating the complexities of integrated water management. I am grateful for the collaborative spirit DEECA bring to our endeavours.

As we reflect on our achievements, we also look to the future with a sense of purpose and anticipation.

The challenges we face require sustained effort by all parties and a dedication to the enabling policy work that is a critical component of delivering IWM outcomes. This will continue to be a focus as we look ahead and go beyond safeguarding water resources to directly improving water security, protecting the environment and enhancing the liveability of our communities so that they continue to thrive.

Gillian Sparkes

Dr Gillian Sparkes AM
Chair of the Western Port IWM Forum

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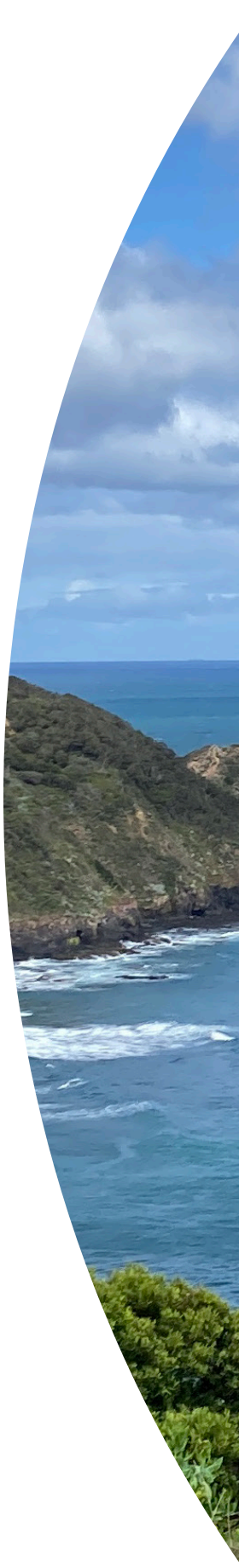


With climate change and population growth we face a future with less water. We need to act now and rethink the ways we manage our water resources.

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 Western Port catchment

Vision

Working together to deliver a secure, affordable and sustainable water cycle across the Western Port catchment for the betterment of all communities and the environment.

Catchment condition and challenges

The Western Port catchment lies 70 kilometres south-east of Melbourne and covers about 3,207 square kilometres, extending from Mount Dandenong in the west and following the southern slopes of the Great Dividing Range to San Remo in the south. A unique feature of the Victorian coastline, Western Port's semi-closed embayment supports an abundant array of plant and animal species. Fringed by the world's southernmost mangroves and saltmarshes, Western Port is listed as a Wetland of International Importance under the Ramsar Convention of Wetlands. Within the Western Port catchment are the traditional lands of the Bunurong people of the Kulin Nation.

The waterways in this catchment are characterised by small headwater streams in the Dandenong Ranges to major creeks and rivers flowing into Western Port. Waterway health is strongly linked to land use, with the upper reaches of waterways in a more natural condition than those in the urban areas. Agriculture and urban development impacts decrease water quality downstream, particularly from stormwater pollution. Pollutants, particularly sediment, are a major risk to the health of Western Port.

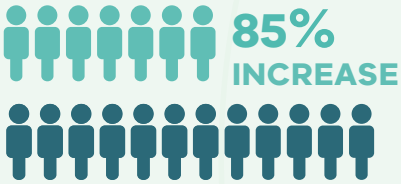
Some waterways in rural areas are flow stressed. Existing environmental entitlements in the Bunyip/Tarago system provide flow relief, but environmental volumes are forecast to further decline without intervention.

The catchment has an estimated population of 326,000 people and is predicted to grow to 604,000 by 2050[1]. Western Port is a largely rural catchment, and an important agriculture and horticulture hub for the region. Agriculture, horticulture and viticulture are major economic assets for the catchment, and irrigation in the catchment could help sustain food production. The south-east growth corridor will home new populations and rapid urban residential development is encroaching on areas used to support agriculture. Balancing agriculture and liveability with population growth, community planning and development is a complex challenge for the region. Local governments and water corporations are working alongside their communities to create connected green corridors to improve local amenity and biodiversity across the catchment[2].

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 supplies. While there will be a reduction in average annual rainfall, the catchment is predicted to see more frequent and more intense rainfall events that will increase the risk of flooding. Approximately 18 per cent of the catchment lies in areas subject to inundation or overland flow paths and combined with increased development and growing populations, will place more pressure on drainage infrastructure.

POPULATION GROWTH

326,000 2021
604,000 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 Western Port catchment has the highest average per person potable water use and there is increasing reliance on the Melbourne water supply system as local supplies reach capacity. There is potential to supplement water sources with harvested stormwater and recycled water from treatment plants.

Proximity to the Eastern Treatment Plant in Carrum along with smaller local treatment plants such as Pakenham and Cowes mean the catchment has growing volumes of treated wastewater to manage and growing recycled water resources that could be supplied to growing water demands. By increasing alternative water supply to agricultural users there is an opportunity to support economic growth in the region. Victoria's Big Build also presents opportunities to apply the IWM approach in the provision of water services

The role of IWM

Western Port 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 Western Port catchment are described on page 7.

