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| Gippsland  Strategic directions statement  January 2019 |
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Department of Health

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| **Acknowledgement of Victoria’s Aboriginal communities**  The Victorian Government proudly acknowledges Victoria's Aboriginal communities and their rich culture and pays its respects to their Elders past and present. The government 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.  © The State of Victoria Department of Environment, Land, Water and Planning 2019  This work is licensed under a Creative Commons Attribution 4.0 International licence. You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author. The licence does not apply to any images, photographs or branding, including the Victorian Coat of Arms, the Victorian Government logo and the Department of Environment, Land, Water and Planning (DELWP) logo. To view a copy of this licence, visit [Creative Commons](file:///\\Mac\Home\Desktop\creativecommons.org\licenses\by\4.0\) <creativecommons.org/licenses/by/4.0/>  Printed by Finsbury Green, Melbourne  ISBN 978-1-76077-420-2 (Print)  ISBN 978-1-76077-421-9 (pdf/online/MS word)  **Disclaimer**  This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.  **Accessibility**  If you would like to receive this publication in an alternative format, please telephone the DELWP Customer Service Centre on 136 186 or email the [DELWP Customer Service Centre](mailto:customer.service@delwp.vic.gov.au) <customer.service@delwp.vic.gov.au> or via the National Relay Service on 133 677, or at the [National Relay Service website](http://www.relayservice.com.au) <www.relayservice.com.au>.  This document is also available on the internet at the [DELWP website](http://www.delwp.vic.gov.au) <www.delwp.vic.gov.au> |

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**Integrated Water Management is a collaborative approach to water planning and management that brings together organisations with an interest in all aspects of the water cycle.**

It has the potential to provide greater value to our communities by identifying and leveraging opportunities to optimise outcomes.

# Foreword

The Gippsland Integrated Water Management (IWM) Forum is one of 15 IWM Forums established across the state.

Water is one of the building blocks of life and is fundamental to the social fabric of our communities. Without water they will fail to grow and thrive. Ensuring that our water is allocated responsibly and enabling our cities, small regional towns and rural communities to have the resilience needed to be healthy, active and engaged communities is a long-term goal of the Gippsland Integrated Water Management (IWM) Forum.

The Gippsland IWM Strategic Directions Statement (SDS) highlights the key challenges in the region and also identifies collaborative IWM opportunities that can improve resilience and liveability in cities and towns in the region. Our vision of working together to sustainably manage water for current and future generations means that we will work together to create better ways of managing the water cycle by balancing community, cultural, environmental and economic values. Our goal is to support growth and resilience while conserving the unique natural landscapes of Gippsland.

There have already been numerous excellent examples of Gippsland communities and organisations working together to integrate the planning and delivery of water projects. In 2018 we have worked together at both practitioner and forum level to formalise future projects and embed integrated thinking into the plans of the region. We are beginning to see a change in the thinking, conversation and level of engagement that has seen IWM being recognised and becoming part of a new cooperative way for regional planning.

The Gippsland forum region incorporates the services areas of Gippsland Water and South Gippsland Water. The East Gippsland region is a separate forum area.

While Gippsland is known as a region of high and assured rainfall and is one of the most secure dryland farming areas in the country, water managers are being challenged by changing rainfall patterns and reduced stream flows. It is vital that alternative, fit for purpose, sources of water be found to conserve precious potable supplies and reduce pressure on the environment. Planning in the west of the region is also challenged by its proximity to Melbourne and the increasing pressure for housing and lifestyle properties in the areas on Melbourne's fringe and along the coast. However, these new growth areas also present an opportunity to embed IWM thinking in planning schemes and practices by land and water managers working cooperatively.

It is my pleasure to present the Strategic Direction Statement for the Gippsland IWM forum, which is an outstanding example of regional collaboration by a diverse Forum membership with interests in land, water, waterways, the urban built form, and community health and wellbeing. The Statement identifies many important and innovative opportunities, backed by the Forum, that can substantially transform and enhance the role that water plays in our region’s way of life.

I wish to thank the Gippsland IWM Forum members for their commitment, energy and enthusiasm, and for sharing their considerable knowledge and experience of the region in developing this Statement. It has been wonderful to see Water Corporations, Councils, Traditional Owners, land managers and the West Gippsland CMA working together so productively. The future vision and exceptional strategic regional response that has been endorsed by the Forum delivers outcomes and benefits for both current and future generations. It is rewarding to see the vision of the Victorian Government’s Water Plan put into practice.

I also wish to acknowledge the considerable input and support of DELWP officers and the support given by the state-wide Chairs forum.

Joan Liley

Gippsland IWM Forum Chair

# Acknowledgements

The Gippsland IWM Forum covers Gunaikurnai and Bunurong country, whose ancestors and their descendants are the Traditional Owners of this country.

The meetings of the Forum and individual meetings with project sponsors have developed initiatives from ideas into mature project themes. Collaboration and cross-pollination has been a key outcome of the Forum, with ideas being shared and improved by input from project partners.

The Gippsland Strategic Directions Statement has been developed in collaboration with:

* Bass Coast Shire
* Baw Baw Shire Council
* Bunurong Land Council
* Department of Environment Land Water and Planning
* Gippsland Water
* Gunaikurnai Land and Waters Aboriginal Corporation
* Latrobe City Council
* Southern Alpine Resort Management Board
* Parks Victoria
* South Gippsland Shire Council
* South Gippsland Water
* Wellington Shire Council
* West Gippsland Catchment Management Authority

The Forum will continue to work with other organisations along the IWM journey.

# At a glance

The Gippsland Integrated Water Management (IWM) Strategic Directions Statement highlights the key challenges in the region and also identifies collaborative IWM opportunities that can improve resilience and liveability in cities and towns in the region.

## Vision

Working together to sustainably manage water for current and future generations

## Strategic outcomes:

1. Safe secure and affordable supplies that are fit for purpose
2. Effective and affordable wastewater systems
3. Understand and manage flood regimes to sustain natural systems while minimising adverse impacts
4. Healthy and valued waterways, wetlands, lakes, coastal environments and groundwater systems
5. Healthy and valued agricultural, rural and urban landscapes
6. Community values reflected in place-based planning
7. Recognise opportunities to enhance jobs, economic growth and innovation

# IWM opportunities

Partners of the Gippsland IWM Forum are committing their best endeavours to ensure priority projects and strategies are progressed in line with the shared vision and strategic outcomes of the Forum. Fifteen priority opportunities have been identified in the region and these have been grouped into five themes- flagship opportunities, increasing community wellbeing through improved liveability, achieving the best outcomes in a changing context, strengthening Gippsland’s natural assets for future generations, and driving economic opportunities for Gippsland. The opportunities are listed alphabetically within the themes.

## Flagship opportunities

**These opportunities have been selected to demonstrate the value of IWM, and the IWM Forum process in a short time frame, as well as to act as a catalyst for other IWM projects in the region.**

1. **Council IWM Plans**

An IWM Plan will be developed for each shire council in the region, which will help to identify and prioritise IWM opportunities which can be delivered by councils and their regional partners.

1. **Repurposing dams at Little Bass, Coalition Creek, Ness Gully and Bellview Creek**

Following the upgrade of water supply infrastructure in the region, several dams will be available for repurposing. There are a large variety of future uses are possible such as community recreational uses, stormwater harvesting for fit-for-purpose supplies, commercial or industrial use. An options analysis will determine the best balance of costs and benefits for repurposing these assets for community benefit.

1. **Kernot Lake water supply**

Kernot Lake, an important amenity feature in the town of Morwell, may lose its current water supply and run dry if action is not taken. Surrounded by Immigration Park, Federation TAFE and the newly established High Tech precinct, Kernot Lake is located adjacent to residential housing and is visible from Princes Drive, an area of high density traffic. Maintaining the current amenity of this asset is essential to the pride of the community of Morwell and the broader Latrobe Valley. Timely development of an options analysis will determine alternative water supplies and effective treatments to improve water quality that could provide the best balance of costs and benefits. This will link into the work being done on the adjoining Waterhole Creek.

## Increasing community wellbeing through improved liveability

**In Gippsland green open spaces such as parks and sporting reserves can be the heart of the community. Keeping these spaces irrigated with fit for purpose water will enhance the liveability of the region and have positive impacts on residents' wellbeing. wellbeing.**

1. **Greening sporting reserves in Baw Baw Shire**

To ensure sporting reserves remain green and playable, even in times of low rainfall, Baw Baw Shire are exploring alternative water supplies for irrigation. This project will investigate the options for key open spaces and prioritise a scheme for delivery, as well as explore options for planned growth areas.

