



STORMWATER MANAGEMENT PLAN 2024-2034

Overview



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Introduction

Stormwater management is an integral part of sustaining our natural environment, upon which our economy, health, wellbeing and lifestyle depends.

Yarra Ranges Council has developed the Stormwater Management Plan 2024-2034. This plan aims to strategically manage flood risks while also protecting and maintaining the natural water cycle and the health of our waterways.

It seeks to provide the community with a collaborative and balanced approach to the management of stormwater infrastructure, to ensure sustainability and resilience.

Our context

Yarra Ranges is the largest local government area in Melbourne, covering 2,450 square kilometres. Our municipality is a unique blend of protected forests in the upper catchment and a mix of rural and urban areas.

Home to over 159,000 residents, Yarra Ranges is expected to grow to 180,000 by 2041. This growth will primarily occur in the western urbanised areas, such as Lilydale, Chirnside Park, Mooroolbark, and Kilsyth, where development opportunities and infrastructure are more concentrated.

When Yarra Ranges was first developed, it was largely a farming and mining area with plenty of open spaces to absorb rainwater or for it to flow into gullies and creeks. However, with increasing development, there is now less open space and more hard surfaces like roofs and roads. As a result, rainwater flows more quickly into underground drainage systems and then into our waterways.

With the increase in extreme weather events, our underground drainage systems sometimes struggle to handle the volume of rainwater. This can lead to localised flooding as water follows its natural paths through the landscape.

Council manages a drainage network spanning over 790 km, including more than 29,000 pit structures and over 20 km of minor culverts.

Additionally, other authorities also manage drainage within Yarra Ranges. The Department of Transport and Planning (DTP) oversees drains on major roads, while Melbourne Water manages over 1,962 km of waterways, 64 km of open channels, and 42 km of underground drainage in our municipality.



Challenges of stormwater management



Flooding

Flooding affects many people and properties within Yarra Ranges. There are a number of known flood hotspots, and Council receives many flood and drainage requests each year across the municipality.

Some of the flooding is due to stormwater runoff taking its natural path to the creeks and rivers.



Water in the landscape

Water and flooding are a part of our natural environment and landscape. While we try to improve conditions when it rains, not all storm events can be managed and there is not always an engineering solution for every stormwater issue.

We strive to use traditional and new knowledge to manage stormwater in a way that respects the land, water, and biodiversity within our municipality, and to help us keep the community safe during extreme flood events.



Funding challenges

Maintaining and building drainage across such a large and challenging area comes at considerable cost. We recognise that there is a need for significant investment in our ageing infrastructure to meet the expectations of the community.

As the State Government has introduced rate capping, there is less ability for Council to raise funds necessary to ensure essential community services.



Protecting Our Waterways

An important part of stormwater management is to improve the quality of the water that enters into our creeks and rivers from the drainage network.

Yarra Ranges is known for its beautiful environment and this includes many pristine creeks and rivers, including the headwaters of the Yarra River, Birrarung. These headwaters are highly valued by the community and have great ecological importance.

Rain that falls in the catchments eventually makes its way to these waterways. When development happens, areas that were once forest, farm or more natural surfaces end up becoming covered with concrete and other 'hard' surfaces. The hard surfaces cause rainwater to flow over the landscape rather than naturally soaking into the soil, which causes unnaturally high flows of water to enter streams and creeks, potentially causing erosion and damaging fish and platypus habitat.

Some of the creeks and rivers have been severely impacted by extra stormwater flows from development. We need to harvest and reuse more stormwater as well as let more of the stormwater absorb into the ground to help protect these precious waterways from future damage and pollution.

The stormwater runoff can also carry pollution to the waterways. Additional stormwater from developed areas and our road network needs to be managed in a way that protects our waterways from these impacts through keeping some of the stormwater within catchment while maintaining flood protection.

We have worked out which of the waterways are at greatest risk of degradation due to future development. This means we can give further attention to the way extra stormwater is treated and managed within the catchments of those at-risk waterways.

Opportunities

By adopting innovative strategies to manage stormwater, we can enhance community resilience and liveability.

Key opportunities include:

- Undertaking flood modelling to understand how the water flows through the landscape. This can help us in understanding where flooding might occur, allowing for the safe flow of water while minimising the impact on buildings, businesses, and other infrastructure.
- Use updated guidelines to design drainage systems that handle increased rain and reduce flooding risks.
- Follow State and local plans to guide water management and align with environmental goals.
- Update Council's guidelines to require designs that account for more intense rainfall, preparing for future weather changes.
- Explore ways to use water more efficiently and design cities that are better for the environment.
- Find solutions like collecting stormwater to irrigate parks and open spaces, promoting sustainable water use.
- Restore natural areas like wetlands to boost wildlife and manage rainwater and pollution.

