SES

EDITION 4

State Emergency Management Plan

Flood Sub-plan

VICTORIA
State Government

Acknowledgment of Traditional Owners

The Victoria State Emergency Service respectfully acknowledges the Traditional Owners of the land and waters. We pay our respects to Elders past, present and emerging, and are committed to working with Aboriginal and Torres Strait Islander communities to achieve a shared vision of safer and more resilient communities.

Authority

This plan has been approved by the **State Crisis and Resilience Council (SCRC)** as a sub-plan to the State Emergency Management Plan.

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Inquiry into the 2022 Flood Event in Victoria

This **State Emergency Management Plan (SEMP) Flood Sub-Plan Edition 4** (this plan) replaces the S**EMP Flood Sub-Plan Edition 3 published in 2022**. This plan considers the Parliamentary Inquiry into the 2022 Victorian flood event (Final Report 2024), particularly the timeline for addressing the recommendations made therein.

Published in June 2025, this plan acknowledges the need for relevant agencies and departments to have sufficient time to develop and implement any necessary procedures and processes related to these recommendations. Consequently, this plan emphasises the importance of flexibility in future reviews to integrate the outcomes of these recommendations as required, ensuring continued adaptability however, this plan also includes provision of current and accurate information relating to operational response in a complex and multi-hazard environment that has impacted Victoria since the previous version published in March 2022.

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1. Introduction

1.1 Readiness and response triggers summary

Sections 1.1 and 1.2 serve as quick reference tables, providing easy and direct access to key information to support efficient response to flood emergencies. Their purpose is to guide the reader directly to the relevant sections without the need to review the entire plan.

Table 1 is a high-level summary that outlines the risk factors for flood emergency events in Victoria and is designed as a quick reference guide to support an efficient response.

Readiness Levels (RL) three (3) to five (5) are levels where there is an increased likelihood that response will require multi-agency involvement to supplement control agency resources to manage, mitigate and control a potential major emergency and/or its consequences.

Readiness Levels are described in a five-level scale. Refer to section 3.6.1 for more detail.

Table 1

Readiness/ Response level	Category	Characteristics of a flood event, incident, or emergency	Multi-agency response requirement	Outlined within this plan	Relevant links or documents
1	Anticipated continued light rain.	Catchments able to absorb predicted rain for consecutive days but may lead to flooding. Nil impacts or consequences expected but may occur.	Nil – Considered normal agency arrangements	**Section 3.6.1 Readiness** Page 26 **Section 3.6.2 Normal agency arrangements** Page 26	External SEMP Emergency Management Severe Weather Intelligence Briefing (SWIB) on Emergency Management Common Operating Picture (EM-COP) Internal VICSES Operations Management Manual (OMM)
2	Anticipated continued rain.	Catchments able to absorb predicted rain for consecutive days with minor flooding occurring. Low-lying areas next to water courses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required.	Nil – Considered normal agency arrangements	**Section 3.6.1 Readiness** Page 26 **Section 3.6.2 Normal agency arrangements** Page 26	External SEMP Emergency Management SWIB on EM- COP Internal OMM

Line of Control					
3	Anticipated continued rain with saturated catchments.	Catchments are saturated and unable to absorb continued rain. Areas of inundation are more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be planned for. In rural areas removal of stock is required. Impact assessment may be required.	Increased likelihood that response will require multi-agency involvement within Incident Control Centre's (ICCs).	**Section 3.6.3 Concept of operations - Multi-agency Response** Page 26	External • Joint Standard Operating Procedure (JSOP) 02.03 • SEMP Emergency Management SWIB on EM- COP Internal OMM
4	Anticipated continued heavy rain with saturated catchments.	Catchments are saturated and unable to absorb continued rain and runoff. Extensive rural and/ or urban areas are inundated. Many buildings may be affected above floor level. Properties and towns are likely to be isolated. Major rail and traffic routes closed. Evacuation of flood affected areas likely. Utility services likely to be impacted. Impact assessment required	Response will require multi-agency involvement. **Incident Management Teams (IMTs)** established to manage incidents. For these levels, the SRC exercises control in accordance with the SEMP.	**Section 3.6.3 Concept of operations - Multi-agency Response** Page 26	External • Bureau of Meteorology (the Bureau) - Warnings • JSOP 02.03 • SEMP Emergency Management SWIB on EM- COP Internal OMM
5	Anticipated significant extreme weather event that will lead to rapidly rising river conditions. Multiple moderate and/ or major riverine flooding with significant consequences.	Catchments are saturated and unable to absorb current or additional runoff. Extensive rural and/ or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated. Major rail and traffic routes closed. Evacuation of flood affected areas likely. Utility services will be impacted. Impact assessment required.	Response will require multi-agency involvement. IMTs established to manage incidents. For these levels, the SRC exercises control in accordance with the SEMP.	**Section 3.6.3 Concept of operations - Multi-agency Response** Page 26	External • The Bureau - Warnings • JSOP 02.03 • SEMP Emergency Management SWIB on EM- COP Internal OMM

1.2 Response process summary

Table 2 is a high-level summary that outlines the first steps required from the onset of a flood event. This section is a quick reference guide to support an efficient response.

Table 2

Step number	Process	Summary	Where this step is outlined within this plan
1	Monitoring and Forecasting	Mitigation activities related to forecasting and warnings for flood	Section 3.4.5 Public Information and Warnings for flood emergencies Pages 22 - 24
2	Notification	Agency and community notifications	Section 3.4.6 VICSES Public Information and warnings for flood Page 24
3	Readiness	Preparedness indicators and triggers	Section 3.5 Preparedness Page 25 Section 3.6.1 Readiness Page 26 3.6.2 Normal agency arrangements Page 26
4	Response	Concept of operations and response and relief considerations	3.6 Response (including relief) - Sections 3.6.3 through to Section 3.6.15 Pages 26 - 34
5	Recovery	Transition to recovery and agency roles and responsibilities across the recovery environments including recovery coordination	Section 3.7 Pages 34 - 37

1.3 Purpose and objective

Purpose

This plan outlines the Victorian arrangements for managing flood events across all emergency management phases.

The plan's purpose is to provide sources of information and to outline the arrangements for ensuring an integrated and coordinated approach to the state's management of flood events, and to reduce the impact and consequences of these events on the community, infrastructure, and services, as well as economies and ecosystems.

Objective

In alignment with the State Emergency Management Plan (SEMP), this plan contextualises the current arrangements, roles and responsibilities for flood mitigation, preparedness, response (including relief) and recovery.

1.4 Scope

This plan is for riverine flooding resulting from prolonged or intense rainfall, rapid snowmelt, or when flooding occurs downstream of dams. Riverine flooding occurs when rivers or streams overflow their banks and inundate the surrounding areas. Flash flooding and coastal flooding (storm tide) is addressed in the SEMP Storm Sub-Plan, and Tsunami is addressed in the SEMP Tsunami Sub-Plan.

The scope of this plan includes:

- Description of potential and observed consequences of floods to the social, built, economic and natural environments.
- The policy, practices, and programs in place to mitigate flood risks and build community resilience before, during and after a flood event.
- Where relevant, the arrangements and practices for managing flood response and the agencies responsible for managing specific strategies.
- The multi-agency management arrangements at the national, state, regional and local levels.
- Links to sources of information where the reader can obtain further detail.

References are made to the SEMP where necessary to avoid duplication.
It does not include detail about the operational activities of individual agencies

1.5 Authorising environment and activation

Authorisation

The *Emergency Management Act 2013 (EM Act)* requires the **Emergency Management Commissioner (EMC)** to arrange for the preparation of a SEMP. The SEMP allows for an integrated, coordinated, and comprehensive approach to emergency management at the state level. It contains provisions for the mitigation of, response (including relief) to, and recovery from emergencies (before, during and after), and specifies the roles and responsibilities of agencies in relation to emergency management.

Under the EM Act, storms (or other natural events), are defined as a Class 1 emergency. A Class 1 emergency is a major fire or any other major emergency where either the **Country Fire Authority (CFA)**, **Fire Rescue Victoria (FRV)** or **Victoria State Emergency Service (VICSES)** is the control agency.

The EM Act defines a major emergency as an event which:

- (a) is a large or complex emergency (however caused), which –

  i. Has potential to cause or is causing loss of life and extensive damage to property, infrastructure or the environment; or

  ii. Has the potential to have, or is having significant adverse consequences for the Victorian community or a part of the Victorian community; or

  iii. Requires the involvement of two or more agencies to respond to the emergency; or
- (b) a Class 1 emergency.
- (c) a Class 2 emergency.

This plan is a Sub-plan of the SEMP and aligns with the SEMP and was prepared with regard to the Guidelines for Preparing State, Regional and Municipal Emergency Management Plans (The Guidelines). SCRC approved this plan on 19 June 2025.

This plan was published and took effect from the 19 June 2025.

The following legislation, while not exhaustive, is the principal legislation for storms in Victoria:

- *Emergency Management Acts 1986 and 2013 (EM Act)*
- *Victoria State Emergency Service Act 2005*
- *Essential Services Act 1958*
- *Planning and Environment Act 1989*
- *Aboriginal Heritage Act 2006*
- *Local Government Act 2020.*
- *Meteorology Act 1955 (Commonwealth).*
- *Water Act 1989.*
- *Melbourne Water Corporation Act 1992.*
- *Marine Safety Act 2010*

The Victoria State Emergency Service (VICSES), on behalf of the EMC, coordinated the development of this plan in conjunction with stakeholders including, but not limited to:

- Ambulance Victoria (AV)
- Emergency Management Victoria (EMV)
- Australian Red Cross
- Emergency Recovery Victoria (ERV)
- Bureau of Meteorology
- Triple Zero (000) Victoria (TZV)
- Catchment Management Authorities (CMAs)
- Environment Protection Authority (EPA)
- Country Fire Authority (CFA)
- Fire Rescue Victoria (FRV)
- Department of Education (DE)
- Life Saving Victoria (LSV)
- Department of Energy, Environment and Climate Action (DEECA)
- Municipal Association of Victoria (MAV)
- Department of Government Services (DGS) (including Local Government Victoria)
- Parks Victoria (PV)
- Department of Health (DH)
- Victoria Police (VICPOL)
- Department of Families, Fairness and Housing (DFFH)
- Water Authorities
- Department of Jobs, Skills, Industry and Regions (DJSIR)
- Water Corporations
- Department of Transport and Planning (DTP)
- WorkSafe Victoria

Activation of the plan

The arrangements in this plan apply on a continuing basis and do not require activation.

1.6 Exercise, evaluation and review

Exercise and Evaluation

This sub-plan will be exercised within 12 months of publication and evaluated every three years from the date of publication. The exercise will be evaluated and, where improvements to the emergency management arrangements in this plan are required, the plan will be amended, and a revised version issued.

Exercises will be conducted in accordance with the Australian Institute for Disaster Resilience (AIDR) Managing Exercises Handbook, available at knowledge.aidr.org.au/resources/handbook-managing-exercises/.

Review

This plan will then 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 storm 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 substantial change to relevant legislation or arrangements, including the SEMP.