1. **Maffra stormwater harvesting**

An investigation of stormwater harvesting opportunities in the town of Maffra to improve liveability by supporting open space irrigation and integrating runoff detention to alleviate flooding.

1. **South Dudley wetland**

The redevelopment of the area in South Dudley around the Rescue Station into a stormwater treatment wetland system will provide not only environmental benefits, but also a valuable community recreation space with walking and cycling paths.

1. **Wonthaggi stormwater harvesting**

A stormwater harvesting scheme to capture, treat and store stormwater for irrigation of two large ovals while also providing storage that will help to alleviate flood risk downstream.

## Achieving the best outcomes in a changing context

**With change comes the opportunity to do things better. There are many shifts currently taking place across Gippsland including changes to industry, populations, and climate. The following projects will use IWM to create an opportunity for better outcomes in the face of these major changes.**

1. **Water for economic growth in central Gippsland**

This project will further explore the high-level opportunities for leveraging the water resources of the Latrobe system for the benefit of the broader Gippsland economy, including the attraction of major industry and high-demand water users. Through the development of a water resources and future infrastructure prospectus, this proposal aims to put water as a key enabler of economic growth, particularly in the Latrobe Valley, where there is a concentration of available water resources due to industry transition.

1. **Mt Baw Baw Water Storage for Snow Making**

The addition of water storage at Mt Baw Baw could support additional snow-making when needed to support the Alpine recreation facilities.

1. **Stormwater pollution management at Willow Grove**

Increased development in Willow Grove, which sits on the banks of Blue Rock Lake, threatens the water quality of the drinking water catchment. Intercepting pollutants before they enter the lake will have positive impacts on water quality.

## Strengthening Gippsland’s natural assets for future generations

**Natural assets such as waterways and coasts are part of the unique character of Gippsland and need to be protected for future generations. Through IWM the following projects will strengthen natural assets and ensure they are healthy and valued.**

1. **Bass Coast Biolinks**

Bass Coast Shire will lead the implementation of the Biodiversity Biolinks Plan by delivering vegetated riparian zones along waterways which will act to capture, filter and retain water in the landscape while supporting biodiversity.

1. **Waterway Health Program**

The waterway health program facilitates work and management initiatives that will improve the health of waterways and deliver benefits for ecology and communities.

## Driving economic opportunities for Gippsland

**Water is a key enabler for economic opportunities, these projects will use an integrated approach to drive opportunities through the sustainable management of water.**

1. **Integrated service enhancement for Leongatha and nearby towns**

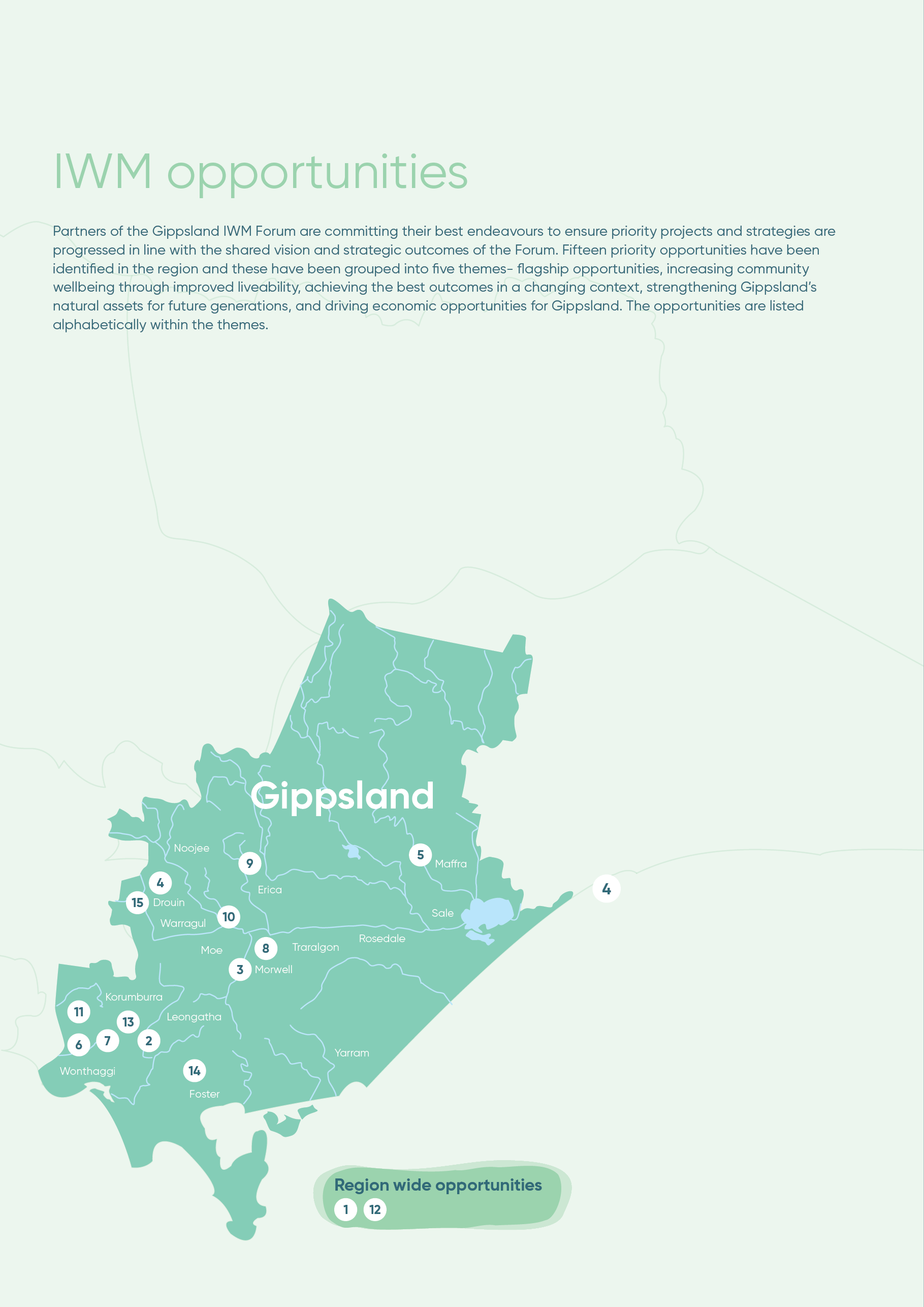
The project aims to evaluate connection of Meeniyan and Dumbalk to the Leongatha water supply to improve service and reduce development constraints in a declared water supply catchment.

1. **Recycled water for road grading investigation**

This project considers the viability, cost and ongoing risk of securing alternative water sources to support road grading of unsealed roads to minimise use of potable water while maintaining appropriate Level of Service.

1. **Warragul and Drouin long term water supply security**

The demand for potable water in Warragul and Drouin is exceeding supply in peak times, and with projected population growth these towns need further water supply security. There may be opportunities to reduce or defer costs of a major augmentation by implementing potable water substitution initiatives, for example alternative supplies for parks, recreation reserves and industry. This project links to Greening sporting reserves in Baw Baw Shire.



# Chapter 1 The way forward

An unprecedented opportunity to progress water cycle planning and management in Victoria through collaboration.

## Introduction

The Integrated Water Management (IWM) Framework for Victoria   
(September 2017) is designed to help regional stakeholders to work   
together, ensuring the water cycle contributes to the liveability of towns and cities in Victoria, with communities at the centre of decision making.

The central premise of an IWM approach is the overall acceptance that managing urban liveability and resilience is a shared responsibility and that water is a key enabler to achieving these shared aims.

To facilitate this, IWM Forums have been established across the state to identify, prioritise and oversee the implementation of critical collaborative opportunities. This Strategic Directions Statement has been produced by the Gippsland IWM forum to capture and communicate those opportunities.

IWM seeks to build on existing partnerships and planning processes. Regional stakeholders in the Gippsland region - such as Local Government Authorities, Catchment Management Authorities and Water Corporations, engage with their communities regularly to improve service delivery and urban planning. Community aspirations are embedded in the strategies and operational plans for organisations throughout the region. These aspirations reflect a desire for liveable and productive places and vibrant communities. The way in which we plan and use water is fundamental to ensuring these aspirations are realised.

