MEMP Flood and Storm Sub-Plan

A Sub-plan of the Municipal Emergency Management Plan

City of Kingston

Version 8.4

Reviewed October 2026



Acknowledgement of Traditional Owners

The City of Kingston Municipal Emergency Management Planning Committee respectfully acknowledges the Bunurong People of the Kulin Nation as the Traditional Owners and Custodians of this land. We pay our respects to Elders past and present and are committed to working with Aboriginal and Torres Strait Islander communities to achieve a shared vision of safer and more resilient communities.

Authority

The Flood and Storm Sub-plan has been prepared by VICSES on behalf of, and in collaboration with the City of Kingston 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 City of Kingston Municipal Emergency Management Planning Committee on June 2026 as a sub-plan to the City of Kingston Municipal Emergency Management Plan (MEMP). A Statement of Assurance for this plan was approved by the Southern Metro Emergency Management Planning Committee on August 2026.

This sub-plan was published on the VICSES website on September 2026.

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

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1. INTRODUCTION

1.1. Aim

The aim of this MEMP Flood and Storm Sub-plan (MFSSP or the 'Sub-plan') is to detail the local arrangements for before, during and after flood and storm incidents within the City of Kingston 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
- Identify and assess the flood and storm risks which may impact the people, property and/or the environment in the City of Kingston municipality area
- Support the implementation of measures to avoid or minimise future risks and reduce existing risks giving consideration to the causes and consequences of storm and flood incidents within the municipal area
- Manage residual risks including on how to access better information which can reduce the consequences of flood events

1.3. Authorising environment

This is an updated version of this City of Kingston MEMP Flood and Storm Sub-plan (MFSSP). It replaces and supersedes the Kingston Storm and Flood Emergency Plan September 2017 (Version 6).

This plan is a sub-plan of the City of Kingston MEMP and aligns with the MEMP.

Comments and feedback on this Sub-plan are welcome and should be sent to the MEMPC Chair.

This MFSSP is a Sub-plan to the City of Kingston 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.

The City of Kingston 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 MEMPC and Emergency Management Victoria to exclude information that is related to critical infrastructure, personal information or information that is of a commercially sensitive nature.

In accordance with its roles and responsibilities set out in the SEMP, the Victoria State Emergency Service (VICSES) has prepared this plan in collaboration with the MEMPC. It takes into account the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the MEMPC.

Depending on the specific needs of the municipality, engagement for this plan may be coordinated through the MEMPC, a dedicated working group or a committee such as the Municipal Flood & Storm Planning Committee (MFSPC), with input from subject matter experts.

Membership of the Flood and Storm Planning Committee (MFSPC) comprises of the following representatives from the following agencies and organisations:

Sub-committee Members – Voting Members

- VICSES OOEM – Operations Officer Emergency Management – Voting Member & Chair
- Kingston City Council (KCC) – Manager Infrastructure – Voting Member & Deputy Chair
- Victoria Police MERC – Voting Member
- Melbourne Water – Manager, Flood Hydrology & Environmental Monitoring – Voting Member
- South East Water – Business Resilience Advisor – Voting Member

Subject Matter Experts (SMEs) - Non-Voting Members

- VICSES Unit Controller, Chelsea
- VICSES Unit Controller, Moorabbin
- KCC Emergency Management Coordinator
- KCC Team Leader Engineering Design
- KCC Manager City Works
- KCC Manager Open Space
- KCC Coordinator Civil Maintenance Operations
- KCC Team Leader Civil Maintenance
- VICSES – Local Area SMEs
- Parks Victoria – Area Chief Ranger, Local SME

Engagement with communities through the update of this Sub-plan has primarily taken place through the community representatives serving on the Municipal Emergency Management Planning Committee.

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 and 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 flood study, a significant change in flood mitigation measures, a substantial change to relevant legislation or arrangements, including the SEMP.

1.4.1. Exercise

This sub-plan should be exercised within plan's lifecycle. Ideally, these exercises will be scheduled shortly before the period of highest risk for floods and storms. The exercise will be evaluated and, where improvements in this plan are required, the plan will be amended, and a revised version issued.

This Flood and Storm Sub-plan will be tested as part of future flood and/or storm events and lessons from these events have been embedded into this plan.

1.5. Audience and linkages

1.5.1. Audience

The audience of this Sub-plan is local government and agencies within the emergency management sector in the City of Kingston who hold a significant role in the management of the flood and storm emergencies. Although the wider community is not the primary audience, business, community groups and community members may find the contents of this plan informative.

1.5.2. Linkages

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

This plan refers to a range of existing resources relating to floods and storms and accords with the direction set through related plans and policies and 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 Emergency Management Common Operating Picture (EM-COP) or information saved on VICSES Intranet, including Standard Operating Procedure (SOPs). These can be obtained by contacting a VICSES representative as required.

