

City of Moonee Valley

Municipal Emergency Management Plan

Flood and Storm Sub-plan

Version 1.0

Reviewed September 2025



Acknowledgement of Traditional Owners

The Moonee Valley Municipal Emergency Management Planning Committee respectfully acknowledges Wurundjeri Woi-wurrung as the Traditional Owners of the land, waterways, valleys and hills of Moonee Valley.

Our Reconciliation journey is built on the power of listening to stories of the Elders, supporting the continuation of culture through ceremony, language and truth telling.

Our Committee to Wurundjeri Woi-wurrung is based on friendship and admiration for their resilience and courage through times of hardship, disconnect and dispossession.

We respect connection to Country which goes back tens of thousands of years and is a relationship like no other, Council honours the spiritual link which continues into the future.

Authority

The Flood and Storm Sub-plan has been prepared by VICSES on behalf of, and in collaboration with the Moonee Valley Municipal Emergency Management Planning Committee (MEMPC). It was prepared in accordance with, and complies with the requirements of the *Emergency Management Act 2013* including having regard to the guidelines issued under section 77, [Guidelines for Preparing State, Regional and Municipal Emergency Management Plans \(the Guidelines\)](#).

It was endorsed by the Moonee Valley MEMPC on 07 October 2025 as a sub-plan to the Moonee Valley Municipal Emergency Management Plan (MEMPC). A Statement of Assurance for this plan was approved by the North West Metro Regional Emergency Management Planning Committee (REMPC) on 21 November 2025.

This sub-plan was published on the [VICSES website](#) on April 2026.

Any printed hard copies of this Flood and Storm Sub-plan are considered 'uncontrolled documents' and may not reflect the most current or updated version.

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1. INTRODUCTION

1.1 Aim

The aim of this MEMP Flood and Storm Sub-plan (MFSSP or the 'Sub-plan') is to detail the local arrangements for before, during and after flood and storm incidents within the municipal footprint.

1.2 Objectives

The objectives of this Sub-plan are to:

- Ensure alignment with the State Emergency Management Planning Framework and integration with broader emergency management arrangements and supporting documentation.
- Recognise and summarise the flood and storm risks that may affect people, property, and/or the environment within the municipal area, drawing on existing risk assessments and studies.
- Support the implementation of measures that avoid or minimise future risks and reduce existing vulnerabilities, taking into account the causes and consequences of flood and storm events.
- Manage residual risks by promoting access to accurate, timely and locally relevant information to reduce the consequences of flood and storm incidents.

1.3 Authorising environment

This is an updated version of the Moonee Valley MEMP Flood and Storm Sub-plan (MFSSP). It replaces and supersedes the City of Moonee Valley Municipal Flood and Storm Emergency Plan (MFSEP) November 2023.

This plan is a Sub-plan of, and aligns with the [City of Moonee Valley Municipal Emergency Management Plan \(MEMP\)](#). It is consistent with the [State Emergency Management Plan \(SEMP\)](#) and in alignment with the core capabilities of the [Victorian Preparedness Framework](#).

Comments and feedback on this Sub-plan are welcome and should be sent to ust.nwmetro@ses.vic.gov.au.

The Moonee Valley MEMPC is the owner of this MFSSP, pursuant to *Part 6A of the Emergency Management Act 2013* (as amended).

To the extent possible, this Sub-plan does not conflict with, or duplicate, any other plans in relation to emergency management that are currently in force within Australia as per the *Emergency Management Act 2013 60AC(c)*.

Section 60AI (2) of the Emergency Management Act 2013 allows the Municipal Emergency Management Planning Committee (MEMPC) and Emergency Management Victoria (EMV) to exclude information that is related to critical infrastructure, personal information or information that is of a commercially sensitive nature.

In line with its roles and responsibilities set out in the SEMP, the Victoria State Emergency Service (VICSES) has developed this plan in collaboration with the MEMPC. The plan reflects the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the MEMPC.

Development of this Sub-plan has included consultation with key agencies and organisations involved in the flood and storm preparedness, response and recovery. The local knowledge, expertise and contributions of these stakeholders have been vital in shaping the arrangements and strategies outlined in this plan.

1.4 Exercise, evaluation and review

This plan will be reviewed and updated at least every three years, with consideration given to earlier revisions as required to ensure the plan provides for a current, integrated, coordinated, and comprehensive approach to flood emergencies, and consideration of potential escalation of climate-related hazards.

Earlier reviews may be triggered by this plan being applied in a major emergency or exercise or following a flood study, a significant change in flood mitigation measures, a substantial change to relevant legislation or arrangements, including the SEMP.

1.4.1 Exercise

The MEMPC is responsible for organising exercises to test this Sub-plan, which should be conducted within the plan's lifecycle. These may include exercises led by individual agencies as well as opportunities to test the Sub-plan during actual flood or storm events. Ideally, exercises will be scheduled shortly before the period of highest risk for floods and storms, typically during winter and spring.

This Sub-plan was tested during the October 2022 Victorian flood event, with lessons learned incorporated into this version. Further learning opportunities have also been provided through activities such as the AFAC Maribyrnong Tour and the Maribyrnong Flood Workshop, which reviewed conditions leading up to the flood, operational experiences on the day, and lessons identified, including site visits to key locations to provide context and support learning.

Recent testing and learning activities are summarised in the table below:

Event	Exercise Type	Date
Victorian Flood event	Tested	October 2022
AFAC Maribyrnong Tour	Tour	12 March 2024
Maribyrnong Flood Workshop	Workshop and tour	8 April 2025

The MEMPC and agencies will continue to identify and deliver opportunities to test this Sub-plan, ensuring arrangements remain current and effective through both planned exercises and lessons learned from real flood and storm events.

1.5 Audience and linkages

1.5.1 Audience

The primary audience for this Sub-plan is local government and emergency management agencies operating within the Moonee Valley Municipality. While the broader community is not the intended audience, community members may still find the information contained in this plan useful and informative.

1.5.2 Linkages

This Sub-plan does not operate in isolation. It is integrated within the broader emergency management planning framework that guides flood and storm management at the State, Regional, Municipal and Local level.

This plan refers to a range of existing resources related to floods and storms, aligns with the direction set by relevant plans and policies, and includes links to further information for the reader.