IWM in the region is also strengthened by the formation of the West Gippsland Catchment Partnership area under the Government’s Our Catchments, Our Communities Integrated Catchment Management Strategy for Victoria (2016-19). Furthermore, a ground-breaking partnership agreement with the Gunaikurnai Land and Waters Aboriginal Corporation (GLaWAC) has been signed by 13 natural resource agencies and organisations working across Gippsland, helping to integrate water management to deliver shared outcomes. The agreement supports objectives of the Gunaikurnai Whole of Country Plan and will facilitate partnerships in the region. The Bunurong Land Council Aboriginal Corporation was established as a Registered Aboriginal Party in July 2017, helping to support Traditional Owner involvement in water management in the west of the region.

## What is a Strategic Directions Statement?

This Strategic Directions Statement (SDS) articulates the regional context, the shared vision and the strategic water-related outcomes for the Gippsland IWM Forum region.

This SDS includes a list of IWM opportunities, including projects and strategies, developed in collaboration by the Gippsland IWM Forum partners.

Partners of the Forum are committing their organisations to apply their best endeavours to:

* Ensure priority projects and strategies are progressed in line with the shared vision and strategic outcomes of the Gippsland IWM Forum; and to
* Support DELWP to progress priority strategic enablers for IWM in Victoria.

It is envisaged that the SDS will be a living document which will be updated to reflect the current Gippsland IWM Forum’s priorities and opportunities.

Integrated Water Management

Integrated Water Management is a collaborative approach to water planning that brings together organisations that influence all aspects of the water cycle. It has the potential to provide greater value to our communities by identifying and leveraging opportunities to optimise the outcomes of water cycle.

# Enduring collaboration

## How we’re working together

The Gippsland IWM Forum identifies, coordinates and prioritises areas that would most benefit from collaborative and place-based water management planning and delivery.

To ensure IWM is successful and enduring across the region, the Gippsland IWM Forum partners have committed to the promotion of a collaborative and shared values culture within their own organisations and beyond through their work with key water cycle delivery partners and local communities.

The Gippsland IWM Forum is governed by an open and transparent IWM planning process. This process assumes a holistic, whole-of-cycle approach to determining water cycle solutions, considering regulatory accountabilities and service delivery responsibilities.

Each organisation has an important role to play in the decision-making and management of the water, resources and assets for the entire region.

Collaboration across IWM Forum partners will ensure balanced consideration of the complex economic, environmental, cultural and community benefits and impacts associated with the range of proposed IWM projects and work programs.

The Forum will continually collaborate with other organisations outside the Forum to ensure the most benefit can be gained for the community.

The Gippsland IWM Forum partners will continue to work together to build inter-organisational trust and develop productive, enduring relationships to realise the shared vision for the region.

Further information on the IWM Forum’s governance and planning framework is outlined in the Integrated Water Management Framework for Victoria, available at the [Department’s website](https://www.water.vic.gov.au/liveable/resilient-and-liveable-cities-and-towns/iwm-framework) <https://www.water.vic.gov.au/liveable/resilient-and-liveable-cities-and-towns/iwm-framework>

Figure 1: IWM Forum governance structure

Figure 1 IWM Forum governance structure.

For further information please contact the please telephone the DELWP Customer Service Centre on 136 186 or email the DELWP Customer Service Centre <customer.service@delwp.vic.gov.au>

Forum process: Summary of planned phases

| Phase I | Outcomes  Phase I | Participants  Phase I |
| --- | --- | --- |
| Establish  Organisational leaders come together in collaborative IWM Forums and Working Groups to discuss integrated water management challenges, opportunities and priorities for each region | Preliminary work on regional characterisation and collaborative governance  Agree vision, objectives and goals  Agree criteria for selection and prioritisation of IWM opportunities  IWM opportunities identified and prioritised  Collaboratively develop and endorse Strategic Directions Statement for each region | Local governments  Catchment Management Authorities  Water corporations  Traditional Owners  Department of Environment, Land, Water and Planning  Chair  Others as relevant |

| Phase II | Outcomes  Phase II | Participants  Phase II | Phase II  Next 12-18 months |
| --- | --- | --- | --- |
| Planning  Cultivate a collaborative culture to progress IWM opportunities | Co-design and agree on Terms of Reference, governance structure, stakeholder engagement and/or community participatory planning guidance for IWM project/strategy | Collaborative partners  Community representatives  Others as relevant | The feasibility of IWM opportunities will be continually reviewed and assessed in Phase II to confirm the need for specific IWM projects/strategies |
| Progress  Forum Members use best endeavours to progress IWM opportunities to next stage | IWM Project Groups initiate work as per identified project/strategy status, including: feasibility assessment; technical and economic analysis; cost allocation; business case development  Strategic enablers for IWM progressed by DELWP with support from Forum Members  IWM Project Groups report progress to IWM Forums | Collaborative partners  Individual organisations who have committed to a project/strategy  Community representatives  Relevant stakeholders | The feasibility of IWM opportunities will be continually reviewed and assessed in Phase II to confirm the need for specific IWM projects/ strategies |
| Incorporate  Collaborative Partner organisations incorporate relevant elements of IWM in their own plans, guidelines or frameworks | IWM Project Groups to take IWM commitments (projects and strategies) to their Board or Councils for investment endorsement  IWM Project Groups incorporate elements into their own organisational planning systems, e.g. Council and corporate plans, Construction Guidelines, etc.  Report back to IWM Forum | Individual organisations who have committed to deliver a project/strategy | The feasibility of IWM opportunities will be continually reviewed and assessed in Phase II to confirm the need for specific IWM projects/ strategies |
| Realise  IWM benefits are realised following implementation of project/strategy | Application of practical IWM tools and innovative approaches  Additional community value added through participatory planning  Monitoring and evaluation of key measures and outcomes  Economic savings through shared resources, costs, etc.  Improved resilience and liveability of cities and towns | Collaborative partners  Individual organisations who have committed to a project/strategy  Community representatives  Others as relevant | The feasibility of IWM opportunities will be continually reviewed and assessed in Phase II to confirm the need for specific IWM projects/ strategies |

| Phase III | Outcomes  Phase III | Participants  Phase III |
| --- | --- | --- |
| Prepare  IWM Forums prepare to refresh the Strategic Directions Statement | Collaborative partners prepare for next round of IWM Forums  IWM Forums collaboratively review key learnings and outcomes from Phase I & II, including progress on strategic enablers  Next round of IWM opportunity identification  and prioritisation | Collaborative partners |

# Chapter 2 IWM in the Region

Understanding why an integrated approach to water planning and management is critical for the Gippsland IWM Region now and for the future.

## Vision and outcome areas for the Gippsland IWM Forum Region

### Vision

Working together to sustainably manage water for current and future generations

We will work together to create better ways of managing the water cycle by balancing community, cultural, environmental and economic values. Our goal is to support growth and resilience while conserving the unique natural landscapes of Gippsland.

IWM Outcome Areas

The region is seeking to achieve seven key outcomes through IWM. Each of these will have a significant role in shaping the liveability, prosperity and resilience of our cities and towns. These outcome areas provide indicators to assess the effectiveness of the various IWM opportunities, recognising that these outcomes are in themselves co-dependant.