The sub-plan is consistent with and subordinate to:

- State Emergency Management Plan
- SEMP Flood Sub-plan, SEMP Storm Sub-plan
- The Southern Metro Region Emergency Management Plan
- The Central (Southern Metro) Region Flood Sub-plan, Storm Sub-plan
- The Municipal Emergency Management Plan

The following documents support and supplement this plan:

- Flood Intelligence and VICSES Response Arrangements for Flood and Storm in City of Kingston. These Annexures may contain operational or sensitive information and may be obtained through a VICSES representative as required.
    - Annex A – Flood and Storm threats for the Municipality
    - Annex B – Typical flood peak travel times
    - Annex C – Localities and at-risk communities
    - Annex D – Maps and schematics
    - Annex E – Storm Damage Specific Response Arrangements
    - Annex F – Public Information and warnings

- Community Local Flood Guides
    - Aspendale to Bonbeach Local Flood Guide

1.5.3. 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 City of Kingston is vulnerable to severe weather and flooding throughout the year. A Community Emergency Risk Assessment (CERA) conducted by the MEMPC has identified storm (including heavy rain leading to flash flooding) as a high residual risk rating and flood as a medium residual risk rating. Both storm and flood as key risks to the community.

The City of Kingston is located in the south east of Melbourne on Port Phillip Bay. The municipality covers an area of 9,131 hectares (91 km^2) with 13 kilometres of coastline between Mentone and Carrum.

The City of Kingston is one of the largest and most physically diverse municipalities in metropolitan Melbourne. It has substantial residential areas with vibrant activity centres, and some areas contain significant areas of primary industry, such as high-value horticulture, flower cultivation and quarrying. Across the City of Kingston, there are significant areas of open space including the foreshore, waterways, wetlands, golf courses, and range of parks and reserves, some containing significant flora and fauna.

The City of Kingston is an important manufacturing and commercial centre with over 15,000 businesses employing approximately 70,000 people. Kingston has a major retail centre at Cheltenham, a major aquatic centre in Highett, and an airport at Moorabbin.

Many of Kingston's low laying bayside suburbs experience localised shallow flooding during minor storm events. Kingston is somewhat unique in that it is reliant on a significant number of stormwater pumping stations as part of the drainage network.

Severe flooding in Kingston typically occurs after prolonged rainfall saturates catchments, followed by prolonged period of heavy rain. Winter and spring cold fronts or summer thunderstorms can also cause flooding, with the latter leading to short, intense, localized events.

The City of Kingston may also experience tidal flooding and storm surge when moderate to heavy rainfall coincides with a high or incoming tide from Port Phillip Bay. This combination can exacerbate flooding within the municipality or cause inundation in and around the drainage network.

For more detailed information refer to **Annex A - Flood and Storm threats for the City of Kingston Municipality** in the Flood Intelligence.

2.1.1. Riverine flooding

Within the municipality, large severe floods generally occur as a result of a moist warm airflow from northern Australia bringing moderate to heavy rainfall over a period of 12 hours or more following a prolonged period of general rainfall. The period of general rainfall "wets up" the catchments and (partially) fills both the on-stream dams and the natural floodplain storage. These combine to increase the runoff generated during the subsequent period of heavy rainfall.

Large but less severe floods result from sequences of cold fronts during winter and spring that progressively wet up the catchments and fill the on-stream dams and the natural floodplain storage. Prolonged moderate to heavy rain leads to major flooding.

The City of Kingston is located in the Dandenong catchment with major waterways being the Mordialloc Creek and Patterson River. Once the natural northern outlet of the Carrum Swamp, Mordialloc Creek is now

fed by a diversion on lower Dandenong Creek and underground drains entering from the north. See **Annex D** for **Maps and Schematics**.

2.1.2. Flash flooding

Short Duration, high intensity rainfall (usually associated with thunderstorms) can also cause localised flooding within the municipality, along overland flow paths when the local urban drainage system surcharges. Such events, which are mainly confined to the summer months, do not generally create widespread flooding since they only last for a short time and affect limited areas. Flooding from these storms occurs with little warning and localised damage can be severe.

High intensity rainfall such as associated with thunderstorms giving average rainfall rates of more than 20mm/hour for an hour or more is likely to lead to flash flooding and / or overland flows, across the urbanised parts of the municipality.

Blocked or capacity impaired stormwater drains can also lead to overland flows and associated flooding as the drain surcharges and excess water flows above ground.

2.1.3. Storms

Severe thunderstorms and its associated weather conditions such as a tornado or microburst may have the same effect on the community and the natural environment. The difference is likely to be in terms of the geographic expanse. A severe thunderstorm can move over a large part of the land mass whereas in Victoria, a tornado or microburst is likely to be heavily concentrated in a small geographic area affecting one or two localities.