Access to operationally sensitive information may require a login. This includes documents stored on the Emergency Management Common Operating Picture ([EM-COP](#)), such as [Joint Standard Operating Procedures \(JSOPs\)](#). Documents stored on the VICSES Intranet, such as Standard Operating Procedures (SOPs) and supporting operational information can be obtained by contacting a VICSES representative.

The sub-plan is consistent with and supports:

- [State Emergency Management Plan \(SEMP\)](#)
- SEMP [Flood Sub-plan](#), SEMP [Storm Sub-plan](#)
- [North West Metro \(Central\) Regional Emergency Storm Plan](#)
- [North West Metro \(Central\) Regional Emergency Flood Plan](#)
- [The Municipal Emergency Management Plan \(MEMP\)](#)
- Community Local Flood Guides (LFGs):
- [Moonee Valley LFG](#)

1.5.3 Supporting Operational Documentation

This Sub-plan provides overarching arrangements for managing flood and storm events within the municipality. It is supported by a series of Annexes that contain operational or sensitive information maintained by VICSES. These annexes are available to authorised personnel through a VICSES representative as required.

Support Operational Document(s)
Flood Intelligence and VICSES Response Arrangements for Flood and Storm in the City of Moonee Valley:
▪ Annex A – Flood and Storm Threats for Municipality
▪ Annex A1 – Flood evacuation arrangements (if applicable)
▪ Annex B – Typical flood peak travel times
▪ Annex C – Localities and At-Risk Communities
▪ Annex D – Maps and Schematics
▪ Annex E – Storm Damage and Specific Response Arrangements
▪ Annex F – Flood and Storm Warning Systems

1.5.4 Hyperlinks

Documents or resources that are referred to frequently throughout this plan (such as the [SEMP](#)) may not be hyperlinked in each instance.

All hyperlinks were accurate at time of publication and currency of the linked content remains the responsibility of the host agency.

2. THE EMERGENCY CONTEXT

2.1 Risks

The Moonee Valley Municipality is vulnerable to severe weather and flooding throughout the year. A Community Emergency Risk Assessment (CERA) conducted by the MEMPC has identified riverine flooding, flash/overland flooding, and storms as key risks to the community.

Geographically, the Municipality is bounded to the northwest by the Albion-Jacana railway line between the Maribyrnong River and Moonee Ponds Creek. The eastern and northeastern boundaries follow Moonee Ponds Creek to Racecourse Road in Flemington. The southern boundary is defined by Racecourse Road, Epsom Road, Langs Road, Leonard Crescent and Fisher Parade, continuing along the Maribyrnong River, which also forms the remainder of the southern boundary.

The following section provides an overview of flood-related risks across the municipality, including information on major waterways, drainage systems, dams and a summary of significant historical flood and storm events.

For more detailed information refer to **Annex A** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

2.1.1. Riverine flooding

Large severe riverine floods typically occur when moist, warm airflow from northern Australia brings moderate to heavy rainfall over a 12-hour period or more. These events are usually preceded by extended periods of rainfall that saturate the catchment, fill on-stream dams, and reduce the capacity of natural floodplain storage, resulting in increased runoff during the subsequent period of heavy rainfall.

Less severe but still significant flooding can also result from a series of cold fronts during winter and spring. These systems gradually wet the catchment and increase water levels in dams and waterways, with major flooding occurring when prolonged moderate to heavy rainfall follows.

Moonee Valley can be impacted by riverine flooding, particularly along the Maribyrnong River, when prolonged rainfall causes waterways to exceed their capacity. These floods can be worsened if they coincide with high tides, including king tides. The tidal influence on the Maribyrnong River can extend as far upstream as Grimes Flat in Avondale Heights, increasing flood risk in parts of the municipality during such events.

2.1.2. Flash flooding

Moonee Valley is susceptible to short-duration, high-intensity rainfall events, often associated with the high-risk weather season, that can result in localised flash flooding. These events typically affect areas along natural overland flow paths when the capacity of the stormwater drainage system is exceeded. Flash flooding is more likely when rainfall rates exceed 20mm per hour for an hour or more, especially in built-up urban areas, and can extend beyond traditional watercourses such as rivers and creeks.

The risk is further exacerbated by blocked stormwater drains, which can cause systems to surcharge and result in stormwater flowing above ground. Under these conditions, low-lying properties and infrastructure can be affected rapidly, often with little warning. This risk is mitigated through proactive and reactive maintenance regimes.

The increasing number of residential and commercial developments incorporating underground car parks has added a further dimension of risk. These below-ground structures are particularly vulnerable to rapid

inundation during flash flooding, increasing the likelihood of property damage, vehicle loss, and emergency incidents requiring rescue or response.

2.1.3. Severe weather and storms

Severe thunderstorms and associated extreme weather conditions, such as tornadoes or microbursts, can have significant impacts on the community, built environment and essential services. While severe thunderstorms may affect large areas, tornadoes and microbursts in Victoria are typically highly localised, often impacting only one or two suburbs. Despite their limited geographic footprint, these events can cause intense and concentrated damage.

Typical consequences of severe storm events include:

- Wind damage to residential and commercial buildings
- Uprooted or fallen trees causing property damage and blocking roadways
- Localised flash flooding
- Road damage and temporary road closures
- Power outages
- Disruption to telecommunications services
- Discharge/overflow of sewer systems
- Waste collection bins content discharged into waterways and storm water systems
- Impacts on critical infrastructure (e.g. health, water, energy, transport)
- Entrapment of people in homes or vehicles due to fallen trees or floodwater
- Epidemic Thunderstorm Asthma (ETSA)

In the Moonee Valley Municipality, the most frequent types of storm-related damage involve fallen trees or tree limbs, as well as damage to roof structures and infrastructure from high winds and heavy rain. Internal flooding can result from surface water inundation or roof and ceiling failures, often due to blocked or poorly maintained drainage systems, or inadequate guttering that fails to divert water away from the building.

The increased use of basement car parking in new residential and commercial developments has contributed to local flood risk. These areas are particularly vulnerable to rapid inundation during storm events, especially when drainage systems surcharge or overland flow occurs. They are also susceptible to pump failure, either due to poor maintenance or power outages.

Destructive winds can also result in structural failures in high-rise buildings, including the dislodgement of cladding and falling glass and solar panels, posing safety hazards for pedestrians and building occupants.

Moonee Valley contains an extensive drainage network and several key waterways, managed in partnership by Melbourne Water and Moonee Valley City Council.

