City of Maribyrnong

Flood and Storm Emergency Plan

A Complementary Plan of the Maribyrnong Municipal Emergency Management Plan

For VICSES Unit Footscray

Version 6.0
Reviewed July 2024

VICTORIA
State Government

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Acknowledgment of Traditional Owners

The Maribyrnong Municipal Emergency Management Planning Committee respectfully acknowledges the Traditional Owners of the land and waters of the municipality, those of the Kulin Nation. We pay our respects to Elders past, present and emerging, and are committed to working with Aboriginal and Torres Strait Islander communities to achieve a shared vision of safer and more resilient communities.

Authority

The plan has been prepared in accordance with and complies with the requirements of the EM Act 2013 including having regard to the guidelines issued under section 77, *Guidelines for Preparing State, Regional and Municipal Emergency Management Plans* and was endorsed by the North West Metro Regional Emergency Management Planning Committee as a sub-plan to the State Emergency Management Plan and approved by the Emergency Management Commissioner.

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Distribution of MFSEP

Once endorsed and signed the, MFSEP should be distributed to all MFSEP committee members, MEMPC Chair, council, MEMO, Deputy MEMO, Representatives from; BoM, CMA, DEECA, Parks Victoria, Ambulance Victoria, Department of Transport and Planning (VicRoads), DFFH, relevant utilities, MERC, RERC, Police station, VICSES Units, VICSES Regional office, FRV district office, FRV stations,.

Document Transmittal Form / Amendment Certificate

This Municipal Flood and Storm Emergency Plan (MFSEP) will be amended, maintained, and distributed as required or every 3 years facilitated by VICSES in consultation with the Municipal Emergency Management Planning Committee (MEMPC)

Suggestions for amendments to this Plan should be forwarded to VICSES Regional Office via

ust.nwmetro@ses.vic.gov.au
Amendments listed below have been included in this Plan and updated as a new version.

Amendment Number	Date of Amendment	Amendment Entered By	Summary of Amendment
Version 1	November 2004		
Version 1.1	August 2005		
Version 1.2	August 2007		
Version 2	November 2008		
Version 2.1	November 2009		
Version 2.2	November 2011		
Version 2.3	February 2012		Transitioned to new layout
Version 2.4	November 2012		Final MEMPC input
Version 2.5	December 2012		Schematic updated. Final Version signed
Version 3.0	June 2015	R. Butler	Update of Appendix A, B, C & F with addition of Appendix G
Version 4.0	October 2018	R. Butler and J. Griffin	Update of Appendix A, B, C, F & G, updates to legislative and administrative sections
Version 5.0	January 2021	R. Butler	Application of new template. Updated parts of the body as well as Appendices A, B, C, F & G
Version 5.1	October 2021	P. Duncombe	Updated layout
Version 5.2	December 2021	P. Duncombe	MEMPC Changes
Version 6.0	July 2024	R. Butler M Patton	Application of new template. Update of Appendices A, B, C & F
Version 6.0	November 2024	M Patton	Approved by MEMPC

This Plan will be maintained on the VICSES website (https://www.ses.vic.gov.au/plan-and-stay-safe/flood-guides/maribyrnong-city-council) and Maribyrnong Councils' website and stored/published in Crisisworks system.

List of Abbreviations & Acronyms

The following abbreviations and acronyms are used in the Plan:

The following abbreviations and acronyms are used in the Plan			
AAR	After Action Review	IIA	Initial Impact Assessment
AEP	Annual Exceedance Probability	IMS	Incident Management System
AHD	Australian Height Datum (the height of a location above mean sea level in metres)	IMT	Incident Management Team
AIDR	Australian Institute of Disaster Resilience	JSOP	Joint Standard Operations Procedure (as issued by the Emergency Management Commissioner)
AIIMS	Australasian Inter-service Incident Management System	LSIO	Land Subject to Inundation Overlay
AoCC	Area of Operations Control Centre / Command Centre	MEMO	Municipal Emergency Management Officer
ARI	Average Recurrence Interval	MEMP	Municipal Emergency Management Plan
ARMCANZ	Agricultural & Resource Management Council of Australia & New Zealand	MEMPC	Municipal Emergency Management Planning Committee
AV	Ambulance Victoria	MERC	Municipal Emergency Response Coordinator
BoM	Bureau of Meteorology	MEMO	Municipal Emergency Management Officer
CEO	Chief Executive Officer	MFSEP	Municipal Flood & Storm Emergency Plan
CERA	Community Emergency Risk Assessment	MFEPC	Municipal Flood Emergency Planning Committee
CFA	Country Fire Authority	MRM	Municipal Recovery Manager
CMA	Catchment Management Authority	PMF	Probable Maximum Flood
DEECA	Department of Energy, Environment and Climate Action	RAC	Regional Agency Commander
DFFH	Department of Families, Fairness and Housing	RCC	Regional Control Centre
DH	Department of Health	RDO	Regional Duty Officer
DJSIR	Department of Jobs, Skills, Industry and Regions	RERC	Regional Emergency Response Coordinator
DTP	Department of Transport and Planning	RERCC	Regional Emergency Response Coordination Centre
EMLO	Emergency Management Liaison Officer	REMP	Regional Emergency Management Plan
EMT	Emergency Management Team	SAC	State Agency Commander
EMV	Emergency Management Victoria	SBO	Special Building Overlay
ERC	Emergency Relief Centre	SCC	State Control Centre
ERV	Emergency Recovery Victoria	SDO	State Duty Officer
FO	Floodway Overlay	SEMP	State Emergency Management Plan
FRV	Fire Rescue Victoria	SEWS	Standard Emergency Warning Signal
IC	Incident Controller	SOP	Standard Operating Procedure
ICC	Incident Control Centre	VicPol	Victoria Police
IEMT	Incident Emergency Management Team	VICSES	Victoria State Emergency Service

Glossary

Below are terms defined for the purpose of this plan:

Term	Definition
Annual Recurrence Interval (ARI)	The average, or expected value of the period between exceedances of a given rainfall or flow total accumulated over a given duration
Annual Exceedance Probability (AEP)	The probability that a given total rainfall or flow is accumulated over a given duration will be exceeded in any one year
Flash flooding	Sudden unexpected flooding caused by local heavy rainfall or rainfall in another area. Often defined as flooding which occurs within six hours of the rain which causes flooding.
Flood mapping	The process where the extent of flooding is documented in mapping software based on flood studies and surface elevations
Floodplain	Area of land adjacent to a creek, river, estuary, lake, dam or artificial channel, which is subject to inundation.
Hot spot	A known flood problem area which has a history of repeat flooding of a road, crossing or property, often highlighted through anecdotal information and customer complaints. It is a localised issue which will vary from council to council.
Natural drainage system	Flow paths which are largely undeveloped by human sources, these include rivers, streams, natural depressions and wetlands. All-natural systems greater than 60 ha are managed by Melbourne Water.
Overland flooding	Flooding by local runoff caused by heavier than usual rainfall. Overland flooding can be caused by local flow exceeding the capacity of an urban stormwater drainage system or by the backwater effects of mainstream flooding causing urban stormwater drainage system to overflow. For local government areas this is over the 5-year ARI in residential or over 10yr ARI in commercial/industrial. For Melbourne Water catchment areas this is for all other ARIs up to the 100yr ARI.
Retarding Basin	A Retarding Basin is a large, open, free draining basin that temporarily stores collected stormwater runoff. These basins are normally maintained in a dry condition between storm events.
Stormwater drainage system	A series of drains and waterways into which surface and stormwater flows. Features of a stormwater drainage system can include underground pipe drains, open channels, retarding basins, floodways, waterway improvements, water sensitive urban design, integrated water management systems and environment protection measures. All drainage under 60 ha is maintained and operated by Mornington Peninsula Shire Council
Stormwater Runoff	The amount of rainfall that enters the stormwater drainage system, (via pits, pipes, retarding basins, water sensitive structures, harvesting tanks and overland flow paths) after water which is not absorbed into the ground has been taken into account.

Part 1. Introduction

1.1 Approval and Endorsement

The Maribyrnong MEMPC is the owner of this Municipal Flood and Storm Emergency Plan (MFSEP), pursuant to Part 6A of the Emergency Management Act 2013 (as amended).

In accordance with its roles and responsibilities set out in the State Emergency Management Plan (SEMP), the Victoria State Emergency Service (VICSES) has prepared this plan in collaboration with the Maribyrnong MFPC.

This MFSEP is a complementary plan to the Maribyrnong Municipal Emergency Management Plan (MEMP). It is consistent with the SEMP and the Victorian Floodplain Management Strategy (2016).

The plan is also consistent with and subordinate to:

SEMP Flood Sub-Plan,

SEMP Storm sub-plan

North West Metro Region Emergency Management Plan

This MEMPC prepared this plan in alignment with the Guidelines for Preparing State, Regional and Municipal Emergency Management Plans.

It also takes into account the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the Municipal Emergency Management Planning Committee (MEMPC).

This MFSEP is a result of the cooperative efforts of the MFPC and its member agencies.

This Plan is endorsed by the Maribyrnong MEMPC as a complementary to the MEMP.

1.2 Purpose and Scope of this Storm and Flood Emergency Plan

The purpose of this MFSEP is to detail arrangements agreed for the planning, preparedness/prevention, response and recovery from storm and/or flood incidents within the City of Maribyrnong

As such, the scope of the Plan is to:

- Identify the Storm and Flood Risk to the City of Maribyrnong.
- Support the implementation of measures to minimise the causes and impacts of storm and flood incidents within the City of Maribyrnong.
- Detail Response and Recovery arrangements including preparedness, Incident Management, Command and Control.
- Identify linkages with Local, Regional and State emergency and wider planning arrangements with specific emphasis on those relevant to storm and/or flood.

1.3 How to read this plan

This is a sub-plan and therefore should be read in conjunction with the:

- SEMP,
- SEMP flood Sub-plan and SEMP Storm Sub-plan
- North West Metro REMP
- Maribyrnong MEMP

1.3.1 Linkages and hyperlinks

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

For more operational or sensitive information, a log-in may be required, such as for documents saved on the Emergency Management Common Operating Picture (EM-COP), including Joint Standard Operating Procedures (JSOPs).

Documents or resources that are referred to frequently throughout this plan (such as the SEMP) may not 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.

1.4 Requirements of EMP guidelines

Emergency Management Victoria has published guidelines for preparing emergency management plans including municipal plans. In accordance with section 3.1 (Requirements) this plan has been:

prepared collaboratively, efficiently and effectively (section 60AA(1))

is consistent with other existing in force EMPs and where possible not duplicate or conflict with those plans (section 60AC)1

has adopted an integrated, coordinated and comprehensive approach to emergency management (sections 60AD, 60ADA and 60ADB)

• contain arrangements for mitigation, response, and recovery plus roles and responsibilities (section 60AE)

Has been assured, approved and published every three years, or more frequently if required (sections 60AG, 60AH, and 60AI).

1.5 Municipal Flood Planning Committee (MFPC)

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

chairperson - VICSES Operations Officer Emergency Management

VICSES (unit controller)

Maribyrnong (Municipal Emergency Management Officer)

Maribyrnong Council specialists as required

Victoria Police (Municipal Emergency Response Coordinator)

Department of Families, Fairness and Housing

Melbourne Water

Local community representative

Emergency Recovery Victoria

1.6 Responsibility for planning, review & maintenance of this plan

To remain effective and to place the community at centre of its planning, the MEMPC must ensure it maintains the MFSEP.

VICSES through the MFPC has responsibility for facilitating the preparation, review, maintenance and distribution of this plan.

The MFPC will meet at least once per year.

The MEMPC will ensure that the MFPC review the plan following:

a new flood study

a significant change in flood mitigation measures

after the occurrence of a significant flood event within the municipality

three years elapsing after the last review.

1.7 Community consultation in developing or review of the plan

The MEMPC via the MFPC has undertaken community consultation on this plan.

Community submission process on draft

Direct engagement with specific community groups including:

- Community Recovery Committee
- Maribyrnong Neighbourhood Flood Network

Part 2. Before: Prevention / Preparedness Arrangements

2.1 Community Awareness for all Types of Storm and Flooding

Upon formal adoption by the MEMPC the community will have access to the details of this MFSEP via:

The Victora State Emergency Service (VICSES) website

local media

any Be Flood Ready or Storms - Plan and stay safe engagement initiatives and websites (VICSES and the Municipality – post a link to the site here)

VICSES with the support of Maribyrnong City Council and Port Phillip and Westernport Catchment Management Authority (Melbourne Water) will coordinate targeted community flood engagement programs within the council area.

VICSES has also developed a Community Engagement/ Communication Plan in collaboration with the Maribyrnong City Council along with Local Flood Guides. Refer to Appendix H

Refer to Appendix H (LFG and Be Flood Ready Information.

2.2 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[1]. The following is a summary of structural flood mitigation measures that exist within the Council area:

- levees (location, owner, condition, maintenance responsibility and protection levels).
- retarding basins (location, owner, condition, maintenance responsibility and protection levels) etc.
- dams
- ocean wave barriers/sea walls/groins

Refer to Appendix C for detailed information of structural flood mitigation measures.

[1] United Nations Office of Disaster Risk Reduction

2.3 Non-structural flood mitigation measures

Non-structural flood mitigation measures[1] are measures not involving physical construction which use knowledge, practice or agreement to reduce disaster risks and impacts, in particular through policies and laws, public awareness raising, training and education.

2.3.1 Exercising the plan

The MEMPC is responsible for arranging for the exercising of this plan, which should occur annually. Ideally, the MEMPC will schedule the exercise shortly prior to the highest risk period for flooding, which is in Springtime.

2.3.2 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.

DEECA maintains the FloodZoom flood intelligence platform. Inquiries regarding FloodZoom access should be directed to accounts@floodzoom.vic.gov.au.

2.3.3 Flood warning

The SEMP Flood Sub Plan (www.ses.vic.gov.au/em-sector/vicses-emergency-plans) and on the Bureau of Meteorology (BoM) website www.bom.gov.au, detail the arrangements for BoM issued Flood Watch and Flood Warning products.

Details on Warnings issued by VICSES through VicEmergency and VICSES channels are outlined in **Appendix E**.

2.3.4 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.[2]

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.

[2] VICSES Policy 10.02 Local Knowledge V4.0

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 in to divisional and sector command structures.

Refer to Appendix G **– Local knowledge arrangements** for details of the local knowledge arrangements for the municipality.

Part 3. During: Response / Relief Arrangements

3.1.1 Activation of Response

VICSES may be notified of storm and flood 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[3]), 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 Regional Duty Officer (RDO) VICSES North West Metro Region or Regional Agency Commander (RAC).

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

3.1.2 Responsibilities

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 flood or storm within the [Enter Municipality Name]. These agencies will be engaged through the IEMT.

The general roles and responsibilities of supporting agencies are as agreed within the: MEMP, SEMP role statement and SEMP Flood sub-plan - and Regional Flood Emergency Plan.

Appendix I lists the roles and capabilities of other agencies when assisting VICSES to respond to storm events.

3.1.3 Municipal Emergency Coordination Centre or equivalent

If established, liaison with the emergency coordination centre will be through the established Division/Sector Command and through Municipal involvement in the IEMT, in particular the Municipal Emergency Response Coordinator (MERC). The VICSES RDO or ICC will liaise with the centre directly if they have not established division or sector command arrangements.

The function, location, establishment and operation of an emergency coordination centre if relevant will be as detailed in the MEMP.

[3] For a detailed definition of the levels of incidents, refer to Table 3 Levels of Incidents within the State Emergency Management Plan.

3.1.4 Escalation

Many flood or storm incidents are of local concern and an appropriate response can usually be coordinated using local resources. However, when these resources are exhausted, the State's arrangements provide for further resources to be made available, firstly from neighbouring municipalities (on a regional basis) and then on a state-wide basis.

Resourcing and event escalation arrangements are described in the SEMP.

3.2 State emergency management priorities

The State Emergency Management Priorities shall form the basis of incident action planning processes.

3.3 Command control coordination consequences communication and community

Arrangements in this MFSEP must be consistent with the 6 C's detailed in SEMP, the State and Regional Flood Emergency Sub-Plans and the MEMP. For further information, refer to the Emergency management phases in the SEMP and a one page summary on the 6 C's.

Specific details of arrangements for this plan are to be provided in Appendix C.

3.3.1 Control

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

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

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

3.3.2 Incident Controller (IC)

On the advice of the Bureau of Meteorology (BoM) or other reliable source, that a flood or storm event will occur or is occurring, VICSES as the control agency will appoint an Incident Controller (IC). The IC is typically from VICSES but may be from another agency when resources are constrained. The IC will lead and manage incident-tier response control including:

- controlling the operational elements of the response
- providing operational leadership during the incident at a static location or a dynamic incident, including the tactical resolution.

The IC responsibilities are as defined in the SEMP. While providing support to the IC, support agencies retain command of their own people.

3.3.3 Incident Control Centre (ICC)

As required, the IC will establish an Incident Control Centre (ICC). The ICC is where they manage the incident response command and control functions from. The IC will make the decision to activate the ICC and when it should commence operations. 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

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.

3.3.4 Incident Management Team (IMT)

The Incident Controller will form an Incident Management Team (IMT) to support the IC in managing the incident-tier operational response to the emergency. This includes the functional areas of planning, intelligence, public information, operations, investigation, logistics and finance functions. Where possible, the IMT will be joint-agency, pre-planned and include personnel with relevant local knowledge.

For more detail, refer to the SEMP on IMTs and Incident Management Systems (IMSs).

3.3.5 Incident Emergency Management Team (IEMT)

The IC will establish a multi-agency Incident Emergency Management Team (IEMT) to support the IC in managing the effects and consequences of the flood or storm emergency.

The IEMT consists of key personnel (with appropriate authority) from stakeholder agencies and relevant organisations who need to be informed of strategic issues related to incident control. They can provide the IC with high level strategic guidance and policy advice for consideration in developing incident management strategies.

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

For more detail refer to the SEMP for guidance on IEMTs.

3.3.6 On Receipt of a Flood Watch / Severe Weather Warning

SES SOP008 Severe Weather Notification and Activation Process and SES 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.

The following are links to the current VICSES readiness:

VICSES readiness and activation levels - flood

VICSES readiness and activation levels – severe weather

Additionally, the VICSES Regional Duty Officer (until an incident controller is appointed) or IC will undertake actions as defined within the flood intelligence cards (**Appendix C**). General considerations by the IC/VICSES RDO will be as follows:

- Review flood intelligence to assess likely flood consequences.
- Monitor weather and flood information using the range of intelligence tools including– www.bom.gov.au and Melbourne Water Rainfall and river levels.
- Assess Command and Control requirements.
- Review local resources and consider needs for further resources regarding personnel, property protection, flood rescue and air support. Keeping in mind geographic extent of warning area and the potential for resource constraints if there may be wide-ranging effects across the region or state.
- Notify and brief appropriate officers. This includes Regional Control Centre (RCC) (if established), State Control Centre (SCC) (if established), Council, other emergency services through the EMT.
- Assess ICC readiness (including staffing of IMT and IEMT) and open if required.
- Ensure flood warnings and community information is prepared and issued to the community where required.
- Flood (Riverine and flash) Warnings are managed by the RDO/RAC.
- Severe Weather/ Thunderstorm warnings are managed by SDO/SAC.
- Develop media and public information management strategy.
- Monitor watercourses and undertake reconnaissance of low-lying areas (consider field observers).
- Ensure flood mitigation works are being checked by owners.
- Develop and issue incident action plan, if required.
- Develop and issue situation report, if required.

3.3.7 On Receipt of the First and Subsequent Flood Warnings

VICSES RDO (until an incident controller is appointed) or IC will undertake actions as defined within the flood intelligence cards **(Appendix C).** The IC/VICSES RDO will have general regard for the following considerations:

Develop an appreciation of current flood levels and predicted levels. Are floodwaters rising, steady, peaking or falling?

Review flood intelligence to assess likely flood consequences.

Consider What areas may be at risk of:

inundation

isolation

indirect affects as a consequence of

- power
- gas
- water
- telephone
- internet
- sewerage
- health
- transport
- emergency service infrastructure interruption.

Consider the characteristics of the populations at risk

Determine what the 'at-risk' community need to know and do, as the flood develops.

Warn the 'at-risk' community including ensuring that an appropriate warning and community information strategy is implemented including details of:

- the current flood situation
- flood predictions
- what the consequences of predicted levels may be
- public safety advice
- who to contact for further information
- who to contact for emergency assistance

Liaise with relevant asset owners as appropriate (such as water, power utilities, telecommunications)

Implement response strategies as required based upon flood consequence assessment.

Continue to monitor the flood situation – www.bom.gov.au/vic/flood/.

Continue to conduct reconnaissance of low-lying areas.

Liaise with relevant flood mitigation infrastructure managers.

3.4 Community information and warnings including media comms

Guidelines for the distribution of community/public information and warnings are contained in the VICSES state flood and storm emergency sub-plans.

Refer to **appendix E** for more details on public information and warnings for the municipality.

The IC, through the Public Information Unit established at the ICC, will manage media communication. If the ICC is not established, the VICSES RDO will manage all media communication. The Maribyrnong Council will work with the IC/VICSES RDO to assist with the dissemination of public messaging and/or warnings to ensure that consistent and timely messaging occurs.

3.5 Initial Impact assessment

In accordance with the SEMP and SEMP flood sub-plan (3.6.11 Initial impact assessment), the IC should initiate an initial impact assessment during the first 48 hours of an emergency. It should capture the nature and scale of the flood impact on people, community infrastructure, and the economic, natural, and built environments, in order that emergency relief and early recovery activities can commence. This information may then be used to provide the basis for further needs assessment and recovery planning by Emergency Recovery Victoria (ERV) and recovery agencies.

3.6 Preliminary deployments to flooding

When flooding is expected to be severe enough to cut access to towns, suburbs and/or communities the IC will consult with relevant agencies to ensure that resources are in place if required to provide emergency response. These resources may include but not limited to emergency service personnel, food items and non-food items such as medical supplies, shelter, assembly areas, relief centres.

3.7 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[4]. 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 the SEMP Storm Sub-Plan.

When conducting pre-event planning for flash floods the following steps should be followed, and in the order as given:

1. Determine if there are barriers to evacuation by considering warning time, safe routes and resources available.

[4] AFAC Emergency Planning and Response to Protect Life in Flash Flood Events – Guideline v2.0

2. If evacuation is possible, then evacuation should be the adopted strategy and it must be supported by a public information capability and a rescue contingency plan.
3. Where it is likely people will become trapped by floodwaters due to limited evacuation time or options the IC needs to ensure they provide safety advice to people at risk. This advice should advise people not to attempt to flee by entering floodwater. If people become trapped, it may be safer to seek the highest point within the building and to telephone 000 if they require rescue.
4. where this plan has identified buildings that are known to be structurally unsuitable, the plan needs to provide for an earlier evacuation trigger (return to step 1 of this cycle).
5. If an earlier evacuation is not possible then the IC must make specific preparations to rescue occupants trapped in structurally unsuitable buildings either pre-emptively or as occupants call for help.
6. Contact the Maribyrnong MERC and MEMO at the earliest opportunity to allow for relief preparation to commence.

Due to the rapid development of flash flooding it will often be difficult, to establish relief centres ahead of actually triggering the evacuation. While this is normal practice it should not be used as a reason for not adopting evacuation.

Refer to **Appendix C** for response arrangements for flash flood events.

3.8 Evacuation for all flooding

Where practical, evacuation is the primary strategy for ensuring the safety of at-risk communities. The purpose of evacuation is for people to relocate temporarily from areas at risk of the consequences of flooding, to places of safety. It is essential to assess risks involved in undertaking an evacuation, as evacuation may not always be the most appropriate action. This will ensure that people are not exposed to more hazardous environments because of their evacuation, for example, travelling through deep, fast-flowing floodwater[5].

Under the SEMP, Victoria Police (VicPol) has the responsibility for evacuation (Evacuation Manager) – in consultation with the control agency and other expert advice. EMV has developed a standardised procedure for evacuation under JSOP J03.12.

The IC decides whether to warn people to evacuate within a specified timeframe or whether it is necessary to advise them to evacuate immediately. The IC must make this decision having regard for the requirements of the JSOP.

Once the IC makes a decision to recommend evacuation, VicPol's Evacuation Manager is responsible for the management of the evacuation process where possible. VICSES and other agencies will assist where practical. VICSES is responsible for the development and communication of evacuation warnings.

[5] AUSTRALIAN DISASTER RESILIENCE HANDBOOK COLLECTION Flood Emergency Planning for Disaster Resilience - **First edition 2020**

VicPol and/or Australian Red Cross may take on the responsibility of registering people affected by a flood emergency including those who have been evacuated.

Refer to **Appendix D** of this Plan and the MEMP for additional local evacuation considerations for the municipality.

Except in limited circumstances, evacuation is not compulsory in Victoria[6]. Recent historic floods that were managed under current legislation and emergency management arrangements, demonstrated that some people will choose not to evacuate. Therefore, this plan must consider arrangements for managing these people in the event they require assistance or rescue.

Considerations include:

- Registering persons who intend not to evacuate (refer to appendix D).
- Providing additional information that may assist them in making a decision to evacuate.
- Identifying vulnerable people who may be willing to evacuate if assisted.

3.9 Flood rescue

Under the SEMP Response table 9 the control agency for rescue from land and water is VicPol, which operates the Rescue Coordination Centre. VICSES is a support agency for search and rescue on land and water evacuations and incidents involving mass casualties.

VICSES may conduct flood rescues. Appropriately trained and equipped VICSES units or other agencies that have appropriate training, equipment and support may carry out rescues.

Rescue operations may be undertaken where voluntary evacuation is not possible, has failed or is considered too dangerous for an at-risk person or community. An assessment of available flood rescue resources (if not already done prior to the event) should be undertaken prior to the commencement of Rescue operations.

Rescue is considered a high-risk strategy to both rescuers and persons requiring rescue and should not be regarded as a preferred emergency management strategy. Rescuers should always undertake a dynamic risk assessment before attempting to undertake a flood rescue.

Victoria Police Rescue Coordination Centre should be notified of any rescues that occur: (03) 9399 7500. 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 rescue coordination centre.

The following resources are available within the City of Maribyrnong to assist with rescue operations:

[6] Powers to compel evacuation rely on the Minister making a declaration of a State of Disaster under section 23(2)(e) of the Emergency Management Act 1986. However, section 23(7) prevents these powers be used to compel a person to evacuate if they have a pecuniary interest in the land or building or goods or valuables on the land or in the building.

Resource type	Unit / resource name	Location
Flood and Swift Water Rescue	Water Police/Search and Rescue – Victoria Police	Williamstown Police Complex
Helicopter	Victoria Police Airwing	Essendon Fields – Police Airwing
VICSES LBSWR	Footscray Unit/Neighbouring Units	Footscray VICSES Hobsons Bay VICSES Essendon VICSES Fawkner VICSES Nillumbik VICSES

3.10 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.

The IC may request aircraft support through the State Air Desk located at the SCC. The Air Desk Supervisor will establish priorities.

Airbase name	Type of facility (such as fixed wing/rotary wing capability)	Location
Victoria Police Airwing	Rotary and Fixed wing	Essendon Fields

3.11 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.

3.12 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.

The Maribyrnong City Council maintains a quantity of sandbags, and back-up supplies are available through the VICSES State Logistics Centre. The IC will determine the priorities related 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 SOP036 Construction, Removal or Altering of Levee and Removal of Debris for further detail.

If VICSES sandbags are becoming limited in supply, then priority will be given to protection of essential community infrastructure. Other high priorities may include for example the protection of historical buildings.

Property may be protected by:

Sandbagging to minimise entry of water into buildings.

Encouraging businesses and households to lift or move contents.

Construction of temporary levees in consultation with the CMA, LGA and VicPol and within appropriate approval frameworks.

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.

