Dandenong Catchment Integrated Water Management Plan

Actions for Delivery

Integrated Water Management Forums

Supported by

VICTORIA State Government | Energy, Environment and Climate Action

April 2024

Acknowledgement of Victoria's Aboriginal communities

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

Bayside City Council

Bunurong Land Council Aboriginal Corporation

City of Casey

City of Greater Dandenong

City of Kingston

City of Port Phillip

Frankston City Council

Glen Eira City Council

Melbourne Water

Knox City Council

Maroondah City Council

Monash City Council

Mornington Peninsula Shire

South East Water

Southern Rural Water

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

State Government of Victoria, Victorian Planning Authority

Whitehorse City Council

Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation

Yarra Ranges Shire Council

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

The Dandenong 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 Dandenong 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 Dandenong Integrated Water Management 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, integrated water management (IWM) is more critical than ever. These challenges require water to be at the centre of urban planning processes.

As Chair of the Dandenong IWM Forum, I take this opportunity to celebrate the remarkable accomplishments of our Forum and Working Group members since the IWM Forums were established in 2018. Over the last five years, we have achieved significant milestones to support putting IWM into practice, becoming business as usual. This includes a shared vision underpinned by strategic outcomes for Dandenong, along with indicators, measures and targets to track performance towards delivering the outcomes at the catchment scale.

I extend my heartfelt appreciation to all participants who have actively engaged in our Forums and demonstrated exceptional leadership across partner organisations. Your commitment has been the driving force behind the success of our initiatives, fostering collaboration and shaping a shared vision for integrated water management.

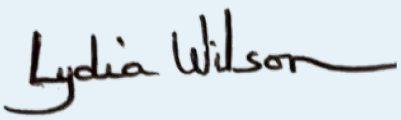
A special acknowledgment goes to the Department of Environment, Energy, and Climate Action (DEECA) for their outstanding leadership, technical advice and unwavering support. Their role is instrumental in navigating the complexities of integrated water management and I am most grateful for the collaborative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

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

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

The challenges we face require sustained effort by all parties and our dedication to key enabling policy work will be a continued focus as we look ahead.

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



Lydia Wilson
Chair of the Dandenong IWM Forum

Contents

Integrated water management in the Dandenong catchment

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 Dandenong catchment

Vision

By valuing water in its entirety, the Dandenong catchment is a well-planned, healthy, resilient and thriving environment for people and nature – now and into the future.

Catchment condition and challenges

The Dandenong catchment lies east of Melbourne and covers about 1,236 square kilometres, extending from the foothills of the Dandenong Ranges in the northeast to the Mornington Peninsula on Port Phillip Bay in the south. It includes regional catchments flowing into Port Phillip Bay from Port Melbourne to Point Nepean. The landscape of the Dandenong catchment varies from mountainous forested areas, wetlands and coastal beaches, to densely populated and expanding urban areas on Melbourne's fringe. Within the Dandenong catchment are the traditional lands of the Wurundjeri Woi-wurrung and Bunurong peoples.

Dandenong Creek (Narra Narrawong or Dandinnong, 'long, long river' or 'lofty mountains', respectively) flows from the Dandenong Ranges for 53 kilometers before joining the Eumemmerring Creek to form the Patterson River and eventually flowing out to Port Phillip Bay. The waterways in the Dandenong catchment range from small headwater streams that are ecologically diverse in the Dandenong ranges to larger creeks and rivers flowing into the bay. Water quality is good in the upper catchment but deteriorates downstream, due to agriculture, urban development and the resulting stormwater pollution. Many of the larger creeks and rivers have been straightened or concrete lined, further contributing to decreased water quality and loss of stream habitats in the region. Urban stormwater pollution has a high impact on the frequently visited bay beaches for recreational and tourism purposes from Port Melbourne to Fort Nepean (the longest stretch of Port Phillip Bay beaches belongs to this catchment). Urban runoff also impacts the Edithvale-Seaford Wetland which is the largest natural wetland of its type in the Port Phillip and Western Port basins and is listed as a Wetland of International Importance under the Ramsar Convention on Wetlands.

The catchment has an estimated population of 1.57 million people and is predicted to grow to 2.25 million by 2050[1]. The catchment has a relatively large, urbanised area compared to the other catchments in the Greater Melbourne region. Significant areas are undergoing rapid urban residential development and densification with infill development further encroaching on areas used to support agriculture, and areas preserved as natural assets such as waterway corridors, regional parks and reserves.

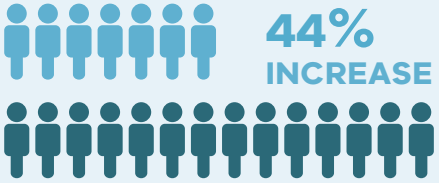
The future climate will be hotter and drier, with lower average annual rainfall expected to reduce inflows to reservoirs and decrease river flows, placing further strain on our current water supplies[2]. The high rate of infill development presents challenges in terms of urban heat, liveability and urban water security. The catchment attracts significant number of visitors to its major park, gardens and sporting precincts including some of Australia's premier golf courses. There is an opportunity to support the tourism industry by providing a drought-resilient water source for irrigation of these sites.

Agriculture, horticulture and viticulture are major economic assets for the catchment, particularly on the Mornington Peninsula. Irrigation in the catchment could help sustain food production and reduce the impacts of climate change on productivity. Presence of the Eastern Treatment Plant in Carrum along with smaller treatment plants such as Mount Martha and Boneo means the catchment has substantial wastewater resources that could be used beyond what is currently delivered. The South Eastern Outfall carries treated wastewater 56 kilometres south along the Mornington Peninsula to Boags Rocks where it discharges into Bass Strait. By increasing alternative water supply to farmers, commercial nurseries, market gardens and industry 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.

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, which is already a major challenge for the Dandenong catchment. Chronic flooding issues in several low-lying parts of the catchment routinely impact communities, infrastructure and amenities. Several inland areas are prone to flooding, including within the populous urban centres of Dandenong, Cranbourne and Narre Warren. These changes, combined with increased development and growing populations, will place more pressure on infrastructure, natural assets and water services in the catchment. There are further opportunities to harvest, treat and reuse urban stormwater that can help alleviate the impact of flooding while supporting green and cooler landscapes, enhance liveability and reduce the impacts of stormwater on creeks and rivers

POPULATION GROWTH

1,567,000 2021
2,250,000 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 role of IWM

Dandenong 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 Dandenong catchment are described on page 7.

Collaboration is key to the success of this plan

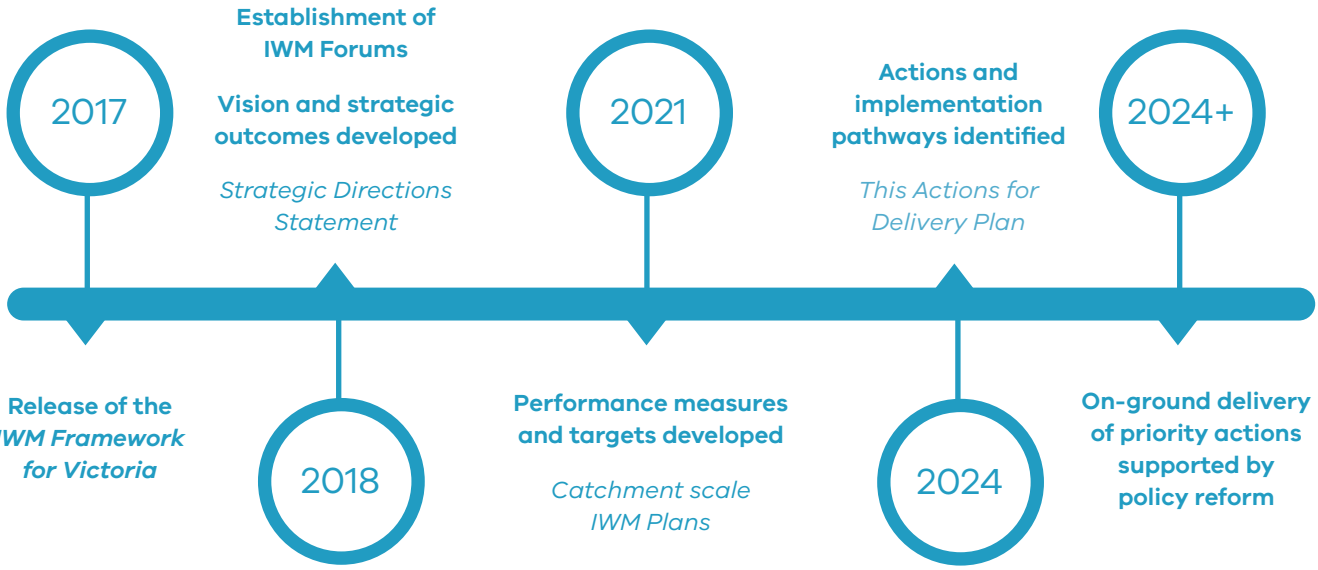
Creating a resilient and liveable future is a shared responsibility. Twenty-one stakeholder organisations (referred to as IWM Forum partners) in the Dandenong catchment are working together to respond to regional challenges and local issues. This approach embraces the co-delivery of on-the-ground outcomes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

Our journey

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

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

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



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

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

From planning to delivery

We have taken the time to define what we want and our pathway forward. We are now ready to act and implement actions for the benefit of the Dandenong 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 Dandenong 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 Dandenong'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.