Collaboration is key to the success of this plan

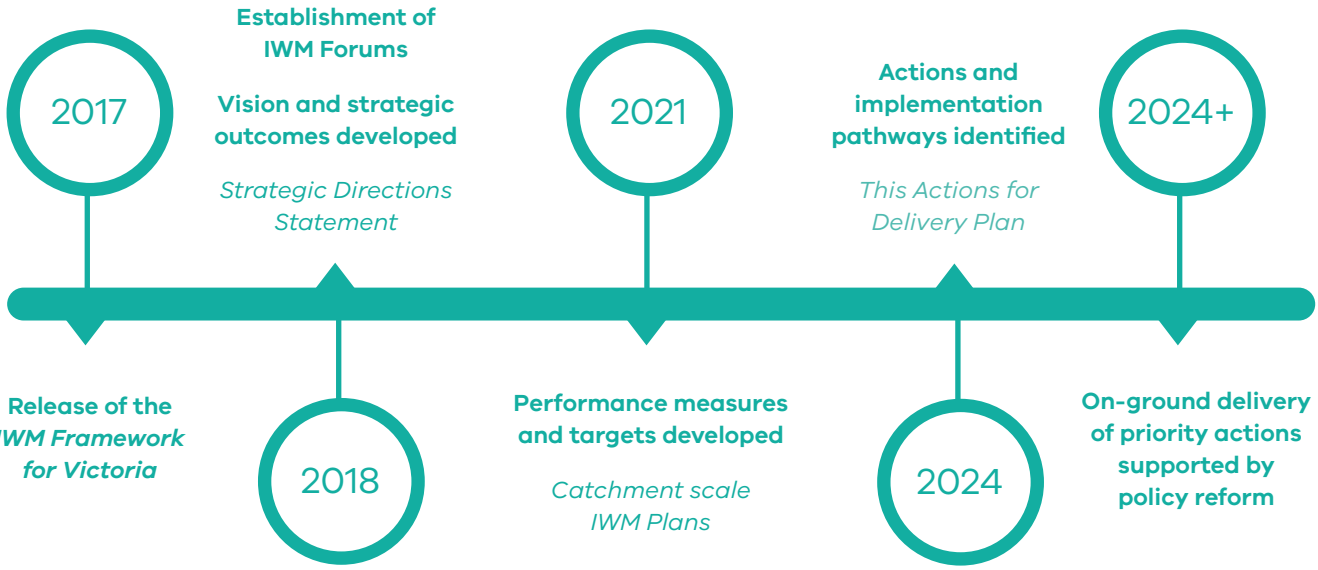
Creating a resilient and liveable future is a shared responsibility. Fifteen stakeholder organisations (referred to as IWM Forum partners) in the Western Port catchment are working together to respond to regional challenges and local issues. This approach embraces the co-delivery of on-the-ground outcomes 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 at a pivotal point where we move from planning to implementation, for the benefit of the Western Port 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 Western Port 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 Western Port'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.

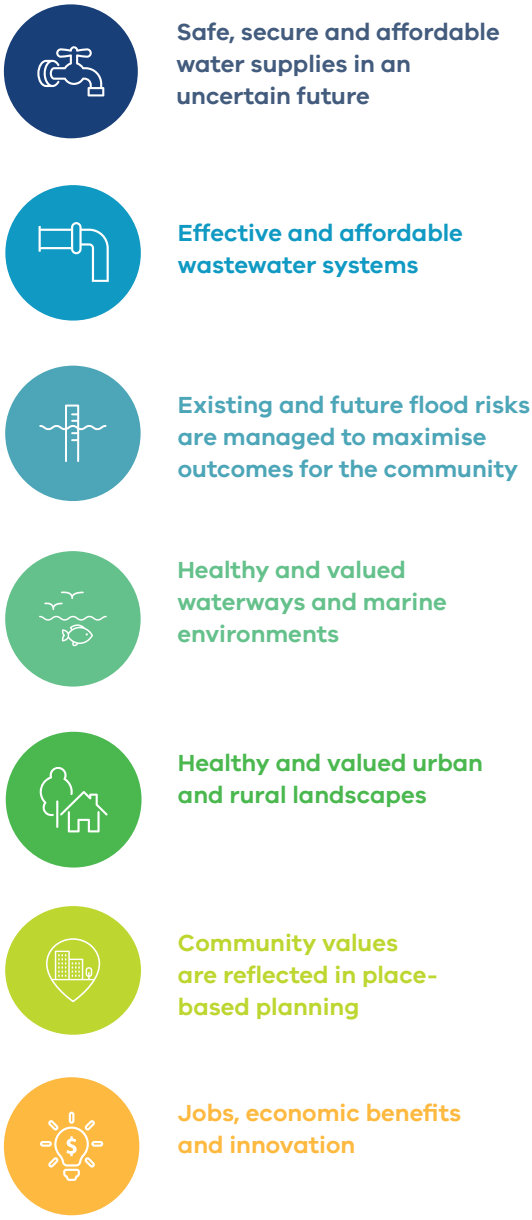


Figure 1. Strategic Outcomes

What is this plan?

The *Western Port 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 Western Port IWM Forum in collaboration with partners of the Yarra, Dandenong, Werribee 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 *Western Port 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 Western Port 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.

Bunurong Land Council Aboriginal Corporation are Western Port IWM Forum partners who have been part of the IWM journey since the Forums were established in 2018. The Western Port IWM Forum acknowledges that Bunurong 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 Western Port IWM Forum also acknowledges that Bunurong Traditional Owners seek the direct return of land and water for their self-determined use.

Although involvement in the Western Port IWM Forum has been limited recently, 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 *Central and Gippsland Region Sustainable Water Strategy* and *Water is Life: Traditional Owner Access to Water Roadmap*.

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.

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.

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 29). 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)

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 18 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.

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

18 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.

8 place-based enabing actions
(Page 21)

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

Impact of IWM actions on the Western Port catchment by 2050

We are already tracking what we have achieved and what we expect this plan to deliver for the Western Port 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 Western Port 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).