Refer to **Appendix C** for further specific details of essential infrastructure requiring protection.

3.13 Disruption to services

Disruption to services other than essential community infrastructure and property can occur in flood events. Refer to **Appendix C** for specific details of likely disruption to services and proposed arrangements to respond to service disruptions in the Maribyrnong Municipality.

3.14 Road closures

Maribyrnong City Council and Department of Transport and Planning (DTP) will carry out their formal functions of road closures including observation and placement of warning signs, road-blocks to its designated local and regional roads, bridges, walking/bike/shared trails. Maribyrnong City Council staff should also liaise with and advise DTP/VicRoads as to the need or advisability of erecting warning signs and/or of closing roads and bridges under its jurisdiction. DTP/VicRoads are responsible for designated main roads and highways and councils are responsible for the designated local and regional road network.

DTP and Maribyrnong City Council will provide community information direct to the public regarding road closures. Information will be updated on the VIC Traffic website: https://traffic.vicroads.vic.gov.au/

Refer to **Appendix C** for specific details of potential road closures.

3.15 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 emergency plans for municipalities where it is applicable. There are no dam safety plans for this municipality.

Major dams with potential to cause structural and community damage within the municipality are described in **Appendix A**.

3.16 Wastewater related public health issues and critical sewerage assets

Inundation of critical sewerage assets including septic tanks and sewerage pump stations may result in water quality problems within the municipality. Where this is likely to occur or has occurred, the responsible agency for the critical sewerage asset should undertake the following:

Advise VICSES of the security of critical sewerage assets to assist preparedness and response activities in the event of flood.

Maintain or improve the security of critical sewerage assets.

Check and correct where possible the operation of critical sewerage assets in times of flood.

Advise the ICC in the event of inundation of critical sewerage assets.

It is the responsibility of Maribyrnong Environmental Health Officer to inspect and report to the MEMO and the ICC on any water quality issues relating to flooding.

3.17 Access to technical specialists

VICSES manages contracts with private technical specialists who can provide technical assistance in the event of flood operations or geotechnical expertise. Refer to VICSES SOP061 for the procedure to engage these specialists.

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.

As per the role statement for municipal councils within the SEMP, municipal councils are responsible for municipal relief coordination.

3.19 Activation of emergency relief

The IC is responsible for activating relief arrangements through the Municipal Recovery Manager (MRM). The decision to recommend the opening of an emergency relief centre sits with the IC.

The range and type of emergency relief services to be provided in response to a flood event will be dependent upon the size, impact, and scale of the flood or storm.

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

Maribyrnong City Council has identified suitable relief facilities for use during floods and are refenced in the MEMP.

Details of the relief arrangements are available in the MEMP.

3.20 Animal welfare

Matters relating to the welfare of livestock and companion animals (including feeding and rescue) are to be referred to Department of Energy, Environment and Climate Action (DEECA) - Agriculture Victoria.

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

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

Part 4. After: Emergency Relief and Recovery Arrangements

4.1 General

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

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

4.2 Transition from response to recovery

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

4.3 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 event, VICSES will normally coordinate a debrief or after action review of flood 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, it may be that Emergency Management Victoria in consultation with VICSES assumes responsibility for debriefing.

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

Appendix A – Flood Threats for the City of Maribyrnong

General

Communities in the City of Maribyrnong are at risk from Riverine and Flash Flooding events as identified by flood extent mapping in **Appendix C** of this Plan. Most of the City of Maribyrnong has been urbanised and some areas are now undergoing a renewed phase of redevelopment as a result of units and dual occupancy style developments becoming prevalent. The associated increase in population density and intensification of land use will result in increased flood risks. This is particularly relevant to the many areas which have low surface gradients such as Seddon, Yarraville, Braybrook and Maidstone where the ability for water to be drained is limited.

Background

Modelling undertaken by Melbourne Water to date has identified approximately 3,179 properties within the municipality that are affected by flooding from waterways and overland flows in a 1% Annual Chance flood event (Melbourne Water, 2023).

There are areas within the Maribyrnong municipality which are known to be prone to flooding - these include:

- The Maribyrnong Township
- Francis Street
- Stony Creek Valley, particularly near Francis Street
- Churchill Avenue near Ashley Street
- Area between Summerhill Road, Barkly, Gordon and Essex Streets
- Windsor Street and Darling Street
- Waratah Street and Somerville Road
- Ballarat Road at Summerhill Road
- Victoria Street at railway underpass
- Highpoint Shopping Centre
- Braybrook and Maidstone housing commission.

The following road bridge river crossings would be closed for a 1% AEP Maribyrnong River flood event:

- Raleigh/Maribyrnong Road.
- Farnsworth Ave/Fisher Pde.
- Ballarat/Smithfield Road.
- Dynon Road.

The consequences of closures of the above river crossings would result in major prolonged traffic congestion throughout the Cities of Brimbank, Maribyrnong, Moonee Valley and Melbourne. The

Cities of Hume, Moreland and Hobsons Bay would also be affected. This would result in dramatically increased travel times throughout the area.

The following railway underpass roads are likely flooded during a 1% AEP flash flood event:

- Victoria Street at Middle Footscray Station
- Napier Street

Topography

The municipality covers an area of relatively flat terrain with a pronounced floodplain along the Maribyrnong River that then steps up over a relatively steep escarpment to another area of lowland plains that sit on a plateau that extends westward. This upper plateau or plain has less well-defined valley floors and only a few creek and stream lines. Areas of low surface gradient exist in Seddon, Yarraville, Braybrook and Maidstone.

Other than the Maribyrnong River, the only major stream system that discharges across the upper plateau to the coastal or riverine floodplain is that of Stony Creek. Due to a long history of flooding in the Stony Creek catchment, the upper reaches of Stony Creek have been diverted to Kororoit Creek upstream of Sunshine in the City of Hume. Whilst this has alleviated the scale of flooding along Stony Creek, areas of ponding and flooding still occur primarily due to the flat terrain and difficulty to drain flows.

The Maribyrnong River has a large upstream catchment and flooding can occur along the developed floodplain edges. The Maribyrnong township (postcode 3032) can be severely impacted by riverine flooding Also, low lying areas along the river downstream of Ballarat Road and in particular the west bank through Yarraville are impacted by both flooding from the Maribyrnong River and from local contributing catchments with low surface gradients in the lower reaches.

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. Due to the proximity of the Municipality to Port Phillip Bay and its relatively flat terrain, tidal flows from Port Phillip Bay may reduce the capacity of the stormwater drains to discharge runoff back into the bay, while extreme storm events can cause backflow to the point where water surcharges back above ground around the drainage pits and channels.

The Maribyrnong River is tidal influenced for the majority of the length it forms the boundary of the City of Maribyrnong. A weir is located at the Duke Street Reserve near Burke Street, Braybrook, limiting the influence of tide further upstream into the City of Brimbank.

Description of Major Waterways and Drains

The waterways within the municipality have a combined length of 32.5 kilometres with the two main waterways being the Maribyrnong River and Stony Creek. Only the lower section of the Maribyrnong River is contained within the Maribyrnong municipality whereas almost all of Stony Creek is contained within municipality. There are approximately 400 kilometres of drains within the Maribyrnong municipality which are shared by Melbourne Water (75.4 km) and Maribyrnong City Council (333.1 km).

The Maribyrnong River (**Appendix F**) starts on the slopes of Mount Macedon as Jackson Creek and joins with Deep Creek to form the Maribyrnong River before passing through the Maribyrnong municipality and flowing into the Yarra River as it meets Port Phillip Bay.

Stony Creek (**Appendix F**) is the other major waterway within the Maribyrnong municipality. Stony Creek begins on the boundary with the Maribyrnong and Brimbank municipalities (on the Brimbank side) before crossing under Sunshine Road and entering the Maribyrnong municipality. It flows through the municipality before flowing into the Yarra River downstream of the confluence of the Maribyrnong and Yarra Rivers. Stony Creek is a popular recreational area and has bike paths and walking tracks along the majority of its length.

Melbourne Water Drains & Waterways	Suburb/s	Melbourne Water Drains & Waterways	Suburb/s
Bosquet Street Main Drain	Maidstone	Schutts Estate Main Drain	Yarraville
Churchill Avenue Main Drain	Braybrook & Maidstone	Stony Creek	Braybrook, Kingsville, Tottenham & Yarraville
Cumberland Street Diversion Drain	Braybrook	Summerhill Road Main Drain	Footscray
Footscray Main Drain	Footscray & Seddon	Tottenham Stores Main Drain	Braybrook & Tottenham
Francis Street Main Drain	Yarraville	Vine Street Main Drain	Braybrook
Graingers Road Main Drain	Footscray, Kingsville, West Footscray & Yarraville	Yarraville Main Drain	Kingsville & Yarraville
Maribyrnong River	Braybrook, Maidstone, Maribyrnong, Footscray & Yarraville		

Table A1 – Melbourne Water Drains and Waterways within or bordering the City of Maribyrnong

Historic Floods and Storms

Significant floods (with high flood gauge levels and/or likely flooding consequences to property and infrastructure) to have occurred within the City of Maribyrnong are as follows in the table below. It is rare that a storm will affect all catchments in the municipality in the one event except in the most extreme situations. Results below highlighted in black indicate when either stream level rise was significant enough to cause riverine flooding or when rainfall was significant enough to cause flooding in the surrounding area; while results in grey indicate either stream level rise or rainfall that was unlikely enough to contribute to flooding at or around the gauge location. These results have been included however to show the relationship between these catchments and others that were recorded to indicate flooding.

The Maribyrnong River at Maribyrnong gauge (Chifley Drive) is located along a stretch of the Maribyrnong River with tidal influences. Depending on the tide, this can help relieve flood impacts at Maribyrnong or exacerbate them. The datum for the Chifley Drive gauge was changed on the 12th June 2008 from mACD to mAHD (-0.524m conversion). All figures below are quoted in mAHD for comparison.

Event	Event Type		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Stony Creek at Spotswood (230112A)	
	Wind	Rain	Rainfall at Gauge	River Level	Rainfall at Gauge	River Level	Rainfall at Gauge	Creek Level
Normal Water Level				0.4m		-0.5m to 0.5m		0.13m
Minor Flood Class				3.50m		1.70m		Not Established
Moderate Flood Class				5.40m		2.30m		Not Established
Major Flood Class				6.10m		2.90m		Not Established
11th July 1891		✓	-	-	-	3.32m[7]	-	-
23rd April 1901		✓	-	-	-	2.22m[7]	-	-
8th September 1906		✓	-	-	-	**4.50m**[7]	-	-
18th June 1911		✓	-	-	-	2.16m[7]	-	-
22nd September 1916		✓	-	-	-	4.26m[7]	-	-
4th March 1919		✓	-	-	-	2.16m[7]	-	-
25th August 1924		✓	-	-	-	2.98m[7]	-	-
29th August 1932		✓	-	-	-	2.37m[7]	-	-
25th February 1946		✓	-	-	-	2.13m[7]	-	2.72m
7th November 1954		✓	-	-	-	2.83m[7]	-	-

[7] 'Flood of May 1974 Maribyrnong River Basin', M.M.B.W., April 1975, p.27

Event	Event Type		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Stony Creek at Spotswood (230112A)	
	Wind	Rain	Rainfall at Gauge	River Level	Rainfall at Gauge	River Level	Rainfall at Gauge	Creek Level
Normal Water Level				0.4m		-0.5m to 0.5m		0.13m
Minor Flood Class				3.50m		1.70m		Not Established
Moderate Flood Class				5.40m		2.30m		Not Established
Major Flood Class				6.10m		2.90m		Not Established
11th December 1954		✓	-	-	-	2.98m[7]	-	-
13th July 1963		✓	-	-	-	2.10m[7]	-	-
6th November 1971		✓	-	-	-	2.52m[7]	-	-
14th May 1974		✓	-	7.22m	-	4.20m[7]	-	-
18th September 1975		✓	-	7.42m	-	2.14m	-	-
21st October 1975		✓	-	5.84m	-	1.22m	-	-
25th October 1975		✓	-	6.93m	-	2.08m	-	-
23rd September 1976		✓	-	5.41m	-	0.86m	-	-
8th April 1977		✓	-	7.31m	-	2.21m	-	2.74m
19th June 1977		✓	-	5.87m	-	1.05m	-	-
1st July 1977		✓	-	6.34m	-	1.34m	-	-
8th August 1978		✓	-	**7.70m**	-	2.41m	-	-
19th September 1978		✓	-	4.95m	-	0.73m	-	-
20th November 1978		✓	-	6.42m	-	1.21m	-	-
16th October 1983		✓	121mm / 34 hrs	5.78m	-	2.84m	-	-
10th December 1985		✓	70mm / 69 hrs	4.01m	-	1.36m	-	-
30th July 1987		✓	75mm / 34 hrs	5.74m	-	2.63m	-	-
11th June 1989		✓	23mm / 20 hrs	4.81m	-	1.72m	-	-
18th July 1990		✓	39mm / 11 hrs	4.00m	-	1.44m	-	-
15th September 1993		✓	57mm / 28 hrs	6.84m	47mm / 27 hrs	3.31m	-	-
25th October 2000		✓	75mm / 41 hrs	4.25m	97mm / 48 hrs	1.37m	78mm / 47 hrs	1.75m
22nd March 2001		✓	119mm / 10 hrs	1.36m	75mm / 9 hrs	0.75m	74mm / 11 hrs	2.50m
3rd February 2005		✓	149mm / 29 hrs	4.25m	158mm / 28 hrs	1.68m	148mm / 30 hrs	1.80m
6th March 2010	✓	✓	88mm / 41 hrs	0.93m	99mm / 41 hrs	0.49m	72mm / 41 hrs	2.19m

Event	Event Type		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Stony Creek at Spotswood (230112A)	
	Wind	Rain	Rainfall at Gauge	River Level	Rainfall at Gauge	River Level	Rainfall at Gauge	Creek Level
Normal Water Level				0.4m		-0.5m to 0.5m		0.13m
Minor Flood Class				3.50m		1.70m		Not Established
Moderate Flood Class				5.40m		2.30m		Not Established
Major Flood Class				6.10m		2.90m		Not Established
5th September 2010		✓	12mm / 22 hrs	3.78m	13mm / 21 hrs	0.98m	15mm / 22 hrs	1.08m
28th November 2010		✓	31mm / 40 hrs	4.49m	60mm / 40 hrs	1.50m	26mm / 29 hrs	1.09m
14th January 2011		✓	50mm / 31 hrs	5.61m	44mm / 28 hrs	2.21m	78mm / 73 hrs	1.53m
4th February 2011		✓	58mm / 12 hrs	1.54m	60mm / 13 hrs	0.72m	90mm / 32 hrs	2.22m
25th December 2011	✓	✓	37mm / 5 hrs	0.68m	39mm / 5 hrs	0.61m	39mm / 5 hrs	2.08m
12th August 2013	✓		0mm	0.59m	0mm	0.31m	0mm	0.51m
1st October 2013	✓		0mm	0.48m	0mm	0.98m	0mm	0.20m
24th June 2014	✓		2mm / 1 hr	0.29m	2mm / 1 hr	1.23m	4mm / 2 hrs	0.89m
30th January 2016	✓	✓	17mm / 2 hrs	0.34m	25mm / 2 hrs	0.45m	28mm / 2 hrs	2.01m
9th October 2016	✓		0mm	0.68m	0mm	0.43m	0mm	0.21m
29th July 2017	✓		0mm	0.38m	0mm	0.61m	0mm	0.07m
1st & 2nd December 2017		✓	31mm / 19 hrs	0.46m	30mm / 21 hrs	0.62m	23mm / 20 hrs	1.41m
29th October 2021	✓		2mm / 2 hrs	0.50m	2mm / 2 hrs	0.94m	3mm / 2 hrs	0.38m
1st December 2021		✓	12mm / 1 hr	0.85m	38mm / 1 hr	0.53m	31mm / 1 hr	1.27m
14th October 2022		✓	25mm / 19 hrs	8.60m	25mm / 18 hrs	4.21m	31mm / 20 hrs	0.74m

Table A2 – Selection of historical flood and storm events impacting the Maribyrnong Municipality

Historically, in common with many other rivers throughout Victoria, the Maribyrnong River overflows its banks along some reaches relatively frequently. Since 1871 there have been 26 recorded occasions[8]. The highest recorded occasion affecting the Maribyrnong Flood Plain was on the 8th & 9th of September in 1906, and the next known highest flood was on the 22nd of September 1916.

[8] 'Maribyrnong Flood Management Plan', Melbourne Water, July 2017, p19

14th May 1974

The 1974 flood (fourth largest on record for the region) resulted in a great degree of damage to residential, industrial and public utilities, including Flemington Racecourse. It is estimated that the May 1974 flood caused damage in the order of $3-5 million (1974 values) of which $0.6 million was damage to residential property with an estimate of 127 houses and 34 commercial premises wholly or partly flooded[7]. Current equivalent valuations for this level of damage would be conservatively many times this amount.

No warning or alert systems were in place at the time & the possibility of serious flooding was not known until late in the night of the 15th of May and the river started to fall shortly after daybreak on the 16th May. The Police, Army, Navy, Coastguard and private people quickly provided a wide variety of craft to evacuate the people living in the Maribyrnong flood plain, where most of the streets were inundated with fast flowing water 900 to 1200 mm deep. Traffic was grid locked for 18 hours as the flood cut most of the major access roads across the river (Melbourne Water, 2017).

15th September 1993

On the 15th & 16th of September 1993, the river flooded again, and some 50 homes in the floodplain were inundated with water above the floor level.

14th October 2022

The flood event of October 2022 occurred in the Maribyrnong catchment after four days of above average rainfall in an already saturated catchment[9]. The resulting river flows evolved into a major flood. In the Maribyrnong council area, 512 residential properties were damaged, 177 of which were considered uninhabitable and six businesses were affected. This event was the third highest flood event on record for the area. It was assessed as a 2% AEP flood event.

The flood event also had marked effects on community infrastructure and groups including two religious and ten community groups, council assets including 31km of roads, 8km of walking trails, three playgrounds and two sports pavilions[9].

The timing and duration of the event is detailed in the table below.

Gauge	Minor Level (m)	Moderate Level (m)	Major Level (m)	Time Minor Level Reached (m)	Time Moderate Level Reached (m)	Time Major Level Reached (m)	Time Above Major Level
Maribyrnong River at Keilor	3.5	5.4	6.1	13/10/2022 10:12pm	14/10/2022 1:06am	14/10/2022 1:54am	14h 30m
Maribyrnong River at Maribyrnong	1.7	2.3	2.9	14/10/2022 3:30am	14/10/2022 4:36am	14/10/2022 5:36am	14h 18m

Table A3 –Minor, moderate and major flood levels at Keilor and Maribyrnong flood gauges and times at which these were reached during the Flood Event. (KC, Baister RPEV, Maier, & Peggie, 2023)

The rapid rise in river level occurred late on the 13th October through to the early hours of 14th October when many residents would likely not have been monitoring conditions and may have missed the major flood warning that was issued by the Bureau of Meteorology at 2:25am on 14th October[9].

[9] 'Maribyrnong River Flood Event Independent Review', The Hon GT Pagone AM KC, August 2023

Dam Spilling / Failure

Flooding resulting from failure of the Rosslynne Dam is likely to cause significant structural and community damage within the City of Maribyrnong. Note that if the storage capacity is reached and water flows over the spillway, this is not to be referred to as a flow release or a storage breach or failure.

Dam Name	Location	Owner	Dam Capacity	Full Supply Level	Map Reference
Rosslynne Dam	3km northwest of Gisborne	Southern Rural Water	25,400ML	450.9m AHD	VicMap Book 6443 F1

Table A4 –Reservoirs that pose a risk to the Maribyrnong Municipality from Dam Failure

Appendix B – Typical Flood Peak Travel Times

In using the information contained in this appendix, consideration needs to be given to the time of travel of the flood peak. A flood on a 'dry' waterway will generally travel more slowly than a flood on a 'wet' waterway (e.g. The first flood after a dry period will travel more slowly than the second flood in a series of floods). Therefore, recent flood history, soil moisture and forecast weather conditions all need to be considered when using the following information to direct flood response activities.

Note that flooding will start some time ahead of the time indicated by the following travel times – these are the time between the flood peaks at respective sites.

In some instances, a flood peak may be expected or have occurred at the gauge downstream before a separate flood peak occurs at the upstream gauge. This phenomenon may be due to the location of the thunderstorm passing through the catchment between the two gauges, or because of the urban environment found downstream causing floodwaters to enter the waterway quicker than those in a more rural setting upstream.

Typical travel times have been collated from recorded historical events.

Typical Travel Times

Location From (gauge)	Location To (gauge)	Typical Travel Time	Flood Class	Comments
MARIBYRNONG RIVER				
Keilor	Maribyrnong	Between 1 to 5 hours	Minor Flood at Keilor	Flood peak at Maribyrnong influenced by tide
Keilor	Maribyrnong	Between 2 to 5 hours	Moderate Flood at Keilor	
Keilor	Maribyrnong	Between 2 to 5 hours	Major Flood at Keilor	

Table B1 – Typical Flood Travel Times between gauges on the Maribyrnong River

Historical Travel Times

Flood Event	Location From (gauge)	Location To (gauge)	Flood Peak Travel Time	Flood Class at
MARIBYRNONG RIVER				**Keilor**
18th September 1975	Keilor	Maribyrnong	3 hours	Major
21st October 1975	Keilor	Maribyrnong	1 hour	Moderate
25th October 1975	Keilor	Maribyrnong	5 hours	Major
23rd September 1976	Keilor	Maribyrnong	6 hours	Moderate
8th April 1977	Keilor	Maribyrnong	5 hours	Major
19th June 1977	Keilor	Maribyrnong	2 hours	Moderate
1st July 1977	Keilor	Maribyrnong	2 hours	Major
8th August 1978	Keilor	Maribyrnong	4 hours	Major
19th September 1978	Keilor	Maribyrnong	2 hours	Minor
20th November 1978	Keilor	Maribyrnong	2 hours	Major
16th October 1983	Keilor	Maribyrnong	2 hours	Moderate
11th December 1985	Keilor	Maribyrnong	3 hours	Minor
30th July 1987	Keilor	Maribyrnong	2 hours	Moderate
11th June 1989	Keilor	Maribyrnong	1 hour	Minor
18th July 1990	Keilor	Maribyrnong	1 hour	Minor
15th September 1993	Keilor	Maribyrnong	3 hours	Major
23rd October 2000	Keilor	Maribyrnong	5 hours	Minor
3rd February 2005	Keilor	Maribyrnong	Keilor peaked 5 hours before Maribyrnong	Minor
5th September 2010	Keilor	Maribyrnong	3 hours	Minor
28th November 2010	Keilor	Maribyrnong	5 hours	Minor
14th January 2011	Keilor	Maribyrnong	3 hours	Moderate
14th October 2022	Keilor	Maribyrnong	4 hours	Major

Table B2 – Historical Flood Travel Times between gauges on the Maribyrnong River

Appendix C1 – Maribyrnong River Flood Emergency Plan

Overview of Flooding Consequences

This Summary table is generated from Victorian Government data. The State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for error, loss or damage which may arise from reliance upon it. All persons access this information should make appropriate enquiries to assess the currency of the data.

Summary of Consequences in a 1% AEP (100yr ARI) flood along the Maribyrnong River in Maribyrnong					
Property					
Properties	**508**				
Residential	485				
Commercial	5				
Industrial	0				
Public Land	18				
Rural	0				
Community Infrastructure					
Community Facilities	2	Maribyrnong Edible Garden; and Maribyrnong-Maidstone RSL			
Museums	1	Melbourne's Living Museum of the West			
Places of Worship	1	Ethiopian Orthodox Church			
Reserves & Parks	9	Burton Crescent Reserve; Chifley Drive Reserve; Coulson Gardens; Footscray Park; Henry Turner Memorial Reserve (North); Henry Turner Memorial Reserve (South); Jensen Park; Maribyrnong Reserve; and Pipemakers Park			
Trails and Footbridges	3	Afton Street footbridge; Maribyrnong River Trail; and Pipemakers Park footbridge			
Essential Infrastructure					
Major Roads	4	Ballarat Road, Famsworth Avenue, Raleigh Road & Van Ness Avenue			
Rail / Tramway	2	Trams 57 & 82			
Bus Routes	5	Routes 404, 409, 468, 472 & 952			
Sewerage Facilities	12	Sewerage Emergency Relief Points and a Pumping Station			
Tourism / Recreation					
Recreation Facilities	1	Footscray Wharf			
Sports Facilities	1	Footscray City Rowing Club			
Tourism Facilities	1	Maribyrnong River Cruises			
Government Boundaries					
Local Gov't Areas	1	Maribyrnong	CMA	1	Port Phillip & Westernport
Adjacent LGAs	3	Brimbank, Moonee Valley & Melbourne	CFA District	0	
SES Resp' Boundary	1	Footscray	FRV District	1	Western

Table C1.1 – Consequence Summary of 1% AEP flood along the Maribyrnong River

Maribyrnong Township is located approximately 8km north west of Melbourne in an established residential area. The Maribyrnong River is the prominent watercourse in the area, flowing from the North West where it straddles the boundaries of the municipalities of Hume, Brimbank & Moonee Valley. High Intensity, short duration rainfall events can cause flash flooding in and around Maribyrnong, while prolonged rainfall may see Maribyrnong River flood. The area sees moderate to

slow water movement as the terrain is relatively flat and the Maribyrnong River adjacent to the Maribyrnong Township is at its lower reaches with the river mouth only 8km approximately downstream where it joins the Yarra River before entering Port Phillip Bay. The tide influences river levels along the Maribyrnong River to the weir located at the Duke Street Reserve near Burke Street, Braybrook . Flooding as a result along the lower Maribyrnong is likely to last for 24-48 hours but historical events have spanned a week.

Warnings and Gauges

Melbourne Water currently provides flood forecasts for the Maribyrnong River.

Warnings are available for flooding expected along the Maribyrnong River which include areas adjacent to the river between Braybrook and Footscray including the Maribyrnong Township area. Flood class levels for the Maribyrnong River at Keilor and Chifley Drive gauges are detailed in table C1.2 and are used in the issuing of a flood warning for the Maribyrnong River. These and other gauges within the Maribyrnong River catchment are contained within table C1.3.

Gauge	River Flood Class Level		
	Minor	Moderate	Major
Maribyrnong River at Keilor	3.5m	5.4m	6.1m
Maribyrnong River at Chifley Drive, Maribyrnong	1.7m	2.3m	2.9m

Table C1.2 – Gauges with established flood class levels used for Flood Warning for the City of Maribyrnong

VICSES and Maribyrnong City Council would normally expect to receive 8 to 12 hours warning of a flood peak occurring at the Maribyrnong Floodplain, including how high the water levels will rise. However as was experienced during the October 2022 flood event, there was as little as approximately 3 hours between when the Major Flood Warning was issued (2:25am 14th October) during the night and when the Major Flood Level was reached (5:36am 14th October) (KC, Baister RPEV, Maier, & Peggie, 2023).