Moonee Valley typically experiences two to three major storm events per year, often between August and March, encompassing both winter cold fronts and summer thunderstorm activity.

2.2 Municipality Major Waterways, Drains and Dams

The municipality faces a number of local flood management and drainage challenges. Work is underway to map 1% Annual Exceedance Probability (AEP) flood and storm events and incorporate projected climate changes to the year 2100. Additionally, more than 2,500 properties are currently covered by the existing Special Building Overlay (SBO).

Maribyrnong River, Steele Creek (Maribyrnong Catchment) and Upper and Lower Moonee Ponds Creeks (Yarra Catchment) make up most of the waterways within the municipality. In addition to these, flooding in Moonee Valley can also be influenced by larger upstream catchments extending beyond the municipal boundary, including the broader Maribyrnong River catchment, the Jacksons Creek and Deep Creek tributaries, and the upper reaches of the Moonee Ponds Creek catchment. Heavy rainfall across these external catchments can increase flow volumes and contribute to flooding impacts within the municipality.

There are three major waterways running through the City of Moonee Valley:

- **Maribyrnong River** begins at the confluence of Jacksons and Deep Creeks in Keilor North, just west of Melbourne Airport. The river enters the city at Avondale Heights/Keilor East, receiving several drains and Steele Creek while forming the southern boundary of the Municipality and leaving Moonee Valley at Flemington. See **Annex D** (operational use only) for a schematic of Maribyrnong River.
- **Moonee Ponds Creek** forms the north-eastern boundary of the municipality. It rises in Oaklands Junction east of Mickleham Road and joins Moonee Valley at Strathmore Heights, receiving Mascoma Street Drain, Five Mile Creek, and Bent Street Main Drain as it forms the eastern boundary of the municipality. Moonee Ponds Creek leaves Moonee Valley at Racecourse Road in Flemington and continues to flow into the Yarra River in Docklands. See **Annex D** (operational use only) for a schematic of Moonee Ponds Creek.
- **Steele Creek** rises in Tullamarine near Melbourne Airport and enters the municipality in Airport West. It continues through Keilor East, Niddrie and Avondale Heights, receiving several drains before discharging into the Maribyrnong River at Steele Creek Reserve near the cliffs in Essendon West.

Other waterways and drains within the City of Moonee Valley are listed in the table below.

Melbourne Water Drains & Waterways	Suburb/s	Melbourne Water Drains & Waterways	Suburb/s
Aberfeldie Main Drain	Aberfeldie, Essendon	Hoffmans Road Drain	Essendon, Essendon West, Niddrie,
Airport West Drain	Airport West	Holmes Road Main Drain	Moonee Ponds
Ascot Vale Main Drain	Ascot Vale	Hutchison Street Drain	Niddrie
Bent Street Main Drain	Moonee Ponds	Magdala Avenue Main Drain	Strathmore, Essendon
Clarinda Road Diversion Drain	Moonee Ponds	Mascoma Street Drain	Strathmore Heights
Clydesdale Road Drain	Airport West	Milleara Road Drain	Avondale Heights, Keilor East
Five Mile Creek	Essendon	Niddrie West Drain	Keilor East

Table 1 – Melbourne Water Drains and Waterways within or bordering the City of Moonee Valley

2.2.1 Dam Spilling / Failure

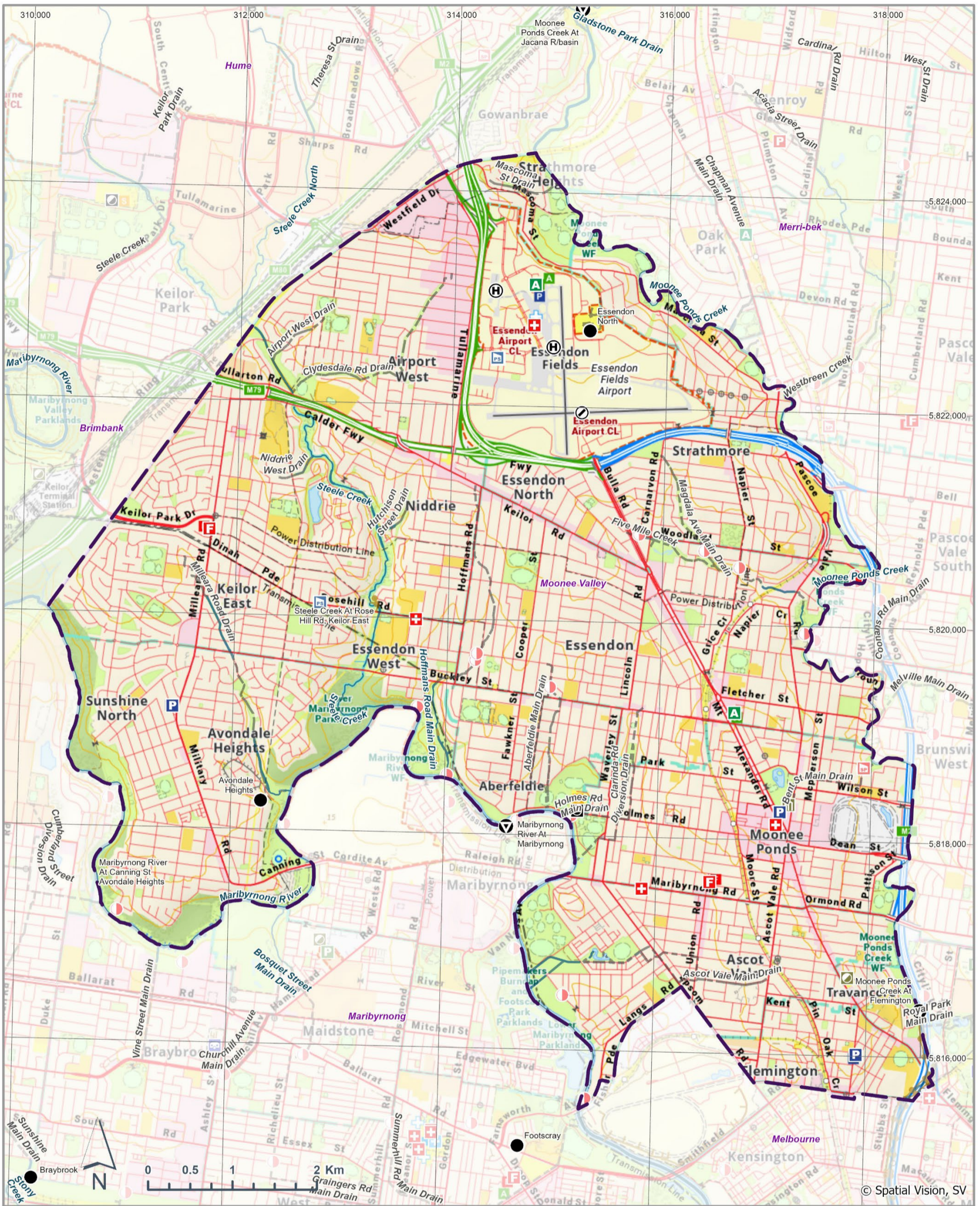
Dams and reservoirs located within the City of Moonee Valley are listed below. Flooding resulting from failure of the Greenvale Reservoir is likely to cause significant structural and community damage within the municipality.