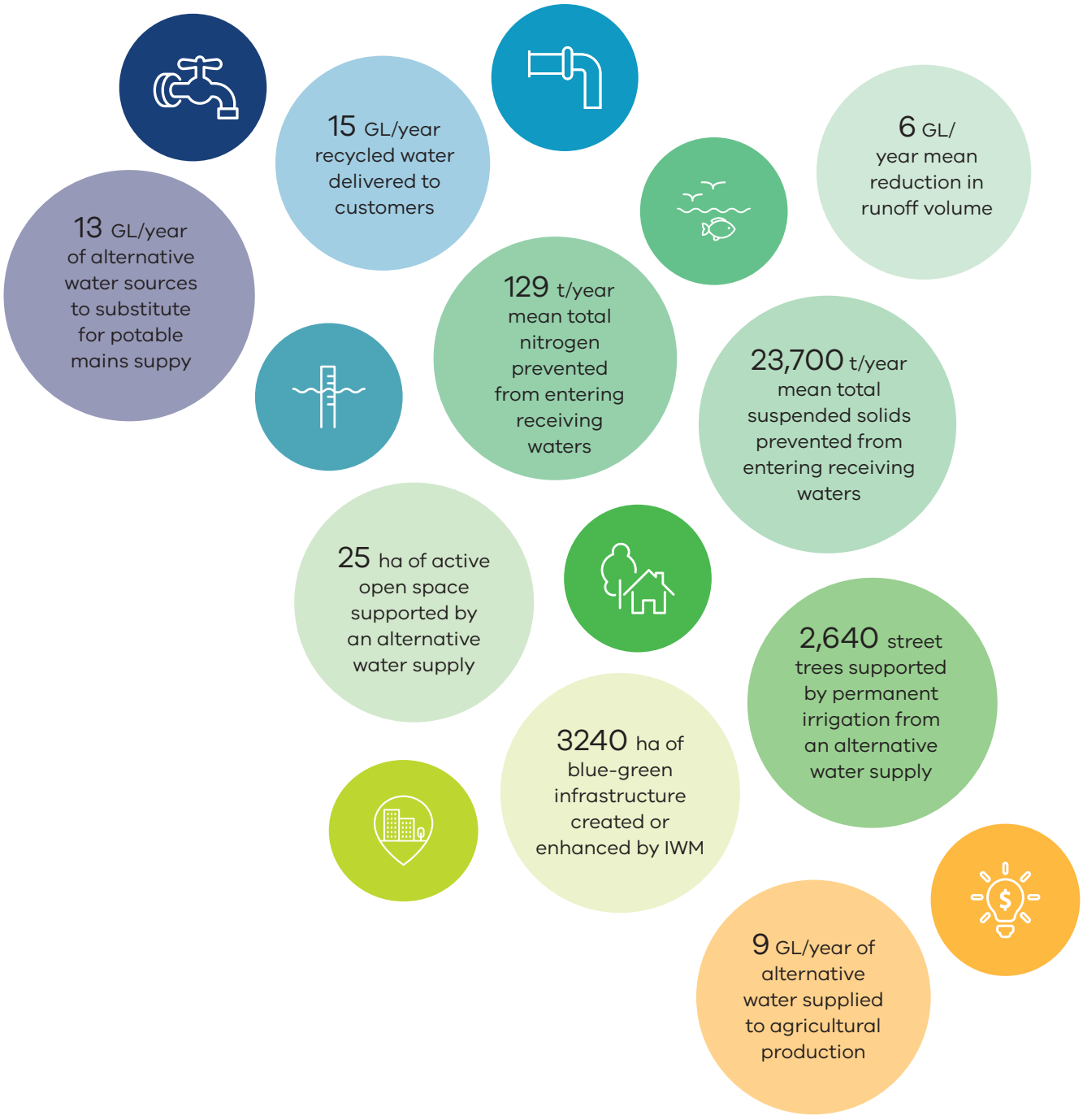


Figure 2. Expected benefits in the Western Port catchment by 2050 (represents the combination of IWM benefits delivered in 2019 and the benefits expected through the implementation of all priority structural actions)

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 2032[1]. By 2050, this is expected to increase to 56 GL/year.

2032

80% of target met

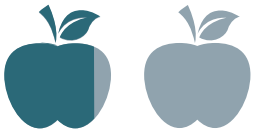
Supporting agricultural production

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

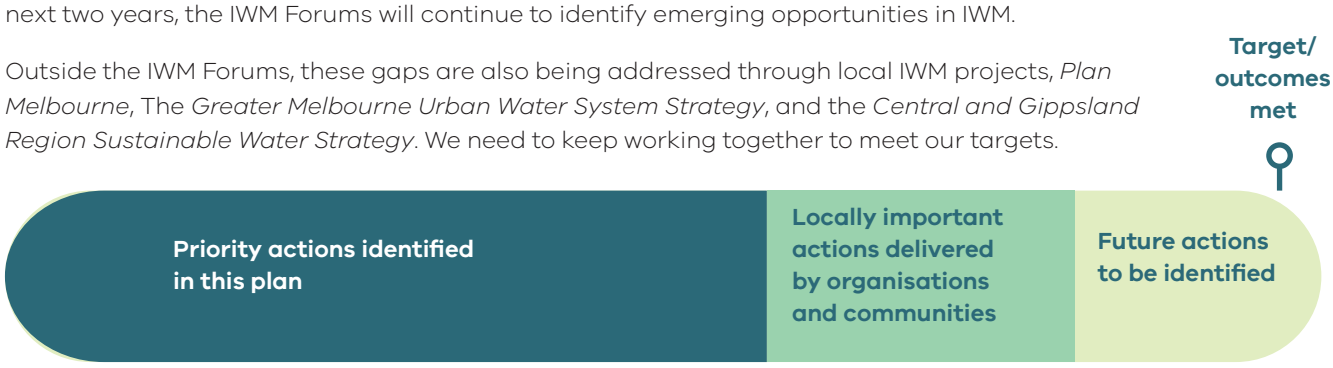


48% of target met

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.



[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 18 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 Western Port catchment. A more detailed description of these actions is provided on page 25.

Across Western Port's 18 priority structural actions:

7x
diversify our water supplies

12x
use recycled water

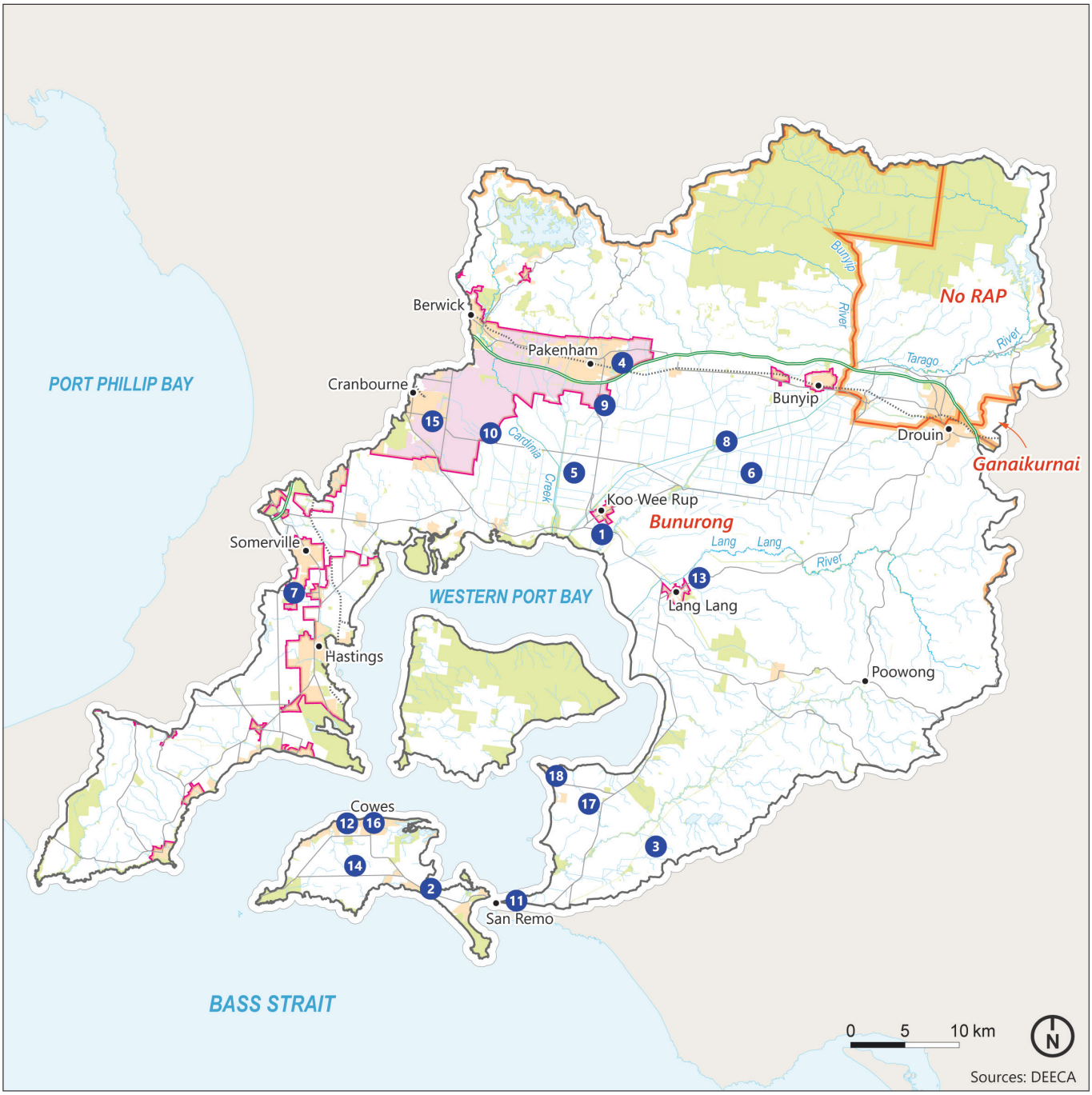
2x
reduce / manage flood impact

16x
contribute to healthy waterways

7x
contribute to healthy landscapes

6x
reflect community values in planning

10x
deliver water for industry / agriculture



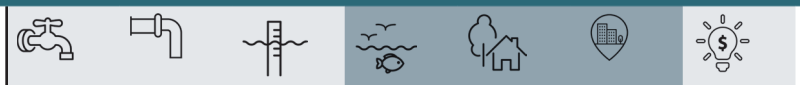
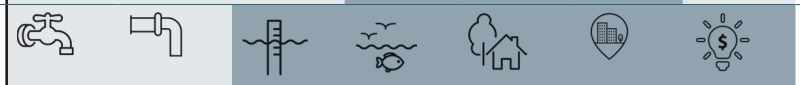
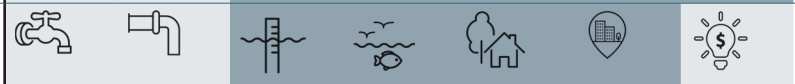
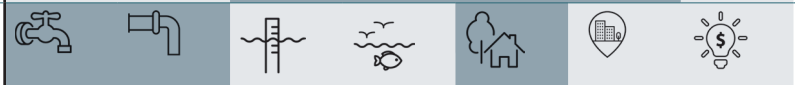
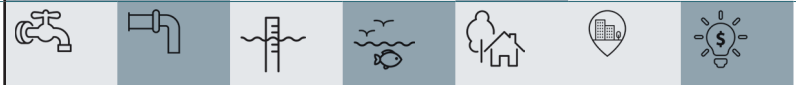
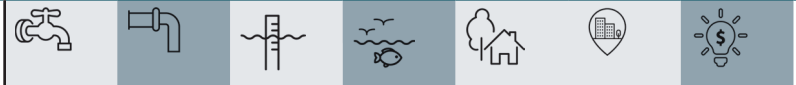
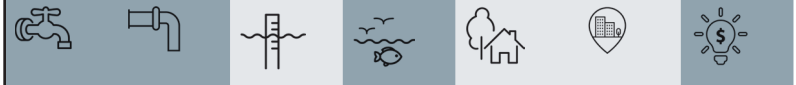
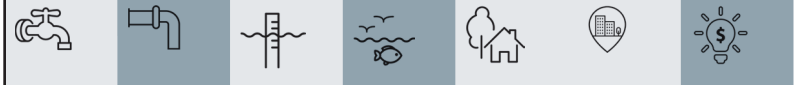
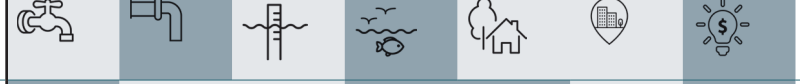
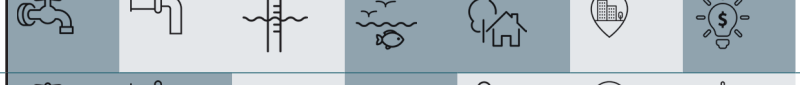
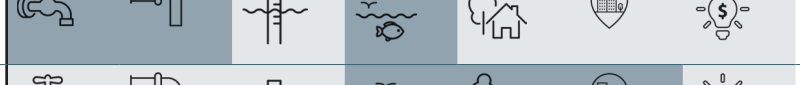
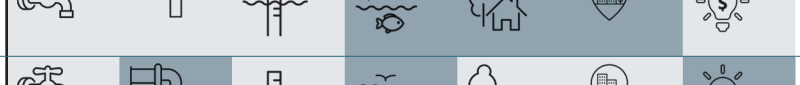
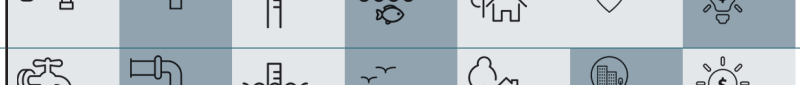
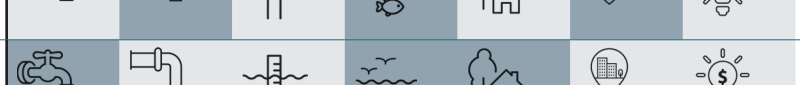
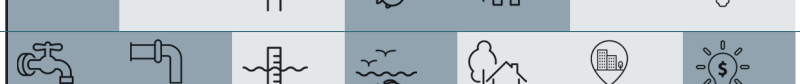
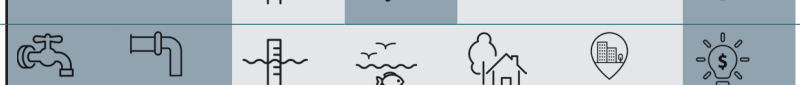
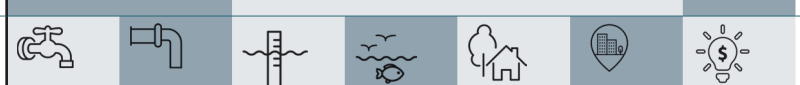
- Town
- Freeway
- Major Road
- Rail
- River or Major Creek
- Minor Creek
- Urban Area
- Growth Area
- Urban Growth Boundary
- Registered Aboriginal Parties
- Reserve

