

SUB-PLAN
GREATER GEELONG **MEMEP**



Flood and Storm Sub-plan
A Sub-plan of the Greater Geelong Municipal
Emergency Management Plan
Version 5.0 – October 2025

Table of Contents

AUTHORITY	- 4 -
1.Introduction	- 5 -
1.1 Aim	- 5 -
1.2 Objectives	- 5 -
1.3 Authorising Environment.....	- 5 -
1.4 Exercise, Evaluation and Review	- 6 -
1.4.1 Exercise	- 6 -
1.5 Audience and Linkages	- 6 -
1.5.1 Audience	- 6 -
1.5.2 Linkages.....	- 6 -
1.5.3 Supporting Operational Information.....	- 7 -
1.5.4 Hyperlinks	- 7 -
2.The Emergency Context	8
2.1 Risks	8
2.1.1 Riverine Flooding.....	8
2.1.2 Flash Flooding	8
2.1.3 Severe Weather and Storms	9
2.1.4 Tidal, Estuarine and Storm Surge Flooding.....	9
2.2 Major Waterways, Drains and Dams	10
2.2.1 Dam Spilling/Failure.....	11
2.3 History of Flood and Storm Emergencies	12
3.Managing Flood and Storm Emergencies	14
3.1 State Emergency Management Priorities	14
3.2 Roles and Responsibilities.....	14
3.3 Mitigation and Preparedness	14
3.3.1 Corangamite Regional Floodplain Management Strategy.....	14
3.3.2 Flood Structural Flood Mitigation Measures	14
3.3.3 Planning Controls.....	14
3.4 Community Resilience	15
3.4.1 Flood and storm specific community engagement and programs.....	15
3.4.2 Public Information and Warnings for Flood and Storm Emergencies.....	15
3.4.3 BoM Flood Warning Example	16
3.4.4 Flood Intelligence.....	17
3.4.5 Cross-border Collaboration and Area of Operations	18
3.5 Local Knowledge.....	18
3.3.1 Field Observers.....	18
3.6 Response (including relief)	19
3.6.1 Activation of Response	19
3.7 Concept of Operations	19
3.7.1 Control	19

3.7.2 Incident Control Centre (ICC)	19
3.7.3 Escalation	19
3.8 Considerations For Operating with Other Agencies and Stakeholders	20
3.9 Initial Impact Assessment	20
3.10 Storm Response Arrangements	20
3.11 Evacuation Arrangements	20
3.12 Response to flash flooding	21
3.13 Flood Rescue	21
3.14 Aircraft Management.....	21
3.15 Immediate Relief for Isolated Communities	21
3.15.1 Animal Welfare.....	22
3.16 Essential Community Infrastructure and Property Protection.....	22
3.16.1 Disruption to services.....	23
3.16.2 Traffic Management.....	23
3.16.3 Traffic Management Plan.....	23
3.17 Access to Technical Specialists.....	23
3.18 Relief.....	24
3.18.1 Activation of Emergency Relief.....	24
3.19 Recovery.....	24
3.19.1 Transition to Recovery (from Response).....	24
3.20 After Action Review – Lessons Management.....	25

ACKNOWLEDGEMENT OF COUNTRY

The Greater Geelong MEMPC acknowledges the Traditional Owners of these lands, waters and skies, the Wadawurrung People.

We acknowledge and respect their continuing connections to their Lands, Waters, Skies, Culture and the contribution they make to the life and spirit of our community.

We pay respect to their past and present Elders and their emerging leaders and extend this respect to all Aboriginal and Torres Strait Islander peoples.



AUTHORITY

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

It was endorsed by the Greater Geelong MEMPC on 13/11/2025 as a sub-plan to the Greater Geelong Municipal Emergency Management Plan (MEMP). A Statement of Assurance for this plan was approved by the Barwon South West Regional Emergency Management Planning Committee on 03/12/2025.

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

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

1. Introduction

1.1 Aim

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

1.2 Objectives

The objectives of this Sub-plan are to:

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

1.3 Authorising Environment

This is an updated version of Greater Geelong MEMP Flood and Storm Sub-plan (MFSSP). It replaces and supersedes the Greater Geelong Municipal Flood Emergency Plan (MFEP) August 2022.