Melbourne Water Dam	Location	Watercourse
Greenvale Reservoir	Greenvale	Moonee Ponds Creek
Service Reservoir Name	Location	Owner
Essendon North Steel Tank No.1	Essendon Airport, Lebanon St Strathmore	Melbourne Water
Essendon North Steel Tank No.2	Essendon Airport, Lebanon St Strathmore	Melbourne Water
Essendon North Steel Tank No.3	Essendon Airport, Lebanon St Strathmore	Melbourne Water
Essendon North Steel Tank No.4	Essendon Airport, Lebanon St Strathmore	Melbourne Water
Essendon North Steel Tank No.5	Essendon Airport, Lebanon St Strathmore	Melbourne Water

DEECA has developed the [Dam Safety Response Plan](#) to assist in managing its obligations associated with dam safety incidents.

For further dam related information refer to **Annex A** in the Flood Intelligence and VICSES Response Arrangements for Flood and Storm in the City of Moonee Valley.

2.2.2 City of Moonee Valley Municipal Waterways and Drainage Map



Map produced by VICSES September 2023.

CITY OF MOONEE VALLEY
Municipal Waterways and Drainage Map

- | | | | | | |
|--|---------------------------|--|----------------------------------|--|---|
| | Stream Level & Rain Gauge | | Municipal Offices / Civic Centre | | Water Pump Station (Retail) |
| | Rain Gauge | | Police Station | | Sewer Pump Station (Retail) |
| | Helipad | | Prison / Justice | | Sewer Emergency Relief Structure (MW) |
| | Ambulance Station | | Quarantine Facility | | Sewer Emergency Relief Structure (Retail) |
| | Municipal Depot | | Tip / Recycling | | Moonee Valley Boundary |
| | Fire Station | | Caravan Park | | Levee |
| | Hospital (Emergency) | | Group Camp | | Flood Wall |
| | Hospital / Day Procedure | | Prison | | Melbourne Water Stormwater Drain |
| | | | Airfield / Airport | | Waterway |



This map publication is presented by the Victoria State Emergency Service for the purpose of disseminating emergency management information. The contents of the information have not been independently verified by the Victoria State Emergency Service. No liability is accepted for any damage, loss or injury caused by errors or omissions in this information or for any action taken by any person in reliance upon it.

2.3 History of Municipal Flood and Storm emergencies

The MEMP details a brief history of all major emergencies that have happened within the municipality.

The following list summarises the most significant recent flood and storm events recorded in the municipality based on their impact and consequences.

Date	Event
14th May 1974	The May 1974 flood caused major damage across the region, including homes and infrastructure, with no warning in place. Evacuations were needed as fast-moving water inundated streets, and traffic was severely disrupted for hours.
6th March 2010	On 6 March 2010 more than 60 mm of rainfall raised over seventy reported storm related incidents (including hail damage and blocked pipes).
14th October 2022	The October 2022 flood event in the Maribyrnong catchment followed four days of above average rainfall over an already saturated catchment, resulting in a major flood. Around 80 properties were affected in Moonee Valley. Flooding caused damage to Riverside Park, Canning Reserve, the Maribyrnong River Walking Trail, Riverside Golf Course and the Moonee Valley Athletics Centre, with significant impacts at Rivervue Retirement Village in Avondale Heights.

For additional response information refer to **Annex A** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

2.3.1 Significant Flood Events – Gauge Levels

Moonee Valley has experienced several significant flood events where heavy rainfall or rising stream levels have impacted properties and infrastructure. However, it's uncommon for a single storm to affect all catchments in the area, except during extreme weather. Different parts of the municipality can respond very differently to the same event, depending on location and catchment characteristics.

For instance, rainfall and creek levels vary significantly between monitoring points along Moonee Ponds Creek and the Maribyrnong River. This highlights how localised flooding can be, even within the same weather event.

The Maribyrnong River at the Chifley Drive gauge is influenced by tides, which can either worsen or reduce flood impacts. Historically, the Maribyrnong River has overflowed its banks many times, with 26 recorded flood events since 1871. The largest occurred in September 1906, followed by another major flood in 1916.

For historical gauge levels refer to **Annex A** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3. MANAGING FLOOD AND STORM EMERGENCIES

3.1 State Emergency Management Priorities

The State Emergency Management Priorities that are outlined in the [SEMP](#) guide all decisions before, during, and after any emergency, and apply to all aspects of this plan.

3.2 Roles and Responsibilities

An agency that has a role or responsibility under this plan must act in accordance with the plan.

There are a few agencies with specific roles that will act in support of VICSES and provide support to the community in the event of a serious storm or flood within the City of Moonee Valley. These agencies will be engaged through the Incident Emergency Management Team (IEMT).

The general roles and responsibilities of supporting agencies are as detailed in the [MEMP](#), [SEMP](#), [SEMP Flood Sub-plans](#) and [SEMP Storm Sub-plan](#).

3.3 Mitigation and Preparedness

3.3.1 Floodplain Management Strategy

The Victorian Floodplain Management Strategy sets the policy and accountability framework for flood related mitigation activities in Victoria. The [Floodplain Management Strategy for Port Phillip and Westernport](#) sets out the implementation of flood mitigation activities for the Region, including for the City of Moonee Valley.

3.3.2 Structural flood mitigation measures

Structural flood mitigation measures are any physical construction to reduce or avoid possible impacts of flood hazards, or the application of engineering techniques or technology to achieve flood hazard resistance and resilience in structures or systems.