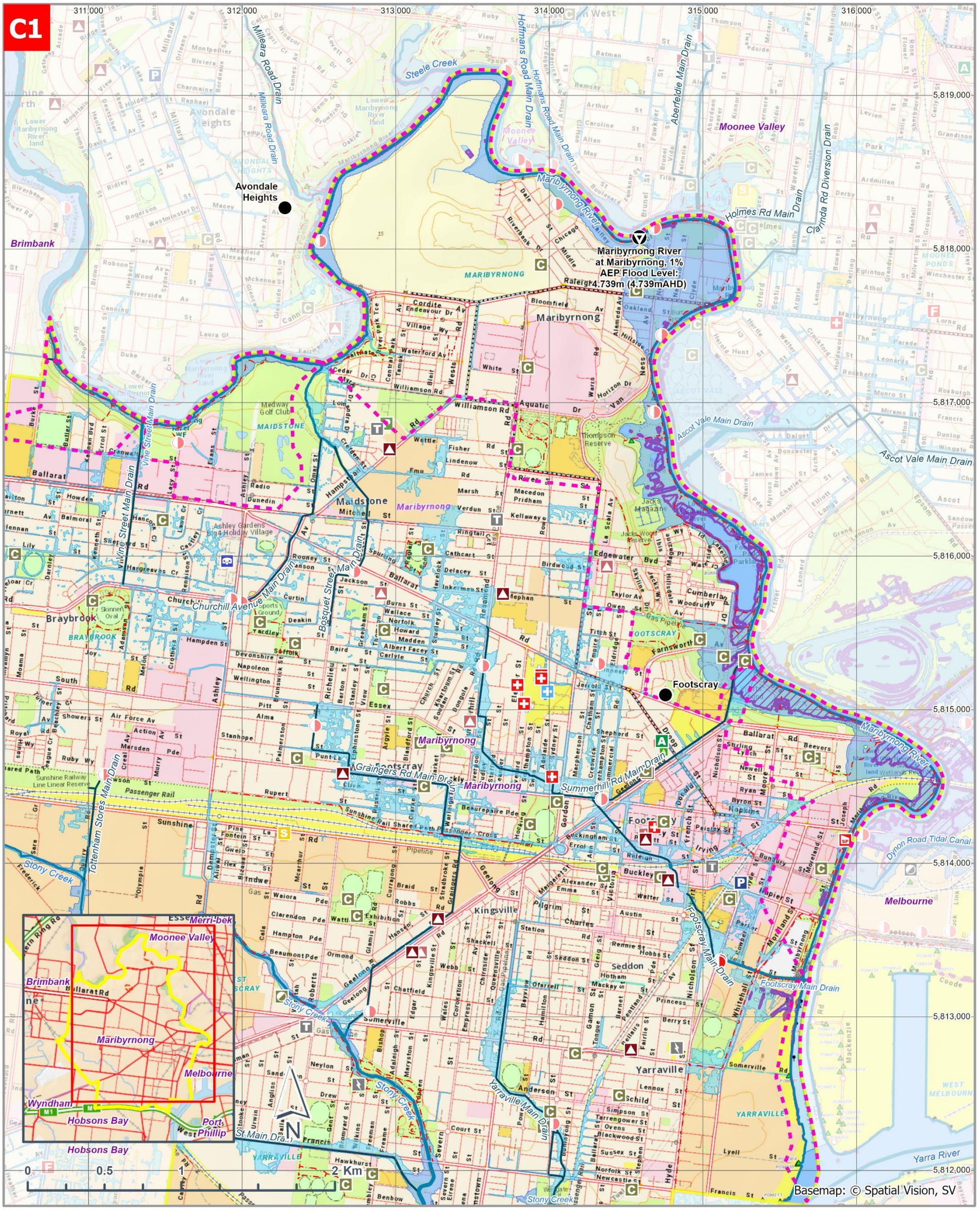
At these sites within the Maribyrnong River catchment, the Bureau of Meteorology (the BoM) in consultation with Melbourne Water will issue flood warnings if levels are expected to reach those classified above. Warnings will be placed on the Bureau's website (bom.gov.au/vic/warnings/index.shtml?ref=hdr) and the VicEmergency website emergency.vic.gov.au.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Map Reference
Deep Creek at Lancefield	230119A	West bank at Doggetts Bridge, on Kilmore-Lancefiled Road, Lancefield	✓		VicMap Central: 6277 D9
Deep Creek at Darraweit Guim	230100	East side of the creek, 200m South of Beveridge – Darraweit Guim Road, Wallan	✓	✓	VicMap Central: 6362 E8
Deep Creek at Konagaderra	230107A	West side of the creek 200m north of The Ridge Walking Trail, Oaklands Junction	✓	✓	Melway 365 C2
Deep Creek at Bulla	230102A	South side of the creek at Bulla Rd bridge, Bulla	✓		Melway 177 A6
Jacksons Creek at Rosslyne Reservoir Head Gauge	230103	Rosslynne Reservoir, Gisborne	✓	✓	VicMap Central: 6443F1
Jacksons Creek at Sunbury	230104A	West side of the Creek, north side of Sunbury Road bridge, Sunbury	✓	✓	Melway 382 H5
Bulla	587014	105 Loemans Rd, Bulla		✓	Melway 177 A10
Maribyrnong River d/s Jacksons Creek, Keilor North	230237A	Southwest side of River in Sydenham Park, Keilor North	✓		Melway 4 B7
Maribyrnong River at Keilor	230105A	South side of the River in Brimbank Park, Keilor East	✓	✓	14 J8
Maribyrnong River at Maribyrnong	230106A	South bank of the River on Chifley Drive west of Plantation Street	✓	✓	28 B7

Table C1.3 – Gauges within the Maribyrnong River catchment

These Gauges may provide some warning of expected flooding. See the Melbourne Water website for more information on these gauges: http://www.melbournewater.com.au/waterdata/rainfallandriverleveldata/Pages/Rainfall-and-river-level-new.aspx. The Bureau of Meteorology's website also links a number of these gauges at: http://www.bom.gov.au/cgi-bin/wrap_fwo.pl?IDV60201.html. It is advised that residents monitor the Bureau of Meteorology's website http://www.bom.gov.au/vic/warnings/index.shtml?ref=hdr and the VicEmergency website https:/emergency.vic.gov.au/ for any thunderstorm, flood or severe weather warnings present for their area.

Area Map of Flood Risk along the Maribyrnong River in the Maribyrnong Municipality



Maribyrnong River flood modelling completed by Jacobs, April 2024. Map produced by VICSES: 24/05/2024 9:23 AM

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

C1. Areas of flood risk along the Maribyrnong River

- 1% AEP Flood Extent (Council)
- 1% AEP Flash Flood Extent (MWC)
- 1% AEP Riverine Flood Extent
- 1% AEP Coastal Flood Extent
- Waterway
- Melbourne Water Stormwater Main
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Ambulance Station
- Community Venue
- Municipal Depot
- Fire Station
- Hospital (Emergency)
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Police Station
- Prison / Justice
- Telephone Exchange
- Tip / Recycling
- Caravan Park
- Power Facility
- Retirement Village
- Helipad
- Stream Level & Rain Gauge
- Rain Gauge
- Retaining Wall
- Sewer Pump Station (MW)
- Sewer ERS (MW)
- Sewer ERS (Retail)
- Boundary for this Appendix
- Municipal Boundary

LAND USE

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

SES

VICTORIA State Government

Melbourne Water

Figure C2 – Areas of flood risk along the Maribyrnong River in the City of Maribyrnong and area covered by this appendix

Properties at Flood Risk

A Summary of Properties impacted by flooding in the Maribyrnong Township					
Flood Class	River Height at Chifley Dr Gauge, Maribyrnong	Residences and Businesses Impacted			
		Property Flooded		Isolated	Total Impacted
		New at Level	Total	Total	
Bank Full	Less than 1.7m	0	0	0	**0**
Minor	1.7m – 2.29m	6	6	0	**6**
Moderate	2.30m – 2.44m	13	19	6	**25**
Moderate	2.45m – 2.89m	89	108	0	**108**
Major	2.90m – 3.24m	78	186	18	**204**
Major	3.25m – 3.80m	172	358	30	**388**
Major	3.81m – 4.37m	108	466	3	**469**
Major	4.38m – 4.73m	4	470	2	**472**
1% AEP (100yr ARI)	4.73m	-	470	2	**472**

Table C1.4 – Properties at risk of flooding in the Maribyrnong Township

Properties listed in the following table (table C1.5) are at risk from flooding or isolation along the Maribyrnong River in Maribyrnong and Footscray. Note that this table includes properties located on or above the first floor of multi-lot buildings. While these properties are not expected to be directly affected by flooding, they will likely become isolated for a period. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Lower Maribyrnong River (Jacobs, April 2024) flood study.

This Property Flood Risk Table 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.

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	**Commercial**	**Industrial**	**Rural**				**Public Use**			
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**							
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
30 Alameda Avenue	Maribyrnong 3032		✓	✓						
2 Anglers Way	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓	✓
4-6 Anglers Way	Maribyrnong 3032		✓	✓	✓					
8 Anglers Way	Maribyrnong 3032		✓	✓	✓	✓				
1/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
2/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
3/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
4/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
5/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
6/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
7/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
8/10 Anglers Way	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
12 Anglers Way	Maribyrnong 3032		✓	✓	✓	✓				
14-18 Anglers Way	Maribyrnong 3032		✓	✓	✓					
1C Ballarat Road	Footscray 3011		✓	✓						
4-68 Ballarat Road	Footscray 3011		✓	✓	✓	✓	✓	✓		
2-4 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
7 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓	
9 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
15 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓			
17 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓			
19 Burton Crescent	Maribyrnong 3032		✓	✓	✓	✓	✓			
56 Cedar Drive	Maribyrnong 3032		✓	✓						
2 Chicago Street	Maribyrnong 3032		✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL	
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m	
1 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓					
3 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓					
5 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓					
7 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓					
9 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓					
1/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
2/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
3/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
4/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
5/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
6/11 Chifley Drive	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓				
13A Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓			
13-15 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓		
17 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓			
19 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓		
21 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓			
23 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓			
27 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated			
29 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated			
31 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated			
33 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated			
35-55 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓		
39 Chifley Drive	Maribyrnong 3032		✓	✓	✓						
85 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓				

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP 4.73m	2% AEP 4.37m	5% AEP 3.80m	10% AEP 3.24m	Major FCL 2.90m	20% AEP 2.44m	Moderate FCL 2.30m	Minor FCL 1.70m
87 Chifley Drive	Maribyrnong 3032		✓	✓	✓	✓	✓			
101 Chifley Drive	Maribyrnong 3032		✓	✓	✓					
151 Chifley Drive	Maribyrnong 3032		✓	✓						
155 Chifley Drive	Maribyrnong 3032		✓	Isolated	Isolated	Isolated				
157 Chifley Drive	Maribyrnong 3032		Isolated	Isolated	Isolated	Isolated				
159 Chifley Drive	Maribyrnong 3032		Isolated	Isolated	Isolated	Isolated				
1 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
2 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
3 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
4 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
5 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
6 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
7 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
1/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
2/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
3/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
4/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
5/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
6/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
7/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
8/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
9/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
10/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
11/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	**Commercial**	**Industrial**	**Rural**					**Public Use**			
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**								
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
12/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
13/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
14/8-10 Clyde Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
9 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
11 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
12 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
13 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
14 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
15 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
16 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
17 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
18 Clyde Street	Maribyrnong 3032		✓	✓	✓					
19 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
20 Clyde Street	Maribyrnong 3032		✓	✓	✓					
21 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
22 Clyde Street	Maribyrnong 3032		✓	✓	✓					
23 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
24 Clyde Street	Maribyrnong 3032		✓	✓	✓					
25 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
26 Clyde Street	Maribyrnong 3032		✓	✓	✓					
27 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				
28 Clyde Street	Maribyrnong 3032		✓	✓	✓					
36 Clyde Street	Maribyrnong 3032		✓	✓	✓					
38 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓				

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
40 Clyde Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
2 Cordite Avenue	Maribyrnong 3032		✓	✓	✓	✓	✓			
76 Cumberland Drive	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
5 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
6 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
7 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
8 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
9 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
10 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
11 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
12 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
13 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓				
14 Duffy Street	Maribyrnong 3032		✓	✓	✓	✓				
1/15 Duffy Street	Maribyrnong 3032	Unit	✓	✓	✓	Isolated				
2/15 Duffy Street	Maribyrnong 3032	Unit	✓	✓	Isolated	Isolated				
16 Duffy Street	Maribyrnong 3032		✓	✓	✓	Isolated				
17 Duffy Street	Maribyrnong 3032		✓							
18 Duffy Street	Maribyrnong 3032		✓	✓	✓					
20 Duffy Street	Maribyrnong 3032		✓	✓	✓					
22 Duffy Street	Maribyrnong 3032		✓	✓	✓					
24 Duffy Street	Maribyrnong 3032		✓	✓						
1A Ensign Street	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated		
1 Ensign Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
2 Ensign Street	Maribyrnong 3032		✓	✓	✓	✓	✓	Isolated		

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
1/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
2/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
3/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
4/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
5/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
6/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
7/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
8/3 Ensign Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
4 Ensign Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
24 Farnsworth Avenue	Footscray 3011		✓	✓	✓	✓	✓	✓		
99 Farnsworth Avenue	Footscray 3011		✓	✓	✓					
40 Farnsworth Avenue	Footscray 3011		✓	✓	✓	✓	✓			
1/4 Hillside Crescent	Maribyrnong 3032	Unit	✓	✓						
2/4 Hillside Crescent	Maribyrnong 3032	Unit	✓	✓						
6 Hillside Crescent	Maribyrnong 3032		✓	✓	✓					
1 Maribyrnong Street	Footscray 3011		✓	✓						
2A Hillside Crescent	Maribyrnong 3032		✓	✓	✓					
1/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
2/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
3/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
4/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
5/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
6/1 Hortense Street	Maribyrnong 3032	Unit	✓	✓						
100 Hortense Street	Maribyrnong 3032		✓	✓						

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	**Commercial**	**Industrial**	**Rural**	**Public Use**						
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**							
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
102 Hortense Street	Maribyrnong 3032		✓	✓						
104 Hortense Street	Maribyrnong 3032		✓	✓						
106 Hortense Street	Maribyrnong 3032		✓	✓						
1-51 Jamieson Avenue	Footscray 3011		✓	✓	✓					
2 Jamieson Avenue	Footscray 3011		✓							
4 Jamieson Avenue	Footscray 3011		✓							
6 Jamieson Avenue	Footscray 3011		✓							
8 Jamieson Avenue	Footscray 3011		✓							
10 Jamieson Avenue	Footscray 3011		✓							
12 Jamieson Avenue	Footscray 3011		✓							
14 Jamieson Avenue	Footscray 3011		✓							
16 Jamieson Avenue	Footscray 3011		✓							
18 Jamieson Avenue	Footscray 3011		✓							
20 Jamieson Avenue	Footscray 3011		✓							
22 Jamieson Avenue	Footscray 3011		✓							
24 Jamieson Avenue	Footscray 3011		✓							
26 Jamieson Avenue	Footscray 3011		✓							
28 Jamieson Avenue	Footscray 3011		✓							
30 Jamieson Avenue	Footscray 3011		✓							
32 Jamieson Avenue	Footscray 3011		✓							
34 Jamieson Avenue	Footscray 3011		✓							
36 Jamieson Avenue	Footscray 3011		✓							
38 Jamieson Avenue	Footscray 3011		✓							
40 Jamieson Avenue	Footscray 3011		✓							

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	**Commercial**	**Industrial**	**Rural**	**Public Use**						
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**							
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
42 Jamieson Avenue	Footscray 3011		✓							
44 Jamieson Avenue	Footscray 3011		✓							
20 Joseph Road	Footscray 3011		✓	✓	✓					
1 Leopold Street	Maribyrnong 3032		✓	✓	Isolated					
1A Leopold Street	Maribyrnong 3032		✓	✓	✓					
2 Leopold Street	Maribyrnong 3032		✓	✓	✓					
3 Leopold Street	Maribyrnong 3032		✓	✓	✓					
1/4 Leopold Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
2/4 Leopold Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
3/4 Leopold Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
4/4 Leopold Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
5/4 Leopold Street	Maribyrnong 3032	Unit	✓	✓	✓					
6 Leopold Street	Maribyrnong 3032		✓	✓	Isolated					
8 Leopold Street	Maribyrnong 3032		✓	✓	Isolated					
10 Leopold Street	Maribyrnong 3032		✓	✓	✓					
12 Leopold Street	Maribyrnong 3032		✓	✓	✓					
4 Londrew Court	Maribyrnong 3032		✓	✓						
1 Middle Road	Maribyrnong 3032		✓	✓						
2 Middle Road	Maribyrnong 3032		✓	✓						
3A Middle Road	Maribyrnong 3032		✓	✓						
3 Middle Road	Maribyrnong 3032		✓	✓						
4 Middle Road	Maribyrnong 3032		✓	✓						
1/5 Middle Road	Maribyrnong 3032	Unit	✓	✓						
2/5 Middle Road	Maribyrnong 3032	Unit	✓	✓						

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
3/5 Middle Road	Maribyrnong 3032	Unit	✓	✓						
6 Middle Road	Maribyrnong 3032		✓	✓						
1/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
2/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
3/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
4/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
5/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
6/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
7/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
8/8 Middle Road	Maribyrnong 3032	Unit	✓	✓						
1 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
2 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
3 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
1/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
2/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
3/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
4/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
5/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
6/4 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
5 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
1/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
2/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
3/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
4/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
5/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
6/6 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓			
7-9 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
8 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
10 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
11 Navigator Street	Maribyrnong 3032		✓	✓	✓	✓				
1/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
9/12 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
1/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/13 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
1/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
2/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/14 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
1/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/15 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
16 Navigator Street	Maribyrnong 3032		✓	✓	✓					
17 Navigator Street	Maribyrnong 3032		✓	✓	✓					
18 Navigator Street	Maribyrnong 3032		✓	✓	✓					
19 Navigator Street	Maribyrnong 3032		✓	✓	✓					
1/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/20-22 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	**Commercial**	**Industrial**	**Rural**					**Public Use**		
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**							
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
6/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/20-22 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
9/20 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
10/20-22 Navigator Street	Maribyrnong 3032	Unit	✓	✓	✓					
21 Navigator Street	Maribyrnong 3032		✓	✓	✓					
23 Navigator Street	Maribyrnong 3032		✓	✓	✓					
25 Navigator Street	Maribyrnong 3032		✓	✓	✓					
27 Navigator Street	Maribyrnong 3032		✓	✓	Isolated					
29 Navigator Street	Maribyrnong 3032		✓	✓	Isolated					
31 Navigator Street	Maribyrnong 3032		✓	✓	✓					
1 Newstead Street	Maribyrnong 3032		✓	✓	✓					
2 Newstead Street	Maribyrnong 3032		✓	✓	✓	✓				
3 Newstead Street	Maribyrnong 3032		✓	✓	✓					
4 Newstead Street	Maribyrnong 3032		✓	✓	✓					
5 Newstead Street	Maribyrnong 3032		✓	✓	✓					
1/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/6 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
7 Newstead Street	Maribyrnong 3032		✓	✓	✓					
1/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
9/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
10/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
11/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
12/8 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
9 Newstead Street	Maribyrnong 3032		✓	✓	Isolated					
1/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
2/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
3/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
5/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
6/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
7/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
8/10 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
11 Newstead Street	Maribyrnong 3032		✓	✓	Isolated					
12 Newstead Street	Maribyrnong 3032		✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
13 Newstead Street	Maribyrnong 3032		✓	✓						
4/14 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/14 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/14 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
4/14 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓					
15 Newstead Street	Maribyrnong 3032		✓	✓						
16 Newstead Street	Maribyrnong 3032		✓	✓	✓					
18 Newstead Street	Maribyrnong 3032		✓	✓	✓					
19 Newstead Street	Maribyrnong 3032		✓	✓						
20 Newstead Street	Maribyrnong 3032		✓	✓						
21 Newstead Street	Maribyrnong 3032		✓	✓						
23 Newstead Street	Maribyrnong 3032		✓	✓						
25 Newstead Street	Maribyrnong 3032		✓	✓						
27 Newstead Street	Maribyrnong 3032		✓	✓						
28 Newstead Street	Maribyrnong 3032		✓	✓						
29 Newstead Street	Maribyrnong 3032		✓	✓						
30 Newstead Street	Maribyrnong 3032		✓	✓						
31 Newstead Street	Maribyrnong 3032		✓	✓						
32 Newstead Street	Maribyrnong 3032		✓	✓						
33 Newstead Street	Maribyrnong 3032		✓	✓						
34 Newstead Street	Maribyrnong 3032		✓	✓	Isolated					
1/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
2/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
3/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	**Commercial**	**Industrial**	**Rural**	**Public Use**						
Address	**Locality**	**Building Type**	**Property flood risk against Maribyrnong River at Chifley Drive Gauge Height**							
			1% AEP	**2% AEP**	**5% AEP**	**10% AEP**	**Major FCL**	**20% AEP**	**Moderate FCL**	**Minor FCL**
			4.73m	**4.37m**	**3.80m**	**3.24m**	**2.90m**	**2.44m**	**2.30m**	**1.70m**
4/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
5/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
6/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
7/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
8/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
9/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
10/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
11/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
12/35 Newstead Street	Maribyrnong 3032	Unit	✓	✓	Isolated					
36 Newstead Street	Maribyrnong 3032		✓	✓	Isolated					
37 Newstead Street	Maribyrnong 3032		✓	✓	Isolated					
1/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
2/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
3/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
4/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
5/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
6/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
7/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
8/38 Newstead Street	Maribyrnong 3032	Unit	✓	✓	✓	✓				
1/1A Oakland Street	Maribyrnong 3032	Unit	✓	✓	✓	✓	✓	✓		
1 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
2 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
3 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
4 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓			

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
5 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
6 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
7 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
8 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
9 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓	✓			
10 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
11 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
12 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
13 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
14 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
15 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
16 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
17 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
18 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
19 Oakland Street	Maribyrnong 3032		✓	✓	✓	Isolated				
20 Oakland Street	Maribyrnong 3032		✓	✓	✓	Isolated				
21 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
22 Oakland Street	Maribyrnong 3032		✓	✓	✓	Isolated				
23 Oakland Street	Maribyrnong 3032		✓	✓	✓	✓				
24 Oakland Street	Maribyrnong 3032		✓	✓	✓					
25 Oakland Street	Maribyrnong 3032		✓	✓	✓					
26 Oakland Street	Maribyrnong 3032		✓	✓	✓					
27 Oakland Street	Maribyrnong 3032		✓	✓	✓					
28 Oakland Street	Maribyrnong 3032		✓	✓	✓					

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
29 Oakland Street	Maribyrnong 3032		✓	✓	✓					
30 Oakland Street	Maribyrnong 3032		✓	✓	✓					
31 Oakland Street	Maribyrnong 3032		✓	✓						
32 Oakland Street	Maribyrnong 3032		✓	✓	✓					
1-9 Plantation Street	Maribyrnong 3032		✓	✓						
2 Plantation Street	Maribyrnong 3032		✓	✓						
4 Plantation Street	Maribyrnong 3032		✓	✓						
6 Plantation Street	Maribyrnong 3032		✓	✓						
8-10 Plantation Street	Maribyrnong 3032		✓	✓	✓	✓	✓	✓		
20 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓				
22 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
24 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
26 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
28 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
29 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓	✓	✓	
30 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
31 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
32A Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓				
32 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
33 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
36 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
37 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
38 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			
39 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓	✓			

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
40 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
42 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓				
41-45 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓				
44 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
47 Raleigh Road	Maribyrnong 3032		✓	✓	✓	✓				
49 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
51 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
53 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
54 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
55 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
56 Raleigh Road	Maribyrnong 3032		✓	✓						
57 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
58 Raleigh Road	Maribyrnong 3032		✓	✓						
59 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
60 Raleigh Road	Maribyrnong 3032		✓	✓						
61 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
62 Raleigh Road	Maribyrnong 3032		✓	✓						
63 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
64 Raleigh Road	Maribyrnong 3032		✓	✓						
65 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
66 Raleigh Road	Maribyrnong 3032		✓							
67 Raleigh Road	Maribyrnong 3032		✓	✓	✓					
69 Raleigh Road	Maribyrnong 3032		✓	✓						
71 Raleigh Road	Maribyrnong 3032		✓	✓						

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
2 Riverfront Way	Maribyrnong 3032		✓	✓	✓	✓	✓			
1 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓				
3 The Esplanade	Maribyrnong 3032		✓	✓	✓					
5 The Esplanade	Maribyrnong 3032		✓	✓	✓					
6 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
7 The Esplanade	Maribyrnong 3032		✓	✓	✓					
8 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓				
9 The Esplanade	Maribyrnong 3032		✓	✓	✓					
10 The Esplanade	Maribyrnong 3032		✓	✓	✓					
11 The Esplanade	Maribyrnong 3032		✓	✓	✓					
12 The Esplanade	Maribyrnong 3032		✓	✓	✓					
13 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓				
14 The Esplanade	Maribyrnong 3032		✓	✓	✓					
15 The Esplanade	Maribyrnong 3032		✓	✓	✓					
16 The Esplanade	Maribyrnong 3032		✓	✓	✓					
26 The Esplanade	Maribyrnong 3032		✓	✓	✓					
27 The Esplanade	Maribyrnong 3032		✓	✓	✓					
28 The Esplanade	Maribyrnong 3032		✓	✓						
29 The Esplanade	Maribyrnong 3032		✓	✓	✓					
30 The Esplanade	Maribyrnong 3032		✓	✓						
1/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
2/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
3/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
4/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
5/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
6/31 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
33 The Esplanade	Maribyrnong 3032		✓	✓						
35 The Esplanade	Maribyrnong 3032		✓	✓						
37 The Esplanade	Maribyrnong 3032		✓	✓						
38 The Esplanade	Maribyrnong 3032		✓	✓						
38A The Esplanade	Maribyrnong 3032		✓	✓						
40 The Esplanade	Maribyrnong 3032		✓							
46 The Esplanade	Maribyrnong 3032		✓	✓	✓					
48 The Esplanade	Maribyrnong 3032		✓	✓	✓					
50 The Esplanade	Maribyrnong 3032		✓	✓	✓					
44 The Esplanade	Maribyrnong 3032		✓	✓	✓					
1/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
2/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
3/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
4/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
5/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
6/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
7/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
8/53 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
54 The Esplanade	Maribyrnong 3032		✓	✓	✓					
2/55 The Esplanade	Maribyrnong 3032	Unit	✓	✓						
56 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
58 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong											
Residential	Commercial	Industrial	Rural	Public Use							
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height								
			1% AEP	2% AEP	5% AEP	10% AEP	Major FCL	20% AEP	Moderate FCL	Minor FCL
			4.73m	4.37m	3.80m	3.24m	2.90m	2.44m	2.30m	1.70m
60 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
62 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
64 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
66 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
68 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
70 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
72 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
74 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
76 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
78 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
82 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
84 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
86 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
88 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
90 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
96 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓	✓			
98 The Esplanade	Maribyrnong 3032		✓	✓	✓	✓				
1/100 The Esplanade	Maribyrnong 3032	Unit	✓	✓	✓	✓				
12 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	✓	✓			
1/19 Van Ness Avenue	Maribyrnong 3032	Unit	✓	✓	✓					
2/19 Van Ness Avenue	Maribyrnong 3032	Unit	✓	✓	✓					
3/19 Van Ness Avenue	Maribyrnong 3032	Unit	✓	✓	✓					
21 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓					
23 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	Isolated				

Properties at risk from Flooding along the Maribyrnong River in the City of Maribyrnong										
Residential	Commercial	Industrial	Rural	Public Use						
Address	Locality	Building Type	Property flood risk against Maribyrnong River at Chifley Drive Gauge Height							
			1% AEP 4.73m	2% AEP 4.37m	5% AEP 3.80m	10% AEP 3.24m	Major FCL 2.90m	20% AEP 2.44m	Moderate FCL 2.30m	Minor FCL 1.70m
25 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	✓				
27 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	✓	✓			
29 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	✓	✓			
32 Van Ness Avenue	Maribyrnong 3032		✓	✓	✓	✓	✓			
		Totals								
			508	483	400	213	116	28	6	1

Table C1.5 – Properties at risk of flooding along the Maribyrnong River in Maribyrnong.

Isolation

Residents in Maribyrnong Township may become isolated from flooding surrounding Maribyrnong River. Properties located around Chifley Dr, The Esplanade, Raleigh Rd & Van Ness Ave may have access cut along local roads as well as Raleigh Rd. See **Appendix D** for evacuation details. Some localised short-duration isolation may also occur due to flash flooding.