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

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

The Greater Geelong Municipal Emergency Management Planning Committee (MEMPC) is the owner of this MFSSP, pursuant to *Part 6A of the Emergency Management Act 2013* (as amended).

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

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

In line with its roles and responsibilities under the SEM, the Victoria State Emergency Service (VICSES) has developed this Sub-plan in collaboration with the MEMPC. The plan reflects the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the Greater Geelong MEMPC.

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

1.4 Exercise, Evaluation and Review

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

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

1.4.1 Exercise

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

This Sub-plan was tested as part of the October 2022 Victorian flood event and February and October 2024 storm events using intelligence and risk information extracted from the plan. Lessons learned from these events have been incorporated into this version.

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

1.5 Audience and Linkages

1.5.1 Audience

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

1.5.2 Linkages

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

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

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

The sub-plan is consistent with and supports:

- [State Emergency Management Plan \(SEMP\)](#)
- [SEMP Flood Sub-plan, SEMP Storm Sub-plan](#)
- [South West \(Barwon\) Region Emergency Response Storm Sub-Plan](#)
- [South West \(Barwon\) Region Emergency Response Flood Sub-Plan](#)
- [Greater Geelong MEMP](#)

- Community Local Flood Guides (LFGs):
 - [Barwon Heads and Ocean Grove](#)
 - [Batesford](#)
 - [Geelong LFG](#)
 - [Lara LFG](#)

1.5.3 Supporting Operational Information

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

Support Operational Document(s)
• Flood Intelligence and VICSES Response Arrangements for Flood and Storm in the City of Greater Geelong:
• Annex A – Flood and Storm Threats for Municipality
• Annex A1 – Flood evacuation arrangements (not applicable)
• Annex B – Typical flood peak travel times
• Annex C – Localities and At-Risk Communities
• Annex D – Maps and Schematics
• Annex E – Storm Damage and Specific Response Arrangements
• Annex F – Flood and Storm Warning Systems

1.5.4 Hyperlinks

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

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

2. The Emergency Context

2.1 Risks

The Greater Geelong region is vulnerable to severe weather and flooding throughout the year. A Community Emergency Risk Assessment (CERA) conducted by the MEMPC has identified riverine flooding, flash flooding, storms and storm surge as keys risks to the community.

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

For more detailed information refer to **Annex A** in the Flood & Storm Intelligence and VICSES Response Arrangements for the Greater Geelong region (operational use only).

2.1.1 Riverine Flooding

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

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

Greater Geelong can be impacted by riverine flooding, particularly along the Barwon, Leigh, and Moorabool Rivers, as well as Hovells Creek, Waurm Ponds Creek, Armstrong Creek, Yarram Creek, Thompson Creek, Sutherlands Creek, Cowies Creek, and Little River.

Excess water from as far away as Ballarat and the upper catchments of the Moorabool and Barwon Rivers can end up flowing into the Barwon River system, potentially causing or adding to riverine flooding in the Greater Geelong region. Flood impacts may extend to areas downstream such as Breamlea, Geelong, Fyansford, Batesford, Lara, Waurm Ponds, Armstrong Creek, Barwon Heads, and Ocean Grove.

2.1.2 Flash Flooding

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

The risk is further exacerbated by blocked stormwater drains, which can cause systems to surcharge and result in stormwater flowing above ground. In these conditions, low-lying properties and infrastructure can be quickly impacted, often with little warning.

Greater Geelong is prone to frequent stormwater flooding and localised flooding. Areas impacted include Anakie, Lara, Ocean Grove, Barwon Heads, Geelong CBD, Highton, Newtown, Corio, Norlane, Bell Park, Belmont, Geelong West, Waurm Ponds Grovedale, Newcomb, Moolap, Drysdale, Clifton Springs, Portarlington, St Leonards, Point Lonsdale and Leopold. For more detail refer to Annex C (operational only).