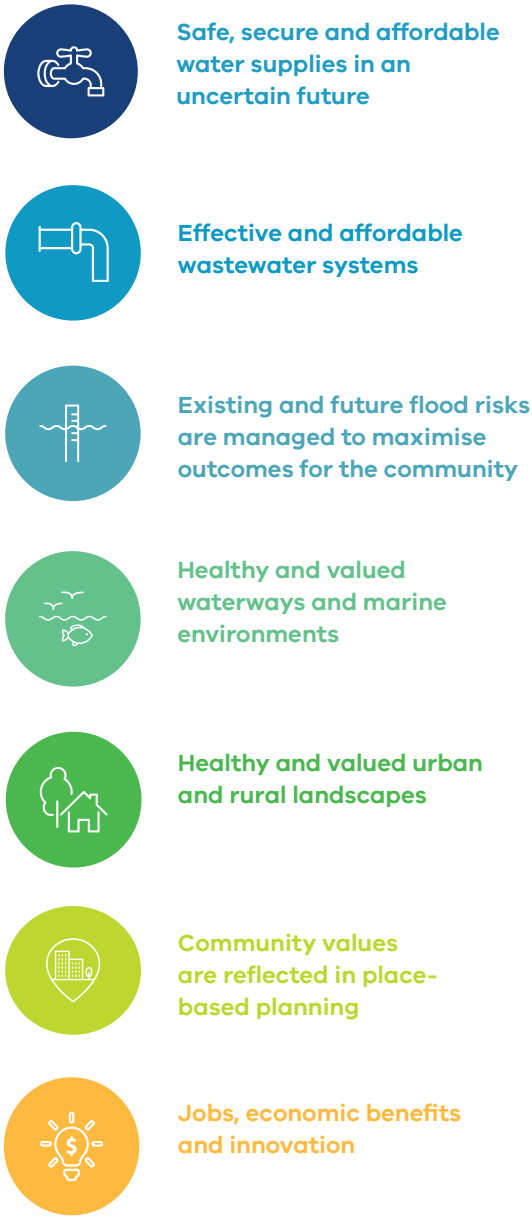


Figure 1. Strategic Outcomes

What is this plan?

The *Dandenong 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?

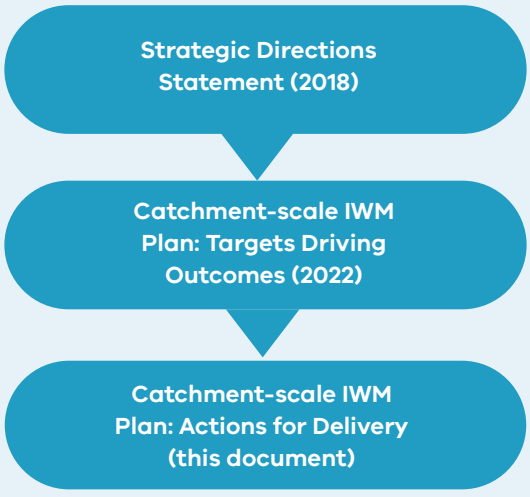
These plans have been developed by the partners of the Dandenong IWM Forum in collaboration with partners of the Yarra, Werribee, Western Port and Maribyrnong IWM Forums. IWM Forums provide member organisations with a transparent process to enhance or accelerate IWM initiatives and coordinate IWM across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

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

How will this plan be used?

The *Dandenong 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 Dandenong catchment as well as for the Greater Melbourne region

Working with Traditional Owners

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

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

Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and Bunurong Land Council Aboriginal Corporation are Dandenong IWM Forum partners who have been part of the IWM journey since the Forums were established in 2018. The Dandenong IWM Forum acknowledges that Bunurong and Wurundjeri Woi-wurrung Traditional Owners seek legislative and structural recognition of Traditional Owners sovereign responsibility to care for and manage Country, the right to the management of water and waterways, and the right to lead catchment and water-related decision-making on Country. The Dandenong IWM Forum also acknowledges that Bunurong and Wurundjeri Woi-wurrung Traditional Owners seek the direct return of land and water for their self-determined use.

Although involvement in the Dandenong IWM Forum has been limited recently, Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and Bunurong Land Council Aboriginal Corporation have extensive experience in land and water management in Victoria, including significant contributions to the development and current implementation of the *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 37). 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)

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

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

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

Priority actions to respond to catchment challenges

What are priority actions?

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

In September 2023, Forum Members agreed on 32 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 23). 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 25).

32 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 23)

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

8 place-based enabing actions
(Page 25)

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

Impact of IWM actions on the Dandenong catchment by 2050

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

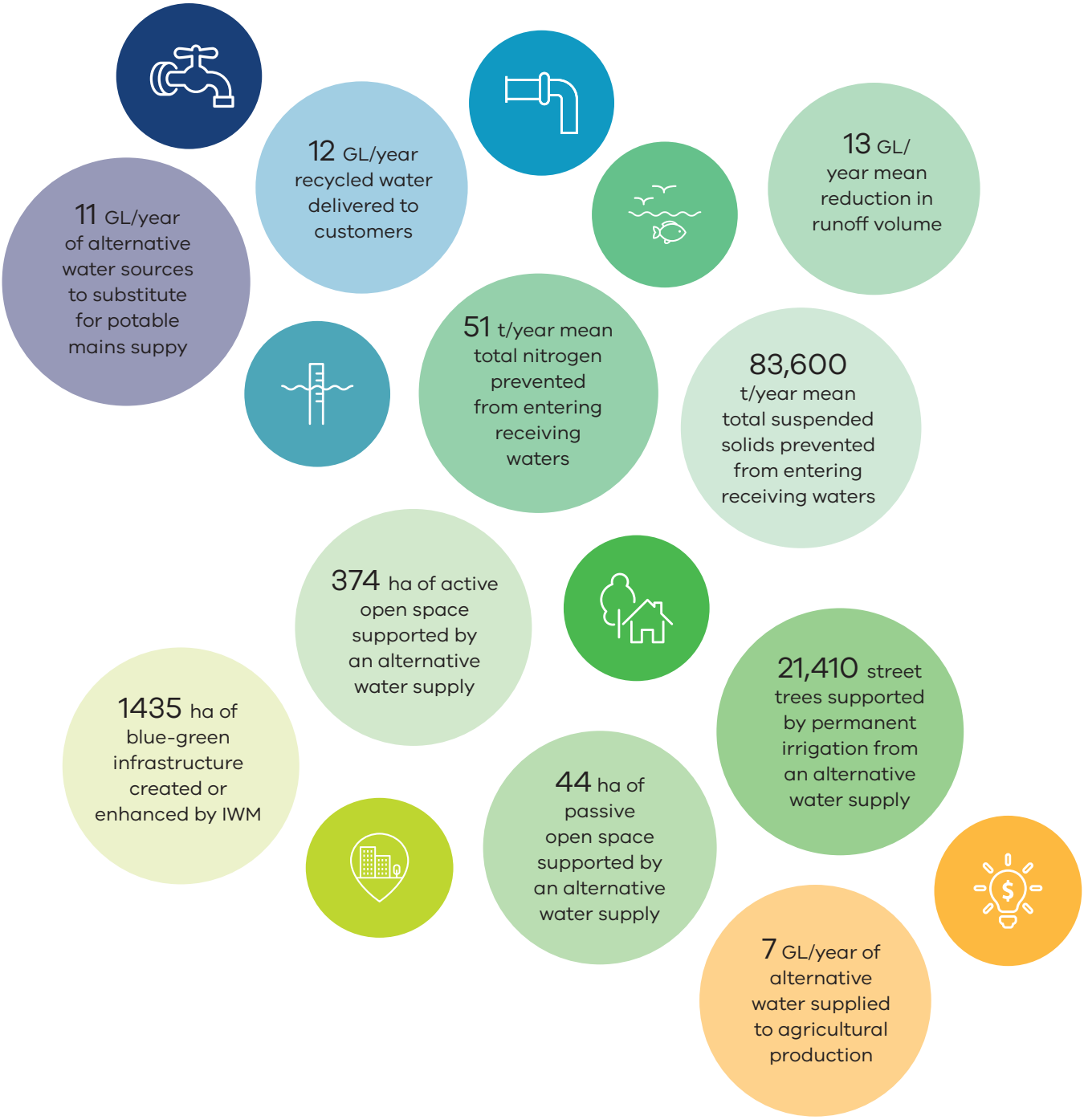


Figure 2. Expected benefits in the Dandenong catchment by 2050 (represents the combination of IWM benefits delivered in 2019 and the benefits expected through the implementation of all priority structural actions)

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

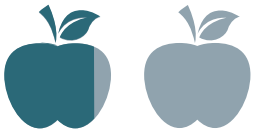
Supporting agricultural production

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

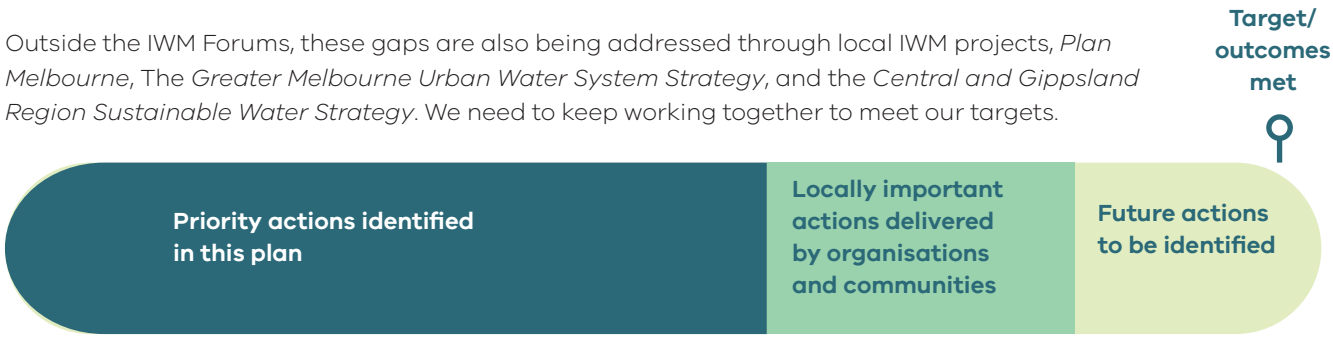


48% of target met

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 32 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 Dandenong catchment. A more detailed description of these actions is provided on pages 29-37.