For more detailed Flood Intelligence and VICSES Response arrangements surrounding structural flood mitigation measures refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.3.3 Planning controls

Flood mitigation within the municipality is supported through planning scheme controls such as the Land Subject to Inundation Overlay (LSIO), Floodway Overlay (FO), and Special Building Overlay (SBO), which guide development in flood-prone areas. These overlays help manage flood risk by ensuring appropriate building siting, floor levels, and drainage requirements. The planning controls work alongside building regulations and the National Construction Code to support safer, more resilient development across the municipality.

Planning overlays play a critical role in reducing flood risk by mandating floor levels above the predicted flood level, requiring new developments to incorporate adequate drainage measures, and protecting overland flow paths from being obstructed.

Council is proactively applying these planning tools to assess new proposals, regularly updating overlays as new flood modelling becomes available, and advocating for stronger planning provisions across Victoria to further support community resilience.

In addition to guiding new development, planning controls also respond to changes in flood risk identified through updated and improved flood modelling. This modelling can reveal new risks to existing properties. Climate change is expected to further increase flood risk across the municipality, expanding areas subject to inundation and increasing depths for existing at-risk properties.

3.4 Community Resilience

A resilient community is socially connected and has infrastructure that can withstand disaster or shocks and foster community recovery. Resilient communities support the wellbeing of individuals and the community, effectively use available resources, and foster cohesion to strengthen their capacity both in everyday life and during extreme events.

3.4.1 Flood and storm specific community education and engagement

Community education and engagement are essential to building awareness of flood and storm risks and supporting preparedness across the municipality. Relevant programs and resources empower people to make informed decisions and to be equipped, both emotionally and physically, to take appropriate action before, during, and after emergencies.

Flood and storm risks cannot be fully mitigated, and a shared responsibility is vital. VICSES, with the support of the Moonee Valley City Council and other agencies, will coordinate and deliver targeted community flood and storm engagement programs by:

- Providing accurate preparedness information through media, publications, and engagement activities
- Facilitating and supporting community programs, events, and targeted initiatives
- Offering technical advice to ensure resources remain accurate and relevant
- Working with schools, businesses, and organisations to strengthen planning and preparedness
- Contributing to exercises, forums, and community engagement opportunities
- Acting as liaisons during events to ensure clear and consistent communication

Community members are encouraged to:

- Understand their flood and storm risk
- Prepare by developing a home emergency plan and emergency kit (see the [VICSES website](#))
- Stay informed and follow emergency services' advice during warnings
- Engage in community programs, events and resources such as Local Flood Guides, targeted initiatives, and Community Emergency Management Plans (CEMPs)
- Participate in emergency planning at facilities such as schools, retirement villages and businesses

3.4.2 Public information and warnings for flood and storm emergencies







The SEMP Flood Sub-Plan and the SEMP Storm Sub-Plan detail the arrangements for public information and warnings for flood and storm. *VICSES SOP008 Severe Weather Notification and Activation Process* and *VICSES SOP009 Flood Notification and Activation Process* outline in detail the actions that VICSES will undertake upon receipt of a Severe Weather Warning or Flood Watch/Flood Warning from the Bureau of Meteorology.

Details on warnings issued by VICSES through [VicEmergency](#) and VICSES channels, including for areas or impacts not covered by a Bureau warning, are outlined in **Annex F** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

The Incident Controller (IC), through the Public Information Unit established at the Incident Control Centre (ICC), will manage public information and warnings. If the ICC is not established, the VICSES Regional Duty

Officer (RDO) and VICSES Regional Agency Commander (RAC) are responsible for managing all public communication. Moonee Valley City Council will work with the IC/VICSES to assist with the dissemination of public messaging and/or warnings to ensure that consistent and timely messaging occurs.

The table below summarises the flood and storm warnings issued on VicEmergency. Visit the [Australian Warning System \(AWS\) website](#) for further information.

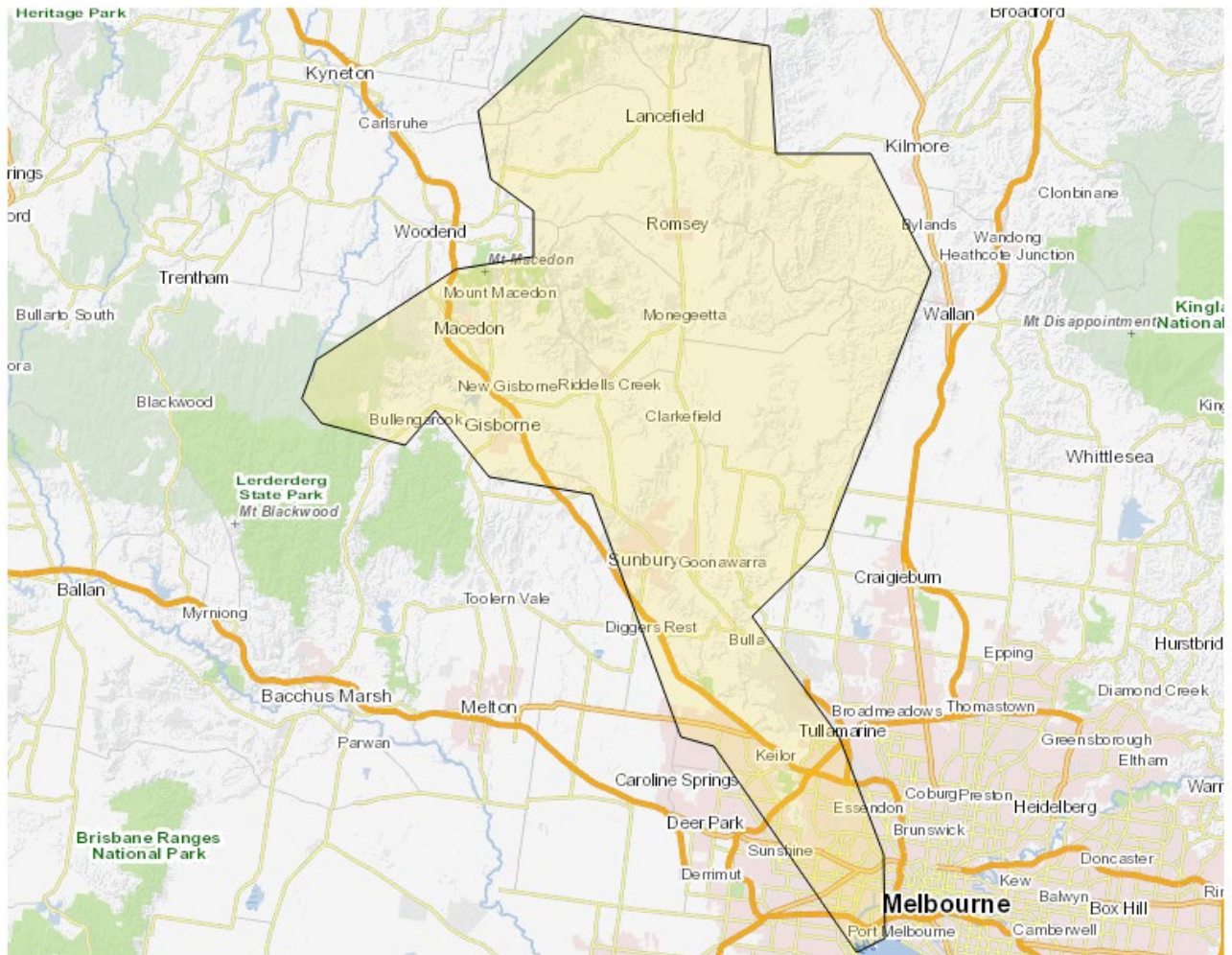
Flood Symbol	Storm Symbol	Warning Level	Meaning	Agency/Community Action
		Advice (yellow)	Flood or storm possible; no immediate danger.	An incident has started. There is no immediate danger. Stay up to date in case the situation changes.
		Watch and Act (Orange)	Flooding or severe storm likely; may impact safety and property.	There is a heightened level of threat. Conditions are changing and action is required now to protect community safety
		Emergency Warning (red)	Severe flooding or dangerous storm occurring or imminent.	An emergency warning is the highest level of warning. Action needs to be taken immediately, any delays put life at risk.