Consequences of storm damage typically involve the following:

- Wind damage to residence and buildings
- Fallen trees damaging buildings and blocking roadways
- Flooding
- Road damage and road closures
- Power outages
- Telecommunications outages
- Impacts on a wide range of critical infrastructure
- Entrapment of people in vehicles or in homes

2.1.4. Tidal flooding and storm surges

Moderate to heavy rainfall, coupled with a high or incoming tide from Port Phillip Bay can exacerbate flooding within the municipality or create areas of flooding in and around the drainage network. Given Kingston's location on Port Phillip Bay and its flat terrain, tidal flows can reduce the capacity of stormwater drains to discharge runoff into the bay. During extreme storm events, backflow may occur, causing water to surge above ground around drainage pits and channels.

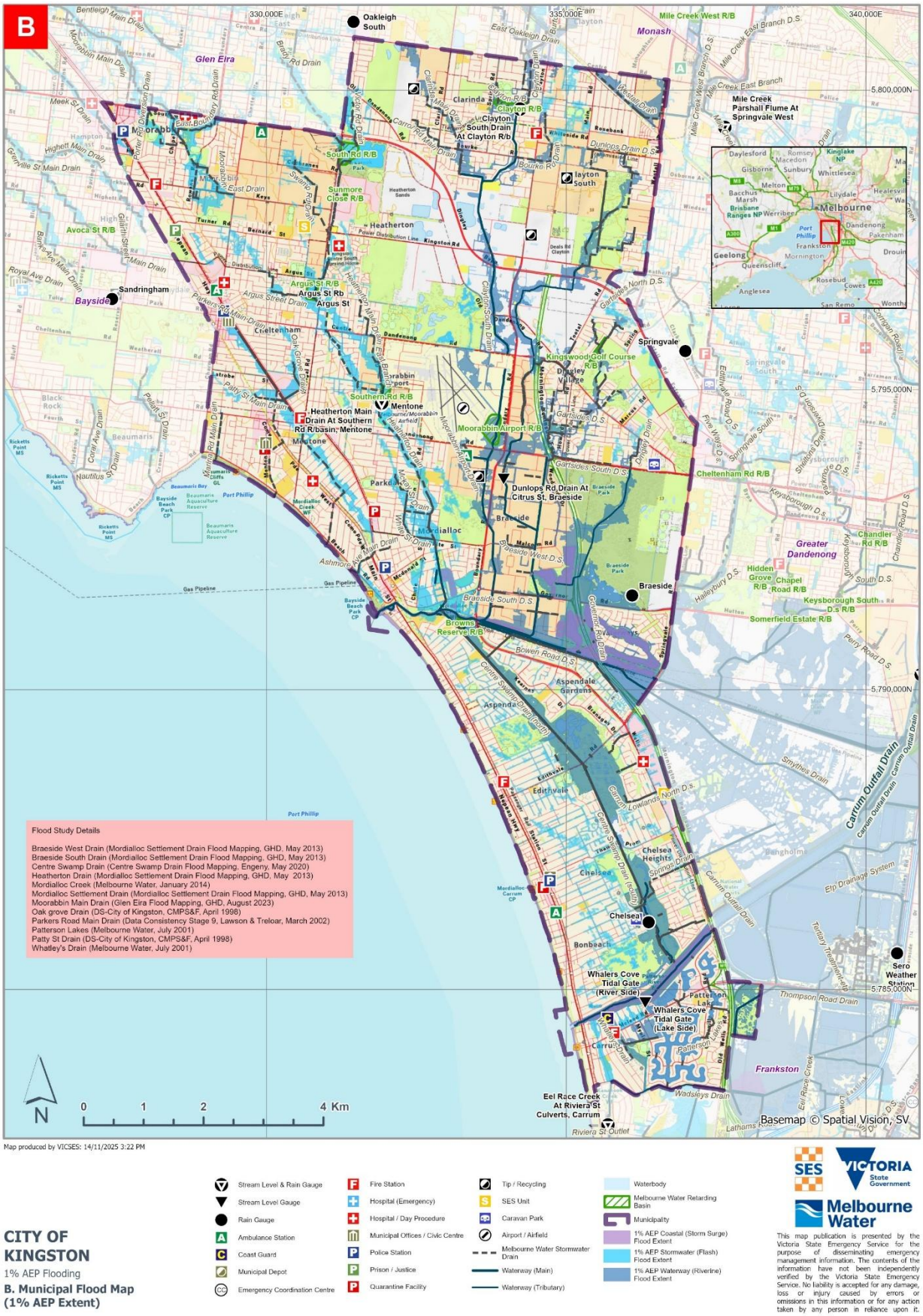
Patterson Lakes and Carrum are protected from Tidal Flooding and Storm Surges by way of three Tidal Gates located along the southern bank of Patterson River.