Across Dandenong's 32 priority structural actions:

15x
diversify our water supplies

9x
use recycled water

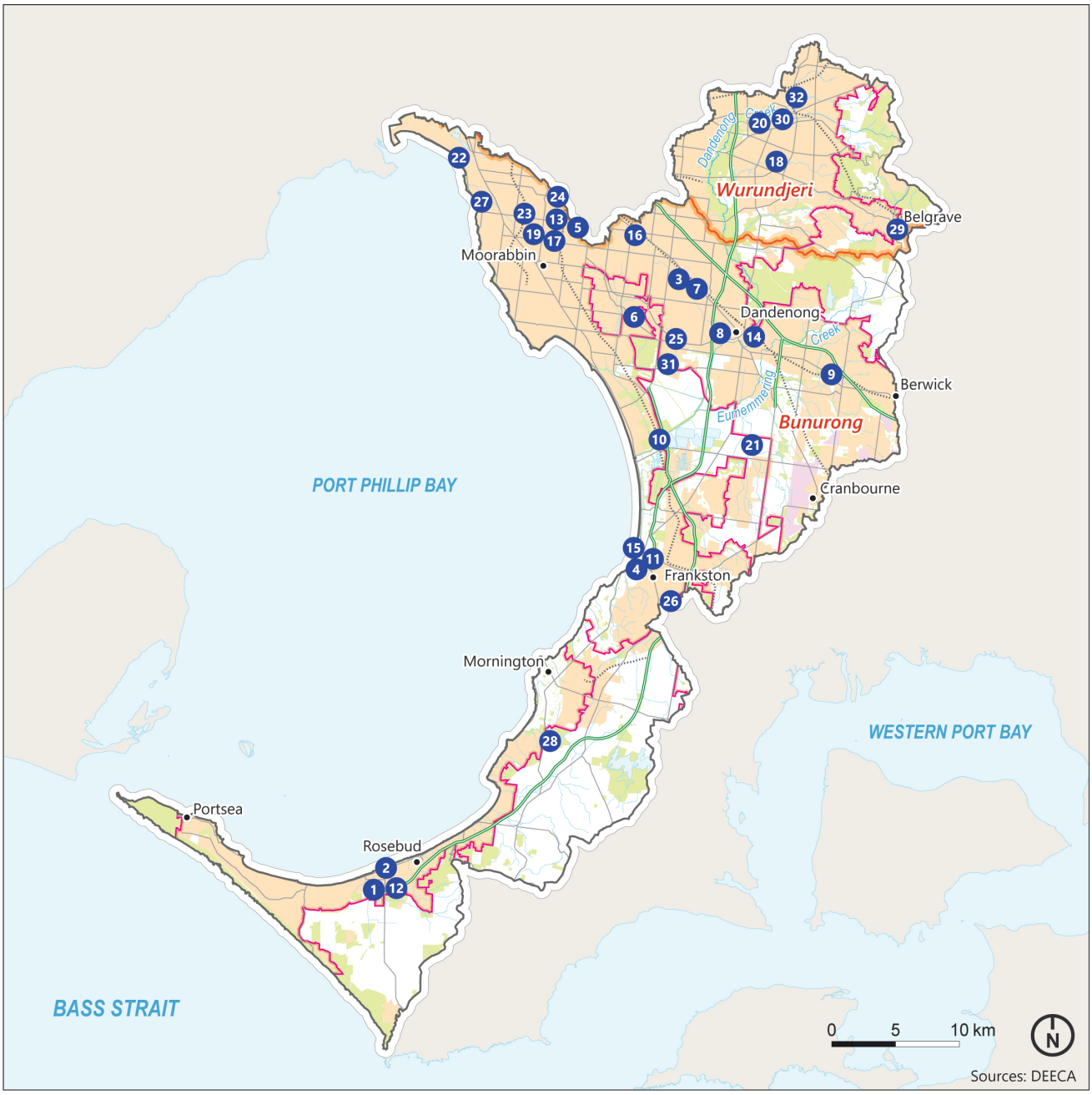
15x
reduce / manage flood impact

16x
contribute to healthy waterways

17x
contribute to healthy landscapes

10x
reflect community values in planning

7x
deliver water for industry / agriculture



Priority Structural Actions
Dandenong Catchment

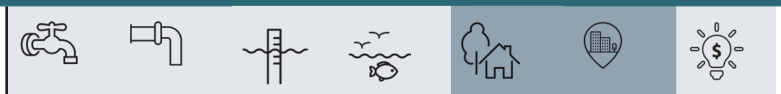
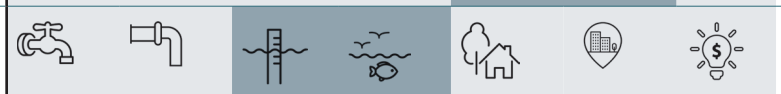
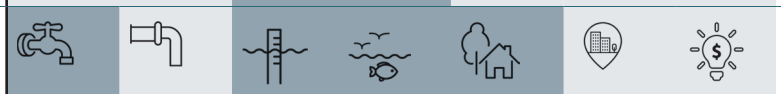
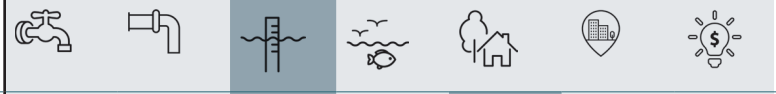
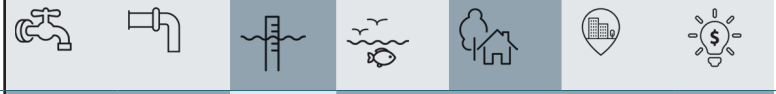
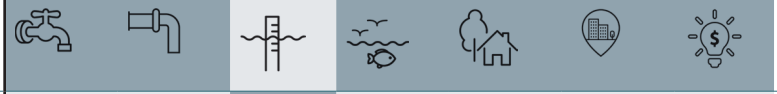
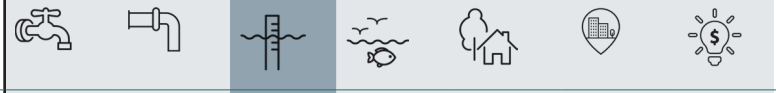
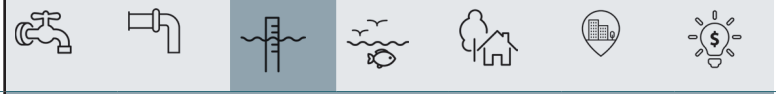
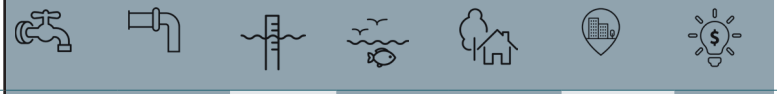
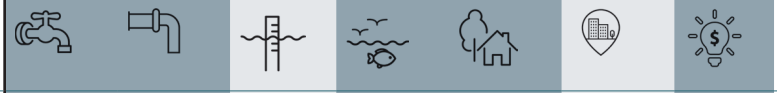
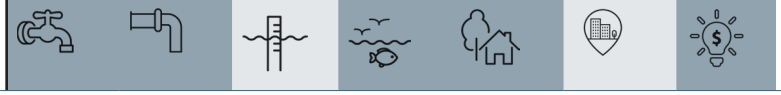
- Town
- Freeway
- Major Road
- Rail
- River or Major Creek
- Minor Creek
- Urban Area
- Growth Area
- Urban Growth Boundary
- Registered Aboriginal Parties
- Reserve