3.4.3 BoM Flood Warning Example

ADVICE - FLOOD

Incident Location: Maribyrnong
Incident Name: MaribyrnongFloodSept2016
Issued: Set at publish time
Next Update Expected:

Map



Message

This **Minor Flood Warning** is being issued for Maribyrnong River.

- The Maribyrnong River catchment has received rainfall averaging about 31mm since 0900am yesterday. Rainfall totals of 5mm have been forecast for the catchment in the next 2 hours.
- Water levels of the Maribyrnong River and its tributaries at various locations are rising in response to the rain.
- The level of the Deep Creek at Darraweit Guim is currently 5.41m and rising. It is expected to peak above the Minor Flood Level (5.50m) this morning.
- Minor flooding in the Deep Creek and Maribyrnong River catchment is expected to affect low lying areas adjacent to the waterway. Minor roads may be closed.

The river heights at 08.14am 14/09/2016 were:

- Deep Creek at Doggetts Bridge, Lancefield: 2.22 metres, rising
- Deep Creek at Darraweit Guim: 5.47 metres, falling
- Deep Creek Creek at Konagaderra: 3.62 metres, falling
- Bolinda Creek at Clarkefield: 1.19 metres, rising
- Deep Creek at Bulla: 2.39 metres, falling
- Rosslynne Reservoir, Head Gauge: 38.52 metres, rising
- Jacksons Creek at Sunbury: 2.13 metres, rising
- Steele Creek at Keilor East: 1.19 metres, rising
- Maribyrnong River at Keilor North: 3.58 metres, rising
- Maribyrnong River at Keilor: 1.84 metres, rising
- Maribyrnong River at Maribyrnong: 0.04 metres, rising

Stay informed - monitor your local conditions and remain alert.

What you should do:

- Be prepared to act if your situation changes.
- You should stay informed by listening to emergency broadcasters and monitoring warnings.
- Monitor weather forecasts and river levels. Go to www.bom.gov.au/vic/warnings.
- Floodwater is dangerous - never drive, walk or ride through floodwater.

Impacts in your area:

- Flooding above floor level of a single story home is likely to occur in some locations.
- Local roads may be closed and low bridges may be underwater.
- Areas around rivers and streams may be flooded.

This message was issued by State Emergency Service.

The next update is expected by 4PM this afternoon or as the situation changes.

Flood information:

- For river heights check www.bom.gov.au or phone 1300 659 217.
- For urgent animal welfare issues call Agriculture Victoria on 136 186 or your local vet.

3.4.4 Flood Intelligence

Flood intelligence supports decision making and planning for flooding by providing reliable and accurate information relating to:

- The expected level, depth, and velocity of floodwater and its consequences
- Determination of actions to be undertaken in response to the identified consequences.

The Department Energy, Environment and Climate Action (DEECA) maintains the [FloodZoom](#) flood intelligence platform. Inquiries regarding FloodZoom access should be directed to accounts@floodzoom.vic.gov.au.

For more detailed flood intelligence and VICSES response arrangements refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.4.5 Cross-border Collaboration and Area of Operations

The area of operations concept is detailed within the SEMP and provides flexibility to managing flood and storm response when it is geographically located across several municipalities where it encourages collaboration between municipalities as part of the Victoria's Emergency Management Planning Framework and the Victorian Preparedness Framework.

Moonee Valley City Council is a signatory to both the North West Metro Region Collaboration (NWMRC) Resource Sharing Protocol and the Municipal Association of Victoria (MAV) Protocol for Inter-Council Emergency Resource Sharing. These protocols provide a framework to support coordinated access to resources across councils when local capacity is exceeded during flood or storm events.

3.5 Local Knowledge

As control agency for flood and storm in Victoria, VICSES is committed to ensuring the incorporation of local knowledge in decision making before, during and after incidents. This is guided by the [VICSES policy 10.02 Local Knowledge](#) (VICSES access only).

Local knowledge is a critical element of planning. The community and other organisations can provide valuable local information about hazards, incidents and how they may evolve. This information is commonly referred to as local knowledge. This plan aims to ensure that planners and responders capture appropriate local knowledge before, during and after incidents.

As an incident escalates from local control to a larger incident management structure, it is essential that local knowledge capability is retained within the overall structure. This should include how local subject matter experts are embedded into divisional and sector command structures.