1.7 Audience and linkages

Audience

This plan recognises that for emergency management and supporting communities to be safer and more resilient it is a shared responsibility of all Victorians, not just the emergency management sector.

The audience for this plan comprises the Victorian Government and agencies within the emergency management sector. It also includes business, industry, councils and community with a significant role in the mitigation of, response to, and recovery from floods.

This plan should be read in conjunction with the SEMP.

Linkages and hyperlinks

This plan refers to a range of existing resources relating to floods, including documents and websites. This plan does not seek to duplicate the information contained in these resources, and instead provides links to where the reader can obtain further information.

Readers may require a login to access operational or sensitive information, such as for documents saved on the EM-COP.

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

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

Acronyms

A Range of existing resources relating to floods, including documents and websites, provide various acronym lists and attachments.

For this plan the first use of an acronym is fully described, bolded and then the acronym is enclosed in brackets for that point on the only the acronym is used.

For example: **State Emergency Management Plan (SEMP)**

Linking to secondary consequences

Secondary consequences for storms can be complex and compounding. The arrangements for managing consequences of storm are contained in relevant SEMP Sub-Plans, or agency specific plans, including, but not limited to:

- SEMP Storm Sub-Plan
- SEMP Tsunami Sub-Plan
- SEMP Health Emergencies Sub-Plan
- SEMP Energy Sub-Plan
- SEMP Public Transport Disruption Sub-Plan
- SEMP Maritime Emergencies (non-search and rescue) Sub-Plan
- State Landslide Hazard Plan
- Dam Safety Response Plan

Where necessary, VICSES has prepared Regional and Municipal Flood Emergency Plans in alignment with the Guidelines. These plans can be found on the VICSES website.

In the case of a concurrent emergency (for example, human health pandemic or an energy disruption), the arrangements detailed in this plan may need to be adjusted as required.

2. The emergency context

2.1 Risks

Flood risk in Victoria

In 2023, the Victorian Government released its Emergency Risks in Victoria – 2023 Report, as part of its responsibilities under the National Strategy for Disaster Resilience. This report identifies Victoria's top 18 state-level emergency risks, which includes flood. It highlighted the following:

> *The risk of flood is increasing due to future climate predictions of increased intense rainfall. Although controls for flooding cannot stop the event itself occurring, they have found to be successful in reducing consequences if applied effectively.*

The report highlights this sub-plan as a key tool in mitigating flood risk and supporting response and recovery efforts. For more information on the risk of flooding in Victoria including recent major flood events, refer to page 64 of the Emergency Risks in Victoria report.

Appendix 1 to this plan also contains information relating to historic floods of significance that affected Victoria. Flooding may be defined as an overflowing or influx of water from its normal confines. In the Victorian context there are six potential mechanisms which may cause flooding:

- Heavy rainfall: Which cause runoff to enter watercourses, overtopping the banks of rivers and creeks, overflowing lakes, retarding basins and floodwater drains, causing local overland flooding, or resulting in releases or spills from dams. Many factors contribute to the extent and nature of flooding caused by heavy rainfall, such as the amount and duration of rainfall, the spatial distribution of rainfall, prior weather conditions, and characteristics of a catchment including its size, shape, soil types, vegetation and land use. Research by BOM has identified that intense, short duration rainfall events in Victoria have become more frequent over the past 60 years. These events are also becoming more intense, particularly in the warm season.
- **Tides:** Refers to the change in water level (from mean sea level) due to the tidal cycle. The Highest Astronomical Tide (HAT) is the highest tide that can be predicted to occur at a location under average meteorological conditions, typically occurring every few years. Other notable abnormally high tides experienced several times a year coincide with lunar cycles and are often informally referred to as 'King Tides'. These abnormally high tides can result in regular or persistent flooding across low-lying coastal areas, floodplains and estuary margins.
  - **Storm tide:** Refers to the total elevated water level at the coast during a storm. Storm tide combines the predicted tide with the storm 'surge'. The storm surge component is due to effects of low atmospheric pressure, wind and waves associated with the storm system. A 3-metre storm surge on top of a high tide that is 2 metres above the mean sea level will produce a storm tide that is 5 metres above mean sea level. Storm tide events result in temporary flooding across coastal and estuarine floodplains, sometimes for kilometres inland. Storm tide events may also coincide with damaging surf conditions (periods of extreme wave heights and wave energy) that may damage an erode coastal assets, landforms and access, and increase inundation extents.
- **Tsunami:** Resulting from undersea earthquakes, landslides, meteorite impacts or volcanic activity. The arrangements for the emergency management of tsunami are contained in the SEMP Tsunami Sub-Plan.
- **Dam failure:** Involves the uncontrolled release of water from a reservoir because of a structural or other deficiency in a dam. There are many significant public and private dams in Victoria that are used to store water for a wide range of purposes. Some of these have the potential to flood downstream in the event of a failure, with resulting impacts to community safety, property and/or the environment.
- **Snowmelt:** Snow can be thought of as a reservoir of water, waiting for enough warmth to run down the hill. When conditions warm rapidly, snow can melt quickly. When this happens, it can release volumes of water too great for the downstream river channels, causing riverine flooding. Snow cover and volume is expected to continue to decline due to climate change potentially reducing the risk of snow melt over the longer-term.

Flooding in Victoria is influenced by our variable climate, typified by periods of wet and dry conditions. On annual and seasonal timescales, rainfall in Victoria is influenced by the complex interactions of the global climate. There are climate drivers such as El Niño, the Indian Ocean Dipole, and the Southern Annular Mode, which may indicate the likelihood of wetter or dryer conditions. However, rather than relying on individual indices, the Bureau recommends using the seasonal outlooks for temperature and rainfall. These use climate models which integrate many influences and are more accurate. Climate outlooks are available on the Bureau website.

Climate change factors will also continue to contribute to a significant increase in the risks associated with flooding. Localised intense heavy rainfall over a short period of time can cause flash flooding to occur within minutes to hours. As there is little warning time, flash flooding is difficult to predict and manage. Flash flooding has occurred with significant consequences in regional urban areas such as Geelong, Ballarat, Bendigo, and Traralgon, as well as across Melbourne, including the Yarra River precinct. In larger catchments, riverine flooding can occur over several days to weeks and are easier to forecast and manage.

The probability that a given rainfall total accumulated over a given duration will be exceeded in any one year is classified as an **Annual Exceedance Probability (AEP)**.

2.2 Flooding downstream of dams

Flooding events downstream from dams can be the result of any one of the three scenarios described below. This information has been summarised from the Dam Safety Response Plan. More information in relation to dam safety including the Victorian governance arrangements, and roles and responsibilities for managing dam safety-related incidents are available in this plan.

Natural flooding

Natural floods occur when there is significant rainfall in the catchment upstream of the dam, weir or flood retarding basin causing large inflows to the storage. Depending on the water level in the storage prior to the rain event, the dam, weir or flood retarding basin may provide some flood mitigation to the downstream floodplain. The majority of floods that are passed through dams, weirs and flood retarding basins are natural floods. These floods do not generally threaten the safety of a dam, weir or flood retarding basin as they are usually within the design capacity of these structures.

Controlled flooding

Large flows downstream of a dam or weir on may occur if the water level in a storage needs to be lowered rapidly to create additional airspace to absorb a forecast high inflow peak or for dam safety reasons. Large environmental and related operational flow releases from Crown land can also create downstream overbank flows that spill into natural wetlands and across floodplains. Controlled inundation of private land from a crown land release is not conducted without prior consent.

Another scenario for controlled flooding is through a flood retarding basin. The aim of a flood retarding basin is to restrict the outflow from the basin to a predetermined maximum so that the flow from the upstream catchment does not create or add to flooding downstream. Flows higher than the predetermined maximum may occur when the basin fills and excess water flows over the spillway or if the basin's embankment fails. In cases where airspace is being created, the dam or weir operator would be aiming to ensure that downstream flooding is less severe than would otherwise occur naturally.

Dam failure flooding

A dam failure flood is an uncontrolled release of water from a reservoir as a result of a structural or other deficiency in the dam. The failure of a dam, weir or flood retarding basin can cause flooding of downstream areas. Dams can fail during normal operations or in response to external events including, for example:

- An extreme upstream flood overtopping the dam wall causing erosion or movement of the structure.
- Seepage and possible piping of water through the dam wall or foundations causing erosion.
- Earthquakes, which can cause damage to the dam wall, spillway structure or outlet infrastructure.
- Outlet works failures.
- Human factors relating to the operation of the dam or due to intentional damage.

Dams and weirs can fail during or soon after a flood event (i.e. a flood-induced failure) as well as under "sunny day conditions" (i.e. with water in the storage or pool at full supply level or lower and no rainfall). Typically, flood retarding basins are not subject to sunny day failures but can fail during or soon after a flood event.

2.3 Damage and disruption

Damage and disruption caused by floods in Victoria vary, but may include:

- **Agriculture** – loss of and damage to livestock, broadacre crops, horticultural produce, tree crops, fodder and agricultural infrastructure.
- Built infrastructure damage – loss of essential services or key community infrastructure, (such as roads, bridges, dams, marinas, ports, water, gas, electricity, sewerage treatment plants and communications) to homes, businesses and recreational assets.
- **Community** – potentially significant impacts on people's social, emotional, physical and financial wellbeing.
- **Cultural and heritage** – loss of or damage to Aboriginal places and objects and/or culturally significant artifacts, places or buildings and other historic heritage listed sites.
- **Displacement or isolation** – relocation or disconnection of community members from temporary or permanent housing, including caravan parks and campgrounds.
- **Economic** – disruption and closures transport infrastructure including ports and roads, local trade, local businesses including:
  - loss of refrigeration through damage to electrical distribution network.
  - Impacts to agricultural production, and tourism.
- **Education** – disruptions to education or closure of education facilities resulting from, essential service disruptions, community impacts, and access issues. School bus transportation may also be affected by road infrastructure damage and closures.
- **Energy (electricity and gas)** – damage to energy production assets and infrastructure (such as gas distribution plants and coal mine infrastructure feeding power stations) affecting the ability to maintain core services to Victorian communities and businesses. This may negatively affect infrastructure reliant on electricity such as telecommunications, water supply, transport, business and retail, and health.
- **Environment** – temporary and potentially long-term degradation of natural ecosystems and amenities. Dams, including those storing mine tailings and wastes such as dairy effluent can discharge into receiving waters. Sewerage systems can be overwhelmed by stormwater ingress, flooding into receiving waters through emergency relief structures, threatening environmental and human health.

- **Environmental health, human health and health services (including pre-hospital)** – Potential impacts may occur due to floods, including:
  - The potential for injuries, mental health, injuries and death
  - Contamination and disruption to built or natural environments that can increase the risks to public health including, elevated vector-borne diseases, impacts to drinking water quality, and mould.
  - Overwhelming of emergency services and health services.
  - Impact on health services facilities reducing function, capability and capacity.
  - Road closures resulting in reduced access for ambulances and other emergency services, in addition to an inability for health staff to access work premises. There may be a requirement for rescue agencies to assist ambulances in accessing patients.
  - The compounding nature of access issues and delay will negatively affect human health, including reduced access to ambulances and other emergency services and mobility and access to health services staff.