Areas at risk from tidal flooding and storm surges are:

- Patterson Lakes and Carrum if any of the three tidal gates along Patterson River were to fail
- Mordialloc Creek Marina with access to Lambert Island potentially cut via footbridge
- J. Grut Reserve in Mordialloc
- Wetlands in Braeside and Waterways north of Mordialloc Creek
- Beaches between Mentone in Beaumaris Bay to Carrum at Eel Race Road

With elevated levels likely during a storm surge event in Mordialloc Creek and Patterson River, this may impact on the ability of drainage systems such as the Centre Swamp Drain, Heatherton Drain, Mordialloc Settlement Drain, Braeside West Drain & Whatley's Drain to discharge stormwater into the two waterways. Consideration should be given also to the various pumping stations located along Mordialloc Creek and Patterson River during storm surge events.

2.1.5. City of Kingston Municipal Flood Map (1% AEP Extent)



Map produced by VICSES: 14/11/2025 3:22 PM

Stream Level & Rain Gauge
Stream Level Gauge
Rain Gauge
Ambulance Station
Coast Guard
Municipal Depot
Emergency Coordination Centre
Fire Station
Hospital (Emergency)
Hospital / Day Procedure
Municipal Offices / Civic Centre
Police Station
Prison / Justice
Quarantine Facility
Tip / Recycling
SES Unit
Caravan Park
Airport / Airfield
Melbourne Water Stormwater Drain
Waterway (Main)
Waterway (Tributary)
Waterbody
Melbourne Water Retarding Basin
Municipality
1% AEP Coastal (Storm Surge) Flood Extent
1% AEP Stormwater (Flash) Flood Extent
1% AEP Waterway (Riverine) Flood Extent

CITY OF KINGSTON
1% AEP Flooding
B. Municipal Flood Map (1% AEP Extent)

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2.2. History of Municipal Flood and Storm emergencies

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

Historically, several major floods and storms have affected people living within suburbs that now form the City of Kingston. In December 1934, Chelsea and surrounding areas were severely flooded, and some 1500 people were evacuated from their homes. In October 1937, there was significant flooding in Chelsea, and in July 1952, some 1200 people were evacuated from their homes in the bayside suburbs of Chelsea, Bonbeach, Seaford and Carrum because of severe flooding.

During the 1950s and 1960s, the installation of floodgates and pumps on the Patterson River, and the raising of the height of levee banks, increased protection of Chelsea and surrounding areas from severe flooding. However, flooding still occurs in Kingston's suburbs. For example, in 1993/94 there was significant and widespread flooding in both commercial and residential buildings in Moorabbin and Braeside. In 1997, there was significant flooding in Dingley Village. In November 2003, thunderstorms resulted in localised flash flooding across the Melbourne metropolitan area including at Chelsea.

The February 2011 flood event was an extreme event across the majority of the Kingston municipality. The worst affected areas (including a 10km wide band through Beaconsfield and Dandenong South) received 180mm of rain in one hour, equivalent to a 1 in 500-year event. Suburbs within Kingston experienced:

- North Ward: 130 mm/hr or a 1 in 50-year storm event;
- Central Ward: 150 mm/hr or 1 in 100-year storm event and;
- South Ward: 1 in 50 years towards Edithvale and 1 in 20 years towards Carrum

Most local roads were flooded at the low points to a depth of between 100 mm to 500 mm. Edithvale Road was severely impacted and was closed for a period of 8 days.

Typically, the Chelsea and Moorabbin units would expect to be impacted by a large storm event on average once a year (more than 100 Requests for Assistance (RFA) per event) for Incidents within Kingston.

A Request for Assistance (RFA) is a call for VICSES support made by the public, other agencies, or VICSES members, with multiple RFAs potentially relating to a single incident.