2.1.3 Severe Weather and Storms

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

Typical consequences of severe storm events include:

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

Greater Geelong typically experiences two to three major storm events per year, often between August and March, encompassing both winter cold fronts and summer thunderstorm activity. For areas prone to storm water and localised flooding refer to the listed suburbs under Flash Flooding.

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

2.1.4 Tidal, Estuarine and Storm Surge Flooding

Greater Geelong is exposed to multiple coastal and estuarine flood risks due to its combination of open-ocean and embayed coastlines along the Bellarine Peninsula and Corio Bay, as well as the Barwon and Hovells Creek estuaries.

Open-ocean areas such as Barwon Heads and Point Lonsdale are subject to large ocean swells, strong currents, and storm surges, while more sheltered environments such as Corio Bay experience lower-energy flooding primarily from wind-driven waves, particularly during strong northeasterly winds in winter. Coastal storms lasting from several hours to a few days can cause temporary inundation of low-lying areas, and storm surges generated by low atmospheric pressure can further compound flood impacts.

Estuarine flooding is also a significant risk. Many south-west Victorian estuaries naturally close intermittently due to sand bar formation, reopening after high rainfall events. If estuaries remain closed during riverine flooding, water levels can rise significantly, increasing flood risk to adjacent properties. In contrast, the Barwon River Estuary (Barwon Heads and Ocean Grove) and Hovells Creek Estuary (Limeburners Lagoon) are artificially managed to remain open.

Areas identified as particularly prone to coastal and estuarine flooding in the *Bellarine and Corio Bay Local Hazard Assessment (2015)* include:

- Barwon Heads and Ocean Grove
- Point Lonsdale
- St Leonards
- Indented Head
- Portarlington
- Newcombe and Moolap
- Avalon and Wilsons Point
- Breamlea
- St Helens
- Clifton Springs

Moderate to heavy rainfall, combined with a high or incoming tide from Port Phillip Bay, Corio Bay, the Barwon River Estuary, the Hovells Creek Estuary or Bass Strait, can exacerbate flooding within the municipality or create areas of flooding in and around the drainage network. Due to the municipality's proximity to coastal and estuarine areas and its flat terrain, tidal flows may reduce the capacity of the stormwater drains to discharge runoff back into the waterways, while extreme storm events can cause backflow and surcharge above ground around drainage pits and channels.

Many south-west Victorian estuaries close intermittently due to the formation of a sand bar at the estuary mouth. These estuaries typically reopen after high rainfall events when enough river flow is generated to flush out the accumulated sand. Where estuaries remain closed during riverine flood events, water levels can rise significantly, increasing the risk of flooding to adjacent property. The appropriate land manager can facilitate requests for estuarine openings subject to the necessary approvals.

Most estuaries in the Corangamite CMA region are naturally intermittently closed, except for the Barwon River Estuary (at Barwon Heads and Ocean Grove) and the Hovells Creek Estuary (also referred to as Limeburners Lagoon), which are artificially managed to remain open.

Temporary inundation of low-lying coastal land can occur during coastal storms lasting from several hours to a few days. In the longer-term, sea-level rise is expected to permanently inundate some low-lying areas. DELWP (2015) estimates sea levels may rise by 0.20 m by 2040, 0.49 m by 2070, and 0.82 m by 2100.

Further technical information is provided in **Annex A** (operational only)

2.2 Major Waterways, Drains and Dams

The waterways within Greater Geelong and surrounding areas vary in size, catchment characteristics, and flood behaviour. Larger rivers such as the Barwon, Leigh, and Moorabool respond to heavy rainfall over longer time periods, potentially impacting downstream communities hours or days after rainfall in the upper catchments. Smaller urban catchments, including Waurm Ponds Creek, Armstrong Creek, and Hovells Creek, respond quickly to intense local storms, often causing rapid, short-duration flooding.

The following table provides a high-level overview of each waterway, its catchment, and typical flood behaviour. Detailed hydrological data, stream gauges, and travel times are provided separately in **Annex C** (operational use only).