1. Mornington Peninsula Shire Urban Forestry Strategy
2. Mornington Peninsula Major Flood Mitigation
3. Sandown Redevelopment Dual Pipe
4. Frankston Flood Mitigation and Reduction Opportunities
5. Marlborough Reserve Retarding Basin
6. Dingley Recycled Water Scheme
7. Reduce Flood Impacts Along Callander Road and Princes Highway
8. Greater Dandenong Municipal-wide Drainage Renewal Projects
9. Alternative Water for Fountain Gate – Narre Warren
10. Patterson River Recycled Water Scheme
11. Monterey Recycled Water Scheme
12. Mornington Peninsula Water Sensitive Asset Masterplan Implementation
13. Lancaster Street Flood Mitigation Works
14. Construction of Myuna and Betula Reserve Stormwater Harvesting
15. Frankston Recycled Water Scheme – Stage 2
16. Cool and Green Streets
17. Buckingham Avenue Flood Mitigation Work
18. Reimagining Blind Creek – Lewis Park Masterplan Sub-project
19. Bruce Street Flood Mitigation Works
20. Living Links in the Dandenong Catchment
21. Aquarevo Recycled Water Scheme
22. Catani Gardens Stormwater Treatment and Harvesting
23. Scott Street Flood Mitigation Works
24. Coorigal Road Reconstruction
25. Tatterson Park Supply with Recycled Water
26. Robinson Road Stage 2 Recycled Water Scheme
27. Elwood Park Extended Distribution
28. Briars Recycled Water Schem
29. Monbulk Creek Smart Water Network
30. Reimagining Tarralla Creek – Stage 2
31. Green Wedge Infrastructure Upgrade
32. Protecting Upper Dandenong and Bungalook Creek Corridors

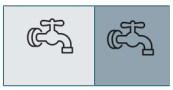
Figure 3. Map of priority structural actions for the Dandenong catchment

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 Dandenong catchment

IWM action	Strategic outcomes
Mornington Peninsula Shire urban forestry strategy	
Mornington Peninsula major flood mitigation	
Sandown redevelopment dual pipe	
Frankston flood mitigation and reduction opportunities	
Marlborough Reserve retarding basin	
Dingley recycled water scheme	
Catchment 9 and 16 stage 2 and 3 drainage upgrade	
Greater Dandenong municipal-wide drainage renewal projects	
Alternative water for Fountain Gate–Narre Warren	
Patterson River recycled water scheme	
Monterey recycled water scheme	

Shade scale



No Impact Impact

Strategic outcome icons

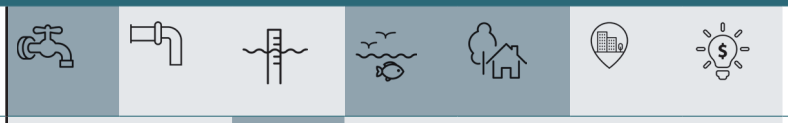
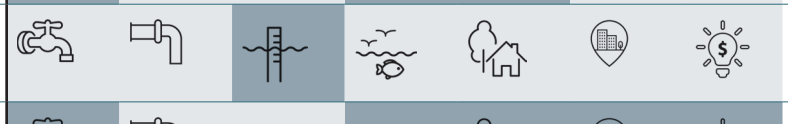
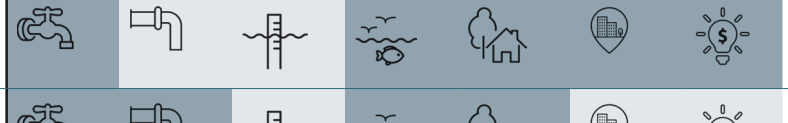
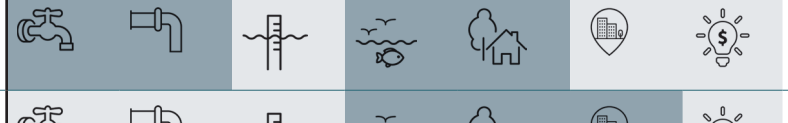
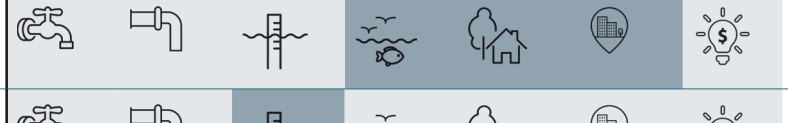
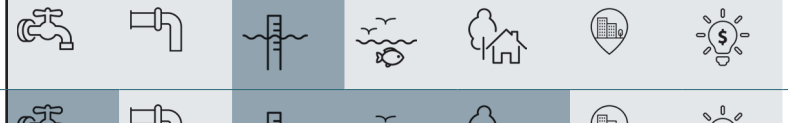
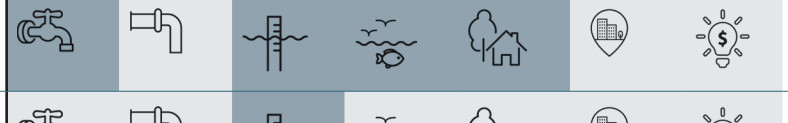
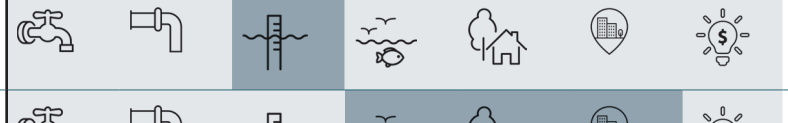
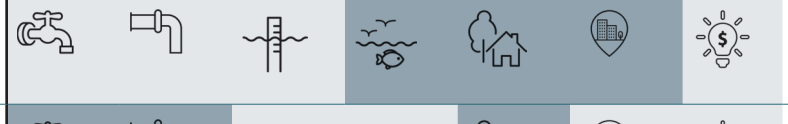
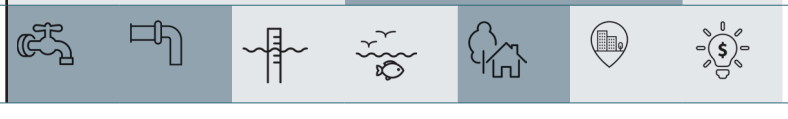
Strategic outcomes are described on page 7.

Lead agency	Implementation partners	Status
Mornington Peninsula Shire Council	To be agreed	
Mornington Peninsula Shire Council	To be agreed	
South East Water	Greater Dandenong City Council, Melbourne Water	
Frankston City Council	Melbourne Water	
Glen Eira City Council	Victorian Planning Authority, Melbourne Water	
South East Water	Kingston, Bayside, Monash and Greater Dandenong City Councils, DEECA	
Greater Dandenong City Council	Melbourne Water	
Greater Dandenong City Council	Melbourne Water	
Casey City Council	DEECA, Melbourne Water, South East Water	
South East Water	Melbourne Water, Kingston City Council	
South East Water	Frankston City Council	

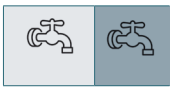
Strategy opportunity status

Ideas development | Feasibility and concept | Business case | Detailed design | Construction | Benefit realisation

Table 1. Overview of priority structural actions for the Dandenong catchment (continued)

IWM action	Strategic outcomes
Mornington Peninsula water sensitive asset masterplan implementation	
Lancaster Street flood mitigation works	
Construction of Myuna and Betula Reserve stormwater harvesting	
Frankston recycled water scheme – stage 2	
Cool and green streets	
Buckingham Avenue flood mitigation work	
Reimagining Blind Creek – lewis park masterplan sub-project	
Bruce Street flood mitigation works	
Living links in the Dandenong catchment	
Aquarevo recycled water scheme	

Shade scale



Strategic outcome icons

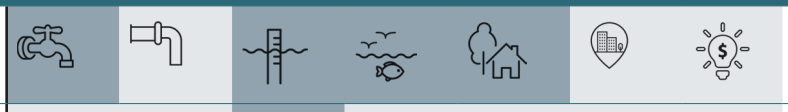
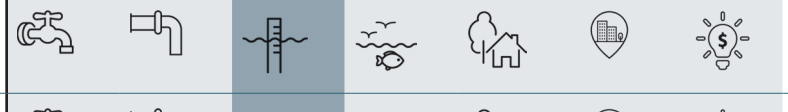
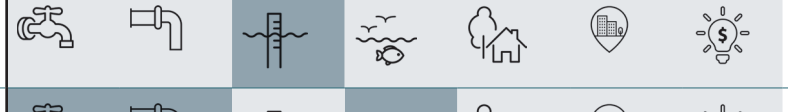
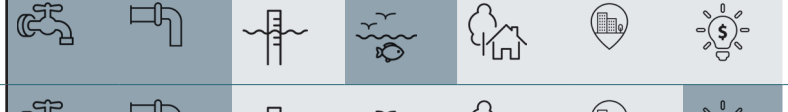
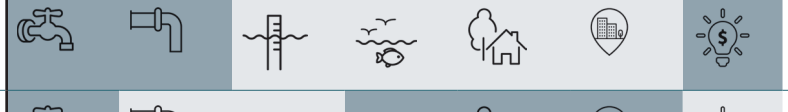
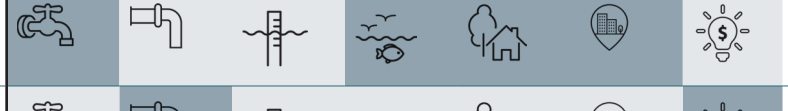
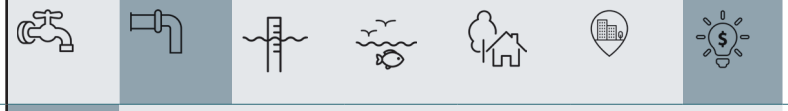
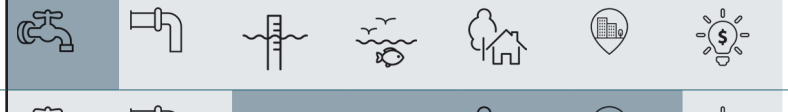
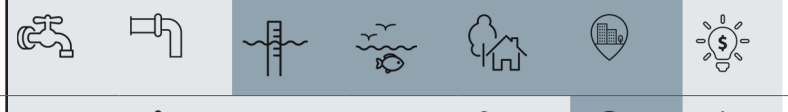
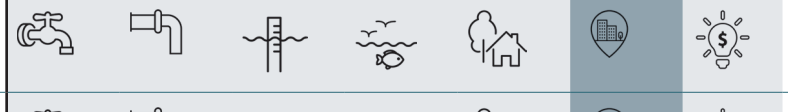
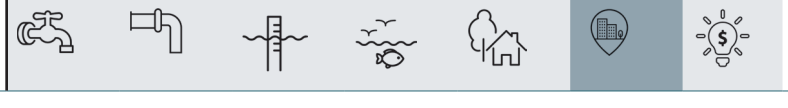
Strategic outcomes are described on page 7.