Assets and Infrastructure at Flood Risk

- Tram Services along Routes **57** & **82** may become affected by flooding at stops **42** & **43** along Raleigh Rd during a Major Flood Event at Maribyrnong. See Yarra Trams Website for more details. www.yarratrams.com.au. During an event, see the Public Transport Victoria's Website for details on delays or alterations to services. http://ptv.vic.gov.au/live-travel-updates/ A map of Public Transport routes around Maribyrnong is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/4cd3ed8d77/PTVH5381_Maribyrnong_LAM_November2020.pdf

- Existing infrastructure includes a transport sewer, electricity, water, telephone network, sealed road network, service stations & commercial properties, river moorings, and approximately 411 residential properties.

Roads at Flood Risk

The following roads are subject to flooding around Maribyrnong and likely require closure for a period. Check the VicTraffic website for more details: http://alerts.vicroads.vic.gov.au/ and Flood Intelligence Card for further information.

The consequences of closure of the Raleigh Rd river crossing, coupled with likely affected bridges at Fisher Pde, Smithfield Rd & Dynon Rd downstream in Footscray would result in major prolonged traffic congestion throughout the Cities of Brimbank, Maribyrnong, Moonee Valley and Melbourne. The Cities of Hume, Moreland and Hobsons Bay would also be affected. This would result in dramatically increased travel times throughout the area.

Roads contained in table C1.6 below have been included based on the Hazard Vulnerability Classification from Australian Rainfall & Runoff (ARR) 2019, A Guide to Flood Estimation, Book 6, Chapter 7: Safety Design Criteria.

Roads at risk of flooding from the Maribyrnong River (H2-H6 Hazard Category) in the City of Maribyrnong

Road at Risk in AEP Event			Road	Suburb	Owner	Flood Risk Type
20% AEP	5% AEP	1% AEP				
		✓	Alameda Avenue	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Anglers Way	Maribyrnong	Maribyrnong CC	Riverine
✓	✓	✓	Burton Crescent	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Chicago Street	Maribyrnong	Maribyrnong CC	Riverine
✓	✓	✓	Chifley Drive	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Clyde Street	Maribyrnong	Maribyrnong CC	Riverine
		✓	Cumberland Drive	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Duffy Street	Maribyrnong	Maribyrnong CC	Riverine
✓	✓	✓	Ensign Street	Maribyrnong	Maribyrnong CC	Riverine
		✓	Hillside Crescent	Maribyrnong	Maribyrnong CC	Riverine

Roads at risk of flooding from the Maribyrnong River (H2-H6 Hazard Category) in the City of Maribyrnong						
Road at Risk in AEP Event			Road	Suburb	Owner	Flood Risk Type
20% AEP	5% AEP	1% AEP				
		✓	Hortense Street	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Leopold Street	Maribyrnong	Maribyrnong CC	Riverine
		✓	Middle Road	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Navigator Street	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Newstead Street	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	Oakland Street	Maribyrnong	Maribyrnong CC	Riverine
		✓	Plantation Street	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	**Raleigh Road**	**Maribyrnong**	**DTP**	Riverine
	✓	✓	The Esplanade	Maribyrnong	Maribyrnong CC	Riverine
	✓	✓	**Van Ness Avenue**	**Maribyrnong**	**DTP**	Riverine
		✓	**Ballarat Road**	**Footscray**	**DTP**	Riverine
	✓	✓	**Farnsworth Avenue**	**Footscray**	**DTP**	Riverine
		✓	Jamieson Avenue	Footscray	Maribyrnong CC	Riverine
	✓	✓	Maribyrnong Boulevard	Footscray	Maribyrnong CC	Riverine
		✓	Maribyrnong Street	Footscray	Maribyrnong CC	Riverine
	✓	✓	Myers Road	Footscray	Maribyrnong CC	Riverine
Totals						
3	17	26				

Table C1.6 – Roads subject to flooding from the Maribyrnong River in the City of Maribyrnong (H2-H6 Hazard Category: greater than 30cm depth) which may require closure whilst flooded

Flood Mitigation

Three levees are located in the Lower Maribyrnong River. These are at the Maribyrnong Defence site in Maribyrnong, the flood wall at Flemington Racecourse and the levee at Riverside Park in Kensington[10]. See the Melbourne Municipal Flood Emergency Plan for details of the flood wall.

[10] 'Draft Lower Maribyrnong Flood Model Report', Jacobs, April 2024, pg.111

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located along the Maribyrnong River in or adjacent to the City of Maribyrnong is contained within the following two tables.

Sewer Pumping Stations

Sewerage Pumping Station	On Drain / Waterway	Bank / Side of Waterway	Operator	Location	Melway Reference
Pump Well	Maribyrnong River	West Bank	Melbourne Water	On the Maribyrnong River Trail between Hopkins Street and Saltriver Place, Footscray	2S K9

Table C1.7 – Sewer Pumping Stations adjacent to the Maribyrnong River impacting the City of Maribyrnong

Sewer Emergency Relief Points

On Drain / Waterway	Bank / Side of Waterway	Operator	Location	Melway Reference
Maribyrnong River	North Bank (City of Moonee Valley)	City West Water	Brentwood Drive, Avondale Heights	27 C9
Maribyrnong River	South Bank	City West Water	Former Maribyrnong Defence Site, Cordite Avenue	27 G7
Maribyrnong River	North Bank (City of Moonee Valley)	Melbourne Water	Along the bank of the Maribyrnong River off Prospect Street, Essendon West	27 K4
Maribyrnong River	North Bank (City of Moonee Valley)	Melbourne Water	Along the bank of the Maribyrnong River in Afton Street Conservation Park (Riverside Park), Essendon West	27 K6
Maribyrnong River	South Bank	City West Water	Chifley Drive at Plantation Street, Maribyrnong	28 B7
Junction of Maribyrnong River and Holmes Road Main Drain	North Bank (City of Moonee Valley)	City West Water and Melbourne Water	Intersection of The Boulevard and Holmes Road in Moonee Ponds	28 D7
Maribyrnong River	West Bank	City West Water	Burton Crescent, Maribyrnong	28 C8
Maribyrnong River	West Bank	City West Water	Pipemakers Park, Maribyrnong	28 B10
Maribyrnong River	East Bank (City of Moonee Valley)	City West Water	Angler Parade, Ascot Vale	28 D11
Maribyrnong River	East Bank (City of Moonee Valley)	City West Water	Fisher Parade, Ascot Vale	2S H2
Maribyrnong River	East Bank (City of Melbourne)	City West Water and Melbourne Water	Sims Street, West Melbourne at the Dynon Road Hopetown Bridge	2T A8

Table C1.8 – Sewer Emergency Relief Points in the along the Maribyrnong River around the City of Maribyrnong.

Flood Impacts and Required Actions (Intelligence Cards)

The tables on the following pages provide a breakdown of the possible consequences of flooding along the Maribyrnong River at various gauge heights within the City of Maribyrnong. These tables are to be used only as a guide as no two floods at a location will have identical impacts.

Intelligence Cards have been included for the following locations:

- Maribyrnong River at Maribyrnong

FLOOD INTELLIGENCE CARD – MARIBYRNONG GAUGE, MARIBYRNONG RIVER

Version 6 – July 2024

Note: flood intelligence records are approximations. This is because no two floods at a location, even if they peak at the same height, will have identical impacts. Flood intelligence cards detail the relationship between flood magnitude and flood consequences. More details about flood intelligence and its use can be found in the Australian Emergency Management Manuals flood series.

This Flood Intelligence Card 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. ***Scan the QR code for the current levels for this gauge.***

LOCATION:	**South bank of the River on Chifley Drive west of Plantation Street**
CURRENT LEVEL:	**https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/230106A**
STREAM:	**Maribyrnong River**
GAUGE NUMBER:	**230106A**
GAUGE ZERO:	**0.00m AHD**
GAUGE TYPE:	**Stream Level & Rain**

MELWAY REFERENCE:	**28 B7**
MINOR:	**1.70m**
MODERATE:	**2.30m**
MAJOR	**2.90m**
LEVEE HEIGHT:	**N/A**
HIGHEST RECORDED FLOOD:	**4.50m (8th September 1906)**

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
1.70m	**MINOR FLOOD LEVEL**	**Properties likely Flooded (1 new at level, total 1)** • 2 Anglers Way, Maribyrnong (The Anglers Tavern Lounge Room flooded above-floor)	• VICSES will provide warnings using VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form an appropriate response arrangement to suit the level of incident • VICSES to respond on a request-by-request basis. **Traffic Management** Council/VicPol/ DTP: Traffic barricades to be installed at following intersections: • Chifley Drive with Plantation, Newstead, Clyde and Ensign Streets • Chifley Drive with the Esplanade and Leopold Street.
2.21m	14th January 2011 Flood Level Peak (Minor)	**Event Summary** • Flooding of the lower floor at the Anglers Tavern, 2 Anglers Way, Maribyrnong	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		• Closure of Chifley Dr; Plantation St; & nearby joining roads • Garage in Burton Cr flooded	
2.30m	**MODERATE FLOOD LEVEL**	**Properties likely Flooded (5 new at level, total 6)** • 7 Burton Crescent, Maribyrnong • 13-15, 19 and 35-55 Chifley Drive, Maribyrnong • 29 Raleigh Road, Maribyrnong **Community Infrastructure Likely Flooded** • Maribyrnong River Trail flooded at various locations between Cranwell Park in Braybrook to Footscray Park, Footscray • Burton Crescent Reserve at 2-4 Burton Crescent, Maribyrnong **Roads Flooded (over 30cm depth) (1 new at level, total 1)** • Chifley Drive, Maribyrnong from Plantation Street to Leopold Street	**Traffic Management** Council/VicPol/DTP: Additional traffic barricades to be installed at following intersections: • Oakland St and Alameda St • Burton Cres and Raleigh Rd (south bound) • Van Ness Ave and Raleigh Road • Van Ness Ave and Hillside Cres (nth bound traffic to detour from Van Ness Ave via Hillside into Alameda Ave) • Como Pde and Hillside Cres • Duffy St and Alameda St
2.44m	20% AEP (5yr ARI) Flood Level (Moderate)	**Properties likely Impacted (Flooded or Isolated) (22 new at level, total 28)** **Maribyrnong Township Properties** • 2-4 and 9 Burton Crescent, Maribyrnong • 13A, 17, 21, 23, 27, 29, 31 and 33 Chifley Drive, Maribyrnong • 1, 1A and 2 Ensign Street, Maribyrnong • 1/1A, 1, 3, 5 and 7 Oakland Street, Maribyrnong • 8-10 Plantation Street, Maribyrnong **Remaining Properties adjacent to the Maribyrnong River** • 4-68 Ballarat Road, Footscray • 74 and 76 Cumberland Drive, Maribyrnong **Community Infrastructure Likely Flooded** • Chifley Drive carpark at western end of Chifley Drive, Maribyrnong • Coulson Gardens at 35-55 Chifley Drive, Maribyrnong • Jensen Park carpark at 74 Cumberland Drive, Maribyrnong **Roads Flooded (over 30cm depth) (2 new at level, total 3)** **Maribyrnong Township Roads** • Burton Crescent and Ensign Street	
2.64m	30th July 1987 Flood Level Peak (Moderate)	**Event Summary** • 3 residencies flooded over-floor • 75 properties flooded	**Traffic Management** • Council/VicPol/DTP: As well as the previous traffic barricades being installed, Raleigh Road closure to be moved westwards to intersection with Alameda Ave.
2.90m	**MAJOR FLOOD LEVEL**	**Properties likely Flooded (94 new at level, total 116)** **Maribyrnong Township Properties** • 15, 17 and 19 Burton Crescent, Maribyrnong • Units 1-6/11, 85 and 87 Chifley Drive, Maribyrnong • 1, 7, 9 and 40 Clyde Street, Maribyrnong • 5, 6, 7, 8, 9, 10, 11 and 12 Duffy Street, Maribyrnong	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		• Units 1-8/3, and 4 Ensign Street, Maribyrnong • 2, Units 1-6/4 and Units 1-6/6 Navigator Street, Maribyrnong • 2, 4, 6, 8 and 9 Oakland Street, Maribyrnong • 22, 24, 26, 28, 30, 31, 32, 33, 36, 37, 38 and 39 Raleigh Road, Maribyrnong • 6, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 82, 84, 86, 88, 90 and 96 The Esplanade, Maribyrnong • 27 and 29 Van Ness Avenue, Maribyrnong **Remaining Properties adjacent to the Maribyrnong River** • 2 Cordite Avenue, Maribyrnong • 40 Farnsworth Avenue, Footscray • 40 Maribyrnong Boulevard, Footscray • 2 Riverfront Way, Maribyrnong • 12 and 32 Van Ness Avenue, Maribyrnong **Community Infrastructure Likely Flooded** • Footscray Park at 40 Maribyrnong Boulevard, Footscray • Jensen Park at 74 Cumberland Drive, Maribyrnong • Pipemakers Park at 32 Van Ness Avenue, Maribyrnong • Pipemakers Park footbridge, Maribyrnong at either end of footbridge **Tourism / Recreation Likely Impacted** • Footscray City Rowing Club at 40 Maribyrnong Boulevard, Footscray	
3.24m	10% AEP (10-year ARI) Flood Level (Major)	**Properties likely Impacted (Flooded or Isolated) (96 new at level, total 213)** **Maribyrnong Township Properties** • 8, Units 1-8/10 and 12 Anglers Way, Maribyrnong • 1, 3, 5, 7, 9 , 155, 157 and 159 Chifley Drive, Maribyrnong • 2, 3, 4, 5, 6, Units 1-14/8-10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 23, 25, 27 and 38 Clyde Street, Maribyrnong • 13, 14, 1/15 and 2/15 Duffy Street, Maribyrnong • 1, 3, 5, 7-9, 8, 10 and 11 Navigator Street, Maribyrnong • Units 1-8/38 Newstead Street, Maribyrnong • 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 and 23 Oakland Street, Maribyrnong • 20, 32A, 42, 41-45 and 47 Raleigh Road, Maribyrnong • 1, 8, 13, 98 and 1/100 The Esplanade, Maribyrnong • 23 and 25 Van Ness Avenue, Maribyrnong **Community Infrastructure Likely Flooded** • Ethiopian Orthodox Church at 7-9 Navigator Street, Maribyrnong • Henry Turner Memorial Reserve (South) Sports Pavilion and carpark on Farnsworth Avenue, Footscray **Essential Infrastructure Likely Impacted** • Tram Services along Routes 57 & 82 likely to be impacted at stops 42 & 43 along Raleigh Road, Maribyrnong • Buses 468 & 952 along Raleigh Road, Maribyrnong	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		Roads Flooded (over 30cm depth) (12 new at level, total 15) **Maribyrnong Township Roads** • Anglers Way, Chicago Street, Clyde Street, Duffy Street, Leopold Street, Navigator Street, Newstead Street, Oakland Street, **Raleigh Road (DTP Operated),** The Esplanade and **Van Ness Avenue (DTP Operated)** **Remaining Roads adjacent to the Maribyrnong River** • Maribyrnong Boulevard, Footscray	
3.31m	15th September 1993 Flood Level Peak (Major)	**Event Summary** • Anglers Tavern Lounge & Bistro area under nearly 2m of water • 50 residences flooded above floor	
3.80m	5% AEP (20yr ARI) Flood Level (Major)	**Properties likely Impacted (Flooded or Isolated) (205 new at level, total 400)** **Maribyrnong Township Properties** • 30 Alameda Avenue, Maribyrnong • 4-6 and 14-18 Anglers Way, Maribyrnong • 2 Chicago Street, Maribyrnong • 39, 101 and 151 Chifley Drive, Maribyrnong • 18, 20, 22, 24, 26, 28 and 36 Clyde Street, Maribyrnong • 16, 18, 20 and 22 Duffy Street, Maribyrnong • 2A and 6 Hillside Crescent, Maribyrnong • 1, 1A, 2, 3, Units 1-5/4, 6, 8, 10 and 12 Leopold Street, Maribyrnong • Units 1-9/12, Units 1-8/13, Units 1-8/14, Units 1-8/15, 16, 17, 18, 19, Units 1-10/20, 21, 23, 25, 27, 29 and 31 Navigator Street, Maribyrnong • 1, 2, 3, 4, 5, Units 1-8/6, 7, Units 1-12/8, 9, Units 1-8/10, 11, 12, Units 1-4/14, 16, 18, 20, 30, 34, Units 1-12/35, 36 and 37 Newstead Street, Maribyrnong • 24, 25, 26, 27, 28, 29, 30 and 32 Oakland Street, Maribyrnong • 1-9 Plantation Street, Maribyrnong • 40, 44, 49, 51, 53, 54, 55, 57, 59, 61, 63, 65, 67 and 69 Raleigh Road, Maribyrnong • 3, 5, 7, 9, 10, 11, 12, 14, 15, 16, 26, 27, 29, 44, 46, 48, 50 and 54 The Esplanade, Maribyrnong • Units 1-3/19 and 21 Van Ness Avenue, Maribyrnong **Remaining Properties adjacent to the Maribyrnong River** • 24 Farnsworth Avenue, Footscray • 1-51 Jamieson Avenue, Footscray • 20 Joseph Road, Footscray **Community Infrastructure Likely Flooded** • Afton Street Footbridge, Maribyrnong at either end of footbridge • Chifley Drive Reserve at 101 Chifley Drive, Maribyrnong • Henry Turner Memorial Reserve (North) at 24 Farnsworth Avenue, Footscray • Henry Turner Memorial Reserve (South) on Farnsworth Avenue, Footscray • Maribyrnong Reserve at 54 Raleigh Road, Maribyrnong **Essential Infrastructure Likely Impacted** • Bus Route 409 and 472 on Farnsworth Avenue and Myers Road, Footscray	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		Roads Flooded (over 30cm depth) (2 new at level, total 17) **Remaining Roads adjacent to the Maribyrnong River** • **Farnsworth Avenue, Footscray (DTP operated)** • Myers Road, Footscray	
4.21m	14th October 2022 Flood Level Peak (Major)	**Event Summary** • 512 residential properties damaged, 177 of which were considered uninhabitable. 6 businesses impacted. • Community Infrastructure impacted affecting 2 religious groups and 10 community groups. • 31km of roads, 8km of walking trails, 3 playgrounds and 2 sporting pavilions impacted • Maribyrnong River rose rapidly late in the evening on the 13th October through to the early hours of the 14th October when many residents would not likely have been monitoring conditions and may have missed the major flood warning that was issued by the BoM at 2:25am on the 14th October.	
4.37m	2% AEP (50yr ARI) Flood Level (Major)	**Properties likely Impacted (Flooded or Isolated) (84 new at level, total 483)** **Maribyrnong Township Properties** • 24 Duffy Street, Maribyrnong • 1/4 and 2/4 Hillside Crescent, Maribyrnong • Unit's 1-6/1, 100, 102, 104 and 106 Hortense Street, Maribyrnong • 4 Londrew Court, Maribyrnong • 1, 2, 3, 3A, 4, Units 1-3/5, 6 and Units 1-8/8 Middle Road, Maribyrnong • 13, 15, 19, 21, 23, 25, 27, 28, 29, 31, 32 and 33 Newstead Street, Maribyrnong • 31 Oakland Street, Maribyrnong • 2, 4 and 6 Plantation Street, Maribyrnong • 56, 58, 60, 62, 64 and 71 Raleigh Road, Maribyrnong • 28, 30, Units 1-6/31, 33, 35, 37, 38, 38A, Units 1-8/53 and 2/55 The Esplanade, Maribyrnong **Remaining Properties adjacent to the Maribyrnong River** • 1C Ballarat Road, Footscray • 56 Cedar Drive, Maribyrnong • 1 Maribyrnong Street, Footscray **Community Infrastructure Likely Flooded** • Maribyrnong Edible Garden on Hortense Street, Maribyrnong • Maribyrnong-Maidestone RSL at 56 Raleigh Road, Maribyrnong • Melbourne's Living Museum of the West in Pipemakers Park on Van Ness Avenue, Maribyrnong • Maribyrnong Reserve's Pavilion on Hortense Street, Maribyrnong **Tourism / Recreation Likely Impacted** • Maribyrnong River Cruises at 1 Maribyrnong Street, Footscray **Roads Flooded (over 30cm depth) (5 new at level, total 22)** **Maribyrnong Township Roads** • Hillside Crescent, Hortense Street, Middle Road and Plantation Street	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		Remaining Roads adjacent to the Maribyrnong River • Cumberland Drive, Maribyrnong	
4.73m	1% AEP (100yr ARI) Flood Level (Major)	**Properties likely Impacted (Flooded or Isolated) (25 new at level, total 508)** **Maribyrnong Township Properties** • 17 Duffy Street, Maribyrnong • 66 Raleigh Road, Maribyrnong • 40 The Esplanade, Maribyrnong **Remaining Properties adjacent to the Maribyrnong River** • 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42 and 44 Jamieson Avenue, Footscray (Possible Isolation) **Essential Infrastructure Likely Impacted** • Bus Route 404 along Ballarat Road, Footscray **Tourism / Recreation Likely Impacted** • Footscray Wharf on Whitehalll Street, Footscray **Roads Flooded (over 30cm depth) (4 new at level, total 26)** **Maribyrnong Township Roads** • Alameda Avenue **Remaining Roads adjacent to the Maribyrnong River** • **Ballarat Road, Footscray (DTP operated) at Newells Paddock Wetlands Reserve** • Jamieson Avenue, Footscray • Maribyrnong Street, Footscray	

Table C1.9 – Breakdown of likely consequences at various Maribyrnong gauge level heights along the Maribyrnong River in Maribyrnong with operational considerations

Appendix C2 – Footscray, Maidstone, Braybrook & Seddon Flash Flood Emergency Plan

Overview of Flooding Consequences

This Summary table is generated from Victorian Government data. The State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for error, loss or damage which may arise from reliance upon it. All persons access this information should make appropriate enquiries to assess the currency of the data.

Summary of Consequences in a 1% AEP (100yr ARI) flood around Footscray Maidstone, Braybrook & Seddon

Property					
Properties	**126**				
Residential	102				
Commercial	19				
Industrial	4				
Public Land	1				
Rural	0				
Community Infrastructure					
Health Facilities	1	Tweedle Child and Family Heath Service			
Child Care / Kindergartens	1	Vic Uni Child Care Centre			
Schools / Colleges	1	Victoria University			
Essential Infrastructure					
Major Roads	5	Buckley St, Geelong Rd, Gordon St, Hampstead Rd, Napier St & Whitehall St			
Major Rail	2	Freight Line at Bunbury Tnl; & Metro & V/Line Lines city side of Footscray Stn			
Bus Routes	5	220 and 409 at the Napier St Railway Underpass, 472 on Geelong Road (Citybound) near Barkly Street, and 215 and 408 on Hampstead Road, Maidstone			
Sewerage Facilities	6	Emergency Relief Points			
Government Boundaries					
Local Gov't Areas	1	Maribyrnong	CMA	1	Port Phillip & Westernport
Adjacent LGAs	0		CFA District	0	
SES Resp' Boundary	1	Footscray	FRV District	1	Western

Table C2.1 – Consequence Summary of 1% AEP flash flooding around Footscray, Maidstone, Braybrook & Seddon

A number of stormwater drains feed into the Maribyrnong River in Footscray, Maidstone, West Footscray, Braybrook & Seddon. The major ones being the Summerhill Road Main Drain in Footscray; the Footscray Main Drain in Footscray & Seddon; the Bosquet Street Main Drain in Maidstone; the Churchill Avenue Main Drain in Maidstone; & the Vine Street Main Drain in Braybrook. Flash flooding may be experienced on and around these drains during thunderstorms.

Flooding of residential streets and flows along these stormwater drain impacts many properties. Much of the underground drain system was designed for a less developed catchment than currently exists which means that the capacity and standard of some infrastructure no longer meets current standards of service or protection. Unfortunately, there are many instances of properties which have floor levels below flood levels even at relatively frequent return intervals. Notable sites impacted by flooding include the Victoria University site which takes the brunt of overland flows from the Buckley Street Drain.

Further, many important local roads such as Napier Street, Sunshine Road, Hyde Street, Williamstown Road and Francis Street are all subject to periodic and disruptive overland flow path flooding, thus creating significant social disruption as well as damage to properties and infrastructure.

Warnings and Gauges

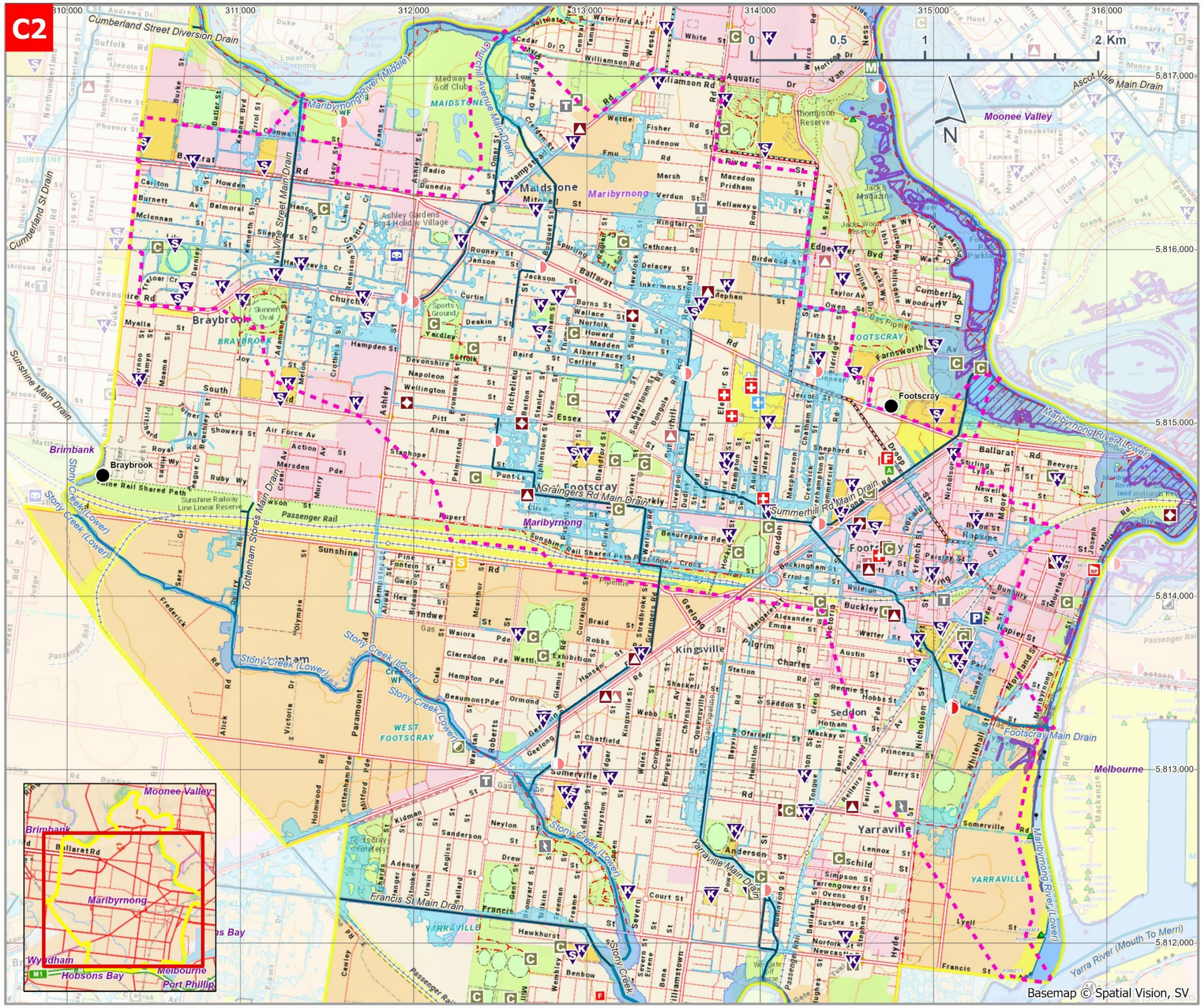
Whilst there are hydrographic/telemetry stations (gauges) within the municipality, Melbourne Water does not provide any flood warning service for flash flooding around Footscray, Maidstone & Braybrook at this point, due to the generally short warning times available.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Footscray	587024	Footscray Bowling Club next to Fern Terrace, Footscray		✓	2S D4
Braybrook	230808	Bicycle Trail, 200m south of Duke Street, Braybrook adjacent to Stony Creek		✓	41 A3

Table C2.2 – Gauges around Footscray, Maidstone and Braybrook

These Gauges may provide some warning of expected flooding. See the Melbourne Water website for more information on these gauges: http://www.melbournewater.com.au/waterdata/rainfallandriverleveldata/Pages/Rainfall-and-river-level-new.aspx. The Bureau of Meteorology's website also links a number of these gauges at: http://www.bom.gov.au/cgi-bin/wrap_fwo.pl?IDV60201.html. It is advised that residents monitor the Bureau of Meteorology's website http://www.bom.gov.au/vic/warnings/index.shtml?ref=hdr and the VicEmergency website https:/emergency.vic.gov.au/ for any thunderstorm, flood or severe weather warnings present for their area.