|  | Outcomes  Safe, secure and affordable supplies that are fit for purpose | Outcomes  Effective and affordable wastewater systems | Outcomes  Understand and manage flood regimes to sustain natural systems while minimising adverse impacts | Outcomes  Healthy and valued waterways, wetlands, lakes, coastal environments and groundwater systems | Outcomes  Healthy and valued agricultural, rural and urban landscapes | Outcomes  Community values reflected in place-based planning | Outcomes  Recognise and progress opportunities to enhance jobs, economic benefit and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Objectives | Fit-for-purpose water sources are identified which are most appropriate for uses | Waste water systems are fit for purpose, and exceed public health and environmental outcomes | Our communities are aware of flooding and are actively taking measures to manage their flood risks to minimise the consequences to life, property, community wellbeing, the economy and the environment. | Waterways, coasts and other environmental systems are cared for to become healthier and more resilient | A balance of land uses is achieved between industry, agriculture, environmental and urban uses | The broader community are knowledgeable, engaged, empowered, and working together with responsible agencies | Collaborative partnerships are explored, including with Aboriginal communities and organisations |
| Objectives | Long-term water security underpins planning | System design is flexible and innovative. Decentralised wastewater structures are embraced | Opportunities for use of flood water are investigated | Waterways, wetlands, lakes and coastal environments continue to attract investment and tourism, continue to fulfil their multiple functions, and include cultural heritage values | The long term economic benefits of agriculture are considered against the short-term economics of developing the land for housing, especially high value agricultural land | Traditional Owners and Aboriginal values are acknowledged early and included in project planning, delivery and management | Research is conducted to generate economic growth |
| Objectives | Multi-barrier approach is used to ensure catchments are managed and protected to maintain safe and secure supplies | Onsite wastewater systems are managed during planning, installation and maintenance cycles | Ensure flooding is considered in urban planning and emergency management | Traditional Owner and Aboriginal cultural values, knowledge and practices associated with waterways and landscapes are protected | Resilient and connected waterways that support community linkages to waterways, bays and coastal areas | Planning controls support IWM and are in alignment with community values | Organisations work together to seek additional funding support for IWM in the region |
| Objectives | Water resource resilience for cultural values, industries, and natural environments | Opportunities for waste recovery are explored |  | Waterways and coastal environments are accessibly linked and valued as public open space | Traditional Owner and Aboriginal values are understood and recognised early and included in the project planning and delivery | Communities have a greater understanding of the IWM projects happening in their area and have improved water literacy | Strategic thinking is applied at regional and local scales to support economic growth |
| Objectives | Organisations work together to protect water quality and quantity |  |  | Waterways, coasts and other environmental systems are cared for to become healthier and more resilient | A balance of land uses is achieved between industry, agriculture, and urban uses |  | Actions in Water for Victoria with specific regard to Traditional Owner consultation, engagement, employment, and economic development have been comprehensively implemented |

# Regional context

The Gippsland IWM Forum includes the regions of both South Gippsland Water and Gippsland Water, and roughly lines up with West Gippsland Catchment Management Authority’s border. The region covers an area of approximately 20,000 square kilometres, extending from Wonthaggi in the west to Lake Wellington in the east. Its southern border is the Gippsland Coastline, including Wilsons Promontory, extending north to the Great Dividing Range.

The landscape and climate of the region varies significantly between coastal plains and the forested alpine areas. Rainfall ranges across the region from about 600 mm/y around Sale to over 1500 mm/y on the Mt Baw Baw Plateau, but the region notably benefits from higher rainfall than many other parts of Victoria.

## Population

The region has an estimated population of 220,000, made up of 165,000 in Central and West Gippsland and 55,000 in South Gippsland. The region is forecast to grow to 285,000 by 2040 (215,000 in Central and West Gippsland and 70,000 in South Gippsland). Greenfield developments are both a risk and an opportunity for water management in the region.

The region includes many small to medium sized towns, including popular holiday destinations that receive highly seasonal visitor populations. Key centres in the region include Warragul, Drouin, Moe, Morwell, Traralgon, Sale, Wonthaggi, Inverloch and Leongatha.

Towns on the Melbourne fringe such as Warragul, Drouin and Wonthaggi are growing at a faster rate than the rest of the region, and face pressure from increased water demand and urbanisation of farm land. Parts of the region have relatively high unemployment and an aging population, meaning that affordability and enhancement of liveability are key priorities for areas such as the Latrobe Valley.

## Climate Change

By 2070, daily temperatures across the region are projected to rise by an average of 1.6°C to 2.6°C (median projection). This will be amplified in urban centres due to the prevalence of darker and harder surfaces, leading to environmental and human health impacts. Ensuring the provision of fit for purpose water for the region’s urban greening will be a key priority in enhancing liveability and resilience for the community and environment.

The annual rainfall in the region is predicted to decrease by approximately 4.25 per cent by 2070 – primarily impacting the spring and winter seasons – while there is also an expectation of a year-round increase in temperatures. This presents a challenge for the region, as there will be an increased demand for urban water resulting from population growth together with a hotter drier climate.

Gippsland will also be impacted by sea level rise, with levels expected to rise by 0.33-0.40m by 2070. This may impact on agricultural land as well as coastal towns and ecosystems including estuaries.

Gippsland Information graphic

Population Growth
220,000 Now (2019)
285,000 By 2040 1
30% increase

CHANGE IN RAINFALL
2.2-4.5% decrease2

Temperature
2.1-2.4˚c
increase by 2065 2

WATERWAYS
40,000km of waterways
33% in 'good to excellent' condition 3
53% in ‘moderate' condition 3

1 Victoria in Future (2016)
2 DELWP (2017) Guidelines for assessing the impact of climate change on water availability in Victoria (average for Thomson, Latrobe and South Gippsland river basins)
3 West Gippsland Waterway Strategy 2014-2022


## The case for IWM in the Region

Safe, secure and affordable supplies that are fit for purpose

Gippsland Water and South Gippsland Water provide water supply services to the Forum region. Together, they provide water supply services to approximately 90,000 customers, with a total of 25 water treatment plants in operation across the region. The region is vast and a number of smaller towns in the region are currently unserviced.

A range of water sources are utilised by the providers, including river and groundwater sources, with both South Gippsland Water and Gippsland Water utilising connections to the Melbourne system as part of their supply portfolios. Both providers expect to be able to provide secure water supplies beyond 2065 in most of their supply systems, with the exception of the growth areas of Warragul and Drouin as outlined in the Gippsland Urban Water Strategy.

A decline in local major industries such as mining, and power generation has resulted in a corresponding decline in major water users. The need for water to rehabilitate coal mines into pit lakes after their closure is currently being considered and will be better understood in the years ahead and likely to be a challenge for the region.

However, water demands related to tourism and snow-making are emerging, which are substantial   
yet seasonal in nature.

Effective and affordable wastewater systems

There are reticulated sewage systems to approximately 70,000 properties across the region. These systems collect and treat sewage at 25 wastewater management facilities . A significant number of wastewater management schemes have been identified as requiring works to adequately service expected populations over the next 10 years.

In addition to these facilities there are many small towns in the region which typically use onsite septic systems to treat their wastewater. Small towns wastewater management is a common issue across the region from an environmental, health, technical, governance and financial perspective. For example, septic systems in Declared Water Supply Catchments can increase the risk to public health if not managed pro-actively. There are particular pressures on septic systems from seasonal populations in coastal towns, resulting in impacts on groundwater.

There are currently 13 water recycling schemes in the Gippsland Forum area (9 in the Gippsland Water area and 4 in the South Gippsland Water area). These predominantly provide class B or C recycled water to agribusiness and irrigation customers. A class A recycled water scheme is in operation at the Gippsland Water Factory, providing recycled water to Australian Paper.

Understand and manage flood regimes to sustain natural systems while minimising adverse impacts

Floodplains are a valued part the ecosystem in the Gippsland region. The ‘flooding’ process provide essential nutrients to the region’s agricultural land.

In an urban context, flooding is more of a challenge. Many of the urban centres in the region are located   
on waterways and floodplains. The Gippsland area has experienced damaging flood events in the past, notably in May/June 2012. Climate change will bring more intense rainfall events which will create further flooding challenges. It is essential to manage the economic, social, environmental and cultural values from floodplains in a balanced way whilst also having regard for their inherent disadvantages and risks. This will be particularly relevant in the context of increased extreme rainfall events, urban growth and increased imperviousness in catchments.

Healthy and valued waterways, wetlands, lakes, coastal environments and groundwater systems

There are over 40,000kms of waterways in the region which flow to the Victorian coast, discharging either through the Gippsland Lakes, to coastal inlets and embayments (Anderson Inlet, Shallow Inlet, Corner Inlet) or directly to Bass Strait and the Southern Ocean.

In the north of the region, the Thomson, Macalister, Avon and Perry rivers flow from alpine areas and the forested slopes of the Great Dividing Range. In the central part of the region is the Latrobe River. The catchment of the Latrobe River features areas of remnant forest through the Strzelecki Ranges, Baw Baw Plateau and the Great Dividing Range, where tributary streams rise and flow to the Latrobe River and ultimately to Lake Wellington. In South Gippsland, the waterways are short and flow from the Strzelecki Ranges through productive agricultural land as well as areas of high conservation value.

The region includes several internationally recognised environments including the Gippsland Lakes RAMSAR site, Wilsons Promontory National Park and the Tarra Bulga National Park.