Lead agency	Implementation partners	Status
Mornington Peninsula Shire Council	To be agreed	
Glen Eira City Council	To be agreed	
Casey City Council	To be agreed	
South East Water	Frankston City Council	
Monash City Council	All city councils	
Glen Eira City Council	To be agreed	
Melbourne Water	Knox City Council, DEECA	
Glen Eira City Council	To be agreed	
Melbourne Water	10 councils, Bunurong LCAC, South East Water, Projects Victoria, Department of Transport and Planning	
South East Water	To be agreed	

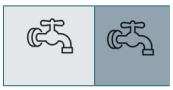
Strategy opportunity status

Ideas development | Feasibility and concept | Business case | Detailed design | Construction | Benefit realisation

Table 1. Overview of priority structural actions for the Dandenong catchment (continued)

IWM action	Strategic outcomes
Catani Gardens stormwater treatment and harvesting	
Scott Street flood mitigation works	
Coorigal Road reconstruction	
Tatterson Park supply with recycled water	
Robinson Road stage 2 recycled water scheme	
Elwood Park extended distribution	
Briars recycled water scheme	
Monbulk Creek smart water network	
Reimagining Tarralla Creek – stage 2	
Green wedge infrastructure upgrade	
Protecting upper Dandenong and Bungalook Creek corridors	

Shade scale



No Impact Impact

Strategic outcome icons

Strategic outcomes are described on page 7.

Lead agency	Implementation partners	Status
Port Phillip City Council	Melbourne Water	
Glen Eira City Council	To be agreed	
Glen Eira City Council	To be agreed	
Greater Dandenong City Council	South East Water	
Frankston City Council	To be agreed	
Port Phillip City Council	DEECA, Melbourne Water, Bayside City Council	
Mornington Peninsula Shire Council	South East Water, DEECA	
Melbourne Water	Yarra Ranges Council, South East Water, University of Melbourne	
Melbourne Water	Maroondah City Council, Yarra Valley Water, Wurundjeri WWCHAC, community	
Greater Dandenong City Council	DEECA, South East Water, Melbourne Water	
Maroondah City Council	Melbourne Water	

Strategy opportunity status

Ideas development | Feasibility and concept | Business case | Detailed design | Construction | Benefit realisation

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 Dandenong catchment

IWM action	Lead agency	Status
Undertake strategic assessments of catchment-scale spatial IWM opportunities – Dandenong 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	
Alternative water sources study in city of Maroondah	Maroondah City Council	
Revitalisation and improving connection to Kananook Creek	Frankston City Council	
Conduct community education on alternative water	Water corporations, local governments, DEECA	

Strategy opportunity status

On hold | Ideas stage | Commenced | In progress

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

Success stories

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

Reimagining Tarralla Creek and Stormwater Harvesting Scheme

Tarralla Creek is a 5.5-kilometre-long waterway flowing from Hewish Road in Croydon to Dandenong Creek. Parts of the creek flow underground in pipes and the creek occasionally resurfaces. Prior to naturalisation works, the creek provided little biodiversity or amenity values.

In 2022, Melbourne Water, in partnership with the Maroondah City Council and community, co-designed and delivered the daylighting, naturalisation and enhancement works to restore habitat and increase biodiversity along a 550-metre stretch of the creek and at the Croydon Wetlands. More than 80,000 new plants were established, along with the Wurundjeri Woi-wurrung Sensory Garden, a bird hide, informal creek crossings, gathering spaces, a new bridge and paths.

Following the successful delivery of Stage 1, funding is being sought to extend naturalisation works along other sections of the creek. The project will be delivered through Melbourne Water's Reimagining Your Creek program.

Further works have been recently completed, with the delivery of the Tarralla Creek Stormwater Harvesting Scheme through partnership with the Victorian Government's IWM Program, Maroondah City Council, Yarra Valley Water and Melbourne Water. This scheme captures, treats and re-uses stormwater to irrigate local ovals and sportsgrounds in Croydon, including Fred Geale Oval, Croydon Oval, Springfield Park and Town Park field. Harvesting urban stormwater saves approximately 13 megalitres of drinking water per year and helps reduce localised nuisance-flooding issues.

Collectively, these works enhance greening, cooling and recreational values along the waterway corridor and sporting ovals and improve the quality of water flowing from urban areas into Tarralla Creek, Dandenong Creek and eventually Port Phillip Bay. The areas provide a space for communities to relax and connect with nature.

The project has won several awards for its innovative approach to creek restoration and community engagement. In 2021, the project (as part of a broader Reimaging Your Creek program) won the Australian Institute of Landscape Architects (AILA) Victoria Award of Excellence for Infrastructure. The Reimagining Tarralla Creek project won the AILA 2023 Victorian Landscape Architecture Award for Infrastructure and the AILA 2023 National Landscape Architecture Award for Infrastructure.

Alternative Water for Fountain Gate – Narre Warren

This project is recognised as a priority (Action 1) in the Dandenong Integrated Water Management Forum's Strategic Directions Statement.

The Narre Warren Alternative Water Network is a staged project that aims to deliver an alternative stormwater network for the Narre Warren Metropolitan Activity Centre. The project is ultimately anticipated to supply 225 megalitres of fit-for-purpose water for open space irrigation and other residential and commercial uses in the precinct. Stage 1 of the project entails construction of a stormwater harvesting system at Max Pawsey Reserve; this is underway, with expected completion by 2024.

The Max Pawsey Reserve in Narre Warren is one of the highest-water-consuming reserves in the City of Casey. The stormwater harvesting system will harvest up to 100 megalitres of stormwater per year, which will be treated to a standard suitable for open space irrigation and dust suppression. The treated stormwater will be stored in an open pond that is part of a retarding basin, allowing for stormwater harvesting, storage and flood mitigation. The stormwater from the open pond will be UV-treated and then stored in an underground tank prior to being used for irrigation.

Future stages of the project include expanding the project to treat the stormwater to a standard suitable for topping up swimming pools. This will require further investigations and partnership with South East Water.

The project delivers a number of benefits for the Casey community, including improving waterway health by treating stormwater and removing pollutants such as litter, oil, grease and nutrients that would otherwise enter Port Phillip Bay, and establishing a healthier landscape through creation of a waterbody and green open spaces.

This is an exemplary collaborative project that is being delivered through a partnership approach by the City of Casey, South East Water, Melbourne Water and Bunurong Land Council Aboriginal Corporation. Key learnings from this project are that early project planning with stakeholders is paramount to success and that it is essential to establish stakeholder agreements on project scope to facilitate navigation around unanticipated project issues including cost increase.

This regionally important project received funding from the Victorian Government through the IWM Program as well as from the City of Casey, South East Water and Melbourne Water.

Dingley Recycled Water Scheme

This project is recognised as a priority (Action 6) in the Dandenong Integrated Water Management Forum's Strategic Directions Statement.

Securing a climate-independent water supply for commercial purposes and irrigation of sporting facilities across the south-eastern suburbs of Melbourne is critical to the productivity and liveability of the region. Where other sources (e.g. groundwater and stormwater) are impacted by climate change, high-quality recycled water offers a year-round solution to supply customers.

The Dingley Recycled Water Scheme is designed to provide 1.8 gigalitres of Class A recycled water per year from the Eastern Treatment Plant to more than 40 priority sites across the Kingston, Bayside, Dandenong and Monash local government areas. These sites include sporting precincts, public parkland, some of Australia's premier golf courses, commercial nurseries, market gardens and industry.

Significant advocacy for the Dingley Recycled Water Scheme came from Kingston, Bayside, Dandenong and Monash local governments, the Victorian golf industry, sporting clubs, and the nursery and market garden industries.

The benefits of the project include:

- helping to conserve Melbourne's drinking water supplies by saving approximately 340 megalitres of drinking water from being used for irrigation and commercial uses each year
- keeping parks and reserves green and cool, while reducing the urban heat island effect
- supporting the Victorian golf tourism industry by providing a drought-resilient water source
- reducing the amount of treated wastewater going out to sea
- reducing costs for businesses and councils who currently rely on drinking water supplies for irrigation and commercial activities
- generating $92 million for the Victorian economy and supporting local communities with over 240 jobs for international golf tourism, agriculture and nursery businesses in the region.

Construction of the 42-kilometre-long Dingley trunk main has been awarded and is expected to commence in 2025 along with the construction of the reticulation networks that connect to the 40 priority sites.