Area Map of Flash Flood Risk in Footscray, Maidstone, Braybook, Seddon and parts of West Footscray



Maribyrnong River flood modelling completed by Jacobs, April 2024. Footscray Main Drain flood modelling completed by AECOM, December 2009. Map produced by VICSES 27/05/2024 1:54 PM

Figure C3 – Areas of flood risk around Footscray, Maidstone, Braybrook, Seddon and parts of West Footscray in the City of Maribyrnong and boundary for this Appendix

Properties at Flood Risk

Properties listed in the table below are at risk from flooding around Footscray, West Footscray, Seddon & Maidstone. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Footscray Main Drain (Melbourne Water and AECOM, December 2009) and Graingers Rd Main Drain (Melbourne Water and Water Technology, May 2013) flood mapping and risk assessment programs.

This Property Flood Risk Table 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.

Properties at risk from Flooding Over-Floor in Footscray, West Footscray, Seddon and Maidstone

Residential			Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	5% AEP	1% AEP				
		✓	46 Adelaide Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	49-71 Adelaide Street	Footscray	Summerhill Road Main Drain	Flash
		✓	75 Adelaide Street	Footscray	Summerhill Road Main Drain	Flash
		✓	77 Adelaide Street	Footscray	Summerhill Road Main Drain	Flash
		✓	23 Ann Street	Footscray	Footscray Main Drain	Flash
		✓	3 Ballarat Road	Maidstone	Summerhill Road Main Drain	Flash
		✓	5 Ballarat Road	Maidstone	Summerhill Road Main Drain	Flash
	✓	✓	337-351 Barkly Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	345-351 Barkly Street	Footscray	Summerhill Road Main Drain	Flash
		✓	378 Barkly Street	Footscray	Summerhill Road Main Drain	Flash
		✓	384 Barkly Street	Footscray	Summerhill Road Main Drain	Flash
		✓	459 Barkly Street	Footscray	Summerhill Road Main Drain	Flash
		✓	579 Barkly Street	West Footscray	Graingers Road Main Drain	Flash
		✓	585 Barkly Street	West Footscray	Graingers Road Main Drain	Flash
		✓	40 Buckley Street	Footscray	Footscray Main Drain	Flash
✓	✓	✓	43-57 Buckley Street	Seddon	Footscray Main Drain	Flash
		✓	44 Buckley Street	Footscray	Footscray Main Drain	Flash
		✓	148-150 Cowper Street	Footscray	Footscray Main Drain	Flash
✓	✓	✓	152-154 Cowper Street	Footscray	Footscray Main Drain	Flash
		✓	15 Darling Street	Footscray	Footscray Main Drain	Flash
		✓	2-4 Dongola Road	West Footscray	Summerhill Road Main Drain	Flash
		✓	6 Dongola Road	West Footscray	Summerhill Road Main Drain	Flash
		✓	31 Dudley Street	Footscray	Summerhill Road Main Drain	Flash
		✓	33 Dudley Street	Footscray	Summerhill Road Main Drain	Flash
		✓	36B Dudley Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	44 Dudley Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	46 Dudley Street	Footscray	Summerhill Road Main Drain	Flash
		✓	1 Eastwood Street	Seddon	Footscray Main Drain	Flash
		✓	3 Eastwood Street	Seddon	Footscray Main Drain	Flash
	✓	✓	15 Eden Street	Footscray	Summerhill Road Main Drain	Flash
		✓	16 Eden Street	Footscray	Summerhill Road Main Drain	Flash

Properties at risk from Flooding Over-Floor in Footscray, West Footscray, Seddon and Maidstone						
Residential			Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	5% AEP	1% AEP				
		✓	101 Eleanor Street	Footscray	Summerhill Road Main Drain	Flash
		✓	106 Eleanor Street	Footscray	Summerhill Road Main Drain	Flash
		✓	112 Eleanor Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	43 Everard Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	120-122 Geelong Road	Footscray	Footscray Main Drain	Flash
		✓	252-254 Gordon Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	12 Hyde Street	Seddon	Footscray Main Drain	Flash
		✓	14 Hyde Street	Seddon	Footscray Main Drain	Flash
		✓	26 Hyde Street	Seddon	Footscray Main Drain	Flash
		✓	79-89 Hyde Street	Footscray	Footscray Main Drain	Flash
		✓	99 Hyde Street	Footscray	Footscray Main Drain	Flash
		✓	5 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	23 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
		✓	31 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	1/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	2/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	3/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	4/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	5/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	6/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	7/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	8/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	9/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	10/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	11/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	12/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	13/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	14/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	15/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	19/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	20/35 Latrobe Street	Footscray	Summerhill Road Main Drain	Flash
		✓	51A Leander Street	Footscray	Summerhill Road Main Drain	Flash
		✓	33 Liverpool Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	39 Liverpool Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	51 Liverpool Street	Footscray	Summerhill Road Main Drain	Flash
		✓	1/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	2/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	3/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	4/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	5/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	6/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	7/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	8/245 Nicholson Street	Seddon	Footscray Main Drain	Flash

Properties at risk from Flooding Over-Floor in Footscray, West Footscray, Seddon and Maidstone						
Residential			Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	5% AEP	1% AEP				
		✓	9/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	10/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	11/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	12/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	13/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	14/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	15/245 Nicholson Street	Seddon	Footscray Main Drain	Flash
		✓	116 Paisley Street	Footscray	Footscray Main Drain	Flash
		✓	1/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	2/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	3/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	4/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	5/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	6/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	7/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	8/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	9/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	10/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	11/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	12/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	13/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	14/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	15/5 Pickett Street	Footscray	Footscray Main Drain	Flash
		✓	1/1 Queen Street	Footscray	Footscray Main Drain	Flash
		✓	2 Queen Street	Footscray	Footscray Main Drain	Flash
	✓	✓	58 Southampton Street	Footscray	Summerhill Road Main Drain	Flash
		✓	23 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	27 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	33 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	35 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
		✓	51 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
		✓	65 Summerhill Road	Footscray	Summerhill Road Main Drain	Flash
		✓	51 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	1/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	2/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	3/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	4/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	5/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	6/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	7/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	8/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	9/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash
	✓	✓	10/55 Swan Street	Footscray	Summerhill Road Main Drain	Flash

Properties at risk from Flooding Over-Floor in Footscray, West Footscray, Seddon and Maidstone						
Residential			Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	5% AEP	1% AEP				
		✓	57 Swan Street	Footscray	Summerhill Road Main Drain	Flash
		✓	58 Swan Street	Footscray	Summerhill Road Main Drain	Flash
		✓	59 Swan Street	Footscray	Summerhill Road Main Drain	Flash
		✓	61 Swan Street	Footscray	Summerhill Road Main Drain	Flash
✓	✓	✓	2 Windsor Street	Footscray	Footscray Main Drain	Flash
		✓	4 Windsor Street	Footscray	Footscray Main Drain	Flash
		✓	6 Windsor Street	Footscray	Footscray Main Drain	Flash
		✓	16 Windsor Street	Footscray	Footscray Main Drain	Flash
	✓	✓	18 Windsor Street	Footscray	Footscray Main Drain	Flash
Totals						
24	47	126				

Table C2.3 – Properties at risk of flooding around Footscray, West Footscray, Seddon & Maidstone in Maribyrnong

Isolation

No major isolation risks exist for areas around Footscray, West Footscray, Seddon, Maidstone & Braybrook during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding.

Essential Infrastructure

- The **Freight Railway Line** at the Hyde Street entrance to Bunbury Street Tunnel, Footscray will likely flood during a 2% AEP (50yr ARI) event

- The **Sunbury, Werribee & Williamstown Metro Railway Lines** as well as V/Line Regional services on the Ararat & Maryborough Lines will likely flood on the City side of Footscray Railway Station either side of the Hopkins Street bridge during a 2% AEP (50yr ARI) event. During an event, see the Public Transport Victoria's Website for details on delays or alterations to services. http://ptv.vic.gov.au/live-travel-updates/. A map of Public Transport routes around Footscray, West Footscray, Seddon, Maidstone & Braybrook is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/4cd3ed8d77/PTVH5381_Maribyrnong_LAM_November2020.pdf

Apart from the roads outlined below, all other essential infrastructure and services areas around Footscray, West Footscray, Maidstone & Braybrook are expected to remain unaffected by flooding during a 1% AEP (100yr ARI) event.

Road Closures

The following roads are subject to closure during flooding around Footscray, West Footscray, Maidstone & Braybrook. Check the VicRoads website for more details: http://alerts.vicroads.vic.gov.au/

Department of Transport (VicRoads) Roads flooded in a 1% AEP (100yr ARI) event
• Buckley Street, Seddon at the Bus Depot
• Geelong Road (City Bound Lane), Footscray near Barkly Street
• Geelong Road, Footscray (Gordon Street Underpass on-road)
• Hampstead Road, Maidstone at Richards Street
• Napier Street, Footscray at the Railway Underpass
• Whitehall Street, Footscray at Youell Street

Table C2.4 – Department of Transport (VicRoads) Possible Road Closures during a flooding event

Maribyrnong City Council Roads flooded in a 1% AEP (100yr ARI) event			
BRAYBROOK	• Everard Street	• Victoria Street	**SEDDON**
• Elizabeth Street	• Leander Street	• Youell Street	• Eastwood Street
• Hampden Street	• McDougall Drive	**MAIDSTONE**	• Lyons Street
• Riley Court	• Newman Drive	• Havelock Street	**WEST FOOTSCRAY**
FOOTSCRAY	• Parker Street	• Holland Court	• Dongola Road
• Beaurepaire Way	• Southampton Street	• Inkerman Street	• Essex Street
• Dudley Street	• Stafford Street	• Keith Street	• Stanhope Street
• Eden Street	• Summerhill Road	• Smith Street	
• Eleanor Street	• Swan Street	• Suffolk Street	

Table C2.5 – Maribyrnong City Council Possible Road Closures during a flooding event

Flood Mitigation

No formal Retarding Basins, Pumping Stations or Levees exist around Footscray, West Footscray, Maidstone & Braybrook.

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located around Footscray, West Footscray, Maidstone, Seddon & Braybrook is contained within the following table.

Sewer Emergency Relief Points

On Drain / Waterway	Bank / Side of Waterway	Operator	Location	Melway Reference
Bosquet Street Main Drain	-	City West Water	Ballarat Road at Irving Court, Maidstone	27 G12
Churchill Avenue Main Drain	-	City West Water	Churchill Avenue at Ashley Street, Maidstone	41 E1
Footscray Main Drain	-	City West Water & Melbourne Water	Hyde Street at Lyons Street, Footscray	42 C6
Graingers Road Main Drain	-	City West Water	Alma Street, West Footscray	41 G3
Local Drainage	-	City West Water	Kinnear Street, Footscray	42 A2
Summerhill Road Main Drain	-	City West Water	Barkly Street at Wolverhampton Street, Footscray	42 A4

Table C2.6 – Sewer Emergency Relief Points around Footscray, Maidstone, Braybrook, Seddon and parts of West Footscray

Flood Impacts and Operational Considerations (Intelligence Cards)

The tables on the following pages provide a breakdown of the possible consequences of flooding around Footscray, West Footscray, Seddon & Maidstone at various rain totals at Footscray. This table is to be used only as a guide as no two floods at a location will have identical impacts and rain is not a reliable measure for corresponding flood impact.

FLOOD INTELLIGENCE CARD – FOOTSCRAY, MAIDSTONE, BRAYBROOK, SEDDON & WEST FOOTSCRAY STORMWATER DRAINAGE (UNGAUGED)

Version 5 – January 2021

Note: flood intelligence records are approximations. This is because no two floods at a location, even if they peak at the same height, will have identical impacts. Flood intelligence cards detail the relationship between flood magnitude and flood consequences. More details about flood intelligence and its use can be found in the Australian Emergency Management Manuals flood series.

This Flood Intelligence Card 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. ***Scan the QR code for the current levels for this gauge.***

CLOSEST RAIN GAUGE:	**Footscray**
LOCATION:	**Footscray Bowling Club, Fern Terrace, Footscray**
RECENT RAINFALL:	**https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/587024**

MELWAY REF:	**2S D4**
GAUGE NUMBER	**587024**
GAUGE TYPE	**Rain**

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	**Annual Exceedance Probability (% AEP)**	**Consequence / Impact**	**Operational Considerations**
11mm in 10 mins; 19mm in 30 mins; 24mm in 1 hour; 29mm in 2 hours; 33mm in 3 hours; or 42mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.	20% AEP (5-year ARI)	**Water Over Road (Over 300mm Depth)** **Churchill Avenue Main Drain** • Hampstead Road, Maidstone at Richards Street **Graingers Road Main Drain** • Newman Drive, Footscray	VICSES will provide warnings via VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by the BoM regarding flood levels and the risk of flash flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form an appropriate response arrangement to suit the level of incident. VICSES to respond on a request-by-request basis. Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements.
16mm in 10 mins; 27mm in 30 mins; 34mm in 1 hour; 42mm in 2 hours;	5% AEP (20-year ARI)	**Properties at Flood Risk (Over-Floor)** **47 Properties in Total** • **Footscray Main Drain** • 43-57 Buckley Street, Footscray • 152-154 Cowper Street, Footscray	VICSES will provide warnings via VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by the BoM regarding flood levels and the risk of flash flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
48mm in 3 hours; or 60mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.		• 120-122 Geelong Road, Footscray • 2 & 18 Windsor Street, Footscray • **Summerhill Road Main Drain** • 49-71 Adelaide Street, Footscray • 337-351 & 345-351 Barkly Street, Footscray • 44 & 46 Dudley Street, Footscray • 15 Eden Street, Footscray • 43 Everard Street, Footscray • 23, 1/35, 2/35, 3/35, 4/35, 5/35, 6/35, 7/35 & 8/35 Latrobe Street, Footscray • 39 & 51 Liverpool Street, Footscray • 58 Southampton Street, Footscray • 27, 33 & 35 Summerhill Road, Footscray • 1/55, 2/55, 3/55, 4/55, 5/55, 6/55, 7/55, 8/55, 9/55 & 10/55 Swan Street, Footscray **Community Infrastructure Flooded** • Victoria University (Nicholson Campus) on Buckley Street, Footscray likely with flooded over-floor to parts of Buildings T (Telford Building) & D (Hoadley Building). The Children's Centre (Child Care Centre) is located in Building D on the Ground Floor **Essential Infrastructure Likely Impacted** • Bus Routes 220 and 409 at the Napier Street Railway Underpass • Bus Routes 215 and 408 on Hampstead Road, Maidstone **Water Over Road (Over 300mm Depth)** **Churchill Avenue Main Drain** • Hampden Street, Braybrook • Holland Court, Maidstone • Hampstead Road, Maidstone at Richards Street • Smith Street, Maidstone **Summerhill Road Main Drain** • Havelock Street, Maidstone • Madden Street, Maidstone • Dongola Road, West Footscray • Summerhill Road, Footscray at Stanlake Street • Eden Street, Footscray • Leander Street, Footscray • Swan Street, Footscray **Footscray Main Drain** • Victoria Street, Footscray at Railway Underpass • Buckley Street, Seddon at the Bus Depot • Napier Street, Footscray at the Railway Underpass • Youell Street, Footscray • Whitehall Street, Footscray at Youell Street	an appropriate response arrangement to suit the level of incident. VICSES to respond on a request-by-request basis. Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		Graingers Road Main Drain • Beaurepaire Way, Footscray • Newman Drive, Footscray	
23mm in 10 mins; 39mm in 30 mins; 49mm in 1 hour; 60mm in 2 hours; 68mm in 3 hours; or 85mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.	1% AEP (100-year ARI)	**Properties at Flood Risk (Over-Floor)** **126 Properties in Total** • **Footscray Main Drain** • 23 Ann Street, Footscray • 40, 43-57 & 44 Buckley Street, Footscray • 148-150 & 152-154 Cowper Street, Footscray • 15 Darling Street, Footscray • 1 & 3 Eastwood Street, Seddon • 120-122 Geelong Road, Footscray • 12, 14, 26, 79-89 & 99 Hyde Street, Seddon • 1/245, 2/245, 3/245, 4/245, 5/245, 6/245, 7/245, 8/245, 9/245, 10/245 & 11/245 Nicholson Street, Seddon • 116 Paisley Street, Footscray • 1/5, 2/5, 3/5, 4/5, 5/5, 6/5, 7/5, 8/5, 9/5, 10/5 & 11/5 Pickett Street, Footscray • 1/1 & 2 Queen Street, Footscray • 2, 4, 6, 16 & 18 Windsor Street, Footscray • **Graingers Road Main Drain** • 579 & 585 Barkly Street, West Footscray • **Summerhill Road Main Drain** • 46, 49-71, 75 & 77 Adelaide Street, Footscray • 3 & 5 Ballarat Road, Maidstone • 337-351, 345-351, 378, 384 & 459 Barkly Street, Footscray • 2-4 & 6 Dongola Road, West Footscray • 31, 33, 36B, 44 & 46 Dudley Street, Footscray • 15 & 16 Eden Street, Footscray • 101, 106 & 112 Eleanor Street, Footscray • 43 Everard Street, Footscray • 252-254 Gordon Street, Footscray • 5, 23, 31, 1/35, 2/35, 3/35, 4/35, 5/35, 6/35, 7/35 & 8/35 Latrobe Street, Footscray • 51A Leander Street, Footscray • 33, 39 & 51 Liverpool Street, Footscray • 58 Southampton Street, Footscray • 23, 27, 33, 35, 51 & 65 Summerhill Road, Footscray • 51, 1/55, 2/55, 3/55, 4/55, 5/55, 6/55, 7/55, 8/55, 9/55, 10/55, 57, 58, 59 & 61 Swan Street, Footscray **Community Infrastructure Flooded** • Victoria University (Nicholson Campus) on Buckley Street, Footscray likely with flooded over-floor to parts of Buildings T (Telford Building) & D (Hoadley Building).	VICSES will provide warnings via VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by the BoM regarding flood levels and the risk of flash flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form an appropriate response arrangement to suit the level of incident. VICSES to respond on a request-by-request basis. Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		The Children's Centre (Child Care Centre) is located in Building D on the Ground Floor **Essential Infrastructure Impacted** • Freight Railway Line at the Hyde Street entrance to Bunbury Street Tunnel, Footscray likely flooded • Sunbury, Werribee & Williamstown Metro Railway Lines as well as V/Line Regional services on the Ararat & Maryborough Lines may be flooded on the City side of Footscray Railway Station either side of the Hopkins Street bridge • Tweedle Child and Family Heath Service at 53 Adelaide Street, Footscray flooded in parts **Essential Infrastructure Likely Impacted** • Bus Routes 220 and 409 at the Napier Street Railway Underpass • Bus Route 472 on Geelong Road (Citybound) near Barkly Street • Bus Routes 215 and 408 on Hampstead Road, Maidstone **Water Over Road (Over 300mm Depth)** **Churchill Avenue Main Drain** • Elizabeth Street, Braybrook • Hampden Street, Braybrook • Riley Court, Braybrook • Holland Court, Maidstone • Keith Street, Maidstone • Hampstead Road, Maidstone at Richards Street • Smith Street, Maidstone **Summerhill Road Main Drain** • Havelock Street, Maidstone • Inkerman Street, Maidstone • Madden Street, Maidstone • Suffolk Street, Maidstone • Dongola Road, West Footscray • Summerhill Road, Footscray at Stanlake Street • Eden Street, Footscray • Dudley Street, Footscray • Stafford Street, Footscray • Leander Street, Footscray • Eleanor Street, Footscray • Everard Street, Footscray • Southampton Street, Footscray • Swan Street, Footscray **Footscray Main Drain** • Geelong Road (City Bound Lane), Footscray near Barkly Street • Victoria Street, Footscray at Railway Underpass	

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		• Buckley Street, Seddon at the Bus Depot • Napier Street, Footscray at the Railway Underpass • Eastwood Street, Seddon • Lyons Street, Seddon • Youell Street, Footscray • Whitehall Street, Footscray at Youell Street • Parker Street, Footscray at Maribyrnong Street **Graingers Road Main Drain** • Essex Street, West Footscray • Stanhope Street, West Footscray • Beaurepaire Way, Footscray • McDougall Drive, Footscray • Newman Drive, Footscray • Geelong Road (Gordon Street Underpass on-road)	

Table C2. 7 – Breakdown of possible consequences at various rainfall intensities around Footscray, West Footscray, Seddon & Maidstone with operational considerations

Appendix C3 – Stony Creek and Yarraville Flood Emergency Plan

Overview of Flooding Consequences

Stony Creek flows from the west in the City of Brimbank, discharging into the Lower Yarra River in Spotswood. The Stony Creek catchment responds to flash flooding because of its relatively small size and high amount of runoff from the stormwater drains feeding the creek in Braybrook, Kingsville, Brooklyn, South Kingsville & Yarraville.

Areas of concern along Stony Creek and its stormwater drain tributaries is the residential area in Yarraville bounded by Francis Street to the north, Stony Creek to the East & West Gate Freeway to the south, with a number of properties at risk of flooding from a 10% AEP event and a localised isolation risk exists if Francis Street is flooded which is possible during a 2% AEP event. Residents on the eastern bank of Stony Creek near Severn Street in Yarraville are also at risk of flooding over floor level from Stony Creek.

This Summary table is generated from Victorian Government data. The State of Victoria does not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for error, loss or damage which may arise from reliance upon it. All persons access this information should make appropriate enquiries to assess the currency of the data.

Summary of Consequences in a 1% AEP (100yr ARI) flood around Tottenham, Kingsville & Yarraville					
Property					
Properties	**65**				
Residential	51				
Commercial	13				
Industrial	0				
Public Land	1				
Rural	0				
Community Infrastructure					
Essential Infrastructure					
Major Roads	2	Francis Street, Yarraville; and Geelong Road in Tottenham and in Kingsville			
Bus Routes	4	411, 412 & 414 along Geelong Road, and 431 along Francis Street			
Sewerage Facilities	1	Emergency Relief Point			
Tourism / Recreation					
Sports Facilities	1	Westgate Golf Course			
Tails & Footbridges	1	Pedestrian Bridge over Stony Creek at Austin Crescent West, Yarraville			
Government Boundaries					
Local Gov't Areas	1	Maribyrnong	CMA	1	Port Phillip & Westernport
Adjacent LGAs	2	Brimbank and Hobsons Bay	CFA District	0	
SES Resp' Boundary	1	Footscray	FRV District	1	Western

Table C3.1 – Consequence Summary of 1% AEP flood around Tottenham, Kingsville & Yarraville

Warnings and Gauges

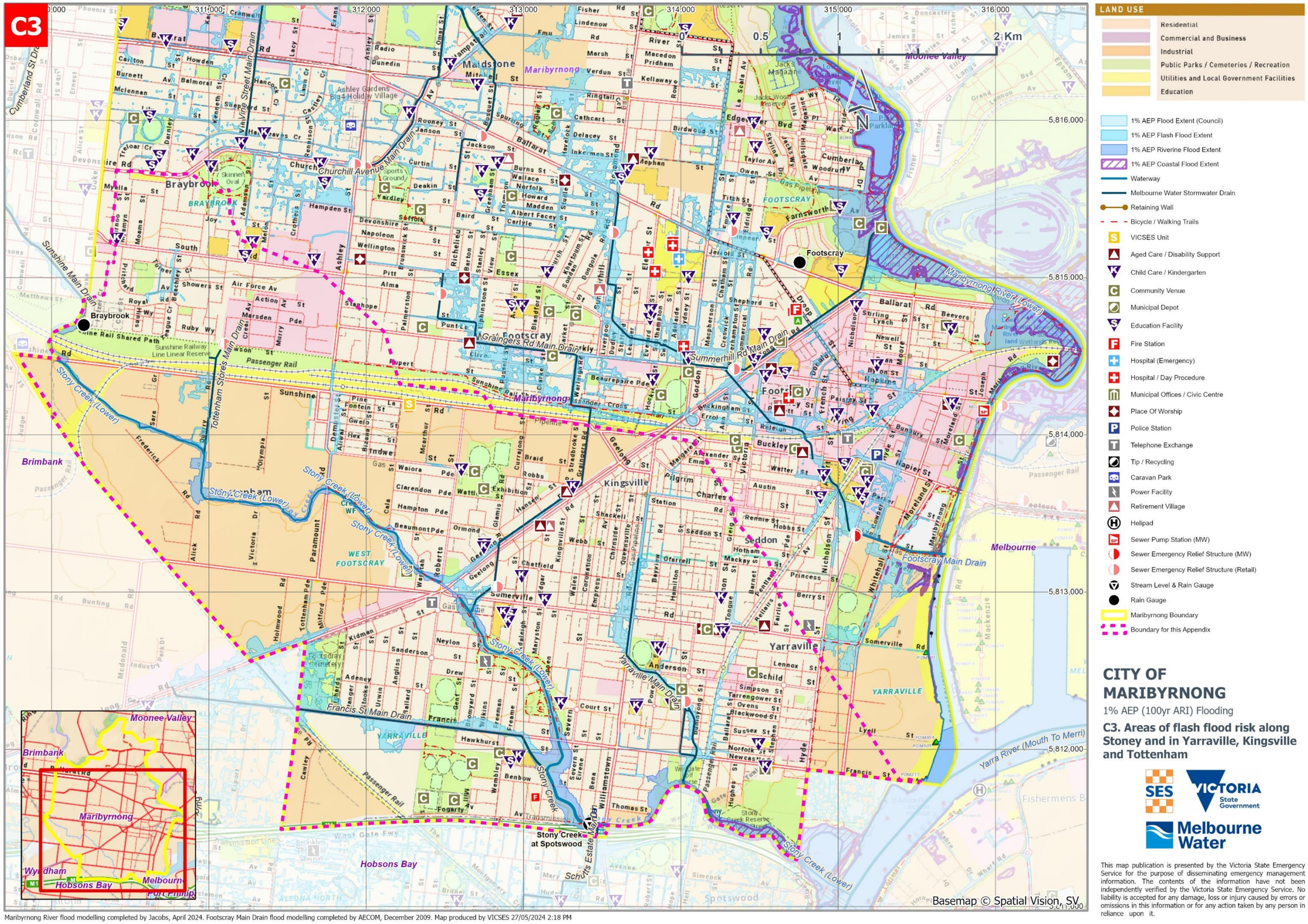
Neither the Bureau of Meteorology nor Melbourne Water currently provides flood forecasts for Stony Creek. All flood response actions must therefore be driven by rainfall and / or river level observations. Telemetered water level / flood gauges are located at Spotswood within the Stony Creek catchment.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Braybrook	230808	Bicycle Trail, 200m south of Duke Street, Braybrook adjacent to Stony Creek		✓	41 A3
Stony Creek at Spotswood	230112A	South side of the creek, west of Williamstown Road bridge	✓	✓	41 J11
Sunshine North	587004			✓	26 E7

Table C3.2 – Gauges within the Stony Creek catchment

These Gauges may provide some warning of expected flooding. See the Melbourne Water website for more information on these gauges: http://www.melbournewater.com.au/waterdata/rainfallandriverleveldata/Pages/Rainfall-and-river-level-new.aspx. The Bureau of Meteorology's website also links a number of these gauges at: http://www.bom.gov.au/cgi-bin/wrap_fwo.pl?IDV60201.html. It is advised that residents monitor the Bureau of Meteorology's website http://www.bom.gov.au/vic/warnings/index.shtml?ref=hdr and the VicEmergency website https:/emergency.vic.gov.au/ for any thunderstorm, flood or severe weather warnings present for their area.