By seizing these opportunities, the Council can create a greener, cooler urban environment. This will reduce flooding impacts and protect waterways from pollution, fostering a sustainable and resilient community.

Our Stormwater Management Mission

At Yarra Ranges Council, our mission is to proactively manage stormwater to safeguard our community, preserve natural ecosystems, and promote sustainable development practices.

We strive to minimise flood risk while protecting our waterways and the health of our communities amidst the increasing frequency and severity of severe weather events.

Through innovative strategies, continuous monitoring, and collaborative partnerships, we aim to adapt to evolving environmental challenges and build a future where stormwater management serves as a foundation for thriving, resilient communities within the Yarra Ranges Council.

Our Stormwater Management Objectives

To manage these challenges and opportunities, Yarra Ranges Stormwater Management Plan has six objectives that support our Stormwater Policy.



Utilising Stormwater as a resource

- Increase fit-for-purpose use of stormwater and rainwater



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

- Reduce the impacts of dangerous flooding now and into the future with development and climate change
- Increase cross-consideration of flood mitigation and integrated water management
- Improve community education around the flood management function of roadways



Healthy and valued waterways

- Reduce the total urban stormwater runoff volume discharged to receiving waters
- Decrease pollutants discharged to receiving waters
- Protect high value waterways



Healthy and valued urban and rural landscapes

- To minimise increases in stormwater due to development and protect the environmental values and physical characteristics of the landscape from degradation by stormwater
- To ensure integrated stormwater management that maximises ecosystem services, such as cooling and local habitat improvement, and provides attractive and enjoyable spaces



Community values are reflected in stormwater planning

- Increase organisational capacity to partner with Traditional Owners to be able to respectfully acknowledge the connection of Traditional Owners to the land and waterways and include indigenous knowledge in stormwater management
- Engage with the community during flood mapping and stormwater management projects and studies to support and enhance community connection with and understanding of the water cycle
- To enable better asset management with improved efficiencies and overall cost reductions for Council via strategic planning
- Respond to climate and climate change related events through resilience planning



Strategic Partnerships

- Increased collaboration with other organisations to support strategic stormwater management

Our Stormwater Management Action Plan

Thirty-one stormwater-related actions will be undertaken over the next 10 years to reduce flood risk and protect waterways in Yarra Ranges.

Flood Mapping Program

The Flood Mapping Program is a fundamental component of the Stormwater Management Plan, aimed at identifying flood-prone areas within the municipality. We will be working with Melbourne Water to deliver the Flood Mapping Program.

Flood mapping involves the use of historical flood information and modern mapping techniques to accurately predict where water will flow and where flooding may occur during storm events.

Flood mapping is essential for:

- Conducting drainage improvement works through Council's Annual Capital Works Program, including installing new drainage systems, flood retarding basins, and stormwater harvesting and reuse works.
- Maintaining and renewing drainage assets by cleaning pipes and pits, street sweeping, and repairing Council-managed stormwater infrastructure.
- Providing flood management and prevention advice to landowners.
- Supporting the State Emergency Service (SES) in preparing for and responding to emergency flood events.
- Educating and preparing our community with flood information.
- Ensuring that new developments consider flood impacts and implement necessary drainage upgrades.

Infrastructure Upgrades

We will be assessing existing drainage assets and implementing targeted upgrades. We focus on areas identified through flood mapping and hazard assessments, ensuring data-driven and strategic interventions.

By incorporating climate change projections into our designs, we future-proof our infrastructure to handle increased rainfall intensity and frequency.

These upgrades enhance flood protection and improve the reliability and efficiency of our stormwater management system, significantly reducing flood damage risk.

Water Sensitive Urban Design (WSUD) and Integrated Water Management (IWM) Initiatives

We encourage integrating WSUD principles into new developments and public spaces, such as through the use of permeable pavements, rain gardens and bio-retention systems. These measures help to reduce stormwater runoff, improve infiltration, and enhance water quality.

IWM takes a holistic approach to the urban water cycle, promoting the use of rainwater and stormwater for non-potable purposes like irrigation processes. This approach conserves potable water and ensures stormwater is stored within the landscape.