  Health services could be affected by service outages or capacity reduction, such as energy and telecommunications likely to be operating at a reduced capacity. There could be a significant decrease in ambulance services within the affected area due to issues of road access and availability of staff. Power outages could cause additional impacts, for example, food safety and carbon monoxide hazards from generators. Further potential human health impacts include:

  - Contaminated food (due extended loss of power that can lead to unsafe storage of perishable foods and infiltration)
  - Waterborne diseases (due to floodwaters mixing with sewage, contaminants, debris)
  - Respiratory infections (in overcrowded shelters/evacuation centres)
  - Gastrointestinal illnesses (due to disrupted water and sanitation systems)
  - Vector-borne diseases (stagnant water after floods creates breeding sites for mosquitos and other vectors)
  - Skin/soft tissue infections (wounds exposed to contaminated floodwater or injuries sustained during clean up).
- **Food and grocery logistics** – potential of isolation and reduced access and/or loss/spoilage of products due to refrigeration and transport issues. Damage to supermarkets, distribution centres and supporting infrastructure, can lead to temporary supermarket closures and deprive communities from essential food supplies. This could be exacerbated where towns and communities are isolated due to critical transport infrastructure damage, reducing opportunities to resupply and creating conditions for consumers to panic buy. Power outages may also cause refrigeration and storage failures, resulting in loss of perishable food items. Supply Chain Interruptions can prevent or delay the delivery of critical water treatment chemicals, and extended delays can threaten the capacity to continuity of services.
- **Public order and community safety** – overwhelming of local road infrastructure, and loss of services such as food, water sanitation and telecommunications can result in health risks, looting, public demonstrations, civil unrest and disorderly conduct due to discontent.
- **Public telecommunications** – disruption or loss of telecommunication services including network and internet outages, resulting from damage to infrastructure, loss of power or overwhelming of services. Power lines supplying mobile phone and radio towers at high points can be damaged, along with access for repair and back-up power sources. May also impact on provision of health, emergency, transport services, water and sanitation services, and communities' ability to communicate with each other, TZV, other essential services (i.e. banking, etc).
- **Road and transport access** – restricted access to or closure of major roads, rail lines and/or ports due to infrastructure damage can result in delays or cancellations of services. Loss of access to regional mobile phone and radio towers can hinder the reinstatement of back-up power.

Water

- Water supply – Floodwater can contaminate drinking water supplies and impact the quality of water to reticulated water supply systems reducing treatment effectiveness. This can result in the need to issue boil water alerts. Floods can also directly impact water supply infrastructure impacting on supply and sewerage systems. Damage can result in either a loss of supply and/or flood waters entering water supply networks making the water unsafe for consumption.
- Water Infrastructure – flooding can damage on river infrastructure as raw water offtakes and pump stations or change course of the river preventing harvesting.
- Residual water – is caused by large-scale and naturally occurring flood events when significantly high river levels inundate low-lying areas and remain in the landscape for days, weeks or months after the flood peak has passed.
- Wastewater – floods can generate a significant volume of wastewater from sewage and grey water systems and can also cause failure of wastewater treatment. Wastewater can contain chemical pollutants and debris.
- Black water event – forms when flooding occurs after prolonged dry periods, when flooding washes organic material into waterways, where it is consumed by bacteria, leading to a rise in dissolved carbon in the water. Rising levels of dissolved carbon causes a sudden depletion of dissolved oxygen in water, which is essential for aquatic organisms that need to breathe underwater. Black water can create water treatment issues due to increased algal blooms and increased manganese and iron. The low dissolved oxygen can also create aesthetic issues, increased risk of fish kills, leading to increase of virus or pathogens being in source water.

APPENDIX 1 Contains a summary of significant floods that affected Victoria from 2008 until 2025.

2.4 Consequences of floods

The direct effects and consequences can occur across a relatively small geographic area for local flood events, through to a large geographic area for widespread riverine flooding. The indirect effects can extend far beyond the immediate flood-affected area due to infrastructure and service disruptions. Floods can also cause longer durations of recovery due to clean-up potential re-builds, and lingering impacts such as mould, and slow duration of receding water. For details on the arrangements for managing the consequences of flood see section 3.7.

Economic damage of floods has increased, floods result in an annual average economic loss of $350m across Victoria, however a large statewide flood event can result in economic losses in the billions of dollars. About 11.5 per cent of Victoria's land mass, or 3,190,606 ha, is prone to a 1% AEP flood. For context, this is about the twice the area burnt in the 2019/2020 Victorian bushfires.

The Parliamentary Inquiry into the 2022 Victorian flood event (Final Report 2024) found that:

"By September 2023, there were over 10,000 insurance claims from the 2022 flood event, totalling $489 million; 87 per cent of all claims have been closed, with a lower closure rate for residential and commercial property claims."

2.5 Climate change and riverine flood in Victoria

When rain falls, it does not all end up in our waterways. Some rainfall infiltrates into the soil, some is captured in surface depressions, some evaporates away from the surface, and a large amount transpires back to the atmosphere via plants. The hotter and drier the conditions before a rainfall event, the more water is lost before it can contribute to streamflow and flooding. Rainfall losses by soil absorption during storm events will increase by around 10% compared to conditions over the past few decades, and by 20% by 2100 (Ho et al., 2023). This reduces the likelihood of small-scale floods, many of which are important for environmental health of Victoria's waterways and floodplains.

In naturally vegetated areas the rain has a much better chance of being absorbed by the soils and plants and being captured within river systems.

In coastal areas, an increase in mean sea level has and will continue to contribute to a significant increase in the risks associated with coastal erosion and flooding.

Victoria's Climate Science Report highlights the increase in rain events, stating that:

"extreme rain events in Victoria are projected to become more intense".

More information on the effects of climate change in Australia can be found within this report.
www.climatechangeinaustralia.gov.au/en/changing-climate/state-climate-statements/victoria

3. Managing storm emergencies

3.1 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. The priorities are:

- Protection and preservation of life and relief of suffering is paramount. This includes:
  - Safety of emergency response personnel.
  - Safety of community members including those most at-risk in emergencies, residents, visitors and tourists.
- Issuing of community information and community warnings detailing incident information that is timely, relevant, and tailored to assist community members make informed decisions about their safety.
- Protection of critical infrastructure and community assets that support community resilience and community assets that support community resilience.
- Protection of residential property as a place of primary residence.
- Protection of assets supporting individual livelihoods and economic production that supports individual and community financial sustainability.
- Protection of environmental and conservation assets that considers the cultural, biodiversity, and social values of the environment.

3.2 Shared responsibility

The SEMP recognises that emergency management is the shared responsibility of all Victorians, not just the emergency management sector. In emergency management, shared responsibility refers to the collective obligations and accountabilities held by a range of actors. A commitment to shared responsibility recognises that no single actor can be responsible for emergency mitigation, preparedness, response or recovery, and that shared responsibility in emergency management is everyone's business. Individuals, communities, organisations, businesses, all levels of government and the not-for-profit sector all have a role to play in planning for, responding to and recovering from emergencies.

Flood events can have significant impacts and affect large areas. As with all hazards, flooding cannot be fully mitigated from potential impacts on the community. As such, it is imperative that there is a shared and individual responsibility for action which is further explained in the National Strategy for Disaster Resilience, developed by the former Council of Australian Governments (now known as National Cabinet) and is available at: knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience

This strategy provides high-level guidance on disaster management to agencies with a role in emergency management.

Foremost in the strategy is the principle of all of society taking responsibility for preparing for disasters. Examples in the context of flood include:

- Individuals being aware of their flood risk, undertaking preparedness activities (such as developing a home emergency plan and emergency kit with food/water etc), and following advice from emergency services when responding to warnings.
- Regional and Municipal emergency management committees, and communities undertaking risk assessment activities, including flood discussion, and ensuring consideration within emergency management planning, intelligence, and land use planning.
- Industry and businesses planning for the risk of disruption, and ensuring arrangements are in place to maintain critical services and assist communities.

- Government agencies undertaking:
  - Risk assessments to gain an appreciation of flood risk, for example, V**ictorian Emergency Risk Assessment (VERA)** activities.
  - Engagement with communities regarding flood risk.
  - Work with communities to plan the management of flood risk.
  - Provision of emergency information and flood warnings.
  - Effective and well-coordinated response during a flood event.
  - Identify and support those most at risk during a flood event.
  - Activities to help communities recover and learn following a flood event and build their resilience to future events.

In Victoria, **Emergency Management Victoria (EMV)** has led the development of the Community Resilience Framework for Emergency Management, it defines community resilience as "the capacity to survive, adapt and thrive no matter what kind of chronic stresses and acute shocks they experience".

The VICSES Strategic Plan 2023 – 2027 outlines the outcomes and measurable priorities in partnering with communities, government, other agencies, and business to provide timely and effective emergency management services, building community preparedness, disaster resilience and contributing to risk prevention.

Community preparedness material for emergencies can also be found via the VICSES website, Plan and Stay Safe, including information in other languages. Localised community engagement activities include Culturally and Linguistically Diverse (CALD) programs and initiatives.

3.3 Roles and responsibilities

The SEMP details the roles and responsibilities for mitigating, responding to and recovering from floods. The roles of key governance forums and agencies are summarised below.

State Crisis and Resilience Council

The SCRC is the peak crisis and emergency management body to the Victorian Government and provides advice to ministers and relevant cabinet sub-committees. It is responsible for the development and implementation of whole of government emergency management policy and strategy. It does not make operational or tactical decisions.

Emergency Management Commissioner

Under the *EM Act 2013*, EMC has legislated management responsibilities across major emergencies. These include response coordination, ensuring effective control arrangements are established, and ensuring effective coordination of consequences.

Victoria State Emergency Service

The control agency for Class 1 natural event emergencies is VICSES. The hazards are earthquakes, floods, storms, landslides and tsunamis.

Specifically related to the flood hazard, the following activities listed expand on those outlined in the VICSES agency role statement in the SEMP, with VICSES taking accountability for:

- The strategic and operational planning for response.
- Provision of public information and warnings, including the provision of public safety advice to the community.
- Providing advice to the State Response Controller and Regional Controllers on appropriate structures and initial operational activities in response to floods.
- Supporting Victoria Police in undertaking their responsibilities with evacuations.
- Rescue of persons in partnership with other rescue agencies.
- Protection of critical community infrastructure from further damage.

Supporting agency roles and responsibilities

A range of government and non-government agencies/organisations have the skills, expertise, and/or resources to support flood emergency response, relief, and recovery.

Refer to the SEMP agency role statements that support agencies may undertake across all emergency management phases related to floods.

Emergency Management Teams

At the state level, the **State Emergency Management Team (SEMT)**, and at the regional level, R**egional Emergency Management Teams (REMTs)** will be activated to coordinate initial intelligence relating to impact and consequences. This will occur ahead of Incident **Control Centres (ICCs)** and **Incident Emergency Management Teams (IEMTs)** being established to manage the response, including any initial relief requirements. These **Emergency Management Teams (EMTs)** should be based on consequence management and consider the National Emergency Management Agency Framework and connectivity to the National Coordination Mechanism.