Waterway	Description
Leigh River	Begins near Ballarat as the Yarrowee River, flowing through Shelford and Inverleigh to join the Barwon River. Catchment ~883 km ² . Flooding can occur in Shelford and Inverleigh following heavy rainfall in the upper catchment.
Barwon River	Originates in the eastern Otway Ranges and flows through Winchelsea, Inverleigh, Geelong, and into Bass Strait at Barwon Heads. Large catchment (~2,800 km ² ; ~5,130 km ² including tributaries). Flooding in Geelong can result from rainfall across the upper river or its tributaries (Leigh, Moorabool, Waurm Ponds, Armstrong Creek).
Moorabool River	Drains southern Wombat State Forest and joins the Barwon River near Fyansford. Catchment ~1,025 km ² . Flooding can impact Fyansford and surrounding areas.
Hovells Creek	Flows from Mount Anakie through Lara into Limeburners Bay. Combined with Avalon catchment (~230 km ²). Flood hazard in Lara is generally low, with slow-moving water due to flat terrain.
Waurm Ponds Creek	Small catchment (~42 km ²) flowing through Waurm Ponds, Belmont, Marshall, Grovedale and Highton into the Barwon River. Flooding occurs locally after intense rainfall but contributes minimally to Barwon River flows.
Armstrong Creek	Small catchment (~27 km ²) draining Mount Duneed and surrounding areas, flowing into Lake Connewarre wetlands. Flooding occurs locally during heavy rainfall, with potential minor contribution to Barwon River when connected to the wetland system.
Thompson Creek	Small catchment (27 km) is part of the Karaaf Wetlands flowing into the Bass Strait at Breamlea. The estuary is intermittently open, which can cause localised flooding in low lying areas of Breamlea.
Cowies Creek	Small catchment (40 km) flowing from Moorabool through northern suburbs in Geelong to Corio Quay. Flooding occurs locally during heavy rainfall impacting several local roads including Anakie Road, Thompson Road and the Princes Hwy.

2.2.1 Dam Spilling/Failure

The Department of Energy, Environment and Climate Action (DEECA) is the control agency for dam safety incidents. This includes breach, failure or potential breach/failure of a dam. However, VICSES is the control agency for any resultant flooding.

DEECA has developed [Dam Safety Response Plan](#) to assist DEECA in managing its obligations associated with dam safety incidents. Specific dam safety emergency plans for Greater Geelong includes:

- Augustine Basin
- Cookes Dam
- Del Rios Dam

- Serendip Dam
- Wollomanata Dam

Barwon Water has a number of dams related to the water supply system that have spillways and other safety mechanisms to prevent uncontrolled releases during heavy rainfall periods.

For the list of major dams with potential to cause structural and community damage within the municipality refer to **Annex A** in the Flood Intelligence and VICSES Response Arrangements for Flood and Storm in the Greater Geelong Region.

2.3 History of Flood and Storm Emergencies

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

The following list summarises the most significant flood and storm events from the last five years. For a more detailed list of previous events, refer to the Greater Geelong MEMP.

Date	Event
Feb 2025	Two significant storm cells impacted Geelong with trees down and houses inundated with water after 55mm fell over an hour in Geelong.
Oct 2024	Geelong received more than a months rain in one day causing flash flooding across the Geelong region.
Aug 2024	Severe Storm across the region with high winds and heavy rainfall impacting the whole municipality. The coastal areas also say high tides and flooding in low lying areas.
Feb 2024	Severe Storm with wind gusts of 150km/hr causing widespread damage across Anakie and Lara including four high power transmission towers impacting electricity across the state.
Jan 2023	Flash Flooding due to heavy rainfall of between 50-90mm in just a few hours.
Oct 2022	Riverine and flash flooding after significant rainfall across Geelong and more broadly the State of Victoria.
Jan 2022	Severe storm cluster caused heavy rainfall and damaging winds across Anakie and Belmont.
Oct 2021	Severe storm with wind gusts in excess of 100km/hr and flash flooding across the Geelong CBD.
May 2020	Severe storm impacting Waurm Ponds with winds in excess of 160km/hr and a corridor of 60m wide and 3km long.

The following map indicates the main waterways and drainage lines that may impact the Greater Geelong area during a flood and storm event.