1. Koo Wee Rup Biolinks Project
2. Surf Beach Sunderland Bay Wetlands
3. Bass Coast Biolinks
4. South East Growth Areas Dual Pipe
5. Western Port Irrigation Network – Stage 3
6. Western Port Irrigation Network – Stage 2
7. Tyabb-Somerville Recycled Water Scheme
8. Western Port Irrigation Network – Stage 1
9. Longwarry Recycled Water Scheme
10. Muddy Gates Stormwater Harvesting Scheme
11. San Remo IWM Scheme
12. Bass Coast Shire Urban Forest Strategy
13. Lang Lang Class A Recycled Water Scheme Expansion
14. Nature Based Solutions Wastewater Management – Pilot
15. Casey Fields Stormwater Harvesting
16. Cowes Class B Recycled Water Scheme
17. Expansion of Class B Recycled Water Scheme – Corinella
18. King Road Wastewater Treatment Plant Wetlands – Corinell

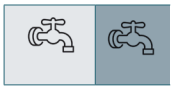
Figure 3. Map of priority structural actions for the Western Port catchment

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 Western Port catchment

IWM action	Strategic outcomes
Koo Wee Rup Biolinks project	
Surf Beach Sunderland Bay wetlands	
Bass Coast Biolinks project	
South east growth areas dual pipe	
Western Port irrigation scheme – stage 3	
Western Port irrigation scheme – stage 2	
Tyabb–Somerville recycled water scheme	
Western Port irrigation scheme – stage 1	
Longwarry recycled water scheme	
Muddy Gates stormwater harvesting scheme	
San Remo IWM scheme	
Bass Coast Shire urban forest strategy	
Lang Lang Class A recycled water scheme expansion	
Nature-based solutions wastewater management pilot	
Casey Fields stormwater harvesting	
Cowes Class B recycled water scheme	
Expansion of Class B recycled water scheme – Corinella	
King Road wastewater treatment plant wetlands – Corinella	

Shade scale



Strategic outcome icons

Strategic outcomes are described on page 7.

Lead agency	Implementation partners	Status
Cardinia Shire Council	To be agreed	
Bass Coast Shire Council	Westernport Water	
Bass Coast Shire Council	Bass Coast Landcare Network, community	
South East Water	Victorian Planning Authority, growth precinct developers	
South East Water	Cardinia Shire Council	
South East Water	Cardinia Shire Council, City of Casey	
South East Water	Mornington Peninsula Shire Council, Frankston City Council	
South East Water	Cardinia Shire Council	
South East Water	Cardinia Shire Council	
City of Casey	Melbourne Water, developers, DEECA	
Westernport Water	Bass Coast Shire Council	
Bass Coast Shire Council	Community	
South East Water	Cardinia Shire Council	
Westernport Water	Bass Coast Shire Council, DEECA	
City of Casey	To be agreed	
Westernport Water	Bass Coast Shire Council	
Westernport Water	To be agreed	
Westernport Water	Bass Coast Shire Council	

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

On hold | Ideas stage | Commenced | In progress

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

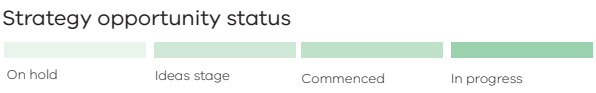
Place-based enabling actions address specific challenges for the catchment and can significantly contribute to mainstreaming IWM. They work hand-in-hand with systemic enabling actions and priority structural actions, unlocking additional IWM opportunities.

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

Eight 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 Western Port catchment

IWM action	Lead agency	Status
Undertake strategic assessments of catchment scale spatial IWM opportunities – Western Port catchment	South East Water	
South East Water greening open space program	South East Water	
Assess open space irrigation for urban cooling opportunities	South East 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	
Preventing sediments and nutrients from entering Western Port	DEECA*	
IWM opportunity assessment	South Gippsland Shire Council	
Conduct community education on alternative water	Water corporations, local governments, DEECA	



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

Success stories

Since the release of the *Western Port 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 Western Port catchment. Delivery of many of these projects has been through collaborative partner investment including co-investment from the Victorian Government.

Bass Coast and Cardinia Revegetation for Biolinks Corridors

This project is recognised as a priority (Action 10) in the Western Port Integrated Water Management Forum's Strategic Directions Statement.

With historical land clearing and loss of vegetation across the Western Port catchment, and more frequent occurrences of extreme weather events such as droughts, heatwaves and floods in years to come, the re-establishment of vegetation across the region is required to create climate-resilient, healthy and valued landscapes for everyone to enjoy.

The Biolinks Program, launched in 2018 across Cardinia Shire and Bass Coast Shire areas, is a large-scale environmental initiative that aims to create a network of interconnected habitats and wildlife corridors that support native plants and animals. Ultimately, more native vegetation will improve the overall health and resilience of the region and reduce sediment and nutrient loads to waterways and Western Port.

Over the last 5 years, extensive planting has resulted in significant increases in vegetation cover across 180 hectares each year, with more than 2.5 million indigenous plants connecting the many parks, reserves and other natural places in the area. Creating and enhancing vegetated areas helps to capture, filter and retain water in the landscape. This helps to improve water quality and reduce flow volumes entering waterways.

These works provide homes, food and shelter for the endangered southern brown bandicoot and 12 other significant species, including the growling grass frog and dwarf galaxias fish.

Cardinia Shire Council's Biolink Plan utilises the latest technology in computer modelling and has identified 66 'nodes' and 122 'corridors' to connect habitats across the landscape. In excess of 337 community members were engaged in more than 28 workshops to develop the plan. Community groups now utilise the interactive Biolink map to guide their conservation projects. The Biolink priorities are now informing Cardinia Shire Council's community engagement priorities. The Council has engaged with 184 of the highest-value properties in the shire, and this work is informing a future Biolink project in Koo Wee Rup. It has also inspired Biolink planning across South Gippsland and Latrobe council areas.

The program's success is attributed to extensive collaboration between Bass Coast Shire Council, Cardinia Shire Council, Melbourne Water (formerly Port Phillip and Western Port Catchment Management Authority), Westernport Water, Bunurong Land Council Aboriginal Corporation, landholders, the broader community and the Victorian Government.

Wetland Wonders Project

Climate change is expected to increase the frequency and intensity of storms and flash floods, carrying increased pollutant and sediment loads into Western Port. Large areas of residential development to accommodate population growth will further impact the surrounding environment.