By implementing WSUD and IWM practices, we build resilient urban environments capable of withstanding extreme weather and climate change. These practices also support green spaces, biodiversity, and recreational opportunities, making our community more liveable and resilient.

Community Engagement and Education

Community engagement and education are essential for the Stormwater Management Plan's success. We will develop and distribute educational materials to inform residents about flood risks, WSUD, and IWM practices, as well as individual responsibilities in managing stormwater.

We are establishing a Community Reference Panel with representatives from diverse community groups and stakeholders to provide input and feedback on stormwater management projects and strategies. This participatory approach ensures the community's voice is heard and enhances the plan's effectiveness and acceptance.

Development Engineering Guidelines

We are updating our Development Engineering Guidelines to support the Stormwater Management Plan. These guidelines set standards for stormwater management in new developments and include:

- Compliance with Best Practice Environmental Management Guidelines (BPEMG) performance requirements.
- Design specifications for stormwater management systems.
- WSUD options for on-lot and street-scale implementation.
- Consideration of climate change factors in design requirements.

These updates reflect our technical requirements and clarify responsibilities between private developers and Council, facilitating efficient and sustainable development.





Stormwater Offsets Program

We are investigating the implementation of a Council Stormwater Offset Program to enhance our stormwater management efforts. Currently, developers make financial contributions to Melbourne Water, which allocates funds based on project priorities.

The proposed Council Offset Program would allow us to receive contributions directly, enabling us to prioritise and fund local stormwater projects. These funds could support significant infrastructure improvements like wetlands, waterway restorations and enhanced flood control measures.

This approach ensures that new developments effectively contribute to managing stormwater, even when site-specific constraints limit the full implementation of certain measures. By pursuing this program, we aim to support sustainable urban development and strengthen our community's resilience against flooding and climate change.

Strategic Partnerships and Funding

Successful stormwater management relies on strong partnerships and funding. We will collaborate with agencies like the Department of Energy, Environment and Climate Action (DEECA), Melbourne Water, Department of Transport and other authorities to implement joint projects and enhance infrastructure resilience.

We also explore various funding mechanisms, including grants and developer contributions, to support our initiatives and achieve our stormwater management goals.

What's next?

The Stormwater Management Plan will be implemented over a 10-year timeframe, concluding in 2034. Details of the key actions can be found at the end of this document.

The Stormwater Drainage Management Plan will be implemented by Council in partnership with stakeholders and the local community. Reporting on the Plan will be undertaken through biennial reviews presented to Council.

The Plan will be monitored to determine if Council is on track to meet its vision and intent and a monitoring program will be established to track progress towards:

- implementation of key actions
- achievement of specific targets
- achievement of strategic directions

Yarra Ranges will consistently work on refining investment plans to reflect lessons learnt and the successful completion of implementation plan actions



Implementation Plan

Action	Description	Timeline (target completion date)	Key External Stakeholders	Estimated Cost	Funding Source
Utilising Stormwater as a resource					
SWMP1	Finalise the Integrated Water Management plan which will help inform the catchment stormwater management strategies.	TBC	MW, DEECA	No Cost	Existing
Existing and future flood risks are managed to maximise outcomes for the community					
SWMP2	Update the Development Engineering Guidelines to better support the Stormwater Policy and this SWMP.	Ongoing	MW, DEECA, Developers	No Cost	Existing
SWMP3	Review and improve the development application and approvals process to better support the Stormwater Policy and the SWMP.	2025	MW, DEECA, Developers	No Cost	Existing
SWMP4	Undertake flood mapping and prepare stormwater management strategies for priority catchment areas. These are the highest priority, and the approach will be refined after each iteration.	2028	MW, Wider local community within Yarra Ranges Council	\$2.1M	TBC – Grant assistance from MW
SWMP5	Complete development of flood mapping and Stormwater Management Strategies for all remaining catchments. Provide implementation status update and prepare next version of the Stormwater Policy and SWMP.	2034	MW	TBC	Other strategies
SWMP6	Develop and prioritise a program of works (for design & delivery) for our most critical outfall drains as part of the rolling completion of action SWMP4. These outfall drains coincide with where the downstream drainage network meets the natural waterways.	Ongoing	Nil	\$30,000	TBC
SWMP7	Develop and prioritise a program of drainage upgrade works focused on reducing risk to properties. Critical areas will be determined via a combination of flood modelling (SWMP4) and hazard categorisation assessment (flood depth, flood velocity, and overlays such as EMOs).	Ongoing	Nil	\$60,000	TBC
SWMP8	Consider drainage infrastructure for new unsealed road upgrade programs.	TBC	Nil	\$30,000	TBC
Healthy and valued waterways					
SWMP9	Investigate Victorian urban stormwater offsets which can be managed by Council.	2025	MW, DEECA	\$120,000	TBC
SWMP10	Improve workable options for on lot WSUD via research and pilot testing and develop WSUD Guidelines with preferred solutions.	2025	MW, DEECA	No Cost	Existing
SWMP11	Establish WSUD criteria for public and private realms – either in standalone guidelines or as part of updates to existing guidelines.	2025	MW, DEECA	\$60,000	TBC
SWMP12	Review outcomes of the Little Stringy Bark Creek stormwater management.	2025	MW, DEECA	No Cost	Existing