Map produced by VICSES: 20/10/2025 10:48 AM
City of Greater Geelong
 Municipal Waterways and Drainage Map



- Water Level
- Water Level & Rain
- Rain
- Levee
- City of Greater Geelong Boundary
- Waterway
- Camp Ground
- Fire Station
- Hospital (Emergency)
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Police Station
- SES Unit
- Caravan Park
- Group Camp

LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education

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

3. Managing Flood and Storm Emergencies

3.1 State Emergency Management Priorities

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

3.2 Roles and Responsibilities

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

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

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

3.3 Mitigation and Preparedness

3.3.1 Corangamite Regional Floodplain Management Strategy

The Victorian Floodplain Management Strategy sets the policy and accountability framework for flood related mitigation activities in Victoria. The [Corangamite Regional Floodplain Management Strategy](#) sets out the implementation of flood mitigation activities for the Region, including Greater Geelong.

3.3.2 Flood Structural Flood Mitigation Measures

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

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

3.3.3 Planning Controls

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

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

Council will continue to work with CCMA, DEECA and DTP to apply these planning tools to assess new proposals, regularly update overlays as new flood modelling becomes available, and advocate for risk-based planning provisions across Victoria to further support community resilience.

3.4 Community Resilience

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

3.4.1 Flood and storm specific community engagement and programs

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

VICSES with the support of the Greater Geelong MEMPC and other agencies, will coordinate and collaborate targeted community flood and storm engagement programs to engage the community through:

- Community programs, projects and events
- Media and communications (e.g. social media, VICSES website, publications)
- Local Flood Guides
- Targeted events as funding becomes available, promoted through Council and VICSES
- Emergency planning support for facilities, such as schools, retirement villages and businesses

Flood and storm risks cannot be fully mitigated, and a shared responsibility is vital. Community members are encouraged to:

- Know their flood and storm risk
- Develop a home emergency plan and emergency kit (see the VICSES website)
- Stay informed and follow emergency services' advice during warnings
- Developing Community Emergency Management Plans (CEMPs) where appropriate

Emergency management personnel will support these efforts by:

- Promoting and distributing preparedness information
- Supporting community programs and events
- Providing technical advice to keep resources accurate and relevant
- Working with schools, businesses, and organisations to strengthen planning and preparedness
- Contributing to exercises, forums, and community engagement opportunities
- Acting as liaisons during events to ensure clear and consistent communication