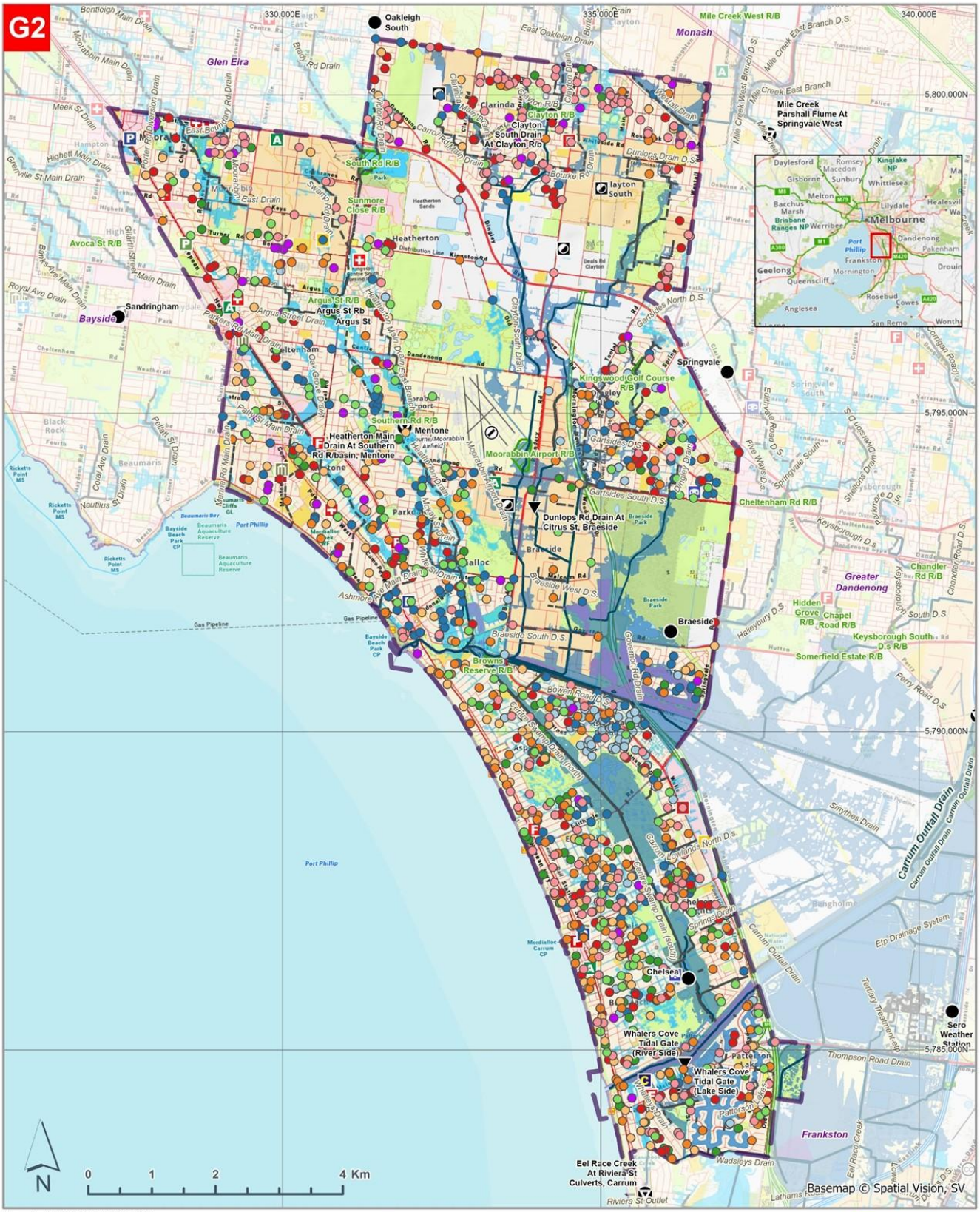
Since 2015 the following larger storm events have occurred in the City of Kingston:

- October 2016 – Flood and storm event which saw 1,055 RFA's received and over 160 for the Kingston LGA, coinciding with major floods impacting Victoria across the state (biggest flood event since 2011).
- June 2021 – Storm event that saw heavy rainfall and destructive winds over a 48-hour period resulting in over 10,280 requests for assistance across the state and over 135 for the Kingston LGA from June 8 to July 8.
- October 2021 – From 28 October damaging winds and intense rainfall impacted parts of the state, leading to widespread flash flooding and storm damage. VICSES received over 9,890 RFAs, with over 7,600 of these for metropolitan Melbourne and the surrounding suburbs. The Kingston Municipal area received over 160 RFAs.
- February 2024 - Severe thunderstorms which saw damaging and destructive winds, heavy rainfall, and large hailstones had widespread impacts, with power outages affecting more than 535,000 customers across the state. VICSES received over 6,700 RFAs during the period of

declared operations from 13 – 29 February. The Kingston Municipal area received over 330 RFAs and one of the most significant storm events for the area.

- August/September 2024 – Severe storm activity with a powerful cold front resulted in destructive winds across Victoria, causing widespread tree damage, building impacts and significant power outages. Wind gusts exceeded 140 km/h in parts of the state, with peak outages affecting approximately 180,000 customers on the 2nd of September Monday Morning. VICSES received more than 10,000 requests for assistance over this period. The Kingston Municipal area received over 250 RFAs during this period.

The following map indicates where the hot spots have been for historic storms of significance that have generated a larger than normal number of requests for assistance (RFA). Note that while the map is based on historic data, a severe storm can affect any part of the municipality.