More detailed information on EMTs is outlined in the SEMP.

Emergency Management Planning Committees

Emergency Management Planning Committees operate at the state, regional and municipal tiers to guide mitigation and preparedness activities.

For more detailed information on emergency management planning committees, refer to the SEMP.

3.4 Mitigation

3.4.1 Flood mitigation policy framework

Floodplain risk management is a subset of the community emergency risk management process focused on identifying and analysing flood risks and evaluating and recommending appropriate flood risk mitigation options.

Mitigation activities cover both structural and non-structural measures. Structural measures have traditionally included flood mitigation works, such as levees, retarding basins, channel modifications and the flood proofing of dwellings and risk management planning for historic heritage sites on the Victorian Heritage Register and Heritage Inventory.

Non-structural measures include flood warning services, local and municipal flood plans, land use zoning, and building restrictions.

DEECA is responsible for policy and oversight of floodplain risk management arrangements through the Victorian Floodplain Management Strategy. Implementation is carried out at the regional level though regional floodplain management strategies developed in consultation with local stakeholders and communities. The floodplain management function is carried out by CMAs in regional Victoria and Melbourne Water in the Port Phillip and Westernport catchments. Councils have a significant role to play in the administration of land use planning arrangements and accountability for flood mitigation at the local level, including accountability for flood mitigation for council-managed drainage and flood mitigation infrastructure on council owned or managed land.

Refer to the SEMP Roles and Responsibilities – Mitigation for further details.

Victorian Floodplain Management Strategy

DEECA maintains the **Victorian Floodplain Management Strategy (VFMS)**, released in April 2016. This strategy sets the policy and accountability framework for flood related mitigation activities in Victoria. The strategy is available via the Victorian Government website.

Regional Floodplain Management Strategy

Regional Floodplain Management Strategies (RFMS) were released from 2017 and set out the implementation of flood mitigation activities for a region. Each CMA area has a RFMS: Corangamite, Glenelg Hopkins, Wimmera, Mallee, North Central, Goulburn Broken, North East, East Gippsland and West Gippsland, as well as Port Phillip and Westernport (Melbourne Water).

These RFMS are available from the relevant CMAs, and from Melbourne Water for the Port Phillip and Westernport area. The CMAs developed each RFMS after a significant consultation phase with community and key stakeholders including VICSES.

3.4.2 Land use planning and building controls

Land use planning and building controls are key risk mitigation measures in Victoria by regulating land use and development, to ensure flood hazards and risk are considered and managed. They influence where growth and development occur and ensure that development can better withstand impacts. Land use planning that considers natural hazard risks is a critical mitigation measure in preventing future disaster losses in areas of new development. Working with Councils DEECA, CMAs, and DTP administers the land use planning and building system response to floodplain management.

Provisions and controls applied in the land use planning and building systems are important for creating more flood resilient communities. Particularly, strategic planning, through local planning schemes is critical in setting out how settlements and rural areas will grow and change in response to the threat of flood. Building regulations ensure new buildings are constructed with regard to flood risk. Flood mapping is a key element of the land use planning and building regulatory framework. Mapping criteria established by DEECA and applied by CMAs as part of the flood study process informs whether an area should be included in planning scheme maps as an **Urban Flood Zone (UFZ)**, **Floodway Overlay (FO)**, **Land Subject to Inundation Overlay (LSIO)** or a **Special Building Overlay (SBO)**.

3.4.3 Levee management

Levees are an important aspect of Victoria's flood mitigation works. There is an estimated 4000 km of levees in Victoria intended to mitigate flood impacts for urban and rural areas. These levees were built over many decades, often in response to an impending flood, with some dating back to the early 1900s. The design and construction approaches vary considerably.

The roles and responsibilities for flood mitigation in Victoria are outlined in the SEMP, Table 8: Mitigation, and includes:

Legislative policy framework, Floodplain management strategy, reform (lessons learnt) *- CMAs, DEECA, Melbourne Water*
Land use planning (strategic and statutory) and building regulations *- CMAs, Councils,* ***DTP***
Flood mitigation infrastructure e.g. levees, retarding basins *– Councils, Melbourne Water*
Property Modifications *– Property Owners*

Levees are designed and constructed to provide a specific level of protection against flood events. This level of service is determined based on factors like historical flood data, engineering assessments, and community risk tolerance. While levees can be effective in mitigating damage from floods up to the design level of protection, they may not offer the same protection during larger, more extreme flood events. When the magnitude of a flood surpasses the design level of protection for a levee, overtopping or failure can occur, causing significant flooding impacts.

The effectiveness of levees in mitigating flood impacts depends on proper management, including construction, maintenance, and monitoring. Without this proper management, levees can become ineffective and add to flood impacts, hampering flood response and recovery.

The Victorian Floodplain Management Strategy sets a policy framework for managing existing levees and future investment into flood mitigation infrastructure. The policy framework recognises the following management arrangements:

Levees with formal agency management arrangements have an agency responsible for levee management in the preparedness, readiness, response and recovery phases of a flood emergency. This applies to identified existing and all future levees.

and

Levees with no formal agency management arrangements have no agency responsible for levee management and applies only to existing levees. Existing levees in this classification will remain so unless brought into formal management arrangements. For these levees on public land, adjacent landholders can apply to the relevant catchment management authority (CMA) for a permit to pass over Crown land to access and maintain these levees. Details are available via the DEECA website. For these levees on private land, the landholder is subject to land use planning provisions and other regulatory requirements in the management of these levees. For levees under this management arrangement, their structural integrity is unknown and their ability to mitigate flood impacts should not be relied.

Information on levees has been collated and is available through CMAs and DEECA. This information is being incorporated in FloodZoom, Victoria's flood intelligence platform and municipal emergency management plans.

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 (hazard) of floodwater and its consequences.
- Determination of actions to be undertaken in response to the identified consequences.

VICSES works closely with CMAs, DEECA, the Bureau and other agencies, and trusted local sources as appropriate, to ensure available sources of flood information are utilised.

DEECA maintains the FloodZoom flood intelligence platform. FloodZoom is a web-based system and is the central repository of all near real-time and historic flood data for the state. FloodZoom assists VICSES and other emergency services agencies in identifying the possible local consequences of flooding, and supports CMAs in land use planning and flood risk assessments. For significant riverine flood events, flood intelligence may be shared via EM-COP.

Inquiries regarding FloodZoom access should be directed to accounts@floodzoom.vic.gov.au.

3.4.5 Public information and warnings for flood emergencies

Flood Forecasting and Warning Services for Victoria

Under the *Commonwealth Meteorology Act 1955*, the Bureau has the function to provide the Australian community with weather information. It also has the function to issue warnings for weather conditions likely to endanger life or property, including weather conditions likely to give rise to floods. In support of this, the Bureau provides services to VICSES in support of its control agency roles including flood.

The Victorian Emergency Operations Handbook broadly outlines the Bureau's activities and the interactions between it and VICSES in the issuing of public information and warnings to the community in relation to events where flooding is occurring or there is flood potential.

Service levels

Specific details of the Bureau's service delivery in relation to flood events, including relevant forecasts, warnings, notifications and briefings, are outlined in both the Service Level Specification for Flood Forecasting and Warning Services for Victoria and the Thunderstorms and Severe Weather Service Level Specification. These documents outline the following key products issued by the Bureau that support VICSES in issuing public information and warnings to the community.

Forecast and warnings products

The primary purpose of flood forecasts and warnings is to inform both agencies and the community when responding to emergencies. Water level predictions made in flood warnings are based on near real-time river levels and rainfall observations (gauges and radar), forecast rainfall and assessment of catchment dryness conditions.

The Bureau issues its flood watch and warning products directly to the community and VICSES, issuing them in accordance with the Service Level Specification for Flood Forecasting and Warning Services for Victoria (Flood SLS).

As outlined in the Flood SLS, the Bureau provides these forecasts for areas covered by the **Total Flood Warning System (TFWS)**. However, the TFWS does not cover all catchments in Victoria. For areas not covered by the TFWS, the Bureau will not provide specific products but may provide advice on expected conditions where applicable.

Flash floods can occur due to severe weather or severe thunderstorms without concurrent riverine flooding. The Bureau provides severe weather warning products including, severe weather and thunderstorms warnings and coastal hazard warnings. These are outlined in the Thunderstorm and Severe Weather Service Level Specification. Depending on the expected phenomena within these warnings (for example, heavy and/or intense rainfall), these warning predict the likelihood of flash flooding. Additionally, coastal hazard warnings relate to the potential for flooding in coastal areas as the primary impact but are driven by other severe weather factors such as abnormally high tides or storm tides.

Table 3 outlines the Bureau's warning products; the Bureau provides these warnings directly to the public and notifies VICSES.

Table 3

Flood	
Flood Watch	A Flood Watch provides information about a developing weather situation including forecast rainfall totals and catchments at risk of flooding. It can also indicate how severe a possible flood might be. It provides links to weather warnings, other flood-related information, and contact details of relevant emergency services. (www.bom.gov.au/australia/flood/knowledge-centre/about-warning-service.shtml)
Flood Warning	Flood Warnings are more targeted and are issued for specific catchments and locations within catchments. The Bureau forecast how severe the flood is expected to be in each Flood Warning. Flood Warnings typically include predictions about the level the Bureau expect the river to rise to. Where less data are available, Flood Warnings may include a statement about future flooding that is more general. For example, 'River levels are elevated along the Coal River around Richmond and are expected to remain elevated into Wednesday'. (www.bom.gov.au/australia/flood/knowledge-centre/about-warning-service.shtml)
Other related products	
Severe Weather Warning	Severe Weather Warnings may be issued for potentially hazardous or dangerous weather that is not solely related to severe thunderstorms, tropical cyclones or bushfires. Damaging winds, heavy rain that may lead to flash flooding and blizzards in Alpine areas. (www.bom.gov.au/weather-services/severe-weather-knowledge-centre/warnings.shtml)
Severe Thunderstorm Warning	**Severe thunderstorms** Thunderstorms are classified as severe when they produce one or more of these phenomena: ■ Large hail – 2 cm in diameter or greater ■ Damaging wind gusts – 90 km/h or greater ■ Tornadoes ■ Heavy rainfall that may lead to flash flooding. (www.bom.gov.au/weather-services/severe-weather-knowledge-centre/warnings.shtml) **Very dangerous thunderstorms** Thunderstorms are classified as 'very dangerous' when they produce one or more of these severe phenomena: ■ Giant hail – 5 cm in diameter or greater ■ Destructive winds gusts – 125 km/h or greater ■ Tornadoes ■ Intense rainfall that may lead to dangerous and life-threatening flash flooding. (www.bom.gov.au/weather-services/severe-weather-knowledge-centre/warnings.shtml)
Severe Weather – Coastal hazard	The Bureau provides Coastal Hazard Warnings for abnormally high tides or storm tides that: ■ May be higher than the highest astronomical tide, and ■ Could flood low lying coastal areas. (www.bom.gov.au/weather-services/severe-weather-knowledge-centre/warnings.shtml)

3.4.6 VICSES Public Information and warnings for flood

Issuing of public information and warnings for flood occurs in accordance with the principles outlined in the SEMP and the Victorian Warning Arrangements. These documents provide overall guidance on the expectations around the issuing of public information and warnings and relevant definitions. This includes outlining the need for timely, relevant, tailored and accessible warnings and public information, which is delivered across a range of channels, including but not limited to:

- VicEmergency website and app
- Social media
- Doorknocks
- Community meetings
- Radio
- TV
- Mobile and landline phones.