West Gippsland Catchment Management Authority have identified a series of priority rivers and environments in the Gippsland region in their Waterways Strategy. The strategy recognises that the health of the waterways in West Gippsland is critical to the sustainability of the region: “Waterways in the region support the regional and state economy by providing water for agriculture, industry and for urban and rural communities, including part of Melbourne’s water supply. Our iconic coastal wetlands and inlets including the Gippsland Lakes, Anderson Inlet and Corner Inlet attract tourists to our beautiful region. Waterways are also valued for the recreational opportunities they provide, their cultural values and their role in the landscape supporting a range of ecological processes.”

Healthy and valued agricultural, rural and urban landscapes

Healthy landscapes are valued in the Gippsland region. Many national and state parks as well as state forests are frequently visited and viewed as important to the character of the region.

Urban landscapes also play a key role for liveability and resilience. Sporting grounds in both major centres as well as smaller rural towns have a great importance placed on them within communities. Direct use of stormwater as a resource to support local landscapes is relatively undeveloped in Gippsland with some exceptions such as use of stormwater from Lake Guthridge in Sale for irrigation of parklands.

Urban waterways are viewed as key landscapes in the built environment by councils in the region. Latrobe City’s community vision recognizes ‘it will be critical for future development to be sensitive to natural resources such as water. For example, carefully planned integration of our urban waterways will ensure greater outcomes for water quality, biodiversity links, and passive and active recreation links between communities.’

Community values reflected in place-based planning

The relationship between public health and wellbeing, and the environment is becoming increasingly recognised as an area of importance. The creation of greener neighbourhoods and providing residents with access to waterways and green space has the potential to support environmental, social and economic outcomes. New development is an opportunity to integrate community values into the evolution of towns and places, while engagement of existing communities is also essential in the redevelopment and evolution of existing centres.

Engagement with Traditional Owners is a key focus for the region. The Gippsland region covers the traditional lands of Gunaikurnai and Bunurong people, and the many rivers and lakes in the area contain a rich and diverse range of important cultural heritage sites, such as the Tarra Bulga National Park, where in the Gunaikurnai creation story, Borun travelled carrying his canoe from the mountains to the sea.

Recognise and progress opportunities to enhance jobs, economic benefit and innovation

Dairy farming and forestry are major industries in the region together with a range of other agricultural activities including beef, lamb, wine, cheese and vegetable production.

Water plays a key role in supporting industry in the region. Power generation and paper manufacturing industries have traditionally been large water users in the region, and water supply could be an attractor for other large industries in the future. The significant tourism and recreation economy in the region is also strongly linked to the health and amenity provided by the region’s waterways, lakes and towns.

## Success stories

There has been a lot of great work over the years by state and local government, regional agencies, communities, planning bodies and boards to identify what we need to do to address the challenges and opportunities in the region. Three recent examples of successful IWM projects are outlined below.

### Supporting recreational areas in Foster using recycled water

Collaboration between South Gippsland Water, South Gippsland Shire Council and the community has resulted in the delivery of a sustainable and affordable water supply to the Foster Golf Club and the Foster Recreation Reserve. Both green spaces will be connected to a transfer pipeline from Foster Wastewater Treatment Plant and are expected to utilise 45ML of recycled water a year.

Maintenance of attractive and high-quality recreation spaces like the Golf Club is important for the success of small towns like Foster, that depend on tourism and visitors returning again and again. In the past, during summer, the peak tourist season, the fairways have died off without irrigation and become very patchy. This can leave a lasting impression on visitors. The Foster Golf Club President Greg Cox recognizes the direct economic benefits for the club and for the wider town that come from a new supply: “For us it will mean better visitor numbers, which means better income. The more people we’ve got coming to play at the club, the more revenue is being generated for the town too.”

### Neerim South wetland

This wetland was born out of the vision of a forward-thinking community. Identified as the highest priority by the Neerim South community in their community plan, the wetland was made possible through the work of the Neerim South Wetland Working Group and support from the community. Schools, community groups, local businesses and individuals all contributed to the scheme voluntarily. Project delivery was supported by Melbourne Water, Victorian State Government and Baw Baw Shire Council.

It was recognised early that a wetland would not only have environmental and amenity benefits, but it could capture and cleanse stormwater that could be harvested as an irrigation supply for Neerim South Recreational Reserve and Neerim South Secondary College grounds. The construction of the wetland also offered opportunities to create walking tracks, a place for social and educational events and an attractive natural area for the town.

The wetland was completed in 2015 and ongoing planting, education and community activities are occurring.

### Bellbird Park sustainable water use

A partnership between Gippsland Water, Baw Baw Shire Council, Bellbird Park Committee of Management and local sporting clubs has delivered a secure alternative irrigation water supply for Bellbird Park in Drouin. A prominent part of the community and landscape, the park is a major sport and recreation facility which has about 130,000 visitors per year. Rainwater harvesting was not providing sufficient water for summer irrigation, and as a valued community asset it was important to utilise an alternative water supply to keep the park green and playing surfaces usable.

In 2016 infrastructure was installed to treat and use wastewater from the nearby Gippsland Water wastewater treatment plant for irrigation at the park. This has resulted in a superior playing surface, as well as cost savings and potable water savings of up to 36ML a year. It has also provided environmental benefits through reduced wastewater discharge to the environment.

# Chapter 3 IWM opportunities

A portfolio of IWM projects and strategies for which IWM collaborative partners have committed themselves to applying their best endeavours to progress.

## State-wide and region specific initiatives

The IWM Forums were established in Victoria to identify, coordinate and prioritise place-based and catchment-wide opportunities that would most benefit from collaborative water cycle planning and management. This document outlines priority IWM opportunities for the Gippsland region. These include both strategies that will direct IWM in the region and specific projects that will deliver on-the-ground outcomes.

Alongside these opportunities, the IWM Forum Members identified a range of barriers that could prevent effective implementation of IWM across regional Victoria and metropolitan Melbourne.

The DELWP Water and Catchments Group is responsible for addressing these barriers to implementation in a holistic manner alongside relevant government organisations involved in land use planning and land management.

Advisory groups drawing on industry and independent expertise support DELWP in the development and implementation of strategic initiatives to fill knowledge gaps and address issues identified through the IWM Forum process.

Barriers to IWM are reviewed, with local implications and potential state-wide resolutions discussed. These discussions will help DELWP determine potential options for policy reform and associated areas of impact for industry sectors and organisations.

Advisory groups provide advice regarding areas where planning, water, local government and other arms of government need to work more collaboratively to maintain and enhance the liveability and resilience of Victoria’s cities and towns.

IWM framework at a State-wide and regional level

IWM framework at a State-wide and regional level 

State-wide initiatives
Enabling Policy
Principles or rules that put IWM into practise

Enabling Frameworks
Guidance on analysis, design and delivery of IWM opportunities

Region specific opportunities
Strategies
High-level directions designed to achieve IWM outcomes over a defined time-period for a defined geographic location.

Projects
Planned set activities to be executed over a defined period and within certain cost to achieve a goal.

For further information please contact the please telephone the DELWP Customer Service Centre on 136 186 or email the DELWP Customer Service Centre <customer.service@delwp.vic.gov.au>

## IWM opportunities: How were they selected?

IWM opportunities that link to and address IWM challenges for the region were identified and developed by the nominated practitioners of participating organisations. The process was an iterative, transparent and inclusive.

This list of opportunities is dynamic and will be reviewed and updated as required to reflect the Forum’s priorities. The long list of projects can be found in the appendix.

The IWM opportunity prioritisation process

Stage 1: Opportunity Identification

A series of stakeholder meetings were held to identify IWM opportunities.

Stage 2: Opportunity development

Stakeholders completed further work to develop and refine the opportunity concepts.

Stage 3: Evaluation of opportunities

A workshop was held with practitioners to evaluate opportunities by considering:

* contribution to IWM strategic outcomes
* level of urgency and timeframes
* integration and collaboration
* regional contribution
* organisational commitment

Based on this self and group assessment priority projects and strategies we included in the draft SDS

Stage 4: Selection of priority opportunities

The Forum further reviewed the opportunities to prioritise opportunities that were strategic and would demonstrate the value of IWM whilst having multiple benefits for the community and the environment.