Map produced by VICSES: 19/11/2025 1:20 PM

CITY OF KINGSTON

G2. Severe Weather Requests for Assistance (RFA) by Weather Event (July 2009 - June 2025)

- Stream Level & Rain Gauge
- Stream Level Gauge
- Rain Gauge
- Ambulance Station
- Coast Guard
- Municipal Depot
- Emergency Coordination Centre
- Fire Station
- Hospital (Emergency)
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Police Station
- Prison / Justice
- Quarantine Facility
- Tip / Recycling
- SES Unit
- Caravan Park
- Airport / Airfield
- Melbourne Water Stormwater Drain
- Waterway (Main)
- Waterway (Tributary)
- Waterbody
- Melbourne Water Retarding Basin
- Municipality
- 1% AEP Coastal (Storm Surge) Flood Extent
- 1% AEP Stormwater (Flash) Flood Extent
- 1% AEP Waterway (Riverine) Flood Extent

Severe Weather RFAs (Storm or Flood)

- 13th November 2010
- 5th - 6th February 2011
- 11th - 12th January 2012
- 1st October 2013
- 24th - 25th June 2014
- 29th - 31st October 2021
- 29th January 2022
- 14th - 15th February 2024
- 2nd - 3rd September 2024

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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 number of agencies with specific roles that will act in support of VICSES and provide support to the community in the event of a serious storm and/or flood within the City of Kingston Municipality. 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 SEMP, SEMP Flood Sub-plans, SEMP Storm Sub-plan and MEMP

3.3. Mitigation

3.3.1. Southern Metro Floodplain Management Strategy

The Victorian Floodplain Management Strategy sets the policy and accountability framework for flood related mitigation activities in Victoria. The Melbourne Water Flood Management Strategy sets out the implementation of flood mitigation activities for the Region, including for City of Kingston.

3.3.2. Structural flood mitigation measures

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

For more detailed Flood Intelligence and VICSES Response arrangements surrounding structural flood mitigation measures refer to **Annex C - Localities and at-risk communities**

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.

3.3.4. Pumping stations

Due to the low-lying coastal and catchment geography (specifically south of Mordialloc creek) the City of Kingston municipality, the area has a heightened reliance on pumping stations as a critical flood mitigation measure. Unlike higher elevation municipalities where stormwater can predominantly drain by gravity, significant parts of Kingston depend on pumping infrastructure to manage stormwater and reduce the risk of flooding during rainfall events and high tide conditions.

Pumping stations within the City of Kingston municipality are owned, operated, and maintained by both the City of Kingston Council and Melbourne Water. These assets form an essential component of the municipality's drainage network and play a critical role in municipality during storm and flood events.

The failure or reduced capacity of pumping stations during flood or storm events could present a significant risk, potentially resulting in surface water inundation, prolonged flooding, and impacts to at-risk communities. Risks of failure or reduced capability may be caused by power outages, mechanical failures, blockages, or extreme rainfall exceeding design capacity.

Pumping stations are also checked and, where necessary, inspected prior to forecast rainfall events to support effective system performance. The City of Kingston Council, City Works team has 24/7 response capabilities to maintain and check pump as needed.

It is also noted within the Kingston Municipality footprint, the presence of rail infrastructure, level crossings and the ongoing level crossing removal works. These projects increasingly include bespoke drainage and pumping assets located within Melbourne Metro Trains (MTM) land and maintained by MTM. Consideration should be given to these assets during flood and storm events.

Detailed information regarding the location, ownership, and communities serviced by pumping stations is contained in Annex C – Localities and At-Risk Communities for the City of Kingston. This annex should be referenced when assessing flood risk, prioritising response actions, and planning mitigation strategies.

3.3.5. Drainage Asset Maintenance

Routine drainage management of Council owned assets, including inspection and maintenance, is undertaken by the City of Kingston in accordance with its asset management practices. This includes the ongoing operation and maintenance of Council-managed pumping stations that support stormwater management within the municipality. Further details can be obtained via the City of Kingston Website.

Melbourne Water is responsible for the maintenance and operation of the regional drainage network, including major drains, waterways, wetlands, retarding basins, and associated drainage control infrastructure. Maintenance activities include routine inspections, desilting, debris removal, and the operation of pumping stations and flow-control assets to support flood mitigation across the municipality.

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 promote individual and community wellbeing, use of available resources and cohesiveness to strengthen their communities for everyday, as well as extreme challenges.

3.4.1. Flood and Storm specific community engagement and programs

Community education and engagement is a vital component in the community understanding risks and preparing for emergencies. The development of relevant and appropriate community resources and activities

empower the community and enhance their resilience through being well informed and therefore being equipped (emotionally and physically) for an emergency.

VICSES as the control agency for flood and storm and other emergency management services/agencies will coordinate and collaborate targeted community flood and storm engagement programs to engage the community through:

- Community programs and projects
- Community events
- Media (e.g. social media, VICSES website, print and publications)
- Local Flood Guides

From 2024 to 2026, both the VICSES Chelsea Unit and VICSES Moorabbin unit have been utilised to share flood and storm messages through a range of tools such as:

- Storm and Flood Information Sessions delivered in community venues, focusing on local risks, preparedness actions, warning systems, and recovery support.
- Community activations at local events and fun days, using pop-up stalls to provide preparedness information, household checklists, and direct engagement with residents.
- School visits and youth engagement activities, incorporating age-appropriate storm and flood preparedness messaging and interactive learning.
- Targeted engagement with high-risk or priority groups, such as residents in flood-prone areas, through small group sessions or local networks.