Warnings Systems and doctrine

Table 4 outlines VICSES doctrine for issuing warnings related to flood.

The key warnings systems that VICSES uses in Victoria for issuing of flood warnings are:

- EMCOP Public Publisher
- Emergency Alert

Table 4

Riverine Flooding	EMCOP – Library – IMT Toolbox – IMTTB – Public Information – EMCOP Business Rules – Riverine Flood Business Rules	VICSES Intranet – Assets and Operations – Operational Doctrine – Standard Operating Procedure (SOP) SOP009 Flood Notification and Activation Process
Flash Flooding	EMCOP – Library – IMT Toolbox – IMTTB – Public Information – EMCOP Business Rules – Flash Flood Business Rules	VICSES Intranet – Assets and Operations – Operational Doctrine - SOP008 Severe Weather Notification and Activation
Dam Failure	EMCOP – Library – IMT Toolbox – IMTTB – Public Information – EMCOP Business Rules – Dam Failure Business Rules	VICSES Intranet – Assets and Operations – Operational Doctrine - SOP009 - Flood Notification and Activation Process - Attachment 4 - Dam Safety Incident
Severe Weather and Thunderstorm	EMCOP – Library – IMT Toolbox – IMTTB – Public Information – EMCOP Business Rules – Severe Weather and Thunderstorm Business Rules	VICSES Intranet – Assets and Operations – Operational Doctrine - SOP008 Severe Weather Notification and Activation
Coastal Hazards		

3.5 Preparedness

Preparing for flood events includes developing arrangements to ensure that the state can efficiently mobilise and deploy the resources and services it needs to respond.
Preparedness activities include:

- Identifying and assessing the risk.
- Developing policy, arrangements, and plans.
- Ensuring adequate resources, systems and processes are in place.
- Training response personnel and educating stakeholders and potentially at-risk industries and communities.
- Maintaining and developing expertise, including through local knowledge (see section 3.6.5)
- Conducting exercises.
- Evaluating preparedness and response activities.
- Ensuring the necessary relationships as well as formal and informal mechanisms are in place across government, community and industry to support community outcomes.

The risk management approach aligns with the SEMP and outcomes and objectives of the Sendai Framework for Disaster Risk Reduction 2015–2030 and the National Disaster Risk Reduction Framework. At the state level, EMV is responsible for development and implementation of the **Victorian Emergency Risk Assessment (VERA)** process and publication of the Emergency Risks in Victoria report.

Regional flood planning

Regional Emergency Management Plan (REMP) flood sub-plans are prepared for each region, with regards to the Guidelines; Where the REMP, or REMP Sub-Plans or relevant complementary plans (including operational plans) are not sufficient to address the local risk of floods, identified through the REMP risk assessment process, a REMP Flood Sub-Plan may be required as determined by the Control Agency or the **Regional Emergency Management Plan Committee (REMPC)** with agreement from the Control Agency. REMP Flood Sub-Plans are prepared by the relevant Control Agency on behalf of, and in collaboration with, the REMPC.

Based on flood risk and the requirement for multiagency response for flood events across Victoria, as the Control Agency responsible for flood, VICSES will prepare a Flood Sub-plan on behalf of, and in collaboration with, all Victorian REMPCs.

Municipal flood planning

Municipal Emergency Management Plan (MEMP) flood sub-plans are prepared for each municipality with regard to the Guidelines; Where the MEMP, or MEMP Sub-Plans or relevant complementary plans (including operational plans) are not sufficient to address the local risk of floods, identified through the MEMP risk assessment process, a MEMP Flood Sub-Plan may be required as determined by the Control Agency or the **Municipal Emergency Management Plan Committee (MEMPC)** with agreement from the Control Agency. MEMP Flood Sub-Plans are prepared by the relevant Control Agency on behalf of, and in collaboration with, the MEMPC.

Based on flood risk and the requirement for multiagency response for flood events across Victoria, as the Control Agency responsible for flood, VICSES will prepare a Flood Sub-plan on behalf of, and in collaboration with, all Victorian MEMPCs.

Community preparedness

Outcome 2 of the VICSES Strategic Plan 2023 – 2027, 'We connect better to communities, enhancing their preparedness for emergency weather events' indicates key and measurable priorities in partnering with communities, government, other agencies, and business to provide timely and effective emergency management services, building community preparedness, disaster resilience and contributing to risk prevention.

Community preparedness material for flood can also be found via the VICSES website.

3.6 Response (including relief)

3.6.1 Readiness

The Bureau or the SCC Weather Service will advise VICSES of a pending flood. The Severe Weather Intelligence Briefing provides guidance on readiness and activations. See Section 3.4.5 for details for the Bureau's forecasting and warning services.

This intelligence will then be used by VICSES State Command and VICSES Regional Command to determine the Readiness Level in line with JSOP 02.03 Incident Management Team Readiness Arrangements and the VICSES Readiness and Activation Levels.

Readiness Levels are described in a five (5) level scale:

- Levels one (1) and two (2) are within VICSES internal command and control arrangements.
- Levels three (3) to five (5) will require a multi-agency response to manage, mitigate and control the hazards and/or its consequences.

3.6.2 Normal agency arrangements

In line with Schedule 1, Table 3 under JSOP 02.03 readiness levels 1 and 2 are within VICSES internal command and control arrangements. For VICSES, readiness levels 1 and 2 are classified as business as usual or normal agency arrangements.

Supporting agencies and organisations will have various operational management structures and systems for the management of their command and control responsibilities to define what is classified as an emergency for the consequences of flooding and what is classified as normal agency arrangements. This information is contained in the relevant SEMP Sub-Plan where necessary or is otherwise documented in the internal documentation of those agencies and organisations.

Concurrent and consequential emergencies

For emergencies that are occurring at the same time or result as a or consequence of flood that fit within VICSES Readiness Levels 1 and 2, the same normal agency arrangements apply for the responsible agency.

The **VICSES Operations Management Manual (OMM)** outlines the expected command and control structures, and activities that VICSES shall undertake in preparation for readiness levels one (1) and (2). The audience of the VICSES OMM is VICSES Members.

3.6.3 Concept of Operations - Multi-agency response

Readiness levels three (3), four (4) and five (5)

Readiness levels 3, four 4 and five 5 are where there is an increased likelihood that response will require multi-agency involvement to supplement control agency resources to manage, mitigate and control a potential major emergency and/or its consequences.

Schedule 1, Table 3 of JSOP 02.03 Incident Management Team Readiness Arrangements outlines the process to establish IMTs to manage incidents.

Support agencies may be requested to provide **Emergency Management Liaison Officers (EMLOs)** into IMTs at these levels or seek to have EMLOs positioned for intelligence and connection purposes. When these requests are received or made, each agency is to consider their own operational environment, arrangements,

resourcing and requirements in providing personnel to support these requests, or determining alternative support methods if necessary.
For these readiness levels, the **State Response Controller (SRC)** exercises control in accordance with the SEMP, including working with State Controllers for Class 2 emergencies (where appointed) for concurrent incidents. Refer to SEMP for guidance on concept of operations when the SRC exercises control.

The VICSES OMM outlines the expected command and control structures, and activities that VICSES will undertake in preparation for Readiness Levels 3, 4 and five 5.

SRC readiness, response, and relief considerations

Where conditions for readiness level 3 or above are likely to be met or are met, the VICSES SAC will notify SRC who will notify other control agencies, and rostered regional/zone controllers to assure the following considerations are made:

- Establishing a suitable control structure for management of the risk/incident.
- Confirming agencies at all tiers are activated and appropriate arrangements are in place and have adequate resources in place to fulfil their responsibilities and are planning for sustainment and surge capacity, including identification of need for inter-state assistance.
- Confirming agencies with call-taking responsibilities, including TZV, have resources in place and back up.
- Confirming positioning of relevant rescue resources (for example, land-based swift water rescue) and command as required.
- Consideration for immediate risks to public safety be addressed, including impacts of debris flow and erosion.
- Providing consistent emergency warnings and information to the community.
- Implementation of evacuation and emergency relief plans.
- Identifying the likely consequences of the event and any interdependencies that may affect planning.
- Identifying mass gatherings and large public events that may be at-risk, and arrangements to ensure the safety of individuals attending.
- Positioning of emergency management liaison officers from key support agencies to the SCC and RCCs, where appropriate.
- Ensure arrangements are in place to collect incident related intelligence to support the control agency and support agencies.
- Ensure that arrangements are in place for initial impact assessment data to be collected and incorporated.
- Arranging for regular meetings of the state, regional and incident emergency management teams.
- Providing whole-of-government situation reports to relevant government ministers.

3.6.4 Cross jurisdictional arrangements

The cross jurisdictional arrangements to support operational response to flood events are underpinned by national and inter-state agreements, including:

- Arrangement for **Interstate Assistance (AIA)** which provides the national governing arrangements for deployments and support through the **National Resource Sharing Centre (NRSC)**.
- Inter-state **Memorandum of Understanding (MOU)** between VICSES and South Australia **State Emergency Service (SES)** and New South Wales SES respectively, which detail arrangements for cross jurisdictional response within 40km of the state boundaries including cross-border public information activities.
- VICSES regional plans also detail local arrangements.

To ensure that interstate resources are able to efficiently operate in Victoria, there are the following considerations that the SRC should ensure are addressed by the Interstate and **International Liaison Unit (IILU)** when making a request and preparing deployment plans.

- Any identified differences in other operating practices are identified and a process is agreed and documented as to how interstate crews will be able to undertake the expected functions given the identified differences.

Some of the key considerations when establishing cross jurisdictional arrangements that are relevant to flood response include:

- Coordination and negotiation for resource requests when additional support is required by the Australian Defence Force.
- Use of the national warning platform, Emergency Alert, to provide urgent information to community members above and beyond state warning platforms (such as VicEmergency).
- Establishment of offline communication (such as radio networks).
- Consideration of supporting state deploying **Jurisdictional Liaison Officer (JLO)** in support of their assets/ members

3.6.5 Intelligence

Access to flood analyst and intelligence

For readiness level 3 and above, the SRC will deploy flood analysts as required, comprising members of DEECA, CMAs, VICSES and private technical specialists. Flood analysts will provide information on possible predicted flood consequences, to inform public information and response actions. They do this by using available sources of flood information, including flood studies, gauge data, mapping outputs and local knowledge (obtained through established networks such as councils and field observers).