## Impact of IWM opportunities on the Forum’s strategic outcomes

Impact of IWM opportunities on the Forum's strategic outcomes
Two Graphs
For further information please contact the please telephone the DELWP Customer Service Centre on 136 186 or email the DELWP Customer Service Centre <customer.service@delwp.vic.gov.au>

## IWM project & strategy opportunities – overview

A summarised list of priority IWM opportunities is shown in the table below, with more detail in the following section. Please note that this list is dynamic and will continue to be updated to reflect the current Gippsland IWM Forum’s priorities and opportunities.

Partners of the Forum are committing their best endeavours to ensure priority projects and strategies are progressed in line with the shared vision and strategic outcomes of the Gippsland IWM Forum.

| IWM opportunity | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation | Location | Scale | Collaborative partners | Status | Timing |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Council IWM plans | Impact | Impact | Impact | Impact | Impact | Impact | Impact | Central and south Gippsland | Inter-forum | Bass Coast Shire Council, Baw Baw Shire Council,  Latrobe City Council, South Gippsland Shire Council, Wellington Shire Council | 1 | 2 years |
| Repurposing dams at Little Bass, Coalition Creek, Ness Gully and Bellview Creek | Impact | Impact | Impact | Impact | Impact | Impact | Impact | South Gippsland | Sub-catchment | South Gippsland Water | A | 2-5 years |
| Kernot Lake water supply | Impact | No impact | No impact | Impact | Impact | Impact | Impact | Morwell | Lot scale | Latrobe City Council | A | 2 years |
| Greening sporting reserves in  Baw Baw Shire | Impact | No impact | No impact | No impact | Impact | Impact | No impact | Warragul, Drouin, Yarragon, Trafalgar | Sub-catchment | Baw Baw Shire Council | 1 | 1-2 years |
| Maffra stormwater harvesting | No impact | No impact | Impact | No impact | Impact | Impact | Impact | Maffra | Town/City | Wellington Shire Council | A,B | 2 years |
| South Dudley wetland | No impact | No impact | Impact | Impact | Impact | Impact | Impact | South Dudley | Lot scale | Bass Coast Shire Council | A,B | 6-9 Months (once funds are secured) |
| Wonthaggi stormwater harvesting | Impact | Impact | Impact | Impact | Impact | Impact | Impact | Wonthaggi Recreation Reserve | Lot scale | Bass Coast Shire | A,B, C,D | 9-12 months (once funds are secured) |
| Water for economic growth in Central Gippsland | Impact | No impact | Impact | Impact | Impact | Impact | Impact | Central Gippsland | Forum area | Gippsland Water | 1 | 0-2 years |
| Mt Baw Baw water storage for snow making | Impact | No impact | No impact | No impact | Impact | Impact | Impact | Mt Baw Baw | Sub-catchment | Southern Alpine Resorts Management Board | A | 0-2 years |
| Stormwater pollution management at Willow Grove | No impact | No impact | No impact | Impact | Impact | Impact | Impact | Willow Grove | Lot scale | Gippsland Water | 1 | 1-2 years |
| Bass Coast Biolinks | No impact | No impact | No impact | Impact | Impact | Impact | Impact | Bass Coast Shire | Inter-forum | Bass Coast Shire | A,B, C,D | 1-5 years |
| Waterway health program | No impact | No impact | Impact | Impact | Impact | Impact | Impact | Gippsland | Forum area | West Gippsland CMA | A,B, C,D | Ongoing |
| Integrated service enhancement for Leongatha and nearby towns | Impact | No impact | No impact | No impact | No impact | Impact | Impact | South Gippsland | Sub-catchment | South Gippsland Water | A | 5 years |
| Recycled water for road grading investigation | Impact | Impact | No impact | No impact | No impact | Impact | Impact | South Gippsland Shire | Sub-catchment | South Gippsland Shire | A | 2-5 years |
| Warragul and Drouin long term water supply security | Impact | No impact | No impact | No impact | Impact | Impact | Impact | Warragul and Drouin | Town/City | Gippsland Water | 1 | 1 -5 years |

The status of each IWM opportunity included in the Priority Portfolio reflects the phase of work to be undertaken in this time period.

\* The Wurundjeri Land and Compensation Cultural Heritage Council Aboriginal Corporation will remain informed of progress related to this IWM opportunity.

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

## Priority Portfolio of IWM projects and strategies

### Flagship opportunities

These opportunities have been selected to demonstrate the value of IWM, and the IWM Forum process in a short time frame, as well as to act as a catalyst for other IWM projects in the region.

### Action G1

#### Council IWM plans

IWM plans will take a holistic look at the water cycle management in each council and provide the road map to make sound investments in opportunities that contribute to secure water supplies, valued landscapes and waterways, as well as reducing flooding and providing economic benefits. All plans will include Traditional Owner engagement. Each council will lead the development of their own IWM plan, and work closely with the implementation partners.

These plans will raise the profile of IWM amongst councils and the community to ensure water management is included in the decision-making process.

#### Unique value

As some plans will progress faster than others learning can be shared across organisations and provide capacity-building benefits for IWM opportunities. The plans will contribute substantial benefits to the Gippsland Region

#### Next steps

1. Implement learnings from the IWM plan workshop
2. Internal planning and budgeting
3. Continuously share learnings

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | Impact | Impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | 1 |
| Lead Agency | Bass Coast Shire Council, Baw Baw Shire Council, Latrobe City Council, South Gippsland Shire Council and Wellington Shire Council |
| Implementation Partners | Bunurong LCAC, GLaWAC, Gippsland Water, South Gippsland Water, West Gippsland CMA, DELWP |
| Location | Central, west and south Gippsland |
| Timeframe | 2 years |
| Scale | Forum area |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G2

#### Repurposing dams at Little Bass, Coalition Creek, Ness Gully and Bellview Creek

Following the upgrade of water supply infrastructure in the region, several dams serving the towns of Poowong, Loch, Nyora and Korumburra will be available for repurposing. A large variety of future uses are possible such as community recreational uses, stormwater harvesting for fit-for-purpose supplies, commercial or industrial use. Repurposing these dams may also support a range of agricultural, environmental and cultural benefits.

This project aims to develop a list of opportunities with stakeholders, study the alternatives available and determine the best future use of the dams, the water allocations and land around the storages.

#### Unique value

Working with stakeholders and integrating community values into planning underpin this opportunity. This truly collaborative project will demonstrate the benefits that come from collaboration.

#### Next steps

1. Commence stakeholder discussions
2. Identify a long list of potential opportunities for preliminary evaluation

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | Impact | Impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | *A* |
| Lead Agency | South Gippsland Water |
| Implementation Partners | South Gippsland Shire Council, PPWCMA, West Gippsland CMA, Southern Rural Water, Traditional Owners, local communities and businesses and surrounding properties, DELWP. |
| Location | Little Bass Reservoir, Coalition creek reservoir, Ness gully, Bellview Creek reservoir |
| Timeframe | 2-5 years |
| Scale | Sub-catchment |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G3

#### Kernot Late water supply

Kernot Lake, an important amenity feature in the town of Morwell, once kept topped up by discharge from a now closed power station, may run dry if action is not taken. Surrounded by Immigration Park, Federation TAFE and the newly established High Tech precinct, Kernot Lake is located adjacent to residential housing and is visible from Princes Drive, an area of high density traffic. Maintaining the current amenity of this asset is essential to the pride of the community of Morwell and the broader Latrobe Valley. Timely development of an options analysis will determine alternative water supplies and effective treatments to improve water quality that could provide the best balance of costs and benefits. Potential options include stormwater, raw water and recycled water. Kernot Lake is connected to Waterhole Creek, and this project will build on the Waterhole Creek Management Plan to enhance both waterbodies.

#### Unique value

This is an opportunity to demonstrate the value in examining all options for water supply and water quality and have community values reflected in place-based planning.

#### Next steps

1. Consult with stakeholders
2. Feasibility study

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | No impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A |
| Lead Agency | Latrobe City Council |
| Implementation Partners | Gippsland Water, GLaWAC, Southern Rural Water, West Gippsland CMA, user groups |
| Location | Morwell |
| Timeframe | 2 years |
| Scale | Lot scale |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Increased community wellbeing through improved liveability

In Gippsland green open spaces such as parks and sporting reserves can be the heart of the community. Keeping these spaces irrigated with fit for purpose water will enhance the liveability of the region and have positive impacts on residents' wellbeing.