Cardinia Shire Council has transformed 480,000 square metres of former farmland into the Deep Creek Reserve, providing a regional environmental precinct. The extensive wetlands created will improve the quality of stormwater from the surrounding urban areas that enters the bay and will provide important habitat value.

This project involved the design and construction of a wetland trail, including three boardwalks that converge at a central platform where interpretation elements about the biodiversity, receiving waters and Traditional Owners of the Western Port catchment are located for community education. The wetland trail provides all-ability access and a viewing platform to the wetlands to enable educational activities (such as water quality sampling) to improve understanding of the wetlands' importance for maintaining healthy catchment waterways and marine receiving waters in Western Port.

Importantly, the project features the Bunurong Traditional Owner story of Waa, protector of waterways, and tells of the significance of wetlands and waterways to the Bunurong people and of their unique relationship to Country in the area.

Cardinia Shire's Deep Creek Reserve won the Premier's Sustainability Award 2021 in the category of Industry Leader – Sustainable Places.

This regionally important project received funding from the Victorian Government's IWM Program.

Western Port Irrigation Scheme

This project is recognised as a priority (Action 9) in the Western Port Integrated Water Management Forum's Strategic Directions Statement.

Increasing the volume and reliability of water supply for irrigation is key for economic growth in the Western Port catchment. Cardinia Shire has a significant number of agricultural businesses that are seeking to grow more food by increasing crop rotations and bringing more land into production. The Pakenham Water Recycling Plant (WRP) is an important regional source of Class A recycled water that could be used by agribusinesses, as well as residential and non-residential users in south-eastern growth suburbs. This project has sought to explore the feasibility of supplying recycled water for agricultural uses in the context of future upgrades and growth of the Pakenham WRP.

The design for Stages 1 and 2 of the project is now complete. This has included an economic assessment, business case and tender-ready design.

Once constructed, Stage 1 of the Western Port Irrigation Network will supply up to 800 megalitres of high-quality recycled water per year from Pakenham WRP to agricultural areas throughout Cora Lynn. The water will provide a safe, secure irrigation supply to enable farmers to increase productivity and diversify into alternative higher-value crops, generating jobs and economic growth. Stage 2 of the project will supply up to 2 gigalitres of high-quality recycled water per year to surrounding agricultural areas through the extension of the Cora Lynn network. The additional water will increase productivity and local food production. Further expansion of the scheme will be considered as part of the Stage 3 scheme design (refer Action 5 in this Action Plan).

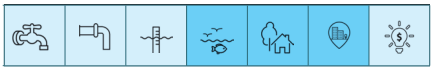
Construction of the scheme will be subject to future business planning and will focus initially on Stage 1. This will include building the necessary trunk infrastructure to supply recycled water to agricultural areas and will allow for future stages to be built.

This regionally important project also received federal funding from the National Water Grid Authority.

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.

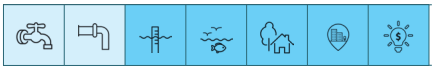
Structural Action 1
Koo Wee Rup Biolinks project



Status	Construction
Lead Agency	Cardinia Shire Council
Implementation Partners	To be agreed

A large-scale 22-hectare revegetation program aimed at the protection and increase of native vegetation will be delivered along waterways and creeks in Koo Wee Rup. The action will reduce sediment and nutrient loads to Western Port and provide connectivity for the endangered southern brown bandicoot and 12 other significant species, including the growling grass frog and dwarf galaxias. It builds on revegetation initiatives delivered in 2022 and will connect with newly created biolinks in Bass Shire (Action 3).

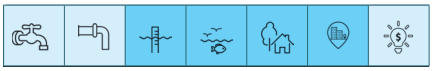
Structural Action 2
Surf Beach Sunderland Bay wetlands



Status	Detailed design
Lead Agency	Bass Coast Shire Council
Implementation Partners	Westernport Water

The construction of three wetlands on Phillip Island, as part of upgrades of residential roads (south of Phillip Island Road), will minimise impacts of urban stormwater runoff on Western Port, which is recognised globally as a Wetland of International Importance under the Ramsar Convention. Constructed wetlands will reduce sediment and nutrient loads discharged to the environment, enhance biodiversity and provide a stormwater harvesting opportunity to supply agricultural demands.

Structural Action 3
Bass Coast Biolinks

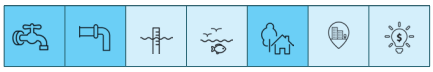


Status	Construction
Lead Agency	Bass Coast Shire Council
Implementation Partners	Bass Coast Landcare Network, community

This action involves revegetation works across several areas of the Bass Coast Shire to increase the amount of native vegetation along waterways and creeks. Creating and enhancing vegetated riparian areas helps to capture, filter and retain water in the landscape, while providing habitat for birds, fish and animals, improving water quality and reducing flow volumes entering waterways. This action builds on revegetation works delivered in 2022 and will connect with newly created biolinks in Cardinia Shire (Action 1).

Structural Action 4
South east growth areas dual pipe

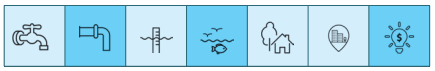
The Pakenham Water Recycling Plant and the Eastern Treatment Plant supply high-quality water to homes and open spaces in the South East Growth Corridor through a dedicated 'purple pipe' recycled water system. Residential customers can use the water for toilet flushing, in laundries and for outdoor uses such as garden watering and car washing. The water reduces reliance on drinking water sources and supports liveability, urban greening and cooling in the region.



Status	Construction
Lead Agency	South East Water
Implementation Partners	Victorian Planning Authority, growth precinct developers

Structural Action 5
Western Port irrigation scheme – stage 3

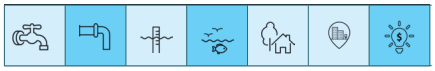
Stage 3 of the Western Port Irrigation Scheme will supply up to 4 gigalitres of high-quality recycled water per year from the Pakenham Wastewater Treatment Plant to surrounding agricultural areas. This stage will encompass a significant upgrade to the existing Class A production capacity, with a new Dalmore network and possibly further extension of the Cora Lynn network. The additional water will further increase productivity and local food production. Feasibility of this stage is dependent on completion of Western Port irrigation scheme stages 1 and 2. This action is linked to Action 6 and Action 8.