Area Map of Flood Risk within the Stony Creek catchment in Maribyrnong



Maribyrnong River flood modelling completed by Jacobs, April 2024. Footscray Main Drain flood modelling completed by AECOM, December 2009. Map produced by VICSES 27/05/2024 2:18 PM

LAND USE

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

- 1% AEP Flood Extent (Council)
- 1% AEP Flash Flood Extent
- 1% AEP Riverine Flood Extent
- 1% AEP Coastal Flood Extent
- Waterway
- Melbourne Water Stormwater Drain
- Retaining Wall
- Bicycle / Walking Trails
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Municipal Depot
- Education Facility
- Fire Station
- Hospital (Emergency)
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Place Of Worship
- Police Station
- Telephone Exchange
- Tip / Recycling
- Caravan Park
- Power Facility
- Retirement Village
- Helipad
- Sewer Pump Station (MW)
- Sewer Emergency Relief Structure (MW)
- Sewer Emergency Relief Structure (Retail)
- Stream Level & Rain Gauge
- Rain Gauge
- Maribyrnong Boundary
- Boundary for this Appendix

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

C3. Areas of flash flood risk along Stoney and in Yarraville, Kingsville and Tottenham

SES VICTORIA State Government

Melbourne Water

Figure C4 – Areas of flood risk along Stony Creek and the Yarraville Main Drain in the City of Maribyrnong and area covered by this Appendix

Properties at Flood Risk

Properties listed in the table below are at risk from flooding over-floor within the Stony Creek catchment in Maribyrnong. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Stony Creek (Melbourne Water and Water Technology, May 2013) flood mapping and risk assessment program.

This Property Flood Risk Table 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.

Properties at risk from Flooding Over-Floor within the Stony Creek Catchment

Residential	Commercial	Industrial	Rural	Public Use

Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
20% AEP	5% AEP	1% AEP				
		✓	31 Benbow Street	Yarraville	Stony Creek	Flash
		✓	33 Benbow Street	Yarraville	Stony Creek	Flash
		✓	35 Benbow Street	Yarraville	Stony Creek	Flash
		✓	38 Benbow Street	Yarraville	Stony Creek	Flash
		✓	40 Benbow Street	Yarraville	Stony Creek	Flash
		✓	106 Blackwood Street	Yarraville	Yarraville Main Drain	Flash
		✓	35 Bromyard Street	Yarraville	Francis St Main Drain	Flash
		✓	10 Cecil Street	Yarraville	Yarraville Main Drain	Flash
	✓	✓	50 Fehon Street	Yarraville	Yarraville Main Drain	Flash
		✓	52 Fehon Street	Yarraville	Yarraville Main Drain	Flash
		✓	125 Francis Street	Yarraville	Yarraville Main Drain	Flash
		✓	243 Francis Street	Yarraville	Stony Creek	Flash
		✓	1/248 Francis Street	Yarraville	Stony Creek	Flash
		✓	295 Francis Street	Yarraville	Francis St Main Drain	Flash
		✓	297 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	1/306-308 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	2/306 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	3/306 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	4/306 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	312 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	322E Francis Street	Yarraville	Francis St Main Drain	Flash
		✓	371-383 Francis Street	Yarraville	Francis St Main Drain	Flash
	✓	✓	512-520 Geelong Road	Tottenham	Francis St Main Drain	Flash
	✓	✓	552 Geelong Road	Brooklyn	Francis St Main Drain	Flash
		✓	558 Geelong Road	Brooklyn	Francis St Main Drain	Flash
		✓	562 Geelong Road	Brooklyn	Francis St Main Drain	Flash
		✓	1-3 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	2 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	4 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	5 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	7 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	19 Hawkhurst Street	Yarraville	Stony Creek	Flash

Properties at risk from Flooding Over-Floor within the Stony Creek Catchment						
Residential			Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event			Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
20% AEP	5% AEP	1% AEP				
		✓	26 Hawkhurst Street	Yarraville	Stony Creek	Flash
		✓	7 Loch Street	Yarraville	Yarraville Main Drain	Flash
		✓	19 Loch Street	Yarraville	Yarraville Main Drain	Flash
✓	✓	✓	45 Powell Street	Yarraville	Yarraville Main Drain	Flash
		✓	47 Powell Street	Yarraville	Yarraville Main Drain	Flash
	✓	✓	12 Quarry Road	Tottenham	Tottenham Stores Main Drain	Flash
		✓	173 Queensville Street	Kingsville	Yarraville Main Drain	Flash
		✓	116 Severn Street	Yarraville	Stony Creek	Flash
		✓	118 Severn Street	Yarraville	Stony Creek	Flash
		✓	120 Severn Street	Yarraville	Stony Creek	Flash
		✓	122 Severn Street	Yarraville	Stony Creek	Flash
		✓	124 Severn Street	Yarraville	Stony Creek	Flash
		✓	126 Severn Street	Yarraville	Stony Creek	Flash
		✓	128 Severn Street	Yarraville	Stony Creek	Flash
		✓	130 Severn Street	Yarraville	Stony Creek	Flash
		✓	147A Severn Street	Yarraville	Stony Creek	Flash
		✓	147 Severn Street	Yarraville	Stony Creek	Flash
		✓	149 Somerville Road	Yarraville	Yarraville Main Drain	Flash
		✓	168-170 Somerville Road	Kingsville	Yarraville Main Drain	Flash
		✓	173 Somerville Road	Yarraville	Yarraville Main Drain	Flash
		✓	174A Somerville Road	Kingsville	Yarraville Main Drain	Flash
	✓	✓	176 Somerville Road	Kingsville	Yarraville Main Drain	Flash
		✓	2 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	4 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	5 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	6 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	7 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	1/9-11 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	6/9-11 St Leonards Avenue	Yarraville	Stony Creek	Flash
		✓	7 The Boulevard	Yarraville	Stony Creek	Flash
		✓	2 Wembley Avenue	Yarraville	Francis St Main Drain	Flash
		✓	142 Williamstown Road	Kingsville	Yarraville Main Drain	Flash
		✓	154 Williamstown Road	Kingsville	Yarraville Main Drain	Flash
Totals						
1	12	65				

Table C3.3 – Properties at risk of flooding along the Stony Creek catchment in the City of Maribyrnong

Isolation

No major isolation risks exist for areas along Stony Creek and the Yarraville Main Drain in Braybrook, Tottenham, Kingsville & Yarraville during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding including the area south of Francis Street and west of Stony

Creek in Yarraville when Francis Street, Hawkhurst Street and Benbow Street are flooded. A pedestrian bridge across the West Gate Freeway is expected to remain accessible.

Essential Infrastructure

During an event, see the Public Transport Victoria's Website for details on delays or alterations to services. http://ptv.vic.gov.au/live-travel-updates/. A map of Public Transport routes within the Stony Creek Catchment in Maribyrnong is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/4cd3ed8d77/PTVH5381_Maribyrnong_LAM_November2020.pdf

Apart from the roads outlined below, all other essential infrastructure and services areas along Stony Creek and the Yarraville Main Drain in Braybrook, Tottenham, Kingsville & Yarraville are expected to remain unaffected by flooding during a 1% AEP (100yr ARI) event.

Road Closures

The following roads are subject to closure during flooding along Stony Creek and the Yarraville Main Drain in Braybrook, Tottenham, Kingsville & Yarraville. Check the VicRoads website for more details: alerts.vicroads.vic.gov.au

Department of Transport (VicRoads) Roads flooded in a 1% AEP (100yr ARI) event
• Francis Street, Yarraville at Buninyong Street and the Railway Underpass
• Francis Street, Yarraville between Cemetery Road and Williamstown Road
• Geelong Road (City-bound Lanes), Tottenham at Cemetery Road
• Geelong Road (Geelong-bound Lanes), Kingsville at Somerville Road

Table C3.4 – Department of Transport (VicRoads) Possible Road Closures during a flooding event

Maribyrnong City Council (Minor) Roads flooded in a 1% AEP (100yr ARI) event	
WEST FOOTSCRAY	• Hawkhurst Street
• Waratah Street	• Jewell Street
YARRAVILLE	• Severn Street
• Benbow Street	• St Leonards Avenue
• Fryans Street	• The Boulevard

Table C3.5 – Maribyrnong City Council Possible Road Closures during a flooding event

Flood Mitigation

No formal Retarding Basins, Pumping Stations or Levees exist along Stony Creek and the Yarraville Main Drain in Braybrook, Tottenham, Kingsville & Yarraville.

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located within the Stony Creek catchment in Maribyrnong is contained within the following table.

Sewer Emergency Relief Points

There is a Sewer Emergency Relief Point within the Stony Creek catchment in Maribyrnong that will likely affect floodwater conditions should they be activated. Contact the Infrastructure Operator EMLO/Duty Officer for information on any recent or planned releases at a Sewer Emergency Relief Point as part of a Dynamic Risk Assessment (DRA) if work is to be conducted at or downstream of the outlet.

On Drain / Waterway	Bank / Side of Waterway	Operator	Location	Melway Reference
Tottenham Stores Main Drain	-	City West Water	Bicycle Trail south of Ruby Way, Braybrook	41 C3

Table C3.6 – Sewer Emergency Relief Points in the Stony Creek Catchment in the City of Maribyrnong

Command, Control and Coordination

VICSES will assume overall control of the response to flood incidents. Control and coordination of a flood incident shall be carried out at the lowest effective level and in accordance with the State Emergency Response Plan (EMMV Part 3). During significant events, VICSES will conduct incident management using multi-agency resources.

Flood Impacts and Required Actions (Intelligence Cards)

The tables on the following pages provide a breakdown of the possible consequences of flooding along Stony Creek and its stormwater tributaries at various gauge heights or rain totals within Maribyrnong. These tables are to be used only as a guide as no two floods at a location will have identical impacts.

Intelligence Cards have been included for the following locations:

- Stony Creek at Spotswood
- Stony Creek Stormwater Tributaries

FLOOD INTELLIGENCE CARD – SPOTSWOOD GAUGE, STONY CREEK

Version 5– January 2021

Note: flood intelligence records are approximations. This is because no two floods at a location, even if they peak at the same height, will have identical impacts. Flood intelligence cards detail the relationship between flood magnitude and flood consequences. More details about flood intelligence and its use can be found in the Australian Emergency Management Manuals flood series.

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LOCATION	**South side of the creek, west of Williamstown Road bridge**
CURRENT LEVEL:	**https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/230112A**
STREAM:	**Stony Creek**
GAUGE NUMBER:	**230112A**
GAUGE ZERO:	**0.82m AHD**
GAUGE TYPE	**Stream Level & Rain**

MELWAY REFERENCE:	**41 J11**
MINOR:	**Not Established**
MODERATE:	**Not Established**
MAJOR	**Not Established**
LEVEE HEIGHT:	**N/A**
HIGHEST RECORDED FLOOD:	**2.50m (22nd March 2001)**

Creek Height	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
2.90m	20% AEP (5yr ARI) Flood Level	• Nil Expected	
3.10m	10% AEP (10yr ARI) Flood Level	• Nil Expected	
4.14m	5% AEP (20yr ARI) Flood Level	**Water Over Road (Over 300mm Depth)** • The Boulevard, Yarraville	
4.40m	2% AEP (50yr ARI) Flood Level	**Community Infrastructure Flooded** • Pedestrian Bridge over Stony Creek at Austin Crescent West, Yarraville likely flooded • Westgate Golf Course on Creek Street, Spotswood flooded in parts on the north bank of Stony Creek **Water Over Road (Over 300mm Depth)** • Waratah Street, West Footscray • Hawkhurst Street, Yarraville • St Leonards Avenue, Yarraville • Benbow Street, Yarraville • The Boulevard, Yarraville • Francis Street, Yarraville at the Railway underpass	VICSES will provide warnings using VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form an appropriate response arrangement to suit the level of incident VICSES to respond on a request-by-request basis. Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements
4.62m	1% AEP (100yr ARI) Flood Level	**Properties at Flood Risk (Over-Floor)** **32 Properties in Total**	

Creek Height	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		• 31, 33, 35, 38 & 40 Benbow Street, Yarraville • 243 & 1/248 Francis Street, Yarraville • 1-3, 2, 4, 5, 7, 19 & 26 Hawkhurst Street, Yarraville • 116, 118, 120, 122, 124, 126, 128, 130, 147A & 147 Severn Street, Yarraville • 2, 4, 5, 6, 7, 1/9-11 & 6/9-11 St Leonards Avenue, Yarraville • 7 The Boulevard, Yarraville **Community Infrastructure Flooded** • Pedestrian Bridge over Stony Creek at Austin Crescent West, Yarraville likely flooded • Westgate Golf Course on Creek Street, Spotswood flooded in parts on the north bank of Stony Creek **Water Over Road (Over 300mm Depth)** • Waratah Street, West Footscray • Geelong Road (Geelong-bound Lanes), Kingsville at Somerville Road • Jewell Street, Yarraville • Francis Street, Yarraville between Severn Street and Jewell Street • Hawkhurst Street, Yarraville • St Leonards Avenue, Yarraville • Benbow Street, Yarraville • Severn Street, Yarraville south of Francis Street • The Boulevard, Yarraville • Fryans Street, Yarraville • Francis Street, Yarraville at Buninyong Street	

Table C3.7 – Breakdown of likely consequences at various Spotswood gauge level heights along Stony Creek with operational considerations

FLOOD INTELLIGENCE CARD – STONY CREEK STORMWATER TRIBUTARIES (UNGAUGED)

Version 5– January 2021

Note: flood intelligence records are approximations. This is because no two floods at a location, even if they peak at the same height, will have identical impacts. Flood intelligence cards detail the relationship between flood magnitude and flood consequences. More details about flood intelligence and its use can be found in the Australian Emergency Management Manuals flood series.

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CLOSEST RAIN GAUGE:	**Sunshine North**
LOCATION:	**City West Water Office on St Albans Road, Sunshine North**
RECENT RAINFALL:	**https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/587004**

MELWAY REF:	**26 E7**
GAUGE NUMBER:	**587004**
GAUGE TYPE:	**Rain**

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	**Annual Exceedance Probability (% AEP)**	**Consequence / Impact**	**Operational Considerations**
11mm in 10 mins; 19mm in 30 mins; 24mm in 1 hour; 29mm in 2 hours; 33mm in 3 hours; or 42mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.	20% AEP (5-year ARI)	**Properties at Flood Risk (Over-Floor)** **1 Properties in Total** **Yarraville Main Drain** • 45 Powell Street, Yarraville **Water Over Road (Over 300mm Depth)** **Yarraville Main Drain** • Francis Street, Yarraville at the Railway Underpass	VICSES will provide warnings using VicEmergency to Maribyrnong Council and appropriate agencies as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES RDO, in conjunction with the Regional Agency Commander, will maintain operational awareness and form an appropriate response arrangement to suit the level of incident VICSES to respond on a request-by-request basis. Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements
16mm in 10 mins; 27mm in 30 mins; 34mm in 1 hour; 42mm in 2 hours; 48mm in 3 hours; or 60mm in 6 hours	5% AEP (20-year ARI)	**Properties at Flood Risk (Over-Floor)** **12 Properties in Total** • **Francis St Main Drain** • 1/306-308, 2/306, 3/306, 4/306, 312 & 322E Francis Street, Yarraville • 512-520 & 552 Geelong Road, Tottenham • **Tottenham Stores Main Drain**	

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.		• 12 Quarry Road, Tottenham • **Yarraville Main Drain** • 50 Fehon Street, Yarraville • 45 Powell Street, Yarraville • 176 Somerville Road, Yarraville **Water Over Road (Over 300mm Depth)** **Francis Street Main Drain** • Geelong Road (City Bound Lanes), Tottenham at Cemetery Road **Yarraville Main Drain** • Francis Street, Yarraville at the Railway Underpass	
23mm in 10 mins; 39mm in 30 mins; 49mm in 1 hour; 60mm in 2 hours; 68mm in 3 hours; or 85mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungagged nature of the catchment. This should be used as a guide only.	1% AEP (100-year ARI)	**Properties at Flood Risk (Over-Floor)** **33 Properties in Total** • **Francis St Main Drain** • 35 Bromyard Street, Yarraville • 295, 297, 1/306-308, 2/306, 3/306, 4/306, 312, 322E & 371-383 Francis Street, Yarraville • 512-520, 552, 558 & 562 Geelong Road, Tottenham • 2 Wembley Avenue, Yarraville • **Tottenham Stores Main Drain** • 12 Quarry Road, Tottenham • **Yarraville Main Drain** • 106 Blackwood Street, Yarraville • 10 Cecil Street, Yarraville • 50 & 52 Fehon Street, Yarraville • 125 Francis Street, Yarraville • 7 & 19 Loch Street, Yarraville • 45 & 47 Powell Street, Yarraville • 173 Queensville Street, Kingsville • 149, 168-170, 173, 174A & 176 Somerville Road, Yarraville • 142 & 154 Williamstown Road, Kingsville **Essential Infrastructure Likely Impacted** • Bus Route 431 along Francis Street, Yarraville • Bus Routes 411, 412 and 414 along Geelong Road (City Bound) **Water Over Road (Over 300mm Depth)** **Francis Street Main Drain** • Geelong Road (City Bound Lanes), Tottenham at Cemetery Road • Francis Street, Yarraville between Cemetery Road and Williamstown Road • Hawkhurst Street, Yarraville **Yarraville Main Drain**	

Design Rainfall Depths (mm) – *Indication of Possible Flooding*	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		• Francis Street, Yarraville at Buninyong Street and the Railway Underpass	

Table C3.8 – Breakdown of possible consequences at various rainfall intensities around Yarraville, Kingsville & Tottenham with operational considerations

Appendix D – Flood Evacuation Arrangements

Phase 1 - Decision to Evacuate

The Incident Controller may make the decision to evacuate an at-risk community under the following circumstances:

- Properties are likely to become inundated;
- Properties are likely to become isolated and occupants are not suitable for isolated conditions;
- Public health is at threat as a consequence of flooding and evacuation is considered the most effective risk treatment. This is the role of the Health Commander of the incident to assess and manage. Refer to the State Health Emergency Response Plan (SHERP) for details);
- Essential services have been damaged and are not available to a community and evacuation is considered the most effective risk treatment.

The following should be considered when planning for evacuation:

- Anticipated flood consequences and their timing and reliability of predictions.
- Size and location of the community to be evacuated.
- Likely duration of evacuation.
- Forecast weather.
- Flood Models.
- Predicted timing of flood consequences.
- Time required to conduct the evacuation.
- Time available to conduct the evacuation.
- Evacuation priorities and evacuation planning arrangements.
- Access and egress routes available and their potential flood liability.
- Current and likely future status of essential infrastructure.
- Resources required to conduct the evacuation.
- Resources available to conduct the evacuation.
- Shelter including Emergency Relief Centres, Assembly Areas etc.
- Vulnerable people and facilities.
- Transportation.
- Registration.
- People of CALD background and transient populations.
- Safety of emergency service personnel.
- Different stages of an evacuation process.

The decision to evacuate is to be made by the IC in consultation with the MEMO, MERC, MRM, DHHS, Health Commander and other key agencies and expert advice (CMA's and Flood Intelligence specialists).

Triggers for evacuation, ie. Specific flood heights are predicted or are likely to occur will be considered when planning evacuation

Refer to Maribyrnong CEOC SOP for information regarding Council operational activities during flood events over 1.7m (minor flood level).

Phase 2 – Warning

Warnings may include a warning to prepare to evacuate and a warning to evacuate immediately. Once the decision to evacuate has been made, the at-risk community will be warned to evacuate. Evacuation warnings can be disseminated via methods listed in Part 3 of this plan.

Evacuation warning messages will be developed and issued by VICSES in consultation with the MEMO, MERC, MRM, DHHS and other key agencies and expert advice (Melbourne Water and Flood Intelligence specialists).

Phase 3 – Withdrawal

VicPol is the responsible agency for evacuation. In accordance with the JSOP, The VicPol Evacuation Manager will consult with the IC and IEMT on the most appropriate relief options. When preparing the schedule 2 Evacuation Recommendation as per the JSOP, it is important to ensure that the recommended routes and specified relief centres are accessible to the relevant community. This is to ensure a community does not receive advice about a relief centre that may not be accessible to them due to road closures and flooding.

VICSES, CFA, AV and Local Government will provide resources where available to support VicPol/DTP-VicRoads with route control and may assist VicPol in arranging evacuation transportation.

VicPol will control security of evacuated areas.

Evacuees will be encouraged to move using their own transport where possible. Transport for those without vehicles or other means will be arranged

Vulnerable persons register and people with special needs

The Department of Families Fairness and Housing (DFFH) is responsible for the Vulnerable Persons Register (VPR). It operates across Victoria and provides 24x7 access to data by authorised emergency management agencies. The system can be accessed via most web enabled devices and includes locality aware functions for mobile devices.

DFFH has developed VPRs to store local information about consenting, identified vulnerable people[11], which will be directly entered by funded agencies and locally overseen by municipal

[11] Informed consent will be required before identified vulnerable people can be registered in a VPR. In keeping with the definition of a vulnerable person and the additional considerations the VPR should only list a small number of people, as per Diagram 1.

councils[12]. The VPRs are cloud-based and directly accessible to authorised representatives from Victoria Police (without having to contact the council or funded agency) to aid emergency planning and response, including potential evacuation.

The information in the VPR can be filtered, mapped, and where necessary exported to reports for authorised purposes, according to the role and access rights of each organisation.

Additionally, special needs groups will be/are identified in Council's 'residents at risk' register. This can be done through community network organisations.

Phase 4 – Shelter

Relief Centres and/or assembly areas which cater for people's basic needs for floods may be established to meet the immediate needs of people affected by flooding.

VicPol in consultation with VICSES will liaise with Local Government and DFFH (where regional coordination is required) via the relevant control centre to plan for the opening and operation of relief centres. This can best be achieved though the Emergency Management Team (EMT)

Phase 5 – Return

Return will be consistent with the Strategic Plan for the Return of Community

The IC in consultation with VicPol will determine when it is safe for evacuees to return to their properties and will arrange for the notification of the community.

VicPol will manage the return of evacuated people with the assistance of other agencies as required.

Considerations for deciding whether to return include:

- Current flood situation.
- Status of flood mitigation systems.
- Size and location of the community.
- Access and egress routes available and their status.
- Resources required to coordinate the return.
- Special needs groups.
- Forecast weather.
- Transportation particularly for people without access to transport.

More information about the identification and screening process for VPRs is available in Protocol 1: Emergency planning and screening.

12 64 councils covered by the Vulnerable People in Emergencies Policy, November 2012.

Appendix E – Flood Warning Systems

Storm and Flood Warning

Flood and storm warning products and Flood Class Levels can be found on the BoM and VicEmergency websites. Storm and flood warning products include Severe Thunderstorm Warnings, Severe Weather Warnings, Flood Watches and Flood Warnings. See next page for an example of a BoM Flood Warning on the VicEmergency page.

VICSES uses VicEmergency EMCOP Public Publishing and Emergency Alert Telephone warnings to distribute riverine and flash flood (and other hazards) warnings in Victoria.

The EMCOP platform enables simultaneous publishing to the VicEmergency app, website, hotline (1800 226 226) and Emergency Broadcasters. Communities can also access this information through EMV and VICSES social media channels (VicEmergency, Victoria State Emergency Service on Facebook and VICSES News on X and so forth) and emergency broadcasters, such as Sky News TV, ABC Local ABC radio and various other local emergency broadcaster radio stations (current list available via the EMV website).

VICSES Regional staff (typically the RDO) or ICCs where established lead the issuing of warnings for riverine flood events when pre-determined triggers are met (issuing of a BOM Flood Watch or Warning), and share locally relevant and tailored information via VicEmergency (all hazards platform hosted by EMV) and standard VICSES communication channels (VICSES social media, traditional media, web and face to face). These activities are coordinated by the VICSES RDO and approved by the VICSES RAC, or the PIO and IC respectively (when an ICC is active).

If verified reports are received of flash flooding posing, or resulting in, a significant threat to life or property, VICSES Regions (or ICCs) will issue a flash flood warning product via EM-COP.

VICSES at the state tier (or SCC Public Information Section) issue all severe weather and thunderstorm warnings as these are rarely confined to a single region or area and also play an important role in sharing riverine and flash flood information via state-based standard communication channels.

During some emergencies, VICSES may alert communities by sounding a local siren (where this exists) or via media broadcasters by the use of SEWS, or by using the Emergency Alert (EA) platform to send an SMS to mobile phones or a voice message to landlines. EMCOP Public Publishing Business Rules for Riverine Flood, Flash Flood and Severe Weather / Thunderstorm are available in the Public Information tab of the IMT Toolbox, providing further guidance on specific triggers, roles and responsibilities. VICSES SOP057 and JSOP 04.01 provide further guidance.

4.4 VICSES Flood Warning Products

VICSES distributes flood emergency information to the media through “Flood Watches and Warnings”. Flood watches and warnings provide BoM flood warning information combined with other relevant sources of intelligence to provide communities information regarding possible flood consequences and safety advice, that is not contained in BoM flood warning products.

The relevant VICSES RDO, in conjunction with the RAC, or the established ICC will normally be responsible for drafting, authorising and issuing flood warnings, using the EMCOP to publish these to the VicEmergency channels.

Flood watch and warning products should refer to the warning title within the Bulletin header, for example Flood Bulletin for Major Flood Warning on Yarra River.

VICSES Flood Warnings should follow the following structure by describing:

- Critical details: including what the current and predicted flood situation is
- Action Statement: An action statement that is consistent with the Australian Warnings System (AWS) https://www.australianwarningsystem.com.au/
- What you should do: what the community should do in response to flood warnings
- Potential Impacts: what flood consequences are or the likely flood consequences

More Information: including where the community should go to seek further information and who the community should call if they require emergency assistance.

It is important that the description of the predicted flood situation is consistent with and reflects the relevant BoM Flood Warning and is tailored and made relevant to at risk communities using a range of intelligence sources.

In areas covered by a Total Flood Warning System (TFWS) VICSES Flood Watches should be issued for a whole river catchment. Additionally, VICSES flood Warnings should be issued at the pre-determined sub-catchment level focused on specific gauge reference areas. These are the area in which flood consequences specifically relate to the relevant flood gauge.

There may also be a need to issues warnings for areas not covered by the TFWS using available intelligence. The issue of these warnings is guided by the likely or observed impacts of the floodwater with guidance provided in the VICSES Riverine Flood Business Rules.

VICSES Flood Warnings should be prepared and issued after receipt of each Flood Watch and Flood Warning from the BoM, or after Severe Weather or Thunderstorm Warnings indicating potential for severe flash flooding.

To ensure VICSES flood warnings are released in a timely manner much of the relevant information is built into warnings templates in EMCOP, including a range of pre-development statements that can be ‘dragged and dropped’ into messages as relevant.