The flood analyst role sits within the Intelligence Cell and is resourced by VICSES members, CMA officers and consultants. The VICSES COO endorses nominated personnel for the flood analyst role VICSES has developed and manages internal doctrine to support the deployment of the flood analyst role and leads the capability and capacity building of those undertaking the role.

The Bureau provides flood intelligence and information in a number of forms when a significant flood event occurs. In addition to forecasts, flood watches, and flood warnings, the Bureau will provide regular briefings and will activate the Victorian Flood Desk to support 24/7 operational response. Emergency management personnel may contact the Flood Desk to seek further intelligence over the phone. The Bureau may create further intelligence products to inform planning activities, such as the Flood Scenario Outlook.

For high impact weather events, the Bureau will provide a meteorologist, and at times a hydrologist at the SCC, to provide weather and flood briefings including ongoing liaison and state teleconferences as required. When staffed, the meteorologist/hydrologist at the SCC shall be the primary contact for weather and flood information from the Bureau.

DEECA and CMAs in partnership with Councils shall coordinate the collection, collation, analysis, interpretation, and dissemination of post-flood extent and survey levels, and ensure that relevant information is available through the initial impact assessment process.

The state's flood mapping and spatial products are available in FloodZoom and accessible by a link on EM-COP. Personnel in the Intelligence section may also generate operational response and planning maps, using e-Map Water.

Local knowledge

Communities and other organisations can provide valuable local knowledge about incidents and how they may evolve. This information is commonly referred to as local knowledge.

It is essential that communications pathways are created and maintained to ensure appropriate local knowledge can be captured 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. Joint Standard Operating Procedure - JSOP 02.04 Local Knowledge is in place to enable the integration of local knowledge into incident management teams, thereby maximising the safety of incident response personnel and the community.

Further to this, VICSES has created a statewide network of local field observers who provide real-time information and images from the field to the Intelligence Section in IMTs to support situational awareness and intelligence verification. VICSES has adopted the Snap, Send, Solve app to improve communication from field observers to IMTs. Field Observer data is directly available in the EM-COP situation map via the data button (Observations/Snap Send Solve).

The VICSES **Regional Duty Officer (RDO)** is responsible for the activation of Field Observers - refer to SOP073 Field Observer for role information and activation process. The VICSES RDO will give consideration to incorporating people with relevant local knowledge into relevant roles within an IMT. SOP073 can be found EM-COP.

VICSES has developed a Local Knowledge Policy which outlines key strategies for incorporating local knowledge into the management of flooding and is available to VICSES members via its intranet (Sharepoint). Others who require a copy should request it through VICSES command.

Impact assessment

Undertaking an impact assessment provides all decision makers with relevant information regarding the nature and extent of the hazard, and any potential consequences during and after the emergency. This ensures efficient, timely and appropriate support for communities.

The regional (or zone) controller is responsible, with the regional control team agencies, for initiating and managing **Initial Impact Assessments (IIAs)**.

The EMC is responsible for ensuring the coordination, collection, collation and reporting of incident data and impact assessment processes as required. All agencies have a responsibility to assist the EMC with the impact assessment process, as per the SEMP and the relevant impact assessment guidelines available on EM-COP. The data from impact assessments (including secondary impact assessments) is used to identify where to focus early recovery activities. Multi-agency Impact Assessment Guidelines can be found on:

- Library - IMT Toolbox - Incident Control - Impact Assessment.

FRV is the response agency identified in the SEMP to assist with IIA, however in some circumstances IIAs may be done by other response agencies. To expediate collection of information, the Incident Controller may task any response agency to assist by having its personnel collect relevant information. VICSES provide its impact assessment data through its **Requests for Assistance (RFAs)**.

In the initial phase of response, IIA may involve:

- Aerial reconnaissance of the affected area.
- Individual agencies reporting on impacts within communities where they have a presence.
- The SCC Intelligence and Public Information Cells monitoring media channels and community sentiment through the likes of social media.

To enable emergency relief and early recovery activities to commence, IIA is utilised to capture the nature and scale of the flood's impact during the initial 48 hours of an emergency. It identifies impacts on people, community infrastructure, and the economic, natural, and built environments.

An IIA typically begins in the first 24-48 hours of an emergency event and is focused on the collation of immediate impact data. An IIA is a preliminary assessment generally from visual inspection. Response agencies undertake them to assist in determining the scale and impact of the flood emergency on people, community infrastructure, and the economic, natural, and built environments. It assists with prioritisation of immediate needs of individuals and communities, requirements of **Secondary Impact Assessments (SIA)**.

3.6.6 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.

Victoria Police, as the designated control agency for water rescue, coordinates rescues undertaken during flood events.

To activate water rescue services for a predicted flood event (Readiness Level 3 and above) the EMC, on advice from the SRC, will identify areas at risk of requiring rescue and notify the **Victoria Police Senior Police Liaison Officer (SPLO)** and the officer in charge of the Water Police Search and Rescue Squad, to request pre-deployment of water rescue resources to these areas via the **State Police Search And Rescue Coordination Centre (SPSARCC)**.

To conduct water rescues during a flood, Victoria Police 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. Victoria Police coordinate with these agencies to ensure operational readiness for activation.

In significant flood events, Victoria Police will appoint a Water Rescue Manager, who will likely be an officer from Victoria Police or one of the support agencies, located within a relevant IMT/ICC. The primary responsibilities of the Water Rescue Manager are to:

- Coordinate all water rescue activities.
- Identify and source required resources.
- Deploy required police and support agency resources.
- Contribute to the development of the rescue plan for the incident.

In preparation for or during a large scale flood event, the state/regional or area controllers in consultation with agency commanders may determine that it would be beneficial to establish water rescue cells in proximity to the areas where water rescues are most likely to occur. The relevant controller may suggest to the SPLO (state level requests) or the Inspector Water Police (regional/incident level requests) that Victoria Police establish cells outside of the SPSARCC.

Where Victoria Police agrees to establish remote water rescue cells, the appointed Water Rescue Manager should consider deploying the following resources to optimise the efficiency of the cell:

- a TZV dispatcher with remote computer aided dispatch capability
- EMLOs from the rescue support agencies as appropriate, and AV.
- Victoria Police airwing EMLO

This practice was first piloted in the October 2022 floods and proved to be a successful means of expediting water rescue during large scale floods.

During and after flood events, AV may require access to impacted and potentially isolated areas for people who require urgent medical assistance. This may be as a result of flood related injuries or illnesses, or urgent requests for an ambulance for unrelated pre-hospital emergencies.

To facilitate a response, AV may require VICSES or VICPOL (i.e. Water Rescue Manager or a remote water rescue cell) to;

- provide advice on safe access/egress to patients;
- support AV and rescue agencies in determining safe access to or retrieval of patients; and/or
- provide advice and alternate arrangements on managing those requests for assistance.

3.6.7 Health response

During a flood event, DH has a support function to minimise the health impacts on individuals, communities, public health and the health system. The State Health Commander (AV) is responsible for directing the pre-hospital response in an emergency.

The State Health Agency Commander and State Health Coordinator are responsible for directing health resources. These roles are represented on the SEMT.

DH works with many partners including the control agency for energy emergencies DEECA, DFFH, Victoria Police, Red Cross and hospitals to support life support customers during prolonged power outages.

The SEMP Health Emergencies Sub-Plan (HESP) outlines the arrangements for coordinating the health response to emergencies and the arrangements in place for directing health resources.

Floods have the potential to affect electricity supplies across the state, and in some instances lead to widespread and prolonged power outages affecting many people. Some of the most at risk people during such outages are life support customers including customers dependent on ventilators or other medical devices, who rely on electricity for medical reasons. DH works with many partners to facilitate support for these groups during widespread and prolonged power outages in recognition of their unique risk to this type of event.

The DH administers Victoria's safe drinking water regulatory framework, which requires water businesses to have emergency management arrangements and procedures for dealing with an incident, event, or emergency that may adversely affect the quality or safety of drinking water, or result in water being supplied that poses a risk to human health. The department is also the control agency for drinking water contamination.

DH also works closely with health sector partners to maintain health service continuity during an emergency event, including managing staff shortages and critical infrastructure. In response to mass fatalities, Victoria Police will manage the disaster victim identification process and will administer the handling and investigation of deceased persons and their subsequent removal on behalf of the State Coroner (Refer to SEMP Roles and Responsibilities – Table 8).

3.6.8 Restricting access

To ensure public safety, it may be necessary to restrict access to affected areas. Victoria Police and relevant land managers will coordinate the restriction of access to these areas as directed by the Incident Controller.

Traffic management will be conducted in accordance with the JSOP for Traffic Management at Major Emergencies (JSOP 03.10).

The IC who has overall responsibility for incident control is required to consult with Victoria Police and where possible, the responsible road authority to develop, implement and monitor a Traffic Management Plan.

3.6.9 Evacuation and relocation

AIDR's Evacuation Planning Handbook defines evacuation as:

> *A risk management strategy that may be used to mitigate the effects of an emergency on a community. It involves the movement of people to a safer location and their return. For an evacuation to be effective, it must be appropriately planned and implemented.*

Evacuation is a scalable activity, in that it may be applied to individuals, a house, a street, a large facility (such as a school or hospital), a suburb, a town or a large area of the state.

The Incident Controller is responsible for making a decision in consultation with Victoria Police as to whether evacuation is a safe option for communities and individuals. In making this decision the Incident Controller may seek advice from other agencies or communities, as detailed in JSOP 03.12 – Planned Evacuation for Major Emergencies.

3.6.10 Emergency works

Emergency works, in this Sub-plan, are defined as works undertaken using powers as outlined in the VICSES Act 2005 (Section 32AB & AC)

The *VICSES Act 2005*, Part 3, Section 32AB, provides the power to enter land or premises with or without the consent of the occupier of the land or premises, if a service member reasonably believes that entry is urgently required to protect life or property in the course of responding to or preparing for, a flood, earthquake, storm, or when undertaking a rescue.

The *VICSES Act 2005*, Part 3, Section 32AC (1), provides the power to construct, remove or alter a levee and/or remove debris if a service member reasonably believes that construction, alteration, or removal is required to protect life or property.

The State Emergency Management Priorities guide the use of emergency works. Emergency works should be used in exceptional circumstances, and only when:

- The threat to life and/or property is imminent and unanticipated; and
- Alternative response options are not sufficient to manage the risk to life and property (such as public information and warnings, relocation and evacuation, and local asset protection).

The routine or planned reliance on emergency works is not an alternative to formally managed flood mitigation works or landholder levee permits.

VICSES SOP035 'Entering land or premises during operations' and VICSES SOP036 'Construction, Removal or Altering of Levee and Removal of Debris' set out the procedure to be followed when exercising these powers, supported by SOP036 - Attachment 1 'Guidance and Examples for the use of Emergency Works'.

Relevant agencies with formal management responsibilities and landholders with permits as outlined in the levee management framework (see section 3.4.3) undertake their activities in preparedness, response and recovery under other legislative and policy instruments.

3.6.11 Management of flooding downstream of dams

VICSES and DEECA have developed arrangements for the management of flooding downstream of dams and dam safety incidents section see section 2.1 and section 2.2 for details of flooding downstream of dams. The Victorian governance arrangements, roles and responsibilities for managing dam safety related incidents can be found in the Dam Safety Response Plan.