Status	Idea development
Lead Agency	South East Water
Implementation Partners	Cardinia Shire Council

Structural Action 6
Western Port irrigation scheme – stage 2

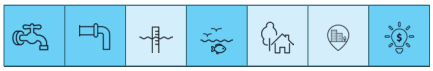
Stage 2 of the Western Port Irrigation Scheme will supply up to 2 gigalitres of high-quality recycled water per year from the Pakenham Wastewater Treatment Plant to surrounding agricultural areas through the extension of the Cora Lynn network and upgrade to the Class A production capacity. The additional water will further increase productivity and local food production. Feasibility of this stage is dependent on completion of Western Port irrigation scheme stages 1 and 2. This action is linked to Action 5 and Action 8.



Status	Feasibility and concept
Lead Agency	South East Water
Implementation Partners	Cardinia Shire Council, Casey City Council

Structural Action 7
Tyabb–Somerville recycled water scheme

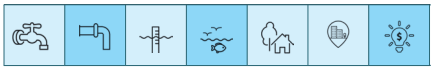
This action has the potential to support horticulture opportunities in highly productive land currently limited by the availability of water. There is an opportunity to provide high-quality water by diverting recycled water from the South Eastern Outfall to Tyabb and Somerville agricultural areas. Using this water will provide a safe, secure irrigation supply to enable farmers to increase productivity and build resilience to climate change by allowing food production to continue through drier months and drought. The scheme has been assessed as being economically viable but is not financially viable without significant external funding support.



Status	Business case
Lead Agency	South East Water
Implementation Partners	Mornington Peninsula Shire Council, Frankston City Council

Structural Action 8
Western Port irrigation scheme – stage 1

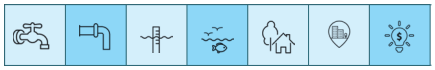
Stage 1 of the Western Port irrigation scheme will supply up to 800 megalitres of high-quality recycled water per year from the Pakenham wastewater treatment plant to agricultural land throughout Cora Lynn. The water will provide a safe, climate-resilient supply to enable farmers to increase productivity and irrigate higher-value crops, generating jobs and economic growth in the Cardinia Shire region. This action is linked to Action 5 and Action 6.



Status	Business case
Lead Agency	South East Water
Implementation Partners	Cardinia Shire Council

Structural Action 9
Longwarry recycled water scheme

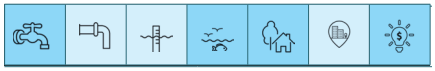
South East Water is developing a masterplan for the upgrade of the existing water recycling plant at Longwarry. The upgrade will support significant growth in the area and will consider possible local and onsite reuse opportunities for future connection into the Western Port Irrigation Scheme. This will increase the economic value of the recycled water for the region, providing an irrigation supply for farmers that is resilient to climate change and that will increase productivity across the region. The upgrade will allow up to 1.15 gigalitres of water to be treated each year by 2055. This action is linked to Actions 5, 6 and 8.



Status	Feasibility and concept
Lead Agency	South East Water
Implementation Partners	Cardinia Shire Council

Structural Action 10
Muddy Gates stormwater harvesting scheme

The Muddy Gates stormwater harvesting scheme proposes to deliver a major alternative water network for Clyde, a greenfield development in Melbourne's south east. This action is one of the first of its kind and will supply up to 100 megalitres of harvested stormwater per year, equivalent to 40 swimming pools, for irrigation of 17 ovals across 7 local sports reserves, 30 local parks and many trees. This action is progressing in collaboration with various stakeholders, including developers and Melbourne Water and will make a significant contribution to regional stormwater volume reduction and harvesting aspirations.



Status	Feasibility and concept
Lead Agency	City of Casey
Implementation Partners	Melbourne Water, developers, DEECA

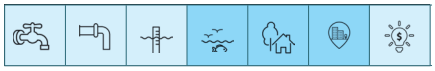
Structural Action 11
San Remo IWM scheme

To accommodate population growth across San Remo, this feasibility study aims to explore options for the provision of an alternative water supply at San Remo. This could include sewer mining at San Remo or the diversion of wastewater flows to King Road wastewater treatment plant. The water would be treated and used for irrigation onsite at the King Road wastewater treatment plant, with the potential to provide benefits to local biodiversity and conservation initiatives, including the Western Port Ramsar Wetlands.

Status	Feasibility and concept
Lead Agency	Westernport Water
Implementation Partners	Bass Coast Shire Council

Structural Action 12
Bass Coast Shire urban forest strategy

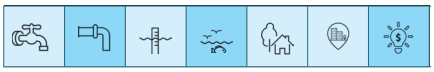
Bass Coast recognises the critical importance in achieving desired local climate change adaptation, environmental and health and wellbeing outcome through the creation of an urban forest. This action aims to achieve a significant increase in the tree canopy cover across the Bass Coast region through planning, maintenance and management of trees and vegetation in publicly owned reserves and street trees. Increasing canopy cover supports liveability, urban greening, and cooling in the region.



Status	Benefits realisation
Lead Agency	Bass Coast Shire Council
Implementation Partners	Community

Structural Action 13
Lang Lang Class A recycled water scheme expansion

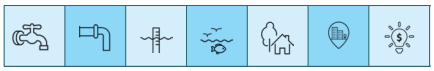
An upgrade to the Lang Lang Treatment Plant will provide additional Class A recycled water for local agricultural and extractive industries surrounding Lang Lang.



Status	Feasibility and concept
Lead Agency	South East Water
Implementation Partners	Cardinia Shire Council

Structural Action 14
Nature-based solutions wastewater management pilot

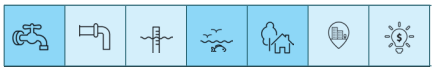
Westernport Water is responsible for managing discharges of nitrogen to the ocean outfall under its license conditions. This action seeks to design and construct a floating wetland system to support this objective, which is part of a partnership trial with CSIRO and Deakin University at Cowes wastewater treatment plant. This is expected to improve wastewater quality, reduce greenhouse gas emissions and reduce concentrations of emerging contaminants. The data collected from this trial will inform planning for the King Road wastewater treatment plant wetlands (Action 17).



Status	Detailed design
Lead Agency	Westernport Water
Implementation Partners	Bass Coast Shire Council, DEECA

Structural Action 15
Casey Fields stormwater harvesting

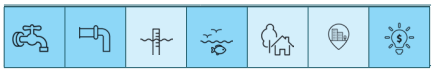
Casey Fields is a significant regional sporting facility in Cranbourne East, located on 84 hectares of land and offering multiple sporting precincts, open areas for recreation and play, and a network of paths for walking, running and cycling. The precinct relies on recycled water and some harvested stormwater to supply water demand for the site, and drinking water is used to make up the balance. As development increases and current water allocations become exhausted, a cost-effective alternative source of water will reduce the reliance of the precinct on potable water supplies. This action aims to augment the existing system by allowing stormwater to be extracted from Melbourne Water drainage infrastructure and stored within existing ponds. The augmentation will allow council to supply up to 60 megalitres of harvested stormwater for irrigation. The harvested water will be treated to a standard suitable for unrestricted irrigation of open spaces.