3.5.1 Field Observers

Field Observers provide local knowledge to VICSES and the Incident Control Centre regarding local insights and the potential impacts and consequences of an incident and may assist with the dissemination of information to community members.

Essendon Unit have trained Field Observers who can be deployed to gather intelligence in areas impacted by both flood and storm events.

VICSES SOP073 outlines the role of the Field Observer and process for their activation which is via the VICSES RDO.

3.6 Response (including relief)

3.6.1 Activation of Response

VICSES may be notified of flood and storm incidents through several sources, but the most common source is calls received via 132 500 or if the emergency is life threatening, Triple Zero (000). Other sources are via other emergency management agencies and local government. In most cases, these events are of a small scale (a level 1 incident), which local VICSES units manage without significant outside support.

In the case of more significant level 2 (regional level) or level 3 (an incident that has high complexity and may have statewide implications) flood and storm response arrangements may be activated by the VICSES North West Metro Regional Duty Officer (RDO) or Regional Agency Commander (RAC).

The VICSES IC/RDO/RAC will activate agencies as required as documented in the [SEMP Flood sub-plan](#) or [SEMP Storm sub-plan](#).

3.7 Concept of Operations

The SEMP defines the responsibilities of the Incident Controller (IC), Incident Control Centre (ICC), Incident Management Team (IMT) and Incident Emergency Management Team (IEMT).

3.7.1 Control

Sections 5(1)(b) and 5(1)(c) of the [Victoria State Emergency Service Act 2005](#) detail the authority for VICSES to respond to storms and floods.

The Role Statement within the SEMP identifies VICSES in its response functions as the [Control Agency for flood and storm](#). It identifies DEECA as the [Control Agency responsible for dam safety as well as reticulated water and wastewater \(sewerage\) service](#).

All flood and storm response activities within the Moonee Valley Municipality including those arising from a dam failure or retarding basin / levee bank failure incident will therefore be under the control of the appointed Incident Controller, or delegated representative.

3.7.2 Incident Control Centre (ICC)

The ICC may be activated in advance based on the severity of warnings and in accordance with VICSES readiness arrangements:

- [VICSES readiness and activation levels – flood \(VICSES login required\)](#)
- [VICSES readiness and activation levels – severe weather \(VICSES login required\)](#)

3.7.3 Escalation

Resourcing and event escalation arrangements are described in the [SEMP](#).

3.8 Considerations for operating with other agencies and stakeholders

As other agencies are deployed to assist, the IC should consider the following actions:

- Establish a communications plan to enable the tasking of other agency resources which should be included in briefings.
- Embedding and determining an agreed response to downed powerlines as this is often a predominant hazard for storm events.
- Ensuring other agency personnel who are undertaking the Emergency Management Liaison Officer (EMLO) roles have access to EM-COP.
- Preparing a briefing to support in-coming other agency resources to identify:
 - Staging area location and any safety issues with accessing it (closed roads/powerlines down)
 - Resources available such as re-supply of consumables (tarps/sandbags)
 - Welfare arrangements
 - Duty time limitations, which must be consistent with VICSES SOP003 Fatigue Management and Duty Time Limitations.

3.9 Initial Impact Assessment

As part of the [Victorian Preparedness Framework](#), the [SEMP](#) and [SEMP flood sub-plan](#) outline agency responsibilities and core capabilities for flood and storm impact assessments.

3.10 Storm Response Arrangements

In the initial response phase, VICSES Units will receive RFA's direct from Triple Zero Victoria and will typically respond in a business-as-usual mode, typically attending events in order of receipt or priority. This is in accordance with the *VICSES Operations Management Manual*.

For more detailed storm damage specific response arrangements refer to **Annex E** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only) and the City of Moonee Valley MEMP.

3.11 Evacuation Arrangements

Under the SEMF, Victoria Police (VicPol) has the responsibility for evacuation (Evacuation Manager) – in consultation with the control agency and other expert advice.

The IC is responsible for decision making in consultation with VicPol as to whether evacuation is a safe option for communities and individuals.

In making this decision the IC may seek advice from other agencies or communities, as detailed in [JSOP 03.12 – Planned Evacuation for Major Emergencies](#).

3.12 Response to flash flooding

Flash flooding can be defined as flooding that occurs within six hours or less of the flood-producing rainfall within the affected catchment. This may result in isolation of individuals and communities as time to warn and respond to flash flooding is limited. The safest place to be in a flash flood is well away from the affected area. Accordingly, pre-event planning for flash floods should commence with an assumption that evacuation is the most effective strategy, provided evacuation can be safely implemented.

Emergency management response to flash flooding should be consistent with the [SEMP Storm Sub-plan](#).

3.13 Flood Rescue

Under Victoria's emergency management arrangements, rescue is considered separately to the relocation of people who are stranded or isolated by floodwater. Where the water is either fast or swift flowing and/or the people being assisted are facing actual or threatened danger of physical harm, the response escalates from relocation to rescue.

Under the [SEMP Response table 9](#) the control agency for rescue from land and water is VicPol, who operate the State Police Search and Rescue Coordination Centre (SPSARCC). VICSES is a support agency for search and rescue on land and water evacuations and incidents involving mass casualties.

To conduct water rescues during a flood, VicPol will often require assistance of appropriately trained and equipped personnel from support agencies including VICSES, Volunteer Marine Search and Rescue Organisations, CFA, FRV and Life Saving Victoria. VicPol will coordinate with these agencies to ensure operational readiness for activation.

On occasion, VicPol may opt to respond a field capability of its Rescue Coordination Centre to a location near the emergency. It may also work with the Triple Zero Victoria to deploy its dispatch capability to the same location to enhance rescue coordination and dispatch. Details in this plan may assist VicPol and Triple Zero Victoria in undertaking this function in the field or from the primary SPSARCC.

Refer to **Annex C** for known high-risk areas/communities (such as low-lying islands) where rescues might be required in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.14 Aircraft Management

Aircraft can be used for a variety of purposes during flood operations including evacuation, resupply, reconnaissance, intelligence gathering and emergency travel.

The IC controls the conduct of Air support operations.

3.15 Resupply

Communities, neighbourhoods or households can become isolated during floods and in some cases, storms. This can be due to road closures or damage to roads, bridges and causeways. Under such circumstances, the need may arise to resupply isolated communities/properties with essential items.