Implementation Plan (cont.)

Action	Description	Timeline (target completion date)	Key External Stakeholders	Estimated Cost	Funding Source
Healthy and valued urban and rural Landscapes					
SWMP13	Following the completion of SWMP10, assess the Tree Canopy Strategy (e.g. along key pedestrian routes and throughout activity centres) for overlaps with new or redevelopment areas, or with road upgrade plans to determine where passively irrigated street trees could best be placed.	2025	MW, DEECA	\$20,000	Existing
Community values are reflected in stormwater planning					
SWMP14	Determine where road capital works program locations overlap with drainage works and align timelines where appropriate.	2024	DOT, MW	No Cost	Existing
SWMP15	Develop framework for data collection to inform assessment against SWMP objectives.	2024	Nil	\$25,000	TBC
SWMP16	Develop a Fact Sheet to clearly outline Council's approach to prioritising catchments for future flood mapping and drainage issues, and the roles that infrastructure, including roadways, play in flood management.	2025	Wider local community within Yarra Ranges Council	No cost	Existing
SWMP17	Determine a clear prioritisation for and approach to addressing flood and drainage complaints and an associated Fact Sheet.	2025	Wider local community within Yarra Ranges Council	\$10,000	Existing
SWMP18	Develop a Fact Sheet to clearly detail how Council manages new developments with respect to flooding, per the Stormwater Policy.	2025	Wider local community within Yarra Ranges Council	\$5,500	Existing
SWMP19	Develop a Fact Sheet to clearly outline authority and private responsibilities including responsibilities for private to private property flooding with no infrastructure and property access (e.g. water running down driveway).	2025	Wider local community within Yarra Ranges Council	\$5,500	Existing
SWMP20	Provide SWMP implementation status update to Council.	2029	Nil	No cost	Existing
SWMP21	Following completion of flood mapping and Stormwater Management Strategies for priority catchments, undertake community consultation and investigate Planning scheme amendment.	2029	MW	\$200,000	TBC
SWMP22	Update asset management plans (including 10-year capital plan) using information from completed stormwater management strategies.	Ongoing	Nil	\$25,000	TBC
SWMP23	Incorporate key findings from the catchment flood mapping projects into the Municipal Flood Management Plan and include critical infrastructure identified through the blockage analysis in the Proactive Maintenance Program.	Ongoing	Wider local community within Yarra Ranges Council	\$20,000	TBC
SWMP24	Investigate ways of further improving community flood resilience, such as retrofits and overlays.	2024	Wider local community within Yarra Ranges Council, MW	No cost	Existing
SWMP25	Undertake a process review and gap analysis of the permit application process from start to statement of compliance. Involve planners, developers, engineering, consultants in the review. This will help with overall process improvement.	2024	Developers	No cost	Existing
SWMP26	Implement a Community Reference Panel (CRP) for Stormwater Management.	Ongoing	Wider local community within Yarra Ranges Council	\$30,000	Existing
SWMP27	Biennial review of the SWMP.	2026, 2028, 2030, 2032, 2034	All	No cost	Existing
Strategic Partnerships					
SWMP28	Establish a partnership between the Yarra Ranges water managers, including Yarra Valley Water, South East Water and Melbourne Water to enable a governance structure that supports the commissioning and development of the catchment flood mapping and stormwater management strategies, and that supports the implementation of actions identified in the strategies.	2024	MW, DEECA	No cost	Existing
SWMP29	Investigate alternative funding opportunities.	2026	MW	No cost	Existing
SWMP30	Commence advocacy for any special or flagship projects pertaining to waterway protection, stormwater and flood management as identified in stormwater management strategies.	2026	MW, DEECA	No cost	Existing
SWMP31	Test alternative funding opportunities.	2027	MW, DEECA, State Government	No cost	Existing

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