As with all hazards, the effects of floods and storms on the community cannot be fully mitigated. As such, it is imperative that there is a shared and individual responsibility for action and all of society taking responsibility for preparing for disasters which for community members may include:

- Being aware of their flood risk and undertaking preparedness activities such as developing a home emergency plan and emergency kit – see the VICSES website
- Staying informed and following advice from emergency services when responding to warnings
- Developing Community Emergency Management Plans (CEMPs)

3.5. 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 - Public Information and Warning Systems.**

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 Kingston 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.

3.6. 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** - **Localities and at-risk communities**.

3.7. Cross-border Collaboration and Area of Operations

The City of Kingston Municipality area falls within the general response boundaries of two VICSES Units. This is the VICSES Chelsea Unit and VICSES Moorabbin Unit. Noting that the VICSES Moorabbin unit also services the Bayside Council Area.

In the event of a large flood or significant storm event occurs that impacts the municipality footprint, consideration is to be made into the coordination between units to facilitate effective communication with Kingston City Council. As part of exercising this sub-plan, the exercise should consider and test this collaboration between VICSES units. 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.

3.8. Local Knowledge

As the 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.

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.

3.9. 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 support intelligence gathering during flood and storm operations, drone support can be provided by other agencies, with requests facilitated through the VICSES SAC and SCC Air Desk.

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

3.10. Response

3.10.1. 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, which local VICSES units manage without significant outside support. In the initial response phase, units 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.

In the case of more significant event, such as an incident that has high complexity and may have statewide implications, IC, RDO or RAC will activate agencies as required and as documented in the SEMP Flood Sub-Plan or SEMP Storm Sub-Plan.

3.11. 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).

3.11.1. 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.

For more detailed information and arrangements relating to sewerage and wastewater refer to Annex A in the Flood Intelligence and VICSES Response Arrangements for Flood and Storm in the City of Kingston.

All flood and storm response activities within the City of Kingston 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.

3.11.2. 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 response triggers *table 1* – flooding within the SEMP Flood sub-plan.
- VICSES readiness response triggers summary *table 1* – severe weather within the SEMP Storm sub-plan.

Procedures for transferring incident control from an initial or field-based Incident Controller to an ICC-based Incident Controller are specified in J03.15 - Transfer Of Control And IMT Relocation for Class 1 Emergencies

ICCs have been pre-determined and described in the Southern Metro REMP.

3.11.3. Divisional/Sector command points

To ensure that effective Command and Control arrangements are in place, the IC may establish Divisions and Sectors depending upon the complexity of the event and resource capacities.

The location of Divisions and Sectors are chosen based on their suitability for maintaining operations during a flood and/or storm and may differ from those used in other types of emergencies. The IC may establish Divisions and Sectors at the following locations to assist with the management of flooding and/or storm events within the Municipality. The following location could be utilised as a **divisional** command point:

- VICSES Chelsea Unit - 13 Ashley Park Dr, Chelsea Heights

The following location could be utilised as a **sector** command point

- VICSES Chelsea Unit - 13 Ashley Park Dr, Chelsea Heights
- VICSES Moorabbin Unit - 2D Bricker St, Cheltenham

The nature of severe flood and/or storm damage may preclude one of the above locations from being used as intended due to factors such as road blockages (trees down), damage to its infrastructure or loss of mains power. In that case the Incident Controller with will determine a suitable replacement location as required.
Escalation

Most storm and/or flood incidents are of local concern and an appropriate response can usually be coordinated using local resources. However, when these resources are exhausted, arrangements provide for further resources to be made available, firstly from neighbouring municipalities (on a Region basis) and then on a State-wide basis. Resourcing and event escalation arrangements are described in the SEMP.

3.11.4. Emergency Management Team (IEMT)

The IC may establish a multi-agency Incident Emergency Management Team (IEMT) to support the management of flood and/or storm response activities. The IEMT will comprise representatives from relevant agencies and organisations with the appropriate authority to contribute to coordinated decision-making. The role of the IEMT is to support the IC by providing strategic advice, consequence information, inter-agency coordination, and policy considerations to inform incident management decisions and planning.

Organisations required within the IEMT (including City of Kingston Council) will provide an Emergency Management Liaison Officer (EMLO) to the relevant incident management location (for example an ICC) if and as required, as well as other staff and/or resources identified as being necessary, within the capacity of the organisation.

Specifically, consideration should be given to deploying a City of Kingston Council EMLO to the Chelsea DCP once it is established and includes the City of Kingston within its footprint. As the City of Kingston spans

both the VICSES Chelsea and VICSES Moorabbin response areas, this would provide improved coordination of activities within the Kingston municipality.

Refer to the SEMP for guidance on EMTs.