Local Flood Warning System Arrangements

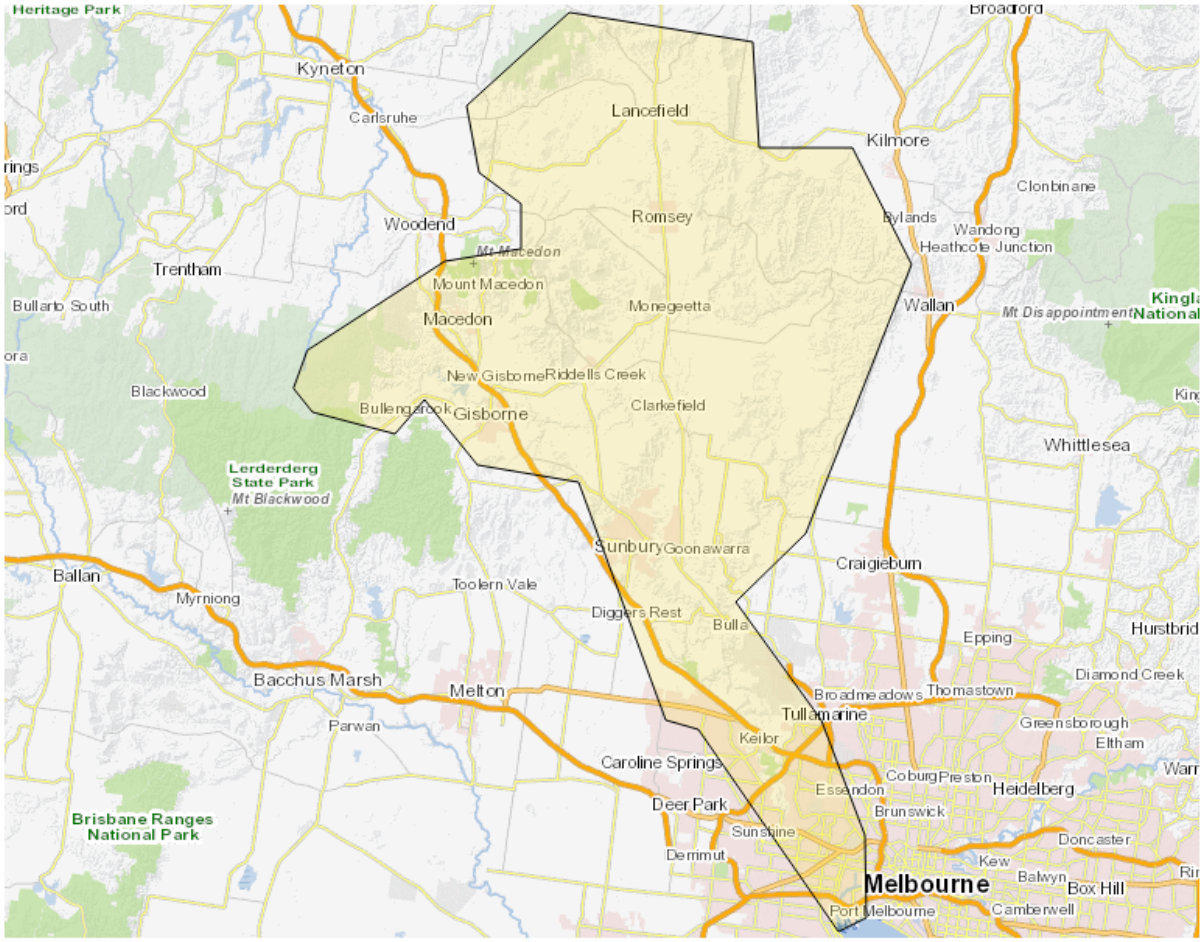
No formal local arrangements in place.

BOM Flood Warning Example

ADVICE - FLOOD

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

Map



Message

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

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

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

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

Stay informed - monitor your local conditions and remain alert.

What you should do:

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

Impacts in your area:

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

This message was issued by State Emergency Service.

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

Flood information:

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

Appendix F – Maps and Schematics

Overview

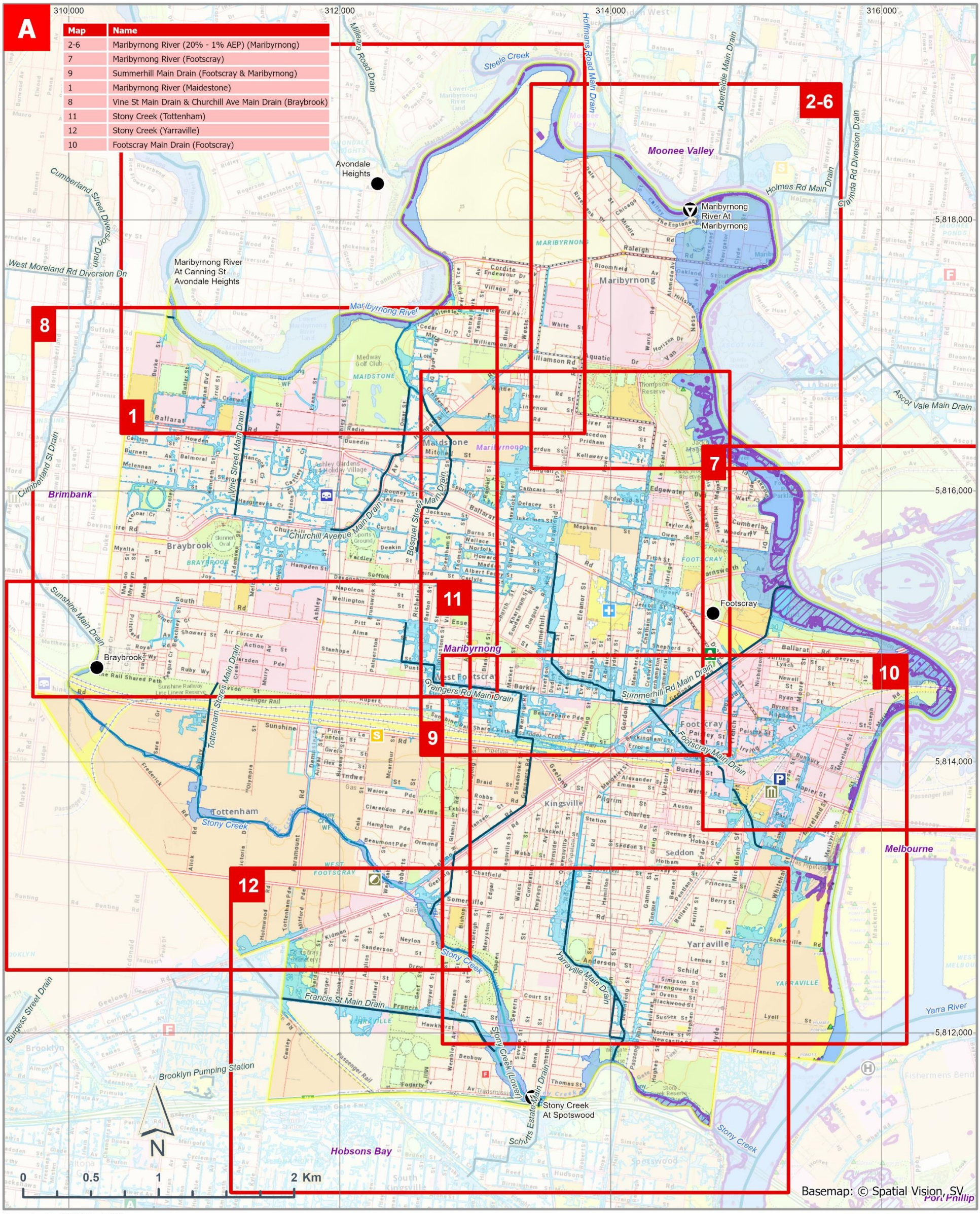
Maps considered useful to flood response are included in this Appendix. They include:

- A map outlining a series of flooding hot spot maps within the City of Maribyrnong.
- A map showing the Municipal boundary together with the open waterways and underground stormwater drainage pipe network within the City of Maribyrnong and the 1% AEP (100-year ARI) flood extents (sourced from Melbourne Water GIS).
- A set of 12 maps showing flooding hot spots within the City of Maribyrnong together with the 1% AEP (100-year ARI) flood extents (sourced from the Melbourne Water GIS).
- Schematics detailing the drainage catchments relevant for this municipality.
    - Each Schematic outlines the drainage system comprising of rivers, creeks or storm-water drains contained within one of the major catchments in the Port Phillip & Westernport Region.
    - Within each Schematic, there are details useful to flood response such as those relating to gauges, towns, rivers, creeks, drains and reservoirs. Historical facts and figures may also be shown.
    - The schematics also detail the response boundaries for SES Units and local government, and provide a reference link to the corresponding Municipal Flood Emergency Plan.
    - Details within these Catchment Schematics reflect those contained within either other sections of this Municipal Flood Emergency Plan or refer to other Municipal Flood Emergency Plans. These details have been filtered to contain only key facts. For more information on a gauge, drainage system or town consult the corresponding Flood Emergency Plan

Note that:

- The mapping/data provided in this Appendix has been developed from Melbourne Water and other sources and taken from historical records and flood modelling. It may not include more recent data or local anecdotal information. It is planned that the mapping/data be updated as further studies or modelling is completed and other Information obtained.
- Maps showing the Special Building Overlay and Land Subject to Inundation Overlay are included in the Maribyrnong Planning Scheme can be used as a guide to areas that may flood during an event. The maps can be found in hard copy form at the Council's main office or online at the Department of Environment, Land, Water & Planning (DELWP) website https://mapshare.vic.gov.au/vicplan/.
- Maps showing floodways are shown at DEECA's mapshare website: https://mapshare.vic.gov.au/mapsharevic/
- Not all waterways or drains are included in the schematics, only those that are likely to contribute to flooding further on along the drainage system. Note also the flow direction; the schematics either flow from the top of the page to the bottom, or vice versa.

City of Maribyrnong Municipal Maps (sourced Melbourne Water GIS)



B

Flood Study Details

Bosquet St main Drain (Footscray Main Drain, AECOM, December 2009)
Churchill Ave Main Drain (Footscray Main Drain, AECOM, December 2009)
Footscray Main Drain (Footscray Main Drain, AECOM, December 2009)
Francis St Main Drain (Water Technology, May 2013)
Grainers Rd Main Drain (Water Technology, May 2013)
Maribyrnong River (Lower) (Jacobs, April 2024)
Stony Creek (Lower) (Water Technology, May 2013)
Summerhill Rd Main Drain (Footscray Main Drain, AECOM, December 2009)
Vine St Main Drain (Footscray Main Drain, AECOM, December 2009)
Yarraville Main Drain (Water Technology, May 2013)

310,000 312,000 314,000 316,000
5,818,000 5,816,000 5,814,000 5,812,000

Steele Creek
Milleara Road Drain
Hoffmans Road Main Drain
Aberfeldie Main Drain
Moonee Valley
Holmes Rd Main Drain
Clarinda Rd Diversion Drain
Maribyrnong River At Maribyrnong
Avondale Heights
Cumberland Street Diversion Drain
West Moreland Rd Diversion Dn
Maribyrnong River At Canning St Avondale Heights
Maribyrnong River
Ascot Vale Main Drain
Cumberland St Drain
Brimbank
Vine Street Main Drain
Churchill Avenue Main Drain
Bosquet Street Main Drain
Sunshine Main Drain
Braybrook
Tottenham Stores Main Drain
Graingers Rd Main Drain
Summerhill Rd Main Drain
Footscray
Footscray Main Drain
Tottenham
Stony Creek
Melbourne
Kingsville
Yarraville
Yarraville Main Drain
Francis St Main Drain
Stony Creek (Lower)
Burgess Street Drain
Brooklyn Pumping Station
Stony Creek At Spotswood
Schutts Estate Main Drain
Yarra River
Hobsons Bay
Basemap: © Spatial Vision, SV

0 0.5 1 2 Km

Map produced by VICSES March 2024.

Waterbody
1% AEP Riverine Flood Extent
1% AEP Flash Flood Extent
1% AEP Coastal Flood Extent
Waterway
Melbourne Water Stormwater Drain
Retaining Wall

VICSES Unit
Ambulance Station
Municipal Depot
Fire Station
Hospital (Emergency)
Municipal Offices / Civic Centre
Police Station

Caravan Park
Stream Level & Rain Gauge
Rain Gauge
Helipad
Maribyrnong Boundary

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

CITY OF MARIBYRNONG

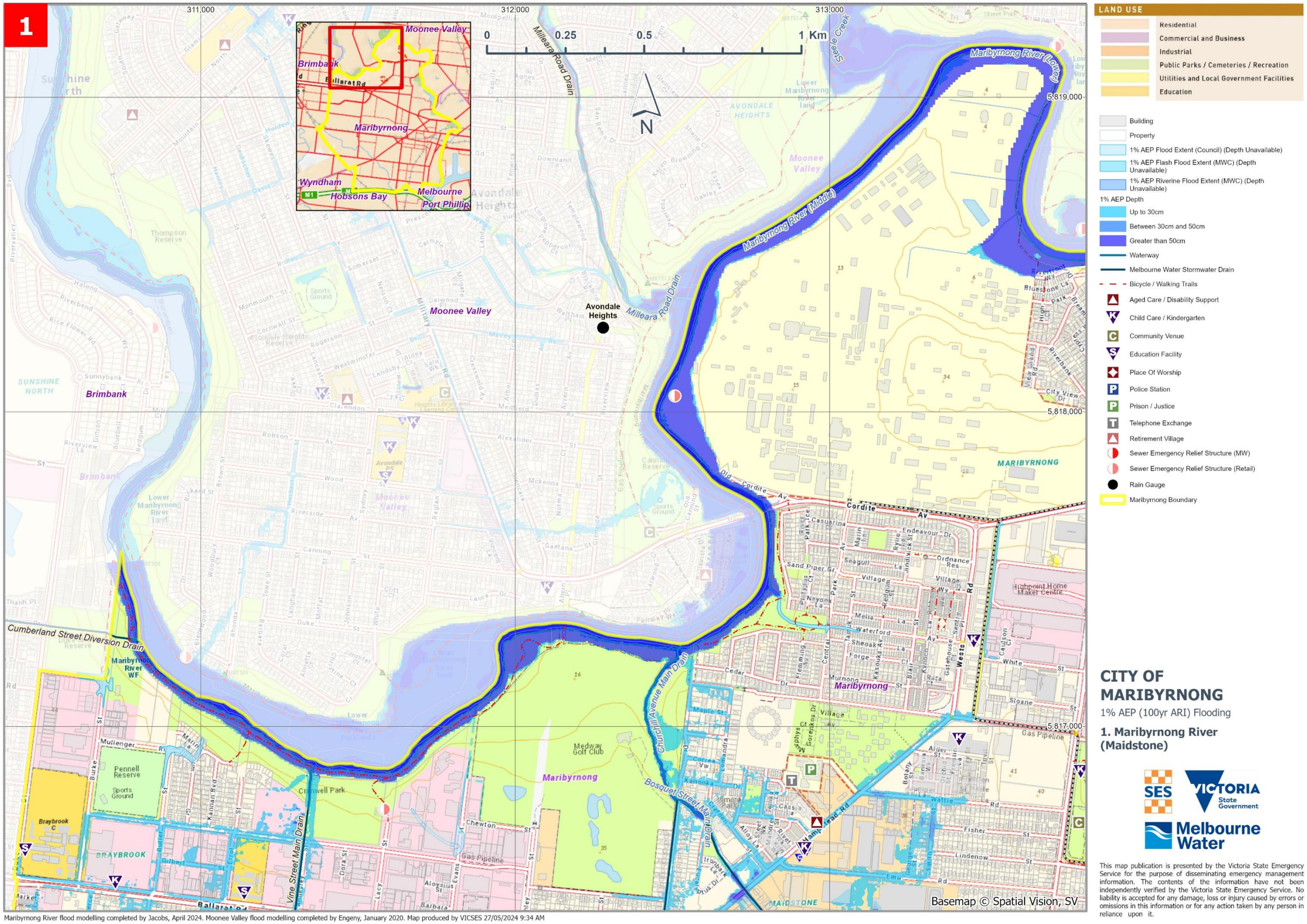
1% AEP (100yr ARI) Flooding

B. Municipal Flood Map (1% AEP (100yr ARI) Extent)

SES VICTORIA State Government

Melbourne Water

Flood Extent Maps (sourced Melbourne Water GIS)



Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley flood modelling completed by Engeny, January 2020. Map produced by VICSES 27/05/2024 9:34 AM

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

1. Maribyrnong River (Maidstone)

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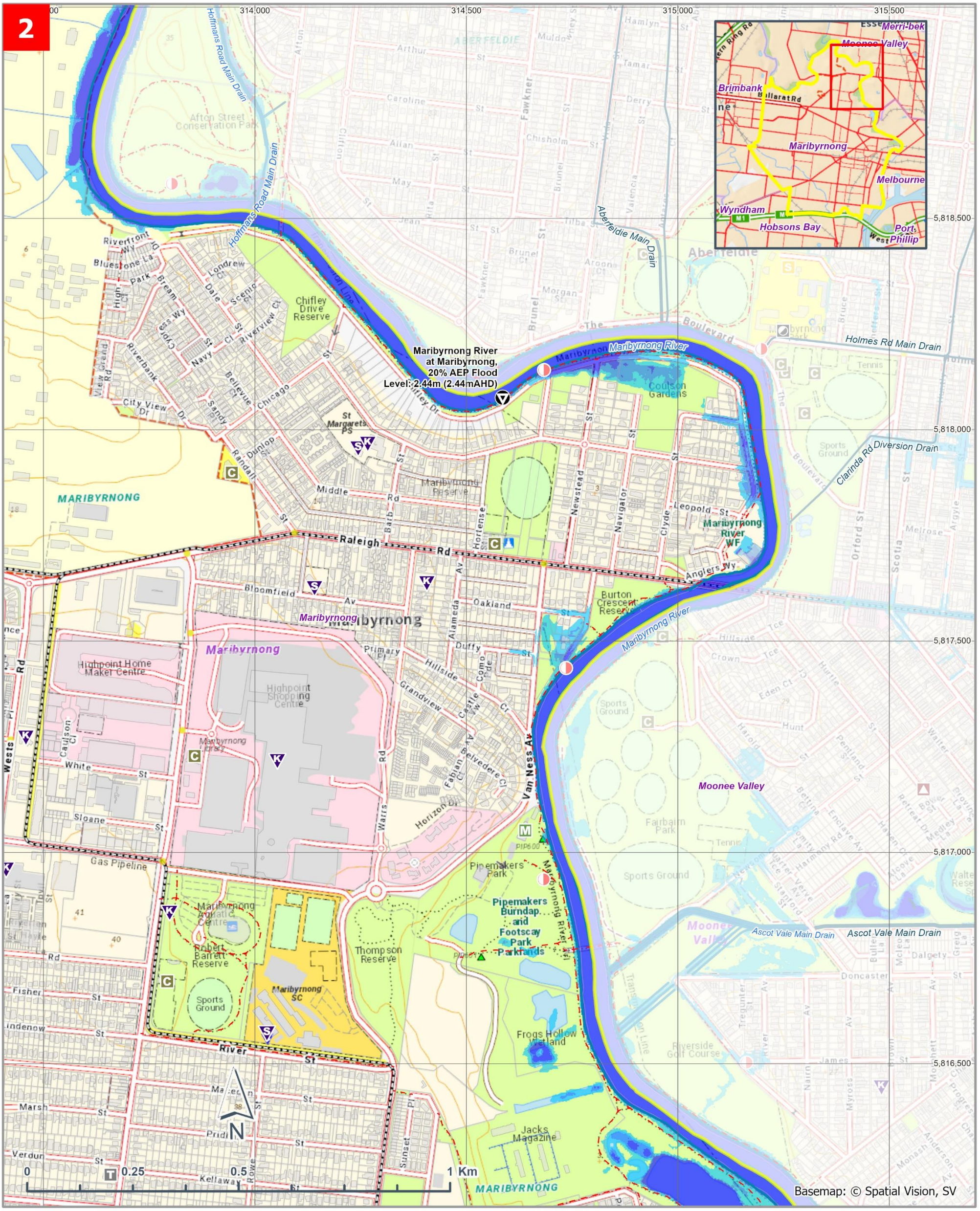


Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley Maribyrnong Lower flood modelling completed by Engeny, May 2024. Map produced by VICSES: 27/05/2024 12:26 PM

CITY OF MARIBYRNONG

20% AEP (5yr ARI) Flooding

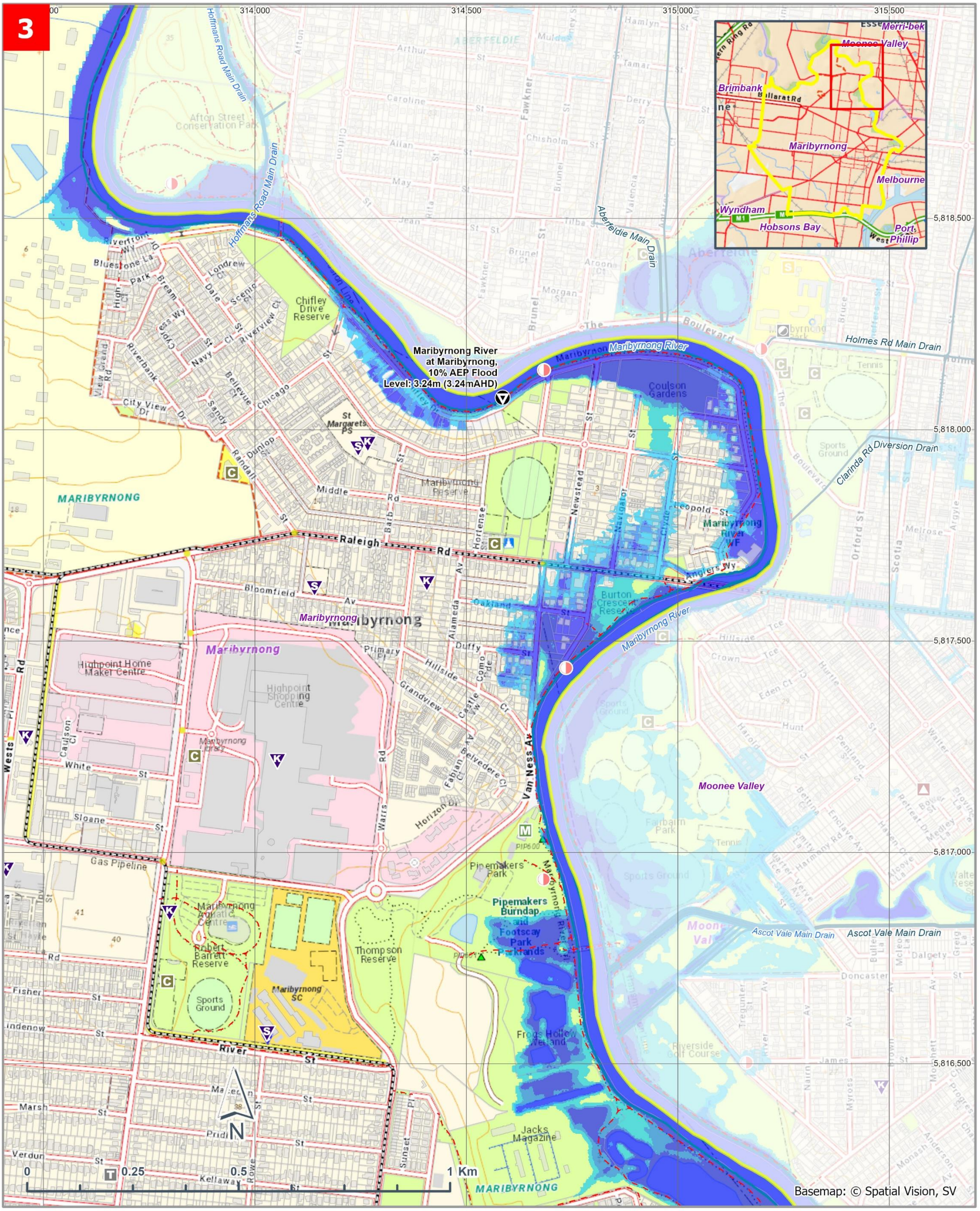
2. Maribyrnong River (Maribyrnong)

20% AEP Depth
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm

- Building
- Property
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Museum
- Telephone Exchange
- Tip / Recycling
- Stream Level & Rain Gauge
- MWC Sewer Emergency Relief Point
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Retail Sewer Emergency Relief Point
- Municipal Boundary

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

SES
VICTORIA State Government
Melbourne Water



Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley Maribyrnong Lower flood modelling completed by Engeny, May 2024. Map produced by VICSES: 27/05/2024 12:34 PM

CITY OF MARIBYRNONG

10% AEP (10yr ARI) Flooding

3. Maribyrnong River (Maribyrnong)

- Building
- Property

10% AEP Depth

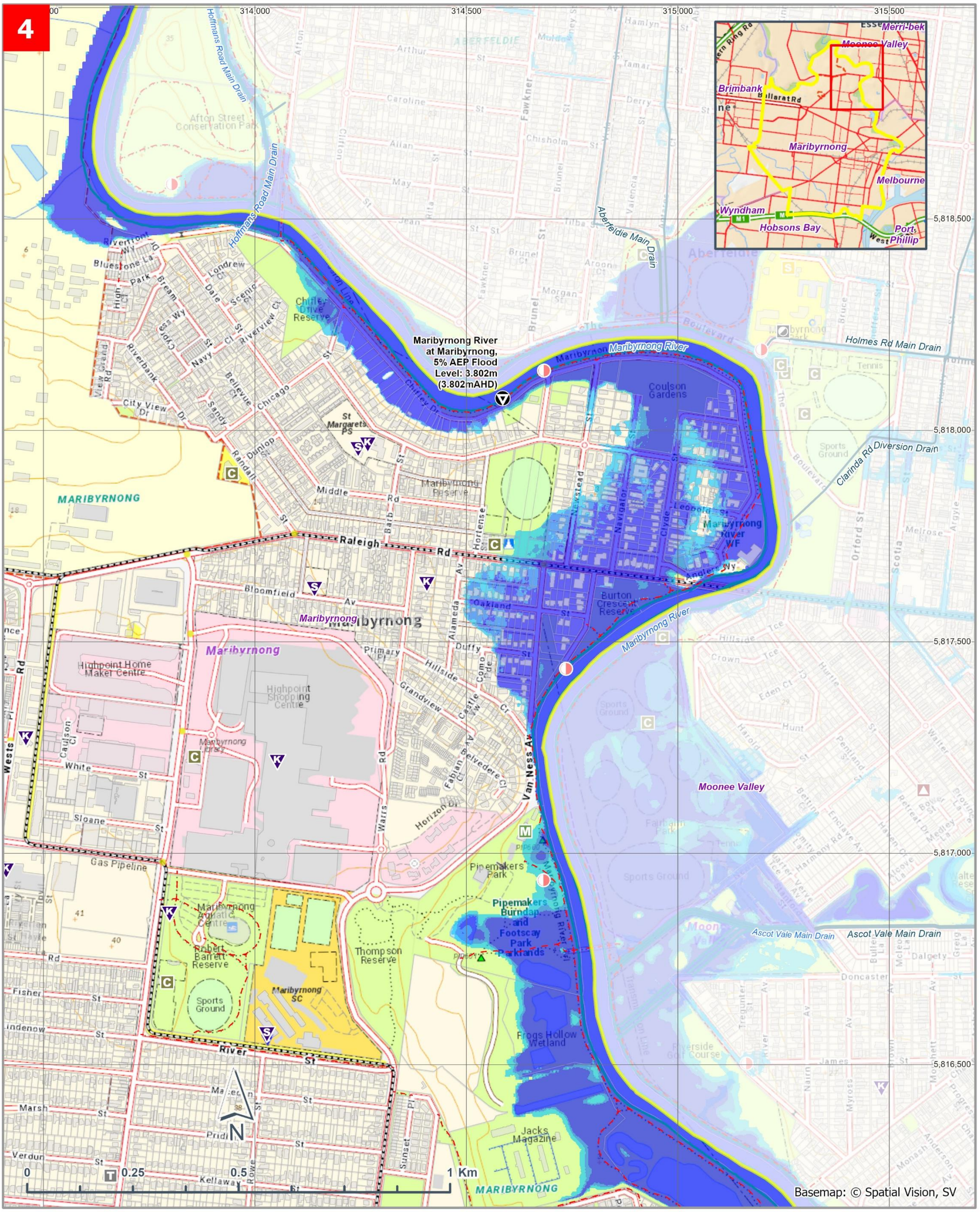
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Museum
- Telephone Exchange
- Tip / Recycling
- Stream Level & Rain Gauge
- MWC Sewer Emergency Relief Point
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Retail Sewer Emergency Relief Point
- Municipal Boundary