3.6.12 Managing residual floodwater

Residual flood water is caused by large-scale and naturally occurring flood events when significantly high river levels inundate low-lying areas and remain in the landscape for days, weeks or months after the flood peak has passed. Residual floodwater may contain wastewater and/or blackwater carrying harmful contaminants (refer section 2.3).

The management of residual flood water will likely commence during response, as a consequence for the SCC, regional controller and ERV to manage, including community messaging via the EPA. However, it may remain an issue long after transition to recovery has occurred. This is because the key conditions described in 3.7.1 (Recovery) that determine the need to maintain response have typically been concluded by the time residual flood water becomes an issue to manage in its own right. However, there may be circumstances where residual flood water is an issue during the response phase.

After a major flood, DEECA has responsibility for the coordinated response to manage residual water. To assist manage this process DEECA has developed an Operational Plan Managing Residual Floodwater, which is available in the EM-COP library.

3.6.13 Restoration of services

Floods can disrupt energy, telecommunications, water (potable and waste), agriculture/dairy industries, and transport services.

Refer to SEMP Roles and Responsibilities for details of coordination arrangements for restoration of services.

3.6.14 Animal welfare

Floods can result in significant displacement and other welfare issues for livestock, companion animals and wildlife.

The SEMP Roles and Responsibilities defines DEECA as the control agency for the welfare of livestock, companion animals and wildlife welfare arising from a declared emergency.

DEECA is the relief coordinating agency for:

- animal welfare
- responding to wildlife welfare arising from an emergency event
- animal welfare support relief activities (other than wildlife).

3.6.15 Relief

Emergency relief involves the provision of essential needs to individuals, families, and communities during and in the immediate aftermath of an emergency. The relief needs of individuals, families, and communities will be complex and specific to each incident. However, there are a number of overarching relief priorities for flood emergencies which are:

- Provision of need-based assistance for the immediate health and wellbeing of individuals and communities.
- Planned and timely access to restore critical infrastructure (including transport infrastructure, power, water, and telecommunications).
- Consideration of the essential community need of access to emergency and health services.
- Planned and timely return of communities to flood affected areas to minimise further physical and psychological harm.
- Provision of timely, relevant, and tailored relief information to assist community members to make informed decisions.
- Effective and efficient state, region/incident and local relief coordination arrangements.

Refer to the SEMP for the relief responsibilities of the Incident Controller, Regional Controller, and SRC.
In line with the SEMP Roles and Responsibilities, relief coordination operates at both tier level and activity level. Tier level coordination is as follows:

- **Municipal** – Councils are responsible for coordinating relief at a local level, which includes establishing relief centres.
- **Regional** – ERV will coordinate relief arrangements at the regional level.
- **State** – ERV will coordinate relief arrangements at the state level.

Several agencies, government departments, and non-government organisation have responsibility for coordinating or providing direct assistance to individuals, families, and communities, or indirect assistance through the resupply of essential goods or services to communities isolated in an emergency. State leads are identified in the SEMP's Relief Services and Co-ordination table.

Debris removal and safety mitigation activities

Whilst the SEMP Roles and Responsibilities define longer term clean-up in recovery, floods in various settings will require a level of clean-up in the response and relief phase to ensure the safety of personal and the community. Some of these activities may include:

- Debris removal
- Access and egress management
- Temporary road infrastructure mitigations
- Hazardous tree assessment/management
- Hazardous power line assessment/management
- Disconnection of energy supply (e.g. solar, gas)

Refer to SEMP Roles and Responsibilities for details on debris removal and clean up resulting from floods in various settings.

Resupply

Resupply is the supply of essential goods or services to a community, neighbourhood, or households isolated by an emergency for the purpose of ensuring the welfare of residents in a manner that attempts to maintain existing economic networks and functions.

Communities, neighbourhoods, or households can become isolated during floods 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.

Resupply operations to emergency relief centres and individuals will be aligned to the emergency relief operation managed by emergency relief agencies at the relevant tier of operation. Supporting agencies may be requested to assist with performing logistics functions through Emergency Management Team arrangements. VICSES can support isolated communities through assisting with the transport of essential items to isolated communities.

3.7 Recovery

Under the *EM Act 2013*, the EMC is responsible for the coordination of consequence management and coordinating recovery for major emergencies and can delegate this responsibility to relevant agencies.

In line with the SEMP Roles and Responsibilities, recovery coordination operates at both the tier and functional activity levels. Tier level coordination is as follows:

- **State and regional recovery coordination**: ERV, partnering with all levels of government, business and not-for-profit organisations and responsible to deliver recovery programs and services (including community services).
- **Municipal recovery coordination**: Councils are responsible for recovery information for community and the coordination of local recovery services.

3.7.1 Transition to recovery

The SEMP specifies the arrangements for the coordinated planning and management of transition from response to recovery in Victoria.

Transition to recovery may occur on a municipality-by-municipality basis, with the support of ERV, while response may still be occurring in other municipalities.

The response function will continue at least until the following conditions are met:

- All rescues have been accomplished.
- All injured have been attended to.
- Displaced people have been provided with shelter, and essential services.
- Impacts to community assets and infrastructure are at repair and/or rebuilding phase (note: this may mean significant levels of disruption may still be present within the community).

Incident controllers, regional controllers, ERV recovery coordinators and municipal recovery managers at the relevant tiers, should collaboratively develop transition plans. These plans should identify appropriate and agreed resources, both prior to and post transition.

The community must receive continuous services during the transition.

An important component is that communications appears seamless during transition. Recovery messaging should be integrated with response information as early as possible to facilitate a smooth transition to recovery, alongside other components required for effective transition to recovery.

Key concepts guiding transition include:

- Coordination of transition from response (including relief) to recovery, in partnership with the lead recovery agency, and in consultation with other agencies affected by the transition.
- Seamless transition of information, concise and household specific impact data, and consequence planning.
- Continuity of emergency management for individuals and community.
- Integration of recovery within the IMT – supporting knowledge management into recovery.

Transition from response to recovery is not always a clearly defined step. For a flood inundating a large coastline or multiple coastlines, there may be a legitimate need to instigate recovery in some areas while the response phase is still in operation. This is a phased transition to recovery. The teams at the relevant incident, regional and state tiers should agree on the timing and phasing of the transition, the activities required and who is responsible.

3.7.2 Agency roles and responsibilities across the recovery environments

In Victoria, four recovery environments are used as a framework within which recovery can be planned, reported, monitored and evaluated. These are: social; natural; economic; and built. These environments can be adapted to meet the needs of people and community affected. This includes the inclusion of Aboriginal Culture and Healing.

Social

The social environment considers the direct and indirect effects emergencies may have on the health and wellbeing of individuals, families and communities. This environment is primarily concerned with safety, security and shelter, health and psychosocial wellbeing. The Department of Families, Fairness and Housing is the **Recovery Coordinating Agency (RecCA)** for housing and accommodation and psychosocial support, and **Recovery Lead Agency (RecLA)** for a number of activities in areas such as psychosocial support, family violence, certain forms of financial assistance and accommodation. DH is the RecCA for health and medical assistance, and the RecLA for providing and promoting mental health and well-being services and public health advice, including guidance on interim accommodation standards for displaced people.

Natural

The natural environment considers the effects emergencies may have on a healthy and functioning environment, which underpins the economy and society. Components of the natural environment include air and water quality, land degradation and contamination, loss and damage of plant and wildlife and impacts to national parks and cultural and heritage sites.

Activities in this environment look to support the vitality of biodiversity through prioritisation of threatened species and native vegetation, and the restoration of natural habitats. Natural resources are safeguarded through activity that supports sustainable use of land, water and energy resources.

Environmental recovery also looks to restore the productive and accessible amenity of parks and forests for recreation and nature-based tourism.

DEECA is the RecCA for the recovery activities for natural environment, public land and inland waters, and wildlife and threatened ecosystems and species.

Economic

The economic environment considers the direct and indirect effects an event may have on businesses, primary producers and the broader economy.

Activities in this environment focus on how businesses and local economies can survive in the short-term and thrive in the long-term. Building on existing economic strengths and opportunities with a focus on tourism, primary producers, small businesses, medium and large business, industry and sectors is critical. This environment also captures opportunities for strategic investment in regional infrastructure to boost economic recovery and future development.

DEECA (through Agriculture Victoria) is the RecCA for recovery activities relating to agriculture and the RecLA for a range of activities that support primary producers. DJSIR is the RecCA for recovery activities relating to economy and businesses, and the RecLA for a number of activities that support economic recovery such as identifying economic impacts and consequences, implementing financial assistance and providing knowledge and skills for workforces and businesses.

Built

The built environment considers the effects emergencies may have on critical infrastructure including critical infrastructure, commercial and industrial facilities, public buildings and assets and housing.

Activities in this environment seek to address loss in the built environment and to restore critical infrastructure safely and quickly. Some of the desired outcomes are to ensure utilities and transport routes are restored and resilient, and public infrastructure is relevant and of a high quality. Activities could include factoring in Victoria's future climate when rebuilding damaged infrastructure.

DEECA is the RecCA for energy services, reticulated water and wastewater services. The DGS is the RecCA for public telecommunications.

DTP has obligations as both RecLA and **Recovery Support Agency (RecSA)** for recovery activities relating to transport infrastructure and services, as well as providing guidance on planning, building, land-use and historic heritage.

Aboriginal culture and healing

For Aboriginal people, relationships to Country, culture and community are not only interconnected, but intrinsically linked and enmeshed with identity. Aboriginal people may therefore be uniquely affected by emergencies. It is critical to recognise that any impact is compounded by, and cannot be detached from, trauma incurred due to longstanding social dislocation and upheaval as a direct result of past policies of governments at all levels.

It is also very important to recognise the unique strengths and resilience of Aboriginal communities through the protective factors provided by culture, Country and community in healing from the trauma of emergencies. Activities in this environment support the recognition of culture and knowledge, physical and mental health and wellbeing, engagement with education, respect for land practices, connection to land, water, and wildlife, and strengthened representation in workforce.

While this environment is not listed among the others in the SEMP, it is used in recovery governance at different levels to coordinate these activities. ERV is also accountable in the SEMP for coordinating state and regional recovery, including recovery support for Aboriginal Culture and Healing, ensuring coordination efforts align with the State Government's commitment to advancing Aboriginal self-determination.

ERV works closely with Aboriginal communities to maximise opportunities for operating under the Victorian Aboriginal Affairs Framework 2018-23 and the Self Determination Reform Framework to ensure Aboriginal individuals, families, communities, businesses and Traditional Owner groups are supported to self-determine appropriate relief and recovery responses. This self-determination provides the ability for indigenous people to freely pursue their economic, social and cultural development following emergencies or natural disasters that have impacted them and their communities.

3.7.3 Coordination

Recovery activities, in accordance with the SEMP, begin immediately and continue beyond the need for relief activities, and therefore should be considered during response. As such, high levels of understanding and cooperation are required between response and recovery organisations at each operational tier (state, regional, municipal) and each recovery environment and activity. Response and recovery activities may need to be managed concurrently in some areas impacted by a flood.