3.12. 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 SOP003 Fatigue Management and Duty Time Limitations

3.13. Initial Impact Assessment

Impact Assessment (IA) can be conducted in accordance with State doctrine and Standard Operating Procedures (SOPs) to assess and record the extent and nature of damage caused by storms and/or flooding. This information may then be used to provide the basis for further needs assessment and recovery planning by City of Kingston Emergency Management Victoria and other applicable recovery agencies.

The control agency is responsible for coordinating the collection, collation and dissemination of IA information on a whole-of government basis during the emergency response. The purpose, function and conduct of IA is outlined in the State Storm and Flood Sub-plans. All IA should be conducted in accordance with current EMV impact assessment guidance materials.

3.14. Storm response arrangements

In the initial response phase, 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.

3.15. Response to flash flooding

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

Emergency management response to flash flooding should be consistent with the SEMP Storm Sub-plan.

3.16. Evacuation and relocation

In Victoria, evacuation is largely voluntary, however in particular circumstances, legislation provides some emergency services with authority to remove people from areas or prohibit their entry.

Unlike neighbouring municipalities, areas of the Kingston municipality may experience prolonged isolation where drainage performance is constrained by tidal influences and limitations in pumping capacity. Where this is the case, evacuation and relocation are to be considered early. The decision to recommend or warn people to prepare to evacuate or to evacuate immediately rests with the IC, and where possible the IEMT.

It is the choice of individuals as to how they respond to this recommendation.

Once the decision is made, Victoria Police (VicPol) are responsible for the coordination of the evacuation process. VICSES and other agencies will assist where practical. VICSES is responsible for the development and communication of evacuation warnings

VicPol (and/or delegate to Australian Red Cross) may take on the responsibility of registering people affected by the emergency (through the 'Register Find Reunite' program) including those who have been evacuated.

Evacuation operations should be consistent with the Joint Standard Operating Procedure on Evacuation JSOP 03.12 – Planned Evacuation for Major Emergencies.

3.17. Flood 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.

3.18. 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 may request aircraft support through the State Air Desk located at the SCC. The Air Desk Supervisor will establish priorities. The IC controls the conduct of Air support operations.

3.19. Resupply

Communities, neighbourhoods or households can become isolated during floods and in some cases, storms. This can be as a consequence of 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.

No major isolation risks exist for areas around City of Kingston during a 1% AEP (100yr ARI) event. Some localised isolation may occur due to flash flooding. This isolation may be prolonged where drainage performance is constrained by tidal influences and limitations in pumping capacity.

For more detailed arrangements/information refer to **Annex C** - **Localities and at-risk communities**.

3.19.1. Animal welfare

Matters relating to the welfare of animals other than wildlife (including feeding, water and rescue) are to be referred to DEECA - Agriculture Victoria as the relief lead and coordinating agency. City of Kingston Council and the RSPCA are relief support agencies and will support emergency animal welfare activities as required.

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

3.20. Essential community infrastructure and property protection

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

VICSES Chelsea and Moorabbin Unit holds a small stockpile of sandbags. Back-up supplies are available through the VICSES Region. The IC will determine the priorities related to the use of sandbags, which will be consistent with the strategic priorities.

VICSES only set up sandbag collection points when required to assist to prepare at-risk townships. At other times, community may be able to access sandbags from their local hardware store.

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.

For more specific details of essential infrastructure requiring protection and location of sandbag collection point(s) refer to **Annex C** - **Localities and at-risk communities**.

3.20.1. 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 - Localities and at-risk communities.**

3.20.2. Traffic Management and Road Closures

Traffic management and road closures 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 has responsibility for Traffic Management in consultation with the Control Agency and other expert advice.

Council and DTP will continue to carry out their formal road management functions, for their respective roads and related assets, where safe to do so. This might include surveillance, placement of warning signs, and supporting overall traffic management arrangements in conjunction with VICPOL and the Incident Controller.

Where possible, Council and DTP will publish information on road impacts for their respective roads via VicTraffic.

For more detailed arrangements of potential road closures refer to **Annex C - Localities and at-risk communities**.

3.21. 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.

No dams, either in or upstream of the City of Kingston are expected to affect the Municipality from flooding, for further information refer to **Annex A - Flood and Storm threats for the City of Kingston Municipality.**

3.22. Access to technical specialists

VICSES manages contracts with private specialists who can provide flood and geotechnical specialist consultants to support Incident Management Teams when specialists support from Catchment Management Authorities (CMAs) and Local Government is not available.

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.

Specifically, they can provide the following key professional services:

- Flood intelligence (Flood Analysts)

- Geotechnical assessments

3.23. 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.

Refer to the City of Kingston MEMP for detailed relief arrangements for the City of Kingston.

3.24. Recovery

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

Arrangements for recovery from a flood and/or storm event within the City of Kingston is detailed in the City of Kingston MEMP.

3.25. 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 and/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 and/or 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 and/or storm incident should be represented at the debrief or after action review.