Status	Detailed design
Lead Agency	City of Casey
Implementation Partners	To be agreed

Structural Action 16
Cowes Class B recycled water scheme

The Cowes wastewater treatment plant currently supplies Class B recycled water to support the agricultural needs of neighbouring properties. This action seeks to explore internal reuse opportunities due to repurposing land use at the Cowes wastewater treatment plant. The water will provide a safe, secure and climate-resilient irrigation supply for fit-for-purpose use which may be extended in future to enable local farmers to increase productivity.



Status	Feasibility and concept
Lead Agency	Westernport Water
Implementation Partners	Bass Coast Shire Council

Structural Action 17
Expansion of Class B recycled water scheme – Corinella

Wastewater at King Road wastewater treatment plant is treated to a Class B standard and used to irrigate the site. An opportunity exists to extend recycled water infrastructure to support the delivery of Class B water supply to neighbouring agricultural properties in Corinella. The water will provide a safe, secure irrigation supply for fit-for-purpose use to enable farmers to increase productivity. There are also options to irrigate the remaining 22 hectares of vacant land at the King Road site to support the establishment of large areas of trees for carbon offsets.

Status	Feasibility and concept
Lead Agency	Westernport Water
Implementation Partners	To be agreed

Structural Action 18
King Road wastewater treatment plant wetlands – Corinella

Westernport Water is planning an alternative nature-based solution to improve water quality and potentially provide environmental flows to Guys Creek. This action seeks to establish a series of small wetlands at the wastewater treatment plant at Corinella, which will further treat the wastewater to its highest quality. These wetlands will have a potential storage capacity of at least 60 megalitres. They would replace a traditional storage option that has no environmental benefits such as carbon sequestration and uptake of nutrients such as phosphorus and nitrogen. The water would be treated and used for irrigation onsite at the King Road wastewater treatment plant, with the intention to provide benefits to local biodiversity and conservation initiatives, in the locality of the Western Port Ramsar Wetlands.

Status	Feasibility and concept
Lead Agency	Westernport Water
Implementation Partners	Bass Coast Shire Council

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 *Central and Gippsland Region Sustainable Water Strategy* (CGRSWS) and *Water is Life* strategies.

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

Note:
*Bunurong Land Council Aboriginal Corporation.
** Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation.
*** Wadawurrung Traditional Owners Aboriginal Corporation.

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

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

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

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

Systemic Enabling Action 8
Further develop the IWM resource hub to share data and information

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

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

Systemic Enabling Action 9
Develop a WSUD asset maintenance framework

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

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

Systemic Enabling Action 10
Develop a framework for installation and maintenance of rainwater tanks

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

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

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

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 – Western Port catchment

Status	In progress
Lead Agency	South East Water

Assessments of priority actions against the IWM targets identified in the *Western Port Catchment Scale IWM Plan: Targets Driving Outcomes* show that further efforts are required in some areas to avoid falling short of delivering strategic outcomes for the Western Port catchment. A strategic assessment across the Western Port catchment will identify IWM opportunities that can address performance gaps against IWM targets with consideration of costs and benefits. This action will not only identify opportunities to address performance gaps but also analyse the optimal mix of actions to best support the attainment of catchment performance targets and strategic outcomes.

Place-Based Enabling Action 2
South East Water greening open space program

Status	In progress
Lead Agency	South East Water

South East Water will work with councils and public open-space managers to support actions that to supply these spaces with an alternative water source for the purposes of irrigation. South East Water will provide capital funding and in-kind support for recycled water network extensions or stormwater treatment infrastructure as proposed by open-space managers and prioritised using the principles of the catchment scale IWM Action Plans.

Place-Based Enabling Action 3
Assess open space irrigation for urban cooling opportunities

Status	Ideas stage
Lead Agency	South East Water

As average temperatures continue to rise, and the number of extreme-heat days each year increases, keeping cool is more important than ever. South East Water is exploring opportunities across the Western Port catchment to improve urban greening and cooling outcomes to enhance urban amenity and quality, improve landscape connectivity and build resilience to climate change. Opportunities include investigating how using recycled water or stormwater can support greening and cooling initiatives. This action is linked to place-based enabling action 1.

Place-Based Enabling Action 4
Explore large-scale stormwater harvesting opportunities

Status	In progress
Lead Agency	Melbourne Water

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.

Place-Based Enabling Action 5
Support implementation of Flood Management Strategy for Port Phillip and Western Port – Action Plan 2021–2026

Status	In progress
Lead Agency	Melbourne Water

Climate change, sea-level rise and urban densification are increasing flood risk. ***The Flood Management Strategy for Port Phillip and Western Port – Action Plan 2021–2031*** sets the 10-year direction for flood management in the region and identifies key focus areas which will guide actions. Specific actions that are a priority to progress for the Western Port 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.

Place-Based Enabling Action 6
Preventing sediments and nutrients from entering Western Port

Status	In progress
Lead Agency	DEECA*

This action aims to identify sites where interventions (including stormwater harvesting) can reduce runoff volumes and prevent sediments and nutrients entering Western Port and the waterways within the catchment. Flow volume reduction is important to reduce in-situ channel generation of sediment loads, which have been identified as a major source of the sediment that impacts the heath of the bay.

Place-Based Enabling Action 7
IWM opportunity assessment

Status	Ideas stage
Lead Agency	South Gippsland Shire Council

This action will explore IWM opportunities in Nyora and surrounding townships to identify and prioritise stormwater treatment projects and harvesting schemes. Assessment will take into consideration potable water savings, stormwater runoff and pollutant-load reductions, and areas of enhanced biodiversity. The capital and ongoing maintenance costs will also be considered.

Place-Based Enabling Action 8
Conduct community education on alternative water

Status	Ideas stage
Lead Agency	Water corporations, local governments, DEECA

This action will roll out ongoing community education and engagement programs on alternative water use for various purposes.

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. Victoria's Climate Change Strategy
12. Victoria's Housing Statement: The Decade Ahead 2024-2034
13. Water is life: Traditional Owner Access to Water Roadmap
14. Western Port Catchment Strategic Direction Statement
15. Western Port Catchment IWM Plan
16. Protecting Victoria's Environment - Biodiversity 2037 (Biodiversity 2037)

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

Integrated Water Management Forums

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