The project will cost approximately $72 million, of which the Victorian Government has committed $24.8 million. The rest will be funded by South East Water and customers of the scheme.

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
Mornington Peninsula Shire urban forestry strategy

Mornington Peninsula Shire recognises the importance of strategic guidance in growing and protecting its urban forest from the impacts of climate change. This action aims to develop and implement an urban forest strategy within the urban growth boundary of the Mornington Peninsula.

An important part of the strategy will be the exploration of opportunities to access alternative water supply for tree irrigation, as part of council's commitment to water management, biodiversity, and community health and wellbeing. The strategy will support the delivery of related actions including Living Links in the Dandenong catchment (Action 20) and Cool and Green Streets (Action 16).

Status	Feasibility and concept
Lead Agency	Mornington Peninsula Shire Council
Implementation Partners	To be agreed

Structural Action 2
Mornington Peninsula major flood mitigation

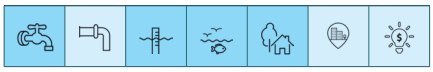
This action aims to implement the Mornington Peninsula Shire Council's Integrated Flood Management and Mitigation Strategy. The strategy identifies priority mitigation options for design and construction, which also present the opportunity to promote stormwater as a valuable resource for the Peninsula community.

Major infrastructure upgrades are proposed for multiple areas with high potential flood and safety risk. This action aims to develop concept designs and detailed designs for these upgrades, which can then be used for construction. This action provides an important contribution to the Dandenong catchment's flood mitigation objectives and outcomes.

Status	Feasibility and concept
Lead Agency	Mornington Peninsula Shire Council
Implementation Partners	To be agreed

Structural Action 3
Sandown redevelopment dual pipe

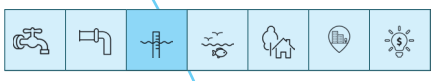
The Sandown Racecourse redevelopment, located between Dandenong and Springvale in south-eastern Melbourne, is a significant urban renewal area that will provide over 7000 dwellings. IWM planning undertaken for the development proposes the construction of infrastructure to supply alternative water to service dwellings and open space within the redevelopment area and potentially other neighbourhood redevelopment areas such as the Monash National Employment and Innovation Cluster. This action seeks to assess the feasibility of collecting, treating and supplying 280 megalitres of stormwater per year for non-potable uses within the development. Earlier studies have determined stormwater harvesting to be the preferred alternative water source for non-potable water demands, providing the greatest community outcomes with co-benefits of reducing local flooding and improving waterway health. If the action does not prove viable, it is proposed to explore the viability of a recycled water scheme for the redevelopment. This action is subject to Sandown Racecourse being redeveloped.



Status	Feasibility and concept
Lead Agency	South East Water
Implementation Partners	Greater Dandenong City Council, Melbourne Water

Structural Action 4
Frankston flood mitigation and reduction opportunities

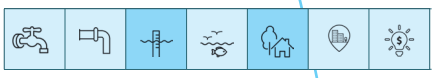
The legacy stormwater infrastructure within established areas of the Dandenong catchment is designed to cope with low storm intensities. However, infill development in the area is now generating increased stormwater runoff, leading to a surcharge of existing systems and flash flooding. This action seeks to mitigate and reduce the impacts of flash flooding in the City of Frankston.



Status	Feasibility and Concept
Lead Agency	Frankston City Council
Implementation Partners	Melbourne Water

Structural Action 5
Marlborough Reserve retarding basin

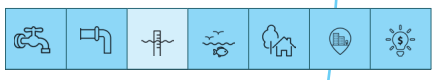
East Village is a 24-hectare redevelopment site located within the City of Glen Eira. The redevelopment presents an opportunity to mitigate the impact of flooding for the site and contribute more broadly to lessening the impact of flooding on other areas in the catchment. This action seeks to establish a retarding basin in the Marlborough Street Reserve public space to capture stormwater during flood events. It will be delivered by private developers and maintained by Glen Eira City Council longer term. The development is within the Elster Creek sub-catchment, which experiences substantial flooding events, and contributes to efforts to reduce flood risk in the catchment area.



Status	Feasibility and Concept
Lead Agency	Glen Eira City Council
Implementation Partners	Victorian Planning Authority, Melbourne Water

Structural Action 6
Dingley recycled water scheme

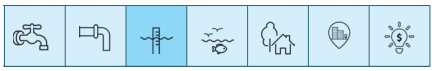
The Dingley Recycled Water Scheme will deliver Class A recycled water to around 40 sites across the Kingston, Bayside, Monash and Dandenong local council areas. The scheme is designed to supply 1.8 gigalitres of recycled water per year to laundromats, market gardens, nurseries, sports ovals, parklands and world-class golf courses in the area. Stage 1 of the scheme involves the design and construction of a transfer main from the Eastern Treatment Plant. Investigation works for the transfer main are complete. Construction of the transfer main will commence around June 2024. Stage 2 of the action will focus on multiple reticulation networks and is expected to commence upon completion of Stage 1 in 2025. This action provides an important contribution to long-term water security and liveability outcomes for agriculture, golf tourism, and community sport and recreation spaces.



Status	Detailed Design
Lead Agency	South East Water
Implementation Partners	Kingston, Bayside, Monash and Greater Dandenong City Councils, DEECA

Structural Action 7
Catchment 9 and 16 stage 2 and 3 drainage upgrade

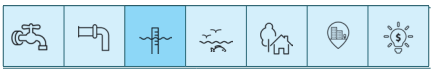
Extensive development across the City of Greater Dandenong is creating significant strain on existing drainage infrastructure and stormwater management systems. This action is part of a multi-year program of drainage upgrades proposed to reduce overland flow and flooding during major and minor flood events. Flood modelling and inspections have been undertaken to identify areas requiring upgrades and including the installation of larger capacity pipes to mitigate the impact of flooding along Callander Road and Princes Highway. Further stages of works will target Jenkins Street and Callander Road.



Status	Construction
Lead Agency	Greater Dandenong City Council
Implementation Partners	Melbourne Water

Structural Action 8
Greater Dandenong municipal-wide drainage renewal projects

The City of Greater Dandenong delivers an annual drainage upgrade program. This action targets the renewal of major structurally important drains that have been identified as having low condition ratings based on damage, failure or potential failure. The priority renewal of these drains is essential to protect public and private properties, roads and assets from potential flooding due to sudden failure. In undertaking these upgrades, this action will contribute to catchment flood mitigation outcomes and reduced annual drainage repair and maintenance costs for council.

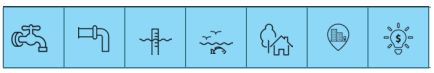


Status	Construction
Lead Agency	Greater Dandenong City Council
Implementation Partners	Melbourne Water

Structural Action 9
Alternative water for Fountain Gate–Narre Warren

The Fountain Gate–Narre Warren Metropolitan Activity Centre is one of the 11 designated metropolitan activity centres under the Victorian Government's Plan Melbourne 2017–2050 metropolitan planning strategy. This area is set to experience significant growth, including high-density residential development. Stormwater management and drainage have been recognised as key challenges for the precinct.

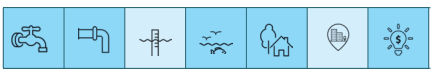
This action aims deliver the first stage of an alternative stormwater network for the Fountain Gate–Narre Warren Metropolitan Activity Centre. Stage 1 will supply up to 100 megalitres of treated stormwater per year suitable for irrigation of Max Pawsey Recreational Reserve as well as for dust suppression. The first stage of delivery also includes infrastructure that will support pilot testing of stormwater quality to expand the system in the future to supply water at drinking quality standard as well for topping up of the Casey Aquatic and Recreation Centre swimming pool.



Status	Construction
Lead Agency	Casey City Council
Implementation Partners	DEECA, Melbourne Water, South East Water

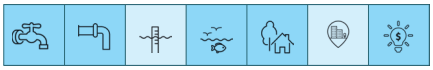
Structural Action 10
Patterson River recycled water scheme

This action involves functional design and costing of a recycled water scheme to the north of the Patterson River in the City of Kingston, extending from an existing Melbourne Water recycled water pipeline. The new scheme will provide up to 220 megalitres of Class A recycled water per year to a golf course, sports fields and open spaces in the Kingston council area.



Status	Business case
Lead Agency	South East Water
Implementation Partners	Melbourne Water, Kingston City Council

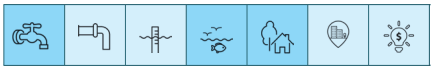
Structural Action 11
Monterey recycled water scheme



Status	Detailed design
Lead Agency	South East Water
Implementation Partners	Frankston City Council

The Monterey Recycled Water Scheme is an important initiative that aims to deliver 70–80 megalitres of Class A recycled water per year to a golf course and three recreational spaces in the Frankston area. A 2.3-kilometre pipeline will be constructed to take water from the South East Outfall near Seaford to supply this area. This action, which received co-funding from the Victorian Government, is currently in the detailed design stage and is expected to be operational by early 2025.

Structural Action 12
Mornington Peninsula water sensitive asset masterplan implementation



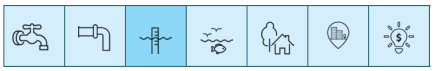
Status	Feasibility and concept
Lead Agency	Mornington Peninsula Shire Council
Implementation Partners	To be agreed

Mornington Peninsula Shire Council has developed a Water Sensitive Asset Masterplan that identifies 60 medium- to large-scale water sensitive urban design opportunities across the Peninsula. This action seeks to progress 5 priority projects to detailed design:

- Olympic Park Reserve raingarden
- Dromana Parade Reserve raingarden
- Murrowong Reserve raingarden
- Dromana Recreation Reserve stormwater harvesting
- Morell Reserve raingarden.