As highlighted in 3.7.1, coordination is a key element for the transition to recovery to ensure roles, responsibilities and messaging is clear and consistent.

Appendix

Appendix 1

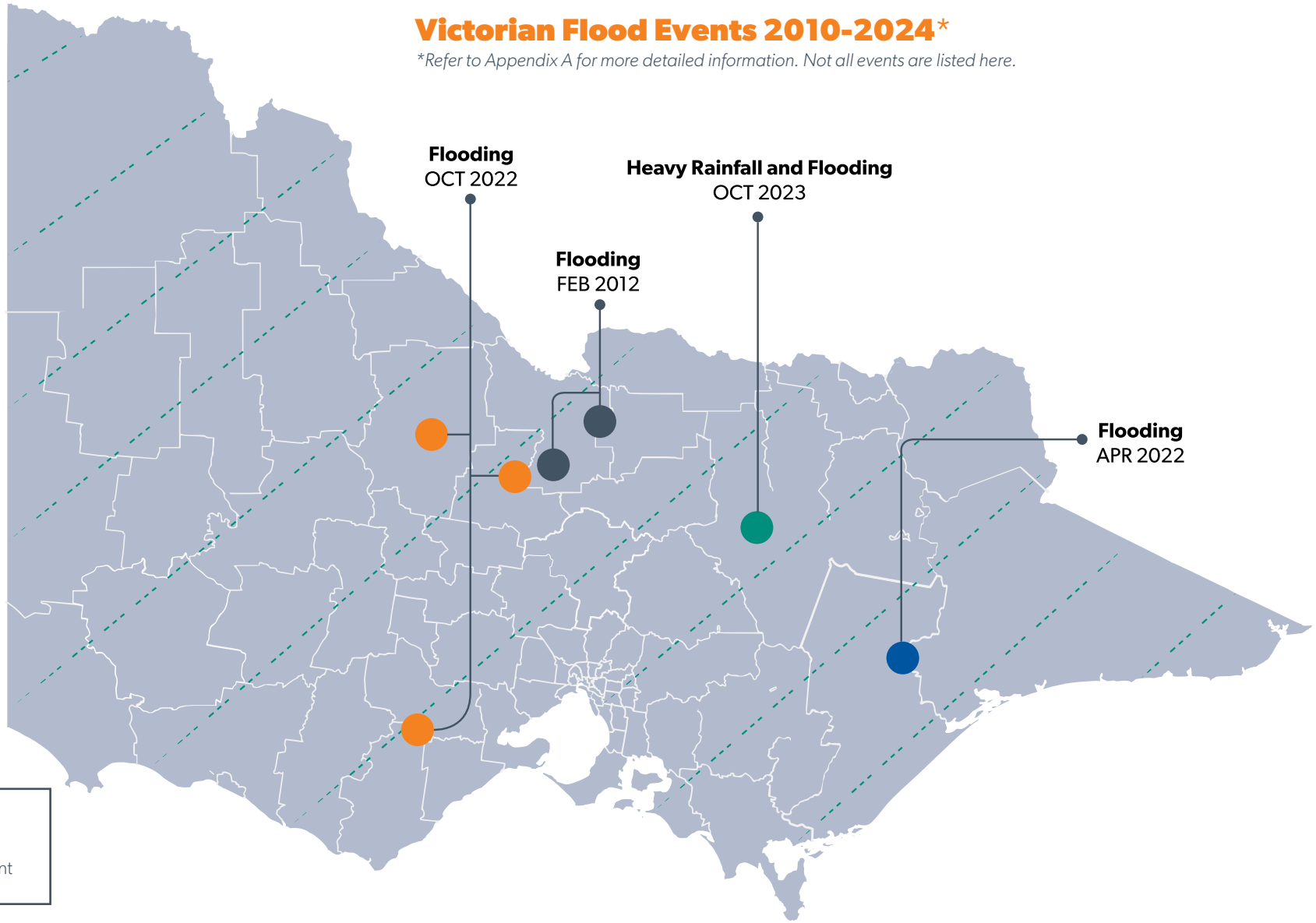
Recent history of damaging storms in Victoria 2008 – 2024

Date	Location	Details
January 2024	Central, North- East and North-West Victoria	The first nine days of 2024 were the wettest first nine days on record for Victoria. Heathcote received 180mm of rain, amounting to three months' worth of rain in 24 hours. Major flooding promoted evacuations in Seymour, Yea & Rochester, with moderate flooding impacts also occurring in the Bendigo & Bullock Creeks, and along the Goulburn River. A significant landslide also occurred on the Mount Dandenong Tourist Road after heavy rainfall. VICSES received over 1200 requests for assistance including 58 flood rescues.
December 2023	Central and Eastern Victoria	Daily rainfall totals of 50 to 100 mm were recorded in the 24 hours to 9 am between the 25 and 27 December across parts of Victoria with minor to moderate flooding across catchments in north-western, central and eastern Victoria. Dunolly reported its highest ever daily rainfall on record, receiving 96mm of rain in 24 hours. VICSES received 323 RFAs relating to flood and published 123 flood warnings on VicEmergency.
October 2023	North-East Victoria	A low-pressure system and associated cold front moved over south-east Australia early in October and brought heavy rainfall, damaging winds, severe thunderstorms and showers. In the 24 hours to 9 am on the 4 October, many stations in Victoria had their highest October daily rainfall on record including Mount Hotham which received 198.8 mm. Heavy rainfall led to flash flooding and widespread minor and moderate riverine flooding across north-eastern and eastern Victoria. Between 3 and 4 October 2023, VICSES received 111 RFAs relating to flood.
October 2022 – January 2023	Central and North-East Victoria	VICSES declared an operation that became a campaign emergency response for widespread severe weather and associated flash and riverine flooding. This major emergency commenced on Thursday 6 October and was active in response for 89 days closing on Tuesday 3 January 2023. A low-pressure system south of the mainland linked up with tropical moisture from around 12 October, forming an extensive, slow-moving rain band over south-east Australia. Victoria experienced significant severe weather including heavy to intense rainfall onto already wet soils and full or close to full catchments over the period of 12 to 14 October 2023. A very large number of stations across central and northern Victoria and northern Tasmania set daily rainfall records for October during the 24 hours to 9 am either on the 13th or the 14th. Major flooding along the Maribyrnong River resulted in evacuations of inner Melbourne suburbs, while major flooding also led to inundation in a number of other cities and towns including Shepparton–Mooroopna, Rochester, and Echuca. In the Murray–Darling Basin the flooding occurred over prolonged periods, or on multiple occasions. During this period, VICSES received 20,062 Requests for Assistance. Of the 150 VICSES units, 147 participated in operations, supported by all responder and support agencies, and government departments. The October flood campaign saw October 2022 recorded as the busiest month in VICSES history with 13,689 RFAs. 64 of 79 Local Government Areas were affected, with 6097 property impact assessments undertaken. 976 properties were deemed uninhabitable, 569 habitable but damaged and 3472 with minor damage. 56 public schools were closed at different times and 4,419km of public roads and 12,230 agricultural properties impacted, as just some of the key consequences of this event. More than 1500 flood rescues were undertaken in support of Victoria Police as the control agency for water rescue, with VICSES swift water and rescue boat crews being supported by LSV, FRV, Victorian Fisheries, Transport Safety Victoria, and AV helicopter crews.

April 2022	Gippsland	At the beginning of April, a moist south-to-south-easterly airstream over south-eastern New South Wales, eastern Victoria, and north-eastern Tasmania initially saw significant rain over Gippsland, with flood warnings issued for several catchments.
11 -15 November 2021	Gippsland & Central Victoria	Cumulative rainfall totals of up to 159mm in East Gippsland, 142mm in West Gippsland, and 127mm in elevated parts of Central Region were received. Flooding occurred on numerous river systems, ranging from Minor or Moderate Flood Levels across metropolitan Melbourne (Bunyip, Werribee, Yarra Rivers), North East (Upper Murray and Kiewa Rivers) and Gippsland (Tambo, Nicholson, Snowy, Macalister, Latrobe, Thomson Rivers, and the Gippsland Lakes). Major Flood Warnings were released for the Avon and Mitchell Rivers. Minor flooding continued for several days following the event. VICSES received 108 flood related RFAs.
June 2021	Gippsland	Strong north to north-westerly winds affected Victoria on 7 and 8 June, ahead of a complex low-pressure system crossing the state on the 9th and 10th. Initial indications forecasted 100-150mm of rain based on an East Coast Low potentially impacting parts of Gippsland from 8 June. Major flooding occurred in multiple catchments. On the morning of the 9th, major flood warnings were issued for the Yarra and Thomson rivers and Traralgon Creek; moderate flood warnings for the Latrobe, Werribee, and Mitchell rivers, and minor flood warnings for the Avon, Bunyip, Dandenong, Snowy, and Werribee rivers and Gippsland Lakes. On the 11th, a number of rivers were experiencing major flooding after rapid rises were observed. The town of Traralgon was particularly affected by flooding. At 1000hrs on Thursday 10 June, an 'Evacuate Now' warning was issued for the vicinity of Traralgon and subsequently Traralgon Creek, which continued until Friday 11 June. 93 water recuse based Request for Assistances were received on 10 June 2021, with residents close to Traralgon Creek needed to be rescued by swift water crews when trapped by flood waters. An Emergency Flood Warning was also put in place for the Yarra River between Coldstream and Warrandyte. On 12 June, Yallourn power station was evacuated and all but one generator was turned off due to the threat of flooding to the coal mine. A State of Emergency was declared for energy
February – March 2012	North-East Victoria	Flooding occurred across north-east Victoria in late February and early March 2012, causing record flooding in some parts of the Goulburn- Broken River System. Significant property damage occurred, with 135 residences flooded in Moira Shire (93 in Numurkah). A further 31 residences damaged in Greater Shepparton City. Significant damage occurred to local roads, irrigation infrastructure, farm properties and the Numurkah Hospital.
September 2010 to March 2011	Statewide	Victoria experienced some of the worst floods in the state's history to date. The floods followed heavy rain across south-eastern Australia, which began in August 2010. Over a series of flood events, the worst of which occurred in the months of September 2010, and January – February 2011. Approximately 70 of 79 Victoria's local government areas experienced flooding and flood related damage. Along with the substantial impact to residential property and townships, significant loss, damage, and isolation to rural properties and farms was experienced. Damage also occurred to infrastructure including roads, public buildings and essential services. As at October 2011, the estimated gross total cost of these floods was approximately 1.3 billion dollars.

Victorian Flood Events 2010-2024*

*Refer to Appendix A for more detailed information. Not all events are listed here.



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- Approximately 70 of 79 Victoria's localgovernment areas experienced flood and flood damage.
- Along with the substantial impact toresidential property and townships,significant loss, damage, and isolation torural properties and farms was experienced.
- Damage also occurred to infrastructureincluding roads, public buildings andessential services.
- In October 2011, the total estimated cost of the floods was approximately $1.3 billion.