### Action G4

#### Greening sporting reserves in Baw Baw Shire

Many sporting reserves in Baw Baw are irrigated with potable water supply. BBSC want to investigate alternative water supplies like groundwater, rainwater harvesting, and stormwater harvesting. Using fit for purpose sources will have economic benefits, secure water supplies, benefit the environment and achieve community recreation outcomes.

This project will build on the preliminary work done with Gippsland water for existing sporting reserves, as well as use the precinct structure plans done for Warragul and Drouin to bring stakeholders together to identify alternative water supply opportunities for open space irrigation in new development areas.

#### Next steps

1. BBSC and Gippsland Water to discuss previous work completed
2. Identify top priority existing recreation reserve
3. Investigation of requirements to secure alternative water supply
4. Develop a strategy to ensure IWM principles are applied when new sporting reserves are at design stage

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | No impact | No impact | Impact | Impact | No impact |

| Subject | Details |
| --- | --- |
| Status | 1 |
| Lead Agency | Baw Baw Shire Council |
| Implementation Partners | Gippsland Water, Sporting Reserve Committees, Sporting Clubs, GLaWAC. Bunurong LCAC |
| Location | Yarragon, Trafalgar, Warragul and Drouin |
| Timeframe | 1-2 years |
| Scale | Sub-catchment |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G5

#### Maffra stormwater harvesting

The township of Maffra has the opportunity to explore harvesting stormwater for irrigation. Maffra currently relies on water from the Macalister Irrigation District to water open spaces and utilising an alternate source would increase the town’s water security.

Stormwater harvesting also addresses issues with overland flows from farms that is identified in the local floodplain management strategy. Some options to be evaluated include detention basins and inland storage.

#### Next steps

1. Work with project partners to scope various options
2. Select the preferred option and seek funding

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | No impact | No impact | Impact | No impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A |
| Lead Agency | Wellington Shire Council |
| Implementation Partners | West Gippsland CMA, GLaWAC, Gippsland Water, Southern Rural Water, EMV |
| Location | Maffra |
| Timeframe | 2 years |
| Scale | Town/City |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G6

#### South Dudley wetland

This project proposed to redevelop the area around South Dudley and the Rescue Station as a stormwater treatment wetland system. The wetland would be positioned in the area that connects the Wonthaggi drain to the Wonthaggi motocross track. This large area of open space is valuable for habitat for wildlife and with integrated design it could also become an area for filtration of stormwater.

A concept design has been developed to incorporate a stormwater wetland system comprising of sediment basins and macrophyte zones to achieve both improved biodiversity and stormwater management outcomes.

#### Next steps

1. Collaborate and scope the project
2. Secure funding
3. Complete detailed design

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | No impact | No impact | Impact | Impact | Impact | Impact | No impact |

| Subject | Details |
| --- | --- |
| Status | *A,B* |
| Lead Agency | Bass Coast Shire Council |
| Implementation Partners | South Gippsland Water, West Gippsland CMA, Bunurong Land Council Aboriginal Corporation, Parks Victoria, Sporting groups |
| Location | South Dudley, Wonthaggi |
| Timeframe | 6-9 Months (once funds are secured) |
| Scale | Lot scale |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G7

#### Wonthaggi stormwater harvesting

A stormwater harvesting scheme is proposed in Wonthaggi to provide two large ovals with irrigation water. The scope of the project involves the construction and installation of a one megalitre underground stormwater storage facility, the interception of feed in pipes, mechanical water treatment devices, drains and the construction of two bunds (small dams).

The system will be designed to allow storm water to pass into the underground storage facility directly and via an above ground bund.

The above ground bund stores four megalitres for several hours as an above ground pool and ground soak. When the underground storage and first bund are at capacity, overflow is transferred to a second bund which overflows via pipeline to a natural wetland area.

The system is designed to collect water for irrigation use and manage the progress of local flood events. Stored water will be used to irrigate ovals that currently use potable water.

#### Next steps

1. Secure external funding to begin construction

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | Impact | Impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A,B,C,D |
| Lead Agency | Bass Coast Shire Council |
| Implementation Partners | South Gippsland Water, West Gippsland CMA, Bunurong Land Council Aboriginal Corporation, Sporting groups |
| Location | Wonthaggi Recreation Reserve |
| Timeframe | 9-12 months (once funds are secured) |
| Scale | Lot-scale |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Achieving the best outcomes in a changing context

With change comes the opportunity to do things better. There are many shifts currently taking place across Gippsland including changes to industry, populations, and climate. The following projects will use IWM to create an opportunity for better outcomes in the face of these major changes.

### Action G8

#### Water for economic growth in central Gippsland

This project will further explore the high-level opportunities for leveraging the water resources of the Latrobe system for the benefit of the broader Gippsland economy, including the attraction of major industry and high-demand water users. Through the development of a water resources and future infrastructure prospectus, this proposal aims to put water as a key enabler of economic growth, particularly in the Latrobe Valley, where there is a concentration of available water resources.

#### Next steps

1. Undertake workshop with implementation partners to identify demand and opportunities
2. Explore trade or supply by agreement options
3. Implement where agreement is reached

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | Impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | 1 |
| Lead Agency | Gippsland Water |
| Implementation Partners | Latrobe City Council, Baw Baw Shire Council, New industry (through LVA and RDV), GLaWAC, Southern Alpine Resort Management Board, West Gippsland CMA, SRW. |
| Location | Central Gippsland (Yarragon to Rosedale corridor) |
| Timeframe | 0-2 years |
| Scale | Forum area |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G9

#### Mt Baw Baw water storage for snow making

New snow making technology enables snow making at any temperature, and Mt Baw Baw needs to increase its storage capacity to supply water for snow making throughout the winter. This will support recreational activities throughout the winter season and will also support local economies.

Current concepts include above ground and in-ground storage of 10 ML, and a water retention basin bellow the village. Southern Alpine Resort Management Board will work with the collaborative partners to find a solution that provides the most overall benefits whilst meeting regulations.

#### Next steps

1. Finalise commitment and funding from project partners
2. Commission work and undertake feasibility study
3. Depending on the outcomes of item 2, a detailed design and business case may follow

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | No impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A |
| Lead Agency | Southern Alpine Resort Management Board |
| Implementation Partners | SRW, West Gippsland CMA, Gippsland Water, Baw Baw Shire Council, Latrobe City Council, GLaWAC |
| Location | Mt Baw Baw |
| Timeframe | 0-2 years |
| Scale | Sub-catchment |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G10

#### Stormwater pollution management at Willow Grove

Willow grove is within a drinking water catchment. Significant water quality improvements could be made by improving stormwater runoff.

Currently urban storm water flows down a short, grazed, grassy gully into Blue Rock Lake at Willow Grove. The project seeks to design and install vegetation and cattle excluding fences to intercept and reduce pollutants from entering Blue Rock Lake. This will become more important as the volume of urban stormwater increases.

The planning application for development at Willow Grove is being done currently and nearing completion, therefore the opportunity needs be taken now to influence it.

#### Next steps

1. Coordinate meeting with implementation partners
2. Seek resource support from partners

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | No impact | No impact | No impact | Impact | Impact | No impact | No impact |

| Subject | Details |
| --- | --- |
| Status | 1 |
| Lead Agency | Gippsland Water |
| Implementation Partners | Baw Baw Shire Council, West Gippsland CMA. Southern Rural Water, GLaWAC, Tanjil Landcare |
| Location | Short stretch of land between Willow Grove and Blue Rock Lake |
| Timeframe | 1-2 years |
| Scale | Lot scale |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Strengthening Gippsland’s natural assets for future generations

Natural assets such as waterways and coasts are part of the unique character of Gippsland and need to be protected for future generations. Through IWM the following projects will strengthen natural assets and ensure they are healthy and valued.

### Action G11

#### Bass Coast Biolinks

This project seeks to increase the amount of native vegetation cover in Victoria's southeast region through a network of biolinks connecting open green spaces and wildlife corridors through the landscape. This will be done by creating and enhancing vegetated riparian zones to capture, filter and retain water in the landscape, thereby providing habitat for birds, fish and animals, improving water quality, and mitigating flood related issues.

The Bass Coast Biodiversity Biolinks Plan was completed in 2018 and sets out a plan for riparian enhancement across the shire. The project is now in implementation phase. A collaborative approach will be taken to the implementation, with learnings shared between project stakeholders and other regional parties. By working together, a consistent approach to biolinks implementation will be created. This will be particularly important where biolinks cross local government boundaries.