The implementation of these opportunities is expected to deliver significant stormwater pollutant reductions and stormwater for reuse across these sites.

Structural Action 13
Lancaster Street flood mitigation works



Status	Construction
Lead Agency	Glen Eira City Council
Implementation Partners	To be agreed

The Glen Eira municipality is located on a former floodplain and is vulnerable to flood risk on account of its aging and over-capacity drainage system. Lancaster Street is a flood-prone area that has been identified for flood mitigation works and drainage improvement. This action proposes to increase drainage capacity and slow down the discharge of flows downstream. These works play an important role in reducing downstream flooding in the Elster Creek catchment, which experiences substantial flooding events that can cause significant infrastructure and property damage. This action is currently under construction and is part of council's 10-year asset plan for drainage improvements and renewals.

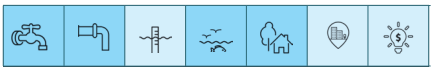
Structural Action 14
Construction of Myuna and Betula Reserve stormwater harvesting

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

The Myuna and Betula Reserve Stormwater Harvesting Scheme can supply up to 20 megalitres of harvested stormwater per year to meet the irrigation demands of Myuna Farm and Betula Reserve. Myuna Farm is a community farm in Melbourne's south-east, while Betula Reserve is an active open space. This action is unique in terms of its design, as it will supply harvested water for meeting the irrigational demands of two sites with very different usages. The stormwater system will extract water that would otherwise go into Dandenong Creek, and it therefore provides flood mitigation and waterway health benefits.

Structural Action 15
Frankston recycled water scheme – stage 2

This action aims to investigate feasibility of extending an existing recycled water scheme to supply additional 43 megalitres of recycled water per year to irrigate open spaces in the Frankston area. The supply of Class A recycled water will reduce reliance on drinking water use and improve amenity, liveability and greening outcomes.



Status	Feasibility and concept
Lead Agency	South East Water
Implementation Partners	Frankston City Council

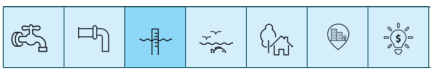
Structural Action 16
Cool and green streets

This action aims to irrigate trees and vetegation within the Dandenong catchment with alternative water sources to support healthy canopy growth and urban cooling. It will apply water sensitive urban design (WSUD) solutions to support passive irrigation of these assets and enable infiltration of rainfall and stormwater runoff into soil and open space. WSUD options include raingardens, swales, permeable pavements and below-ground infrastructure to increase soil moisture around trees. Monash City Council has led the development of a passive irrigation kerb inlet prototype that will be tested through this action. Other initiatives that enhance greening and cooling in the catchment will be incorporated into and delivered as part of the program. This action is linked to the Living Links in the Dandenong Catchment (Action 20) and Mornington Peninsula Shire Urban Forest Strategy (Action 1).

Status	Feasibility and concept
Lead Agency	Monash City Council
Implementation Partners	All city councils

Structural Action 17
Buckingham Avenue flood mitigation work

The Glen Eira municipality is located on a former floodplain and is vulnerable to flood risk on account of its aging and over-capacity drainage system. Buckingham Avenue is a flood-prone area in Bentleigh that has been identified for flood mitigation works and drainage improvement. This action proposes to increase drainage capacity and slow down the discharge of flows downstream. These works play an important role in reducing downstream flooding in the Elster Creek catchment, which experiences substantial flooding events that can cause significant infrastructure and property damage. This action is currently under construction and is part of council's 10-year asset plan for drainage improvements and renewals.



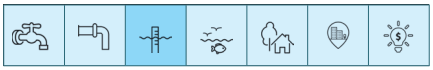
Status	Construction
Lead Agency	Glen Eira City Council
Implementation Partners	To be agreed

Structural Action 18
Reimagining Blind Creek – lewis park masterplan sub-project

Improving the quality of stormwater discharging into the upper reaches of Dandenong Creek is key to improving the health of waterways in the whole Dandenong catchment. Reimagining Blind Creek at Lewis Park will convert 1.65 kilometres of underground concrete drainage channel into a natural waterway and turn Lewis Park into a cooler, greener space and a haven for biodiversity. The action is part of Knox City Council's larger plan to turn 40 hectares of Lewis Park into the green heart of Knox and improve its connection with some of the busiest community hubs. This action aims to harvest and treat 250 megalitres of stormwater for the irrigation of Lewis Park by creating three wetlands for stormwater treatment and harvesting. These actions will improve the quality of open space and encourage further interaction with the creek.

Status	Construction
Lead Agency	Melbourne Water
Implementation Partners	Knox City Council, DEECA

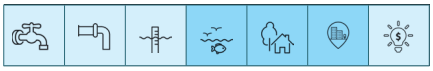
Structural Action 19
Bruce Street flood mitigation works



Status	Construction
Lead Agency	Glen Eira City Council
Implementation Partners	To be agreed

The Glen Eira municipality is located on a former floodplain and is vulnerable to flood risk on account of its aging and over-capacity drainage system. Bruce Street is a flood-prone area in the City of Glen Eira that has been identified for flood mitigation works and drainage improvement. This action proposes to increase drainage capacity and slow down the discharge of flows downstream. These works play an important role in reducing downstream flooding in the Elster Creek catchment, which experiences substantial flooding events that can cause significant infrastructure and property damage. This action is currently under construction and is part of council's 10-year asset plan for drainage improvements and renewals.

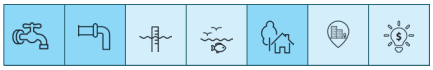
Structural Action 20
Living links in the Dandenong catchment



Status	Construction
Lead Agency	Melbourne Water
Implementation Partners	10 councils, Bunurong LCAC, South East Water, Projects Victoria, Department of Transport and Planning

Living Links is a collaborative partnership program working to create an urban web of green spaces where people and nature connect across Melbourne's south-east. Urban forests play a critical role in reducing evaporation, improving soil water-holding capacity, slowing and absorbing runoff, trapping litter, sediments and pollutants, and improving water quality in local waterways. Extensive work has been undertaken over the past 15 years to deliver these objectives in the Dandenong Creek corridor, including work on the creek itself, as well as on the wide belt of parklands, bushlands and wetlands that connect to it. This action is linked to Cool and Green Streets (Action 16) and the Mornington Peninsula Shire Urban Forest Strategy (Action 1).

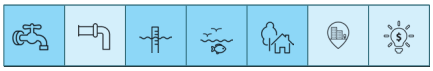
Structural Action 21
Aquarevo recycled water scheme



Status	Construction
Lead Agency	South East Water
Implementation Partners	To be agreed

The Aquarevo Estate is a water and energy efficient residential community located in Lyndhurst. The Aquarevo Water Recycling Plant proposes to use the Organica Food Chain Reactor process to treat wastewater from the Aquarevo Estate and return Class A recycled water to all 467 homes. The Organica Food Chain Reactor process uses the roots of plants, combined with engineered media, to treat wastewater. This technology is used in Europe and this action will demonstrate how a closed water cycle can be achieved within an Australian residential estate. The recycled water plant is due to commence construction in mid-2024 following the design process.

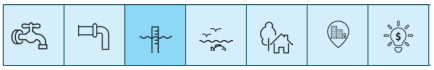
Structural Action 22
Catani Gardens stormwater treatment and harvesting



Status	Feasibility and concept
Lead Agency	Port Phillip City Council
Implementation Partners	Melbourne Water

Catani Gardens is a high-value, heritage-listed park adjoining the St Kilda Foreshore. It is a highly used open space that is popular with the community and home to large events. This action aims to source stormwater from neighbouring catchments for irrigation of the park. There is an opportunity to access 13 megalitres of treated stormwater per year to meet 75% of the irrigation demand of the gardens. This would reduce stormwater pollutants entering Port Phillip Bay. It would also increase the resilience of this open space to the impact of climate change, providing greater security of water supply.

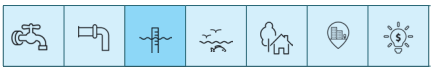
Structural Action 23
Scott Street flood mitigation works



Status	Construction
Lead Agency	Glen Eira City Council
Implementation Partners	To be agreed

The Glen Eira municipality is located on a former floodplain and is vulnerable to flood risk on account of its aging and over-capacity drainage system. Scott Street is a flood-prone area in the City of Glen Eira that has been identified for flood mitigation works and drainage improvement. This action proposes to increase drainage capacity and slow down the discharge of flows downstream. These works play an important role in reducing downstream flooding in the Elster Creek catchment, which experiences substantial flooding events that can cause significant infrastructure and property damage. This action is currently under construction and is part of council's 10-year asset plan for drainage improvements and renewals.