3.4.2 Public Information and Warnings for Flood and Storm Emergencies

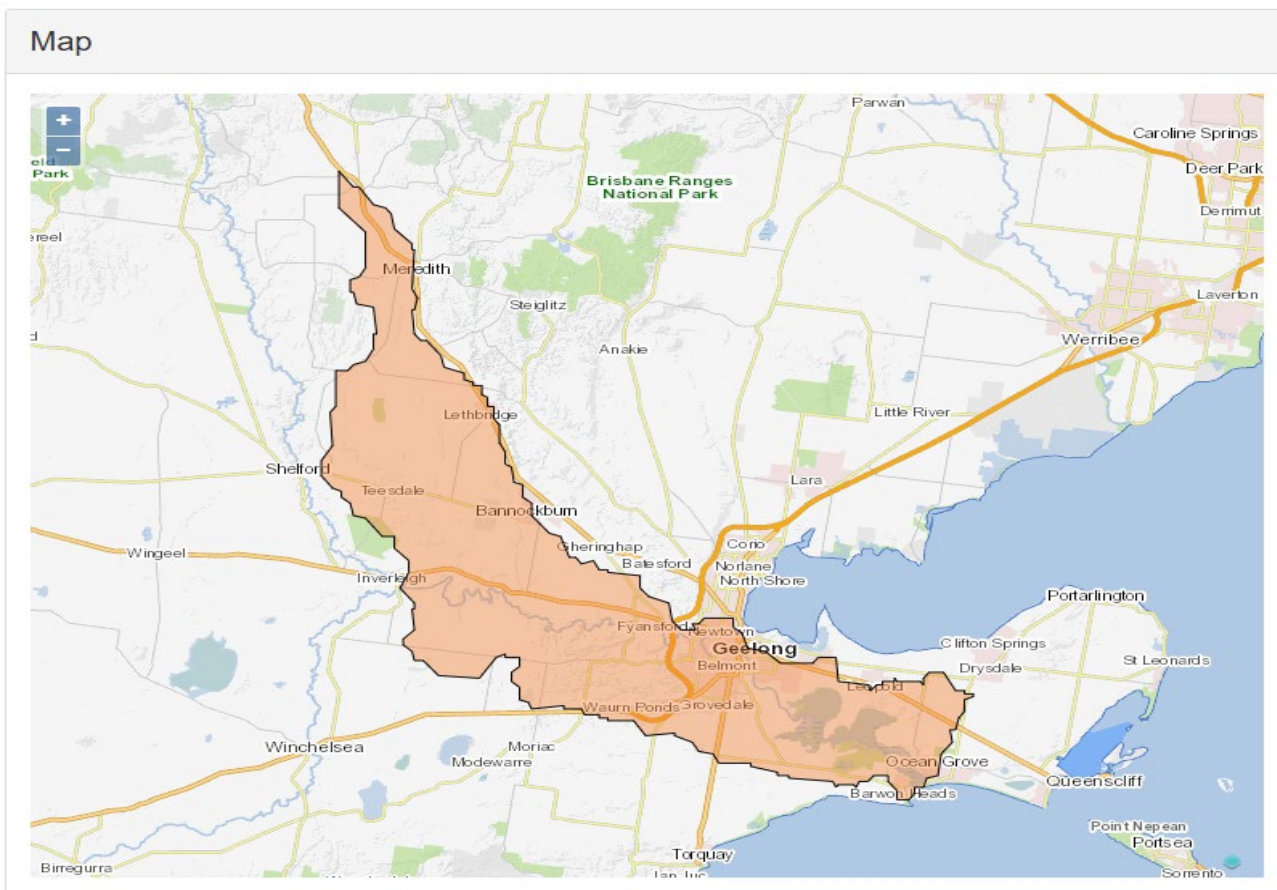
The SEMP Flood Sub-Plan and the SEMP Storm Sub-Plan detail the arrangements for public information and warnings for flood and storm. *VICSES SOP008 Severe Weather Notification and Activation Process* and *VICSES SOP009 Flood Notification and Activation Process* outline in detail the actions that VICSES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

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

The Incident Controller (IC), through the Public Information Unit established at the Incident Control Centre (ICC), will manage public information and warnings. If the ICC is not established, the VICSES Regional Duty Officer (RDO) and VICSES Regional Agency Commander (RAC) are responsible for managing all public communication. The City of Greater Geelong will work with the IC/VICSES to assist with the dissemination of public messaging and/or warnings to ensure that consistent and timely messaging occurs.

3.4.3 BoM Flood Warning Example

 WATCH & ACT - FLOOD	
Incident Location:	Barwon River Downstream of Inverleigh
Incident Name:	FloodBarwonRiver
Issued:	Saturday 15 October 2022, 12:23 pm
Next Update Expected:	Saturday 15 October 2022, 10:00 pm



Message

MODERATE FLOOD PEAK EXPECTED ALONG THE BARWON RIVER AT GEELONG SATURDAY EVENING

- Moderate flooding is occurring along the Barwon River downstream of Inverleigh.
- The Barwon River at Geelong at 11am Saturday 15 October measured 3.84 metres and slowly rising, with moderate flooding.
- A moderate flood peak near 4.00 metres is expected during Saturday evening.

Stay safe - avoid the flooded area. Be aware of potential hazards caused by flooding and never enter floodwater.

What you should do:

- Floodwater is dangerous - never enter floodwater.
- Check the VicTraffic website (traffic.vicroads.vic.gov.au) for road closures and follow instructions from emergency services.

If you choose to leave:

- Remember to take your pets, mobile phone, spare clothes and medications.
- Travel to the home of family or friends who are in a safe location, away from flooding.
- Turn off gas and electricity at your home or workplace.
- Be aware of any road closures when you leave.

If you are travelling:

- Do not enter flooded areas. Turn around and find a safe alternative route.
- Be aware of road hazards including mud, debris and damaged roads or bridges.
- Floodwater is dangerous - never drive, walk or ride through floodwater.