Bass Coast Shire Council will engage with stakeholders and the community to develop a shared vision and prepare a draft plan of implementation.

#### Next steps

1. Implement the Biodiversity Biolinks Plan and work with surrounding regions to join projects together.

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | No impact | No impact | No impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A,B,C,D |
| Lead Agency | Bass Coast Shire Council |
| Implementation Partners | Bunurong LCAC, West Gippsland CMA, neighbouring councils, Landcare, community |
| Location | Bass Coast Shire |
| Timeframe | 1-5 years |
| Scale | Inter-forum |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G12

#### Waterway Health Program

The West Gippsland Catchment Management Authority Waterway Health Program protects and enhances priority waterways across their region, leading to better water quality and improved biodiversity outcomes.

The program will benefit from an IWM perspective and greater collaboration with project partners. Opportunities exist to extend the program in water supply catchments as this would provide benefits to waterway health and to treatment costs at downstream water supply treatment facilities.

#### Next steps

1. Continue implementation with project partners and explore options for greater integration

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | No impact | No impact | Impact | Impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A,B,C,D |
| Lead Agency | West Gippsland Catchment Management Authority |
| Implementation Partners | GLaWAC, Bunurong LCAC, land owners, local government, South Gippsland Water, Gippsland Water |
| Location | Gippsland |
| Timeframe | Ongoing |
| Scale | Forum area |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Driving economic opportunities for Gippsland

Water is a key enabler for economic opportunities, these projects will use an integrated approach to drive opportunities through the sustainable management of water.

### Action G13

#### Integrated service enhancement for Leongatha and nearby towns

The small South Gippsland towns of Meeniyan and Dumbalk have separate water supply systems comprising raw water pump stations, water treatment plants and reticulation systems. The towns are supplied from the Tarwin River and water quality for the towns is protected through a declared water supply catchment covering a significant part of the shire. Planning and development controls apply in the declared catchment.

The project aims to evaluate connection of Meeniyan and Dumbalk to the Leongatha water supply to eliminate the declared catchment with potential benefits that include: reduced cost to South Gippsland Water customers, reduced planning and development constraints benefiting the region.

#### Next steps

1. Develop options sufficiently for an economic analysis of alternatives considering all potential costs and benefits across multiple stakeholders
2. Economic analysis to determine whether there is a business case for change

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | No impact | No impact | No impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A |
| Lead Agency | South Gippsland Water |
| Implementation Partners | South Gippsland Shire council, West Gippsland CMA, DELWP, local agricultural businesses. |
| Location | Koonwarra, Meeniyan and Dumbalk. |
| Timeframe | 5 years |
| Scale | Sub-catchment |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G14

#### Recycled water for road grading investigation

South Gippsland Shire Council (SGSC) has over 1,200km of unsealed roads that require water for road grading to ensure agreed levels of service are maintained. Currently potable water is used, and the potential for alternate water sources such as class B and/or C recycled water from South Gippsland Water’s waste water treatment plants will be explored among other alternate sources.

It is proposed to initially undertake a feasibility study to determine if a business case exists for this project to proceed to a pilot study.

#### Next steps

1. Conduct a feasibility study and develop a business case
2. Undertake a pilot study to determine if the project is viable and produces the level of service required by SGSC Asset Management Plan

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | Impact | No impact | No impact | No impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | A |
| Lead Agency | South Gippsland Shire Council |
| Implementation Partners | South Gippsland Water, Bunurong LCAC, VicRoads |
| Location | South Gippsland Shire |
| Timeframe | 2-5 years |
| Scale | Sub-catchment |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

### Action G15

#### Warragul and Drouin long term water supply security

Gippsland Water’s currently held entitlement to water in the Tarago River is insufficient to meet peak demands and projected growth. Currently water is purchased each Summer from Melbourne system entitlement holders under a temporary arrangement and sourced from Tarago Reservoir. A long term sustainable strategy is required to provide water supply security to this rapidly growing urban area. Major augmentation options are available and will be necessary, but the implementation costs are likely to be significant. There may be opportunities to reduce or defer costs by implementing potable water substitution initiatives, for example alternative supplies for parks, recreation reserves and industry.

#### Next steps

1. Undertake workshop with implementation partners to identify opportunities
2. Assess opportunities as part of long term system augmentation strategy to identify those that are feasible
3. Implementation

|  | Strategic outcome  Safe, secure and affordable supplies in an uncertain future | Strategic outcome  Effective and affordable wastewater systems | Strategic outcome  Opportunities are optimised to manage existing and future flood risks and impacts | Strategic outcome  Healthy and valued waterways and marine environments | Strategic outcome  Healthy and valued urban and rural landscapes | Strategic outcome  Community values are reflected in place‑based planning | Strategic outcome  Jobs, economic growth and innovation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Status** | Impact | No impact | No impact | No impact | Impact | Impact | Impact |

| Subject | Details |
| --- | --- |
| Status | 1 |
| Lead Agency | Gippsland Water |
| Implementation Partners | Baw Baw Shire Council, Community, DELWP Water and Catchments, GLaWAC, Major Industry (new and existing). |
| Location | Warragul and Drouin |
| Timeframe | 1-5 years |
| Scale | Town/City |

Project opportunity status

Concept & feasibility = A, Business case = B, Detailed design = C, Implementation = D, Commission = E, Benefit realisation = F.

Strategy opportunity status

Concept = 1, Commitment = 2, Prepare draft = 3, Consult & finalise = 4, Implement = 5, Evaluate = 6.

# Appendix

## Additional IWM opportunities in the Gippsland Region

| Project | Collaborative partners |
| --- | --- |
| Collaborative Domestic Wastewater Management Plan | Wellington Shire Council |
| Establishment of waterway buffers in subdivisions and developments | West Gippsland CMA |
| Flooding Creek Linear Park | Wellington Shire Council |
| Dams in recreation reserves safety compliance | Latrobe City Council |
| Reduce impacts of urban development on water quality | West Gippsland CMA |
| Fit for purpose use of ground water and unutilised water resources | Gippsland Water |
| Drought water supplies for select green community assets | Gippsland Water |
| Firmins Lane Morwell industrial precinct servicing | Gippsland Water |
| Repurposing Inverloch Basin | South Gippsland Water |
| Servicing Strategy – Wonthaggi North Development Precinct | South Gippsland Water |
| Alternative water for filling and maintaining water bodies | Latrobe City Council |
| Alternative water use at Celery farm | South Gippsland Shire Council |
| Improve Water Literacy in Gippsland | Baw Baw Shire Council |
| Exploration of the cost of services for out of sequence development | Latrobe City Council |
| Investigate opportunities to utilise greywater being discharged in unsewered towns | Baw Baw Shire Council |
| Traralgon Creek Retarding Basin | West Gippsland CMA |
| Fit-for-purpose rural supplies for Toora | South Gippsland Water |
| Urban waterway transformation | Latrobe City Council |
| Alternative water for recreation reserves | Latrobe City Council |
| Water supplies for Meeniyan and Dumbalk | South Gippsland Shire Council |
| Wetland maintenance and design | Latrobe City Council |
| Stockyard Creek transformation study | South Gippsland Shire Council |

## References

* + - * 1. State Government of Victoria (2016) Climate Ready Victoria. Department of Environment, Land, Water and Planning. Available at the [Department’s website](https://www.climatechange.vic.gov.au/information-and-resources): <https://www.climatechange.vic.gov.au/information-and-resources>
        2. South Gippsland Water (2017) Urban Water Strategy, Gippsland Water (2017) Urban Water Strategy
        3. South Gippsland Shire Council (2015) Seasonal Population Impacts on Coastal Towns.
        4. West Gippsland Catchment Management Authority (2014) Waterways Strategy.
        5. Gippsland Water (2017) Urban water strategy.

## Glossary

**Bunurong LCAC** Bunurong Land Council Aboriginal Corporation

**CMA**  Catchment Management Authority

**DELWP**  Department of Environment Land Water and Planning

**EMV** Emergency Management Victoria

**GLaWAC** Gunaikurnai Land and Waters Aboriginal Corporation

**LVA** Latrobe Valley Authority

**RDV** Regional Development Victoria

**SRW** Southern Rural Water