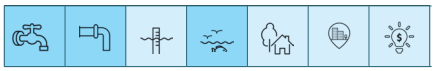
Structural Action 24
Coorigal Road reconstruction



Status	Benefits realisation
Lead Agency	Glen Eira City Council
Implementation Partners	To be agreed

The Glen Eira municipality is located on a former floodplain and is vulnerable to flood risk on account of its aging and over-capacity drainage system. Coorigal Road is a flood-prone area in the City of Glen Eira that has been identified for flood mitigation works and drainage improvement. This action proposes to increase drainage capacity and slow down the discharge of flows downstream. These works play an important role in reducing downstream flooding in the Elster Creek catchment, which experiences substantial flooding events that can cause significant infrastructure and property damage. This action is currently under construction and is part of council's 10-year asset plan for drainage improvements and renewals.

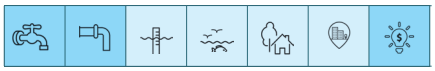
Structural Action 25
Tatterson Park supply with recycled water



Status	Feasibility and concept
Lead Agency	Greater Dandenong City Council
Implementation Partners	South East Water

Tatterson Park is a 48-hectare park located in Keysborough, including a 20-hectare woodland, leisure centre, 3 sportsgrounds, a regional playground, and extensive wetlands and walking tracks. The Greater Dandenong City Council and South East Water are exploring the feasibility of a recycled water scheme to supply Class A recycled water for irrigation of the park to reduce reliance on drinking water use.

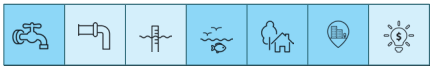
Structural Action 26
Robinson Road stage 2 recycled water scheme



Status	Detailed design
Lead Agency	Frankston City Council
Implementation Partners	To be agreed

This action could extend an existing recycled water scheme and supply up to 10 megalitres of recycled water per year to irrigate open space in the Frankston area. The supply of Class A recycled water will reduce reliance on drinking water use and improve amenity, liveability and greening outcomes.

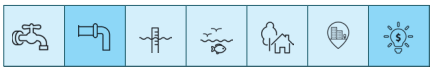
Structural Action 27
Elwood Park extended distribution



Status	Feasibility and concept
Lead Agency	Port Phillip City Council
Implementation Partners	DEECA, Melbourne Water, Bayside City Council

Elwood Park, Peanut Farm Reserve and M.O. Moran Reserve provide high-value open space and recreational facilities to the local community. This action aims to source stormwater from the existing Yalukit Willam Nature Reserve stormwater harvesting scheme. There is an opportunity to access 30 megalitres of treated stormwater per year to irrigate sportsgrounds and ovals across these three parks. This would meet 85% of the irrigation demand for these areas and would reduce the amount of stormwater pollutants entering Port Phillip Bay. It would also increase the resilience of this open space to the impact of climate change, providing greater security of supply.

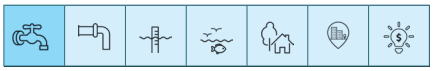
Structural Action 28
Briars recycled water scheme



Status	Construction
Lead Agency	Mornington Peninsula Shire Council
Implementation Partners	South East Water, DEECA

The Briars is a 230-hectare conservation park in Mt Martha that attracts over 200,000 visitors per year. Recycled water from Mt Martha Recycling Plant will be supplied to the Briars to support the creation of a "Green Dreaming" precinct. The precinct will incorporate demonstration agricultural areas to build the capacity of the local community to implement best practice land management, agricultural and horticultural techniques. It will provide opportunities for research, training and trialling of food crop techniques using Class A recycled water. In addition, the recycled water will support an expansion of the wildlife sanctuary, delivery of a climate-resilient vineyard test site, and the growth of bush foods for commercial purposes. It will demonstrate a future in which sustainable treatment and use of water is critical to the health and wellbeing of our communities. This action will provide up to 80 megalitres of recycled water per year.

Structural Action 29
Monbulk Creek smart water network



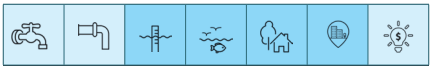
Status	Construction
Lead Agency	Melbourne Water
Implementation Partners	Yarra Ranges Council, South East Water, University of Melbourne

Monbulk Creek is a valuable urban waterway in the Belgrave area. The creek is currently under threat from high volumes of stormwater generated by the rapidly growing communities nearby. Stormwater management measures have been identified to support and protect the creek's sensitive ecosystems and wildlife, specifically the platypus. This action is a collaborative research project that aims to explore and demonstrate the role of real-time control technology in delivering benefits to the creek and its surrounds. The Monbulk Creek Smart Water Network will comprise smart tanks for harvesting water from residential properties. Starting in 2024, households in catchment areas managed by Yarra Ranges Council and Melbourne Water will be offered a smart rainwater tank. Using 'Tank Talk' flow control technology developed by South East Water, the smart tanks can be remotely controlled to release water to the stormwater network to manage environmental flows for the local platypus population, help improve broader stream health, reduce localised flooding and ensure enough water remains for household use.

Structural Action 30
Reimagining Tarralla Creek – stage 2

Improving the quality of stormwater discharging into the upper reaches of Dandenong Creek is key to improving the health of waterways in the whole Dandenong catchment. This is an important objective for Tarralla Creek in Croydon, for which integrated and holistic waterway planning has been undertaken.

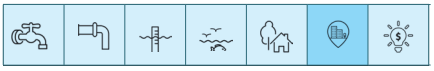
The Reimagining Tarralla Creek initiative seeks to restore and naturalise 2.2 kilometres of previously engineered stormwater channel back to a natural space for community enjoyment and broad environmental outcomes, including urban greening, improved recreational opportunities, increased biodiversity and improved waterway health. Key areas of focus are Vinter Avenue to Eastfield Road.



Status	Construction
Lead Agency	Melbourne Water
Implementation Partners	Maroondah City Council, Yarra Valley Water, Wurundjeri WWCHAC, community

Structural Action 31
Green wedge infrastructure upgrade

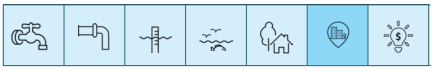
The Greater Dandenong Green Wedge makes up 29% of the total area of the City of Greater Dandenong and provides a green, spacious relief from surrounding urban development. The area supports a range of activities – agriculture, water treatment, recreation, education and rural living – which are carefully located and designed to respect the important environmental, cultural heritage, water management, landscape and amenity values, and functions of the region. This action implements key initiatives identified in the Greater Dandenong Green Wedge Plan 2017 and the Greater Dandenong Sustainable Stormwater Strategy 2016.



Status	Idea development
Lead Agency	Greater Dandenong City Council
Implementation Partners	DEECA, South East Water, Melbourne Water

Structural Action 32
Protecting upper Dandenong and Bungalook Creek corridors

The Upper Dandenong and Bungalook Creek corridors provide valuable amenity benefits to the communities living in the upper reaches of the Dandenong Creek. Open space reserves along the creek corridors are anticipated to be developed in the future for arterial roadways as Melbourne's population and transport needs grow. This action aims to develop a masterplan for the Healesville Freeway Reservation, where it aligns with the Upper Dandenong and Bungalook Creek corridors. The masterplan would seek to protect and improve waterway health in response to potential future initiatives, such as the construction of a major arterial road for the expanding Bayswater North Industrial Precinct. It would also serve to improve environmental and biodiversity values along these corridors and activate them for enhanced recreational outcomes.



Status	Feasibility and concept
Lead Agency	Maroondah City Council
Implementation Partners	Melbourne Water

Systemic Enabling Action 1
Secure funding and resourcing to enable Traditional Owners to make decisions and determine IWM priorities on their Country.

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

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

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.

Systemic Enabling Action 12
Strengthen policy and regulatory support for urban greening

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

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.

Systemic Enabling Action 13
Improve community knowledge and involvement in urban water management

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

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.

Systemic Enabling Action 14
Develop and deliver a water efficiency plan for greater Melbourne

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

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.

Systemic Enabling Action 15
Investigate opportunities to use recycled water and stormwater to improve environmental flows

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

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.

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 – Dandenong catchment

Status	In progress
Lead Agency	South East Water

Assessments of priority actions against the IWM targets identified in the Dandenong 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 Dandenong catchment. A strategic assessment across the Dandenong 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 projects that seek 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 IWM action plans.

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

Status	In progress
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. Action 91 in the Plan Melbourne 2017–2050: Five-Year Implementation Plan commits to developing a whole-of-government approach to cooling and greening Melbourne. South East Water is exploring opportunities across the Dandenong 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 continues to explore 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 Dandenong 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
Alternative water sources study in city of Maroondah

Status	Ideas stage
Lead Agency	Maroondah City Council

Maroondah City Council is seeking to increase its use of alternative water sources to meet existing and future council demands for water. This action will undertake a whole-of-council assessment to analyse existing and future council demands for non-potable water and possible sources of water, including stormwater and recycled water.

Place-Based Enabling Action 7
Revitalisation and improving connection to Kananook Creek

Status	Ideas stage
Lead Agency	Frankston City Council

Kananook Creek one of Frankston City's major natural assets, however it is currently under-utilised and is yet to reach its full potential. As part of a vision for the future Frankston's city centre, Kananook Creek and Frankston Waterfront will be transformed into a bustling hub of activity, events and recreation, and will become a centre point for the city of Frankston. The City of Frankston is working collaboratively with key stakeholders to enhance the creek environment which will include additional planting and desilting of approximately 750 metres of the creek, from the Frankston boat ramp to the Beach Street bridge. This action will seek funding opportunities to realise this opportunity.

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.

Useful resources

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

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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