When predictions/intelligence indicates that communities, neighbourhoods and/or households may become isolated, VICSES will advise all community members to prepare by stocking up on essential items.

After the impact, VICSES can support isolated community members by assisting with the transport of essential items and providing logistics support.

Resupply operations are included as part of the emergency relief arrangements, with VICSES working alongside relief agencies to service all isolated communities.

For more detailed arrangements/information refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.15.1 Animal welfare

Matters relating to the welfare of livestock and companion animals (including feeding, water and rescue) are to be referred to DEECA - [Agriculture Victoria](#).

Requests for emergency supply and/or delivery of fodder to stranded livestock or for livestock rescue are passed to DEECA - Agriculture Victoria.

Matters relating to the welfare of wildlife are also to be referred to DEECA who has developed the [Victorian Emergency Animal Welfare Plan](#).

3.16 Essential community infrastructure and property protection

Essential community infrastructure and property such as residences, businesses, roads and utilities may be affected in the event of a flood.

VICSES maintains a stockpile of sandbags, Moonee Valley City Council does not supply them. The IC will determine the priorities related to the use of sandbags, which will be consistent with the strategic priorities.

The *VICSES Operations Management Manual* sets out the principles for sandbag use and allocation to the community. These principles do not apply to the use of sandbags by VICSES to construct and/or alter a levee. Refer to *Sandbag filling and collection point guide* and *SOP036 Construction, Removal or Altering of Levee and Removal of Debris* for further detail.

The IC will ensure that owners of essential community infrastructure are kept advised of the flood situation. Essential community infrastructure providers must keep the IC informed of their status and ongoing ability to provide services.

Refer to the VICSES website for the most current [sandbag guidelines and collection points](#).

For more specific details of essential infrastructure requiring protection and location of sandbag collection point(s) refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.16.1 Disruption to services

Disruption to services other than essential community infrastructure and property can occur in flood and storm events.

For more detailed arrangements of likely disruption to services and proposed arrangements to respond to service disruptions refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.16.2 Traffic Management

In the event of an unplanned disruption on the Moonee Valley City Council and Department of Transport and Planning (DTP) road network, traffic management measures such as road closure, placement or changes to warning signs and road barriers may be implemented.

Supporting agencies will liaise with Victoria Police where possible to develop a traffic management plan. This plan may include traffic diversion routes, which should be established further away from the immediate flooded or storm-affected area to minimise traffic congestion and avoid vehicles needing to turn around.

Moonee Valley City Council will provide public information on road closures, with updates available on the VIC Traffic website: <https://traffic.vicroads.vic.gov.au/>

For detailed arrangements relating to potential road closures, refer to **Annex C** in the Flood & Storm Intelligence and VICSES Response Arrangements for the City of Moonee Valley (operational use only).

3.16.3 Traffic Management Plan

Traffic management will be undertaken in accordance with JSOP 03.10 Traffic Management at Major Emergencies. The IC, who has overall responsibility for incident control, will consult with Victoria Police and, where possible, the responsible road authority to develop, implement, and monitor a Traffic Management Plan. Within Moonee Valley, DTP is responsible for the arterial road network, while Moonee Valley City Council is responsible for local and regional roads, bridges, and trails. Victoria Police will coordinate the restriction of access to affected areas as directed by the IC and may support the enforcement of closures and roadblocks.

Traffic management arrangements must ensure safe egress for affected residents and businesses, and access for emergency services. For emergency services, this will include effective movement of vehicles along the length of the flooded area.

3.17 Access to technical specialists

VICSES manages contracts with private specialists who can provide technical assistance in the event of flood operations or geotechnical expertise. The Regional Controller (RC) or delegate (e.g.: VICSES RDO or IC) should make a formal request to the VICSES State Duty Officer (SDO) for the engagement of a Flood Analyst or Technical Specialist. *VICSES SOP061 Technical Specialists* outlines this detail, including the procedure for accessing technical specialists.

These services may be required particularly where Catchment Management Authority or Local Government staff are unable to assist in an ICC. Specifically, they can provide the following key professional services:

- Flood intelligence (Flood Analysts)
- Geotechnical assessments.

3.18 Relief

Relief is the provision of assistance to meet the essential needs of individuals, families and communities during and in the immediate aftermath of an emergency.

Suitable relief facilities identified for use during storms and/or floods, along with the associated relief arrangements are considered restricted information. This information can be obtained by agencies through the Moonee Valley City Council Municipal Recovery Manager (MRM), Municipal Emergency Management Officer (MEMO) or the Municipal Emergency Response Coordinator (MERC). All community will be advised of the location and relevant details once a facility has been activated during a flood and/or storm event.

As per the [role statement for municipal councils](#) within the SEMP, municipal councils are responsible for municipal relief coordination.

3.18.1 Activation of emergency relief

Refer to the [SEMP Roles and Responsibilities - Relief](#) for more detail of services that may be provided and the responsible coordinating agencies.

Arrangements for relief from a flood and/or storm event within the City of Moonee Valley are detailed in the City of Moonee Valley [MEMP](#).

3.19 Recovery

As per the [role statement for municipal councils](#) within the SEMP, municipal councils are responsible for coordinating local level recovery activities. They are also the lead agency to coordinate post emergency needs assessment to determine long term recovery needs (Post Emergency Needs Assessment).

Arrangements for recovery from a flood and/or storm event within the City of Moonee Valley are detailed in the City of Moonee Valley [MEMP](#).

3.19.1 Transition from response to recovery

The SEMP sets out the transition to recovery arrangements. During the response phase, the IC will ensure they develop a plan for transition from response to recovery. The IC at the municipal tier should take a lead role in facilitating transition to recovery, working with the Municipal Recovery Manager (MRM), as it marks the end of the response phase which the IC leads and manages.

3.20 After action review – Lessons Management

Lessons management is the critical process of learning from how we worked before and during an event, to improve the system for next time.

Depending on the size and scale of the flood or storm event, VICSES will normally coordinate a debrief or after-action review of flood or storm operations as soon as practical following an event. Under the [VicPol SEMP role statement](#), it is the responsibility of the Municipal Emergency Response Coordinator (MERC) to ensure that this occurs.

When the flood is being managed as a level 3 event, Emergency Management Victoria (EMV) in consultation with VICSES may assume responsibility for debriefing.

All agencies involved in the flood incident should be represented at the debrief or after-action review.