If you stay or if it is unsafe to leave:

- Make sure you have enough food, drinking water, medications and pet food to survive for three to five days in case you become isolated.
- Use plugs, sandbags or household items to block toilets, sinks and drains to stop sewerage backflow.
- Lift it - move valuables and vital household items up on high surfaces, such as on top of tables, chairs, benches and beds.

Impacts in your area:

- High river levels and potential flooding in areas close to rivers and streams.
- Main roads and bridges may be closed due to flooding.
- Stagnant water can be harmful to your health. Don't swim, drink or wash in stagnant water.

This message was issued by State Emergency Service.

The next update is expected by 15/10/2022 10:00 pm or as the situation changes.

3.4.4 Flood Intelligence

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

- The expected level, depth, and velocity of floodwater and its consequences
- Determination of actions to be undertaken in response to the identified consequences.
- The Department Energy, Environment and Climate Action (DEECA) maintains the FloodZoom flood intelligence platform. Inquiries regarding FloodZoom access should be directed to accounts@floodzoom.vic.gov.au.

For more detailed Flood Intelligence and VICSES Response arrangements refer to Annex C in the Flood & Storm Intelligence and VICSES Response Arrangements for Flood and Storm for Greater Geelong (operational use only).

3.4.5 Cross-border Collaboration and Area of Operations

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

City of Greater Geelong Council is a signatory to the Municipal Association of Victoria (MAV) Protocol for Inter-Council Emergency Resource Sharing. This protocol provides a framework to support coordinated access to resources across councils when local capacity is exceeded during flood or storm events.

3.5 Local Knowledge

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

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

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

3.3.1 Field Observers

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

VICSES Units have trained Field Observers who can be deployed to gather intelligence in areas impacted by both flood and storm events. To assist intelligence gathering during flood and storm operations, drone support can be provided by Life Saving Victoria (LSV), with requests facilitated through the VICSES RAC and coordinated by the VICSES SAC.

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

3.6 Response (including relief)

3.6.1 Activation of Response

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

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

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

3.7 Concept of Operations

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

3.7.1 Control

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

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

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

3.7.2 Incident Control Centre (ICC)

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

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

3.7.3 Escalation

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

3.8 Considerations For Operating with Other Agencies and Stakeholders

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

- Establish a communications plan to enable the tasking of other agency resources which should be included in briefings.
- Embedding and determining an agreed response to downed powerlines as this is often a predominant hazard for storm events.
- Ensuring other agency personnel who are undertaking the Emergency Management Liaison Officer (EMLO) roles have access to EM-COP.
- Preparing a briefing to support in-coming other agency resources to identify:
 - staging area location and any safety issues with accessing it (closed roads/powerlines down)
 - resources available such as re-supply of consumables (tarps/sandbags)
 - welfare arrangements
 - duty time limitations (these should be consistent with *VICSES SOP 003 Fatigue Management and Duty Time Limitations*)

3.9 Initial Impact Assessment

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

3.10 Storm Response Arrangements

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

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

3.11 Evacuation Arrangements

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

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

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

Refer to the Greater Geelong MEMP for additional information on evacuation arrangements.

3.12 Response to flash flooding

Flash flooding can be defined as flooding that occurs within six hours or less of the flood-producing rainfall within the affected catchment. Pre-event planning for flash floods should commence with an assumption that evacuation is the most effective strategy, provided evacuation can be safely implemented.

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

3.13 Flood Rescue

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

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

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

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

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

3.14 Aircraft Management

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

The IC controls the conduct of Air support operations.

3.15 Immediate Relief for Isolated Communities

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

When predictions/intelligence indicates that communities, neighbourhoods and/or households may become isolated, VICSES will advise businesses and/or households that they should stock up on essential items.

After the impact, VICSES can support isolated communities through assisting with the transport of essential items to isolated communities and assisting with logistics functions.

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

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

3.15.1 Animal Welfare

DEECA is the Lead Agency for animal welfare response during emergency events.

[Agriculture Victoria \(AgVic\)](#) will manage the welfare of livestock and companion animals (including feeding, water and rescue) as well as emergency supply and/or delivery of fodder to stranded livestock or for livestock rescue.

Forest Fire Management Victoria (FFMVic) will respond to the welfare of [wildlife impacted by an emergency event](#).

The [Victorian Emergency Animal Welfare Plan](#) provides an outline of animal welfare management during emergencies.

Municipal Councils are the lead for housing displaced lost/stray domestic animals. This includes supporting domestic animals and their owners within an Emergency Relief Centre.

3.16 Essential Community Infrastructure and Property Protection

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

In Greater Geelong, VICSES provide sandbags and, where required, staff or volunteers to pre-determined sand filling points across the municipality to assist the community. Council will identify a suitable location and deliver sand to these locations. These locations are communicated to the community via local radio and social media channels. The IC will determine the priorities related to the use of sandbags, which will be consistent with the strategic priorities.

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

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

Contact your local VICSES representative for the most current sandbag guidelines or download it from IMT Toolbox in [EMCOP](#)-Operations.

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

3.16.1 Disruption to services

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

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

3.16.2 Traffic Management

The City of Greater Geelong and Department of Transport and Planning (DTP) will carry out their formal functions of road closures including observation and placement of warning signs and roadblocks on designated roads, bridges, walking/bike/shared trails. Council staff should liaise with and advise DTP on the need for additional warning signs or closures under its jurisdiction. Where possible, road closures or diversions should be implemented further from the flooded or storm affected area to avoid vehicles needing to turn around and becoming caught in traffic congestion.

Road incidents and closures are added through the DTP system called RID (Road Incident Database). Trained Council staff can add road closures and incidents on Council roads via the database, with DTP staff able to add closures or incidents for DTP roads and assist with local road closures within Greater Geelong if required. This information is then available to all agencies and the community immediately via the VIC Traffic website: <https://traffic.vicroads.vic.gov.au/>

For more detailed arrangements of potential road closures refer to **Annex C** in the Flood and Storm Intelligence and VICSES Response Arrangements for Greater Geelong (operational use only).

3.16.3 Traffic Management Plan

Traffic management will be undertaken in accordance with JSOP 03.10 Traffic Management at Major Emergencies. The IC, who has overall responsibility for incident control, will consult with Victoria Police and, where possible, the responsible road authority to develop, implement, and monitor a Traffic Management Plan. Victoria Police will coordinate the restriction of access to affected areas as directed by the IC and may support the enforcement of closures and roadblocks.

3.17 Access to Technical Specialists

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

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

- Flood intelligence (Flood Analysts)
- Geotechnical assessments.

3.18 Relief

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

Emergency Relief Centres (ERC) are existing community facilities that have been pre-identified for use during storms and/or floods, along with the associated relief arrangements.

Emergency Relief Centres are considered restricted information. This information can be obtained by contacting the City of Greater Geelong Municipal Emergency Management Officer (MEMO). The community will be advised of the location and relevant details once a facility has been activated during a flood and/or storm event. Notification will be made through emergency messaging and warnings issued by the Incident Controller following a collaborative decision between the MERC, MEMO and MRM. Doorknocks may also be undertaken by agencies to support Victoria Police evacuation processes.

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

Refer to the Greater Geelong MEMP for detailed relief arrangements for the Municipality.

3.18.1 Activation of Emergency Relief

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

Arrangements for relief from a flood and/or storm event within the Greater Geelong region is detailed in the Greater Geelong [MEMP](#).

3.19 Recovery

Recovery is the process of assisting the affected community to achieve an acceptable and effective level of functioning. The preparedness and resilience of a community will determine how quickly it will recovery following an emergency. Other factors can include the speed and quality of immediate relief services, the social capital already existing in the community, the type of emergency and its level of consequences.

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

Arrangements for recovery from a flood and/or storm event within the Greater Geelong region are detailed in the Greater Geelong [MEMP](#).

3.19.1 Transition to Recovery (from Response)

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

The early notification of recovery agencies involved in the emergency will ensure a smooth transition of ongoing activities from response to recovery.

3.20 After Action Review – Lessons Management

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

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

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

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