LAND USE

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

SES VICTORIA State Government

Melbourne Water



Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley Maribyrnong Lower flood modelling completed by Engeny, May 2024. Map produced by VICSES: 27/05/2024 12:17 PM

CITY OF MARIBYRNONG

5% AEP (20yr ARI) Flooding

4. Maribyrnong River (Maribyrnong)

- Building
- Property

5% AEP Depth
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Museum
- Telephone Exchange
- Tip / Recycling
- Stream Level & Rain Gauge
- MWC Sewer Emergency Relief Point
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Retail Sewer Emergency Relief Point
- Municipal Boundary

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

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Melbourne Water

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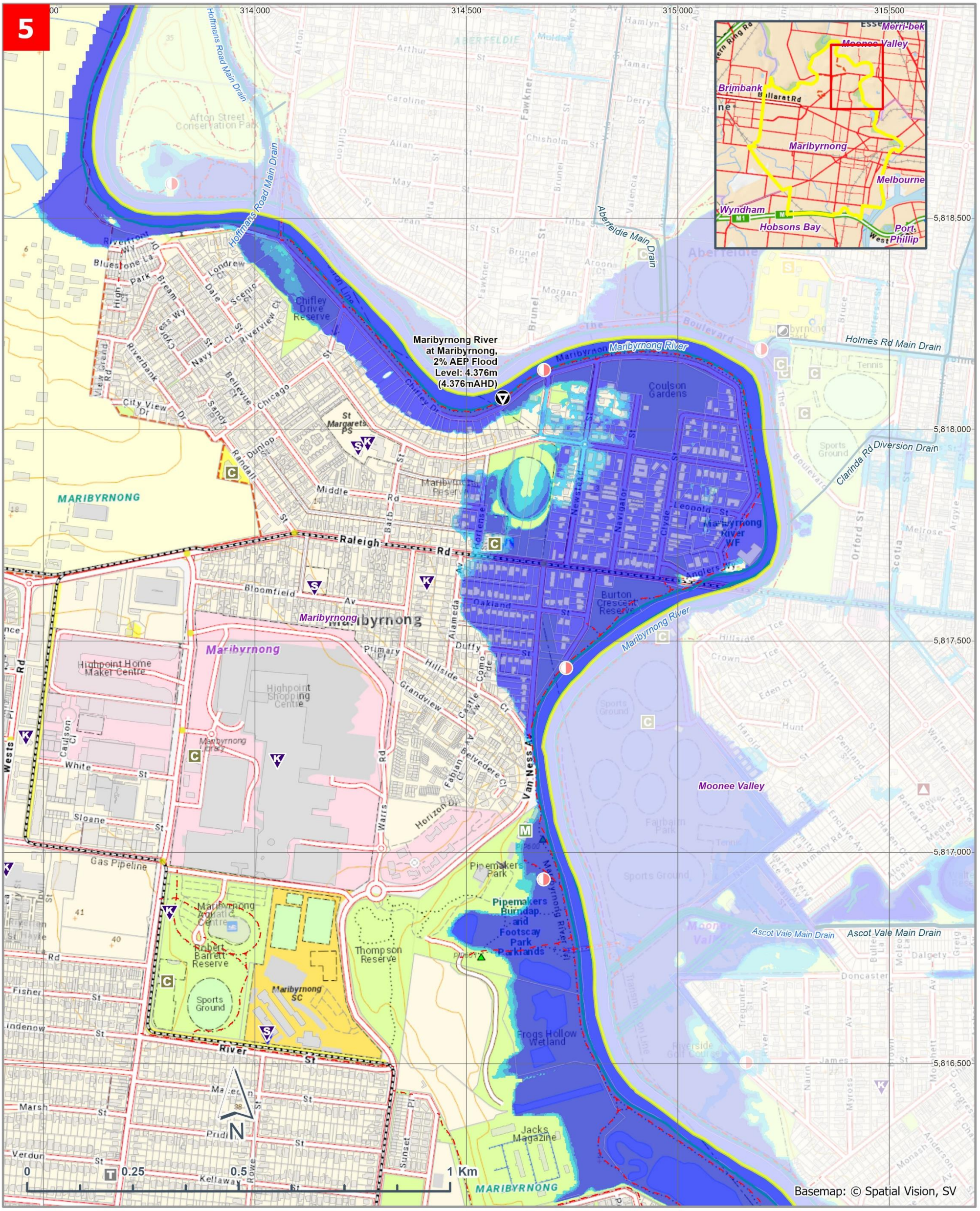


Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley Maribyrnong Lower flood modelling completed by Engeny, May 2024. Map produced by VICSES: 27/05/2024 1:00 PM

CITY OF MARIBYRNONG

2% AEP (50yr ARI) Flooding

5. Maribyrnong River (Maribyrnong)

- Building
- Property

2% AEP Depth

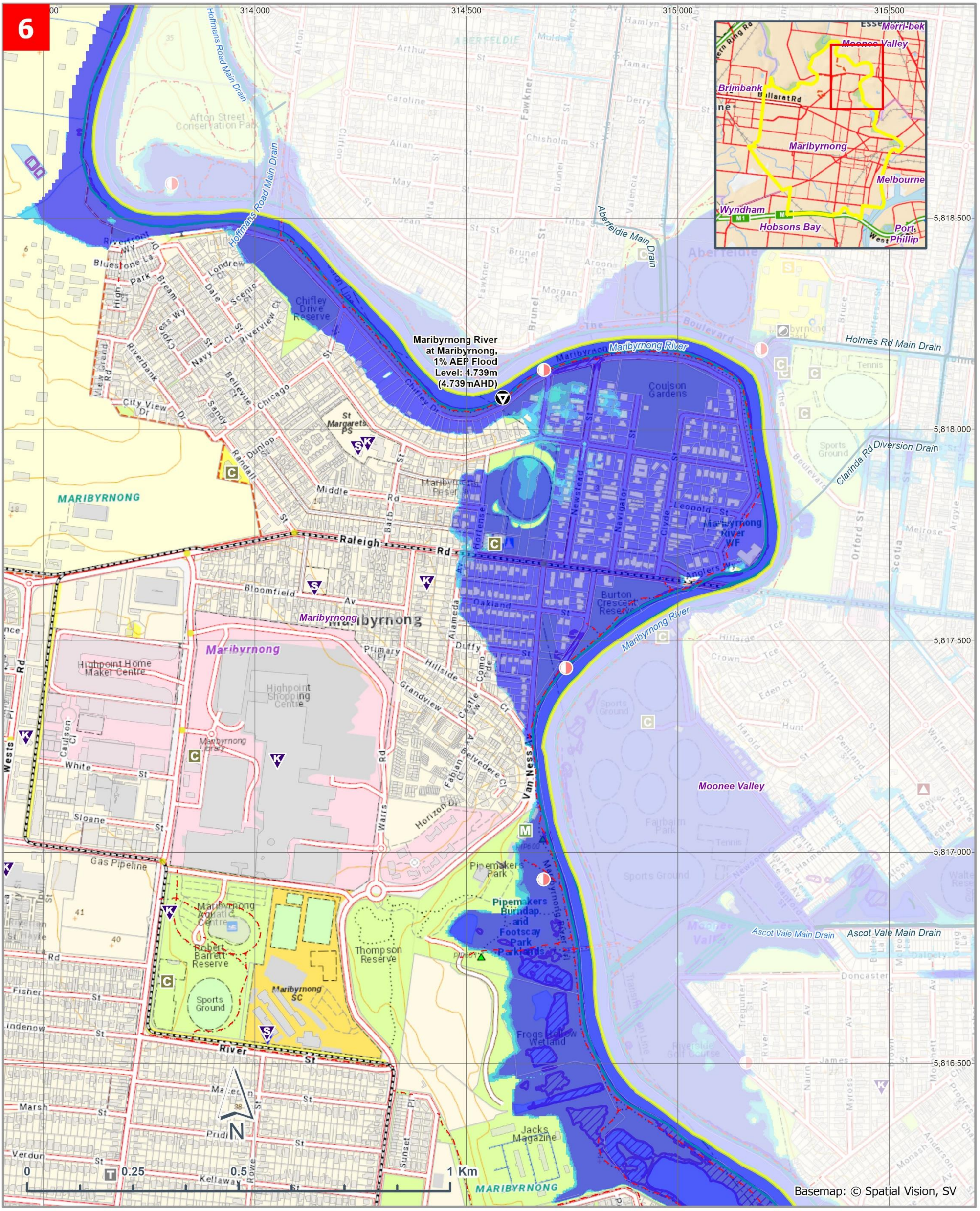
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Museum
- Telephone Exchange
- Tip / Recycling
- Stream Level & Rain Gauge
- MWC Sewer Emergency Relief Point
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Retail Sewer Emergency Relief Point
- Municipal Boundary

LAND USE

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

SES VICTORIA State Government

Melbourne Water



Maribyrnong River flood modelling completed by Jacobs, April 2024. Moonee Valley Maribyrnong Lower flood modelling completed by Engeny, May 2024. Map produced by VICSES: 27/05/2024 1:25 PM

CITY OF MARIBYRNONG

1% AEP (1000yr ARI) Flooding

6. Maribyrnong River (Maribyrnong)

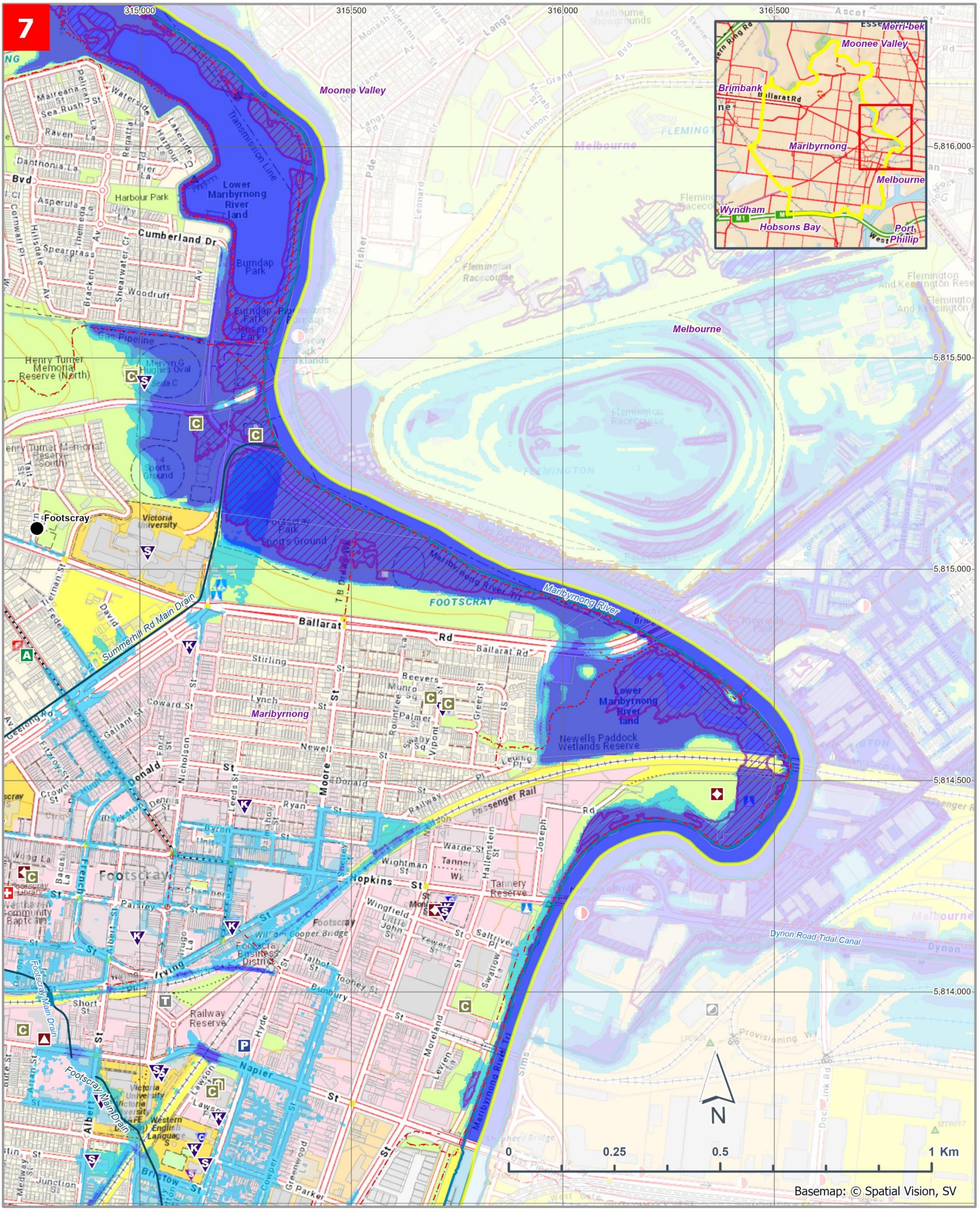
- Building
- Property

1% AEP Depth
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- 1% AEP Coastal Flood Extent
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Museum
- Telephone Exchange
- Tip / Recycling
- Stream Level & Rain Gauge
- MWC Sewer Emergency Relief Point
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Retail Sewer Emergency Relief Point
- Municipal Boundary

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

SES VICTORIA State Government

Melbourne Water



Maribyrnong River flood modelling completed by Jacobs, April 2024. Footscray Main Drain flood modelling completed by AECOM, December 2009. Map produced by VICSES: 23/05/2024 2:15 PM

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

7. Maribyrnong River (Footscray)

- Building
- Property
- 1% AEP Coastal Flood Extent

1% AEP Depth

- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Main
- Retaining Wall
- Bicycle / Walking Trail
- MWC Sewer Emergency Relief Point
- Retail Sewer Emergency Relief Point
- Aged Care / Disability Support
- Ambulance Station
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Fire Station
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Place Of Worship
- Police Station
- Telephone Exchange
- Tip / Recycling
- Retirement Village
- MWC Drainage Pump Station
- MWC Sewer Pump Station
- Rain Gauge
- Municipal Boundary

LAND USE

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

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Melbourne Water

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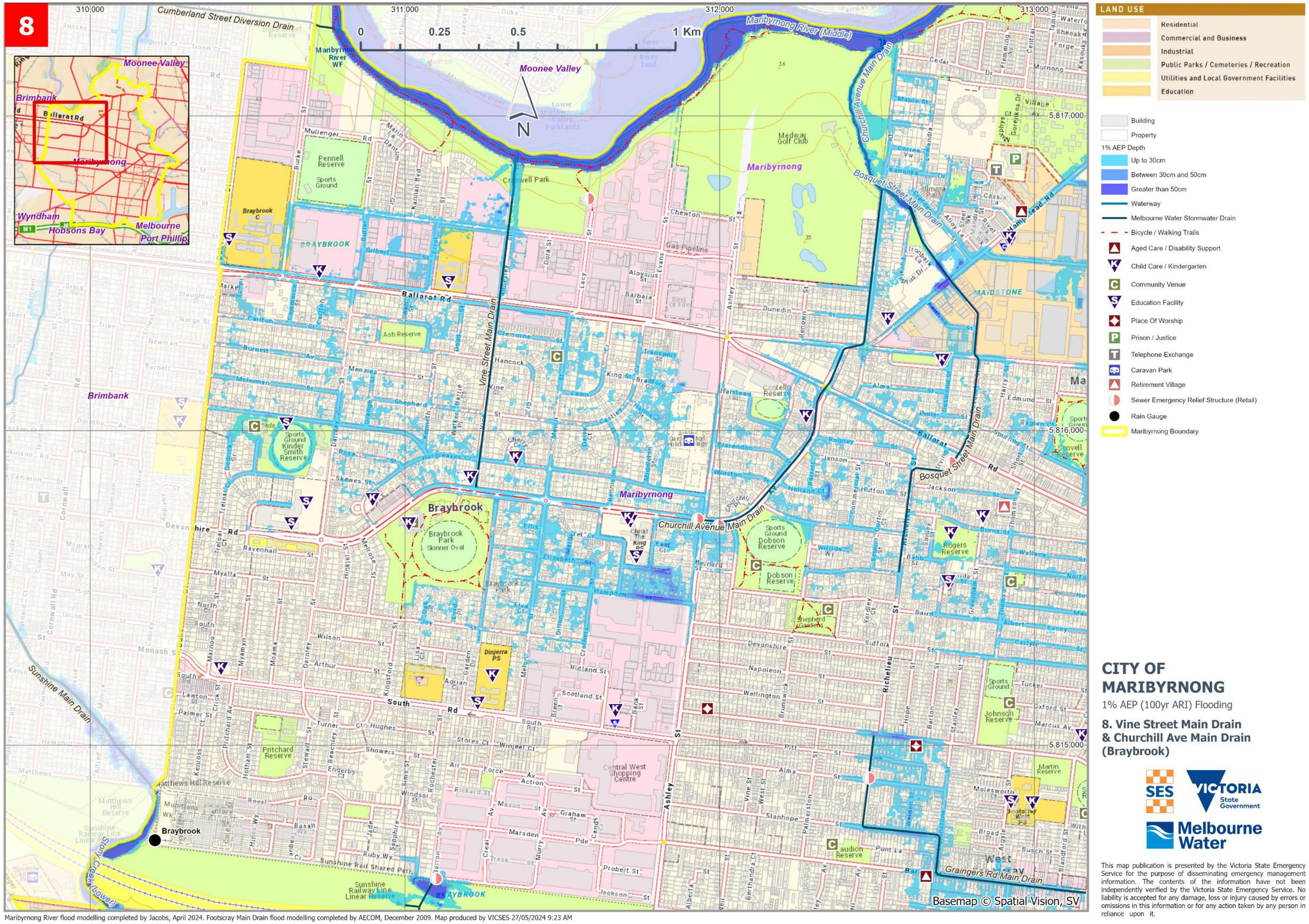


LAND USE

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

- Building
- Property

1% AEP Depth

- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Drain
- Bicycle / Walking Trails
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Place Of Worship
- Prison / Justice
- Telephone Exchange
- Caravan Park
- Retirement Village
- Sewer Emergency Relief Structure (Retail)
- Rain Gauge
- Maribyrnong Boundary

Maribyrnong River flood modelling completed by Jacobs, April 2024. Footscray Main Drain flood modelling completed by AECOM, December 2009. Map produced by VICSES 27/05/2024 9:23 AM

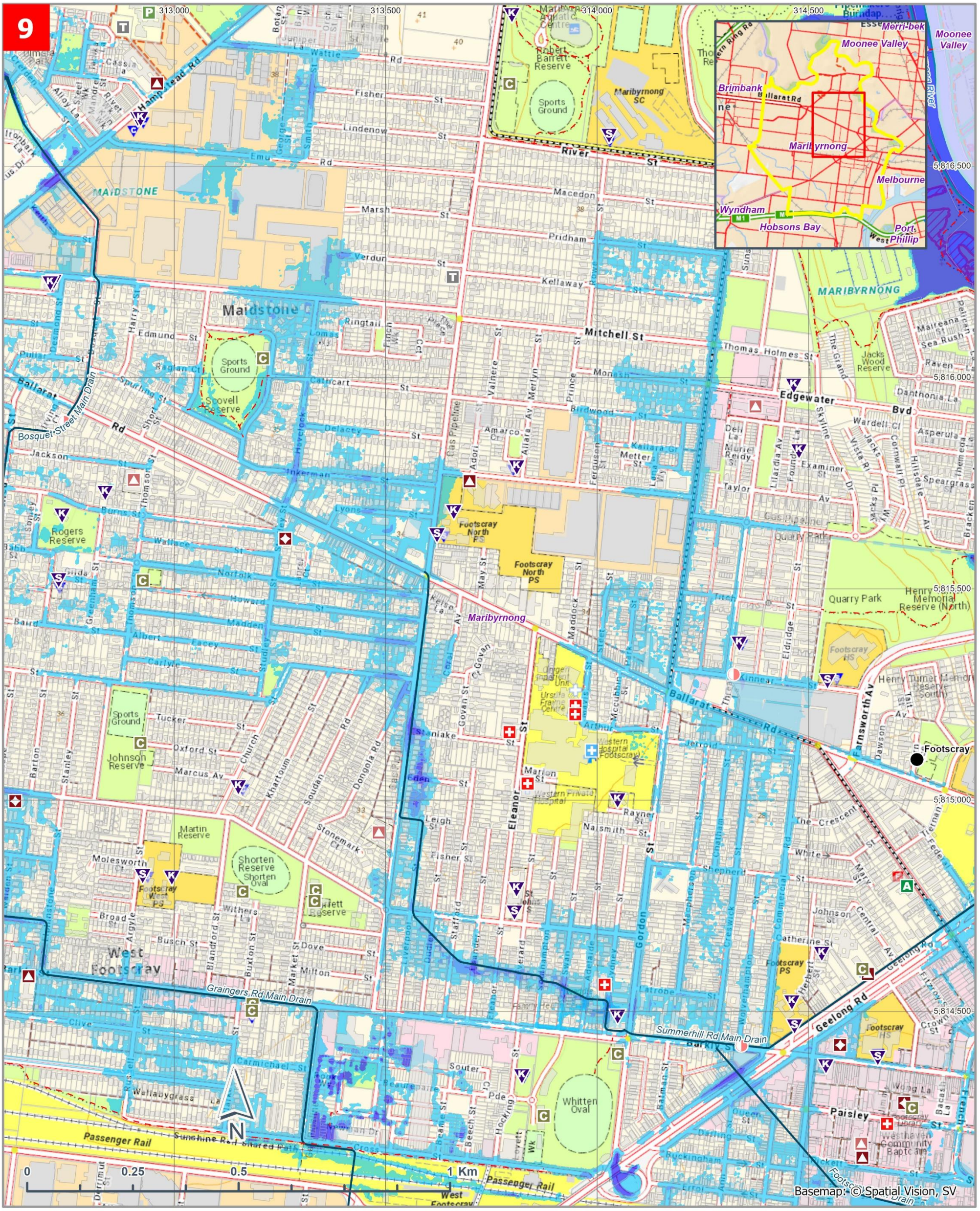
CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

8. Vine Street Main Drain & Churchill Ave Main Drain (Braybrook)

SES VICTORIA State Government

Melbourne Water



Maribyrnong River flood modelling completed by Jacobs, April 2024. Map produced by VICSES: 23/05/2024 4:21 PM

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

9. Summerhill Main Drain (Footscray & Maribyrnong)

- Building
- Property
- 1% AEP Flash Flood Extent (MWC) (Depth Unavailable)
- 1% AEP Flash Flood Extent (Council) (Depth Unavailable)
- 1% AEP Coastal Flood Extent

1% AEP Depth

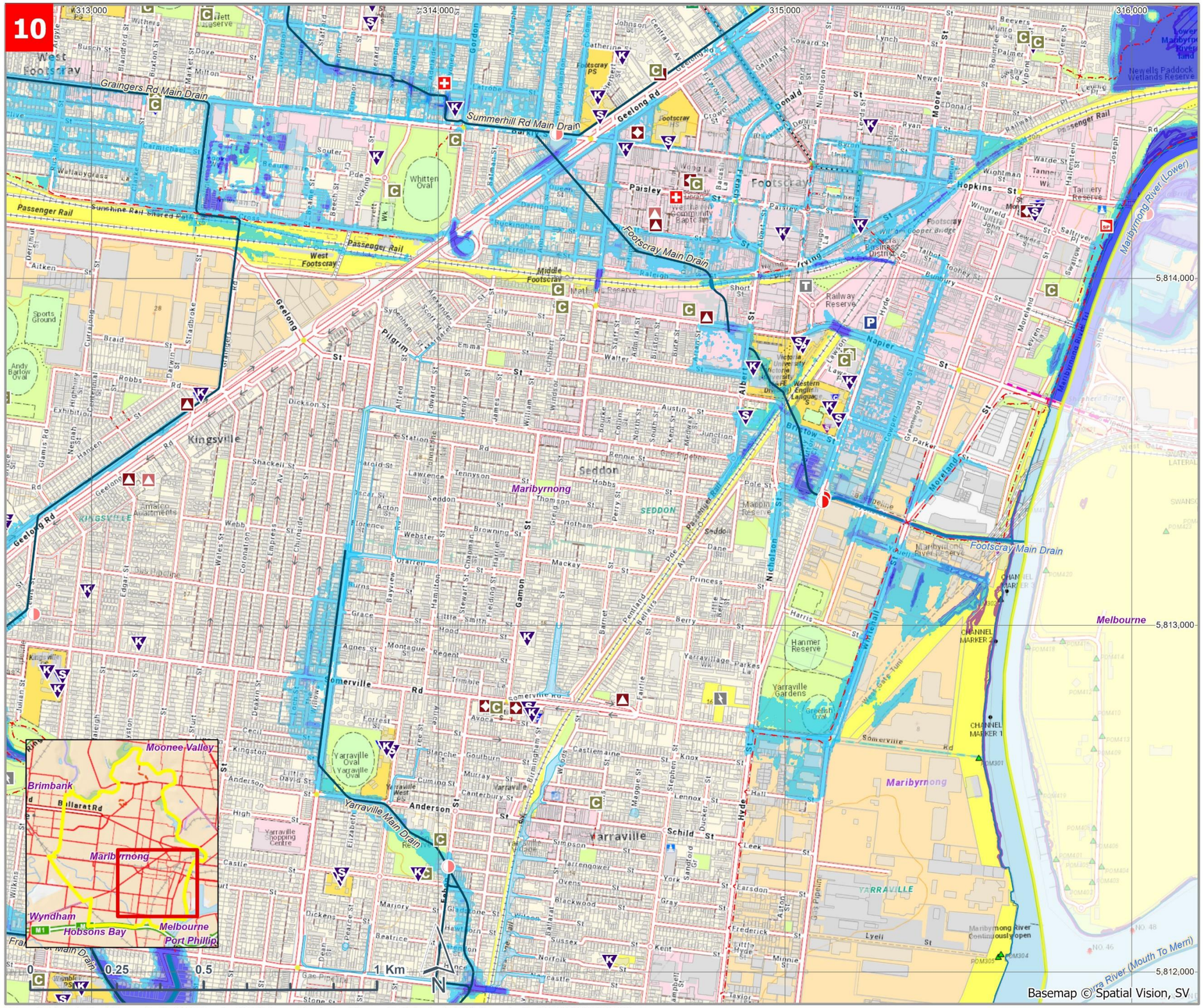
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Main
- Bicycle / Walking Trail
- Retail Sewer Emergency Relief Point
- Aged Care / Disability Support
- Ambulance Station
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Fire Station
- Hospital (Emergency)
- Hospital / Day Procedure
- Place Of Worship
- Prison / Justice
- Telephone Exchange
- Retirement Village
- Rain Gauge
- MWC Drainage Pump Station
- MWC Sewer Pump Station

LAND USE

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

SES VICTORIA State Government

Melbourne Water



LAND USE

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

- Building
- Property
- 1% AEP Flood Extent (Council) (Depth Unavailable)
- 1% AEP Flash Flood Extent (MWC) (Depth Unavailable)
- 1% AEP Coastal Flood Extent

1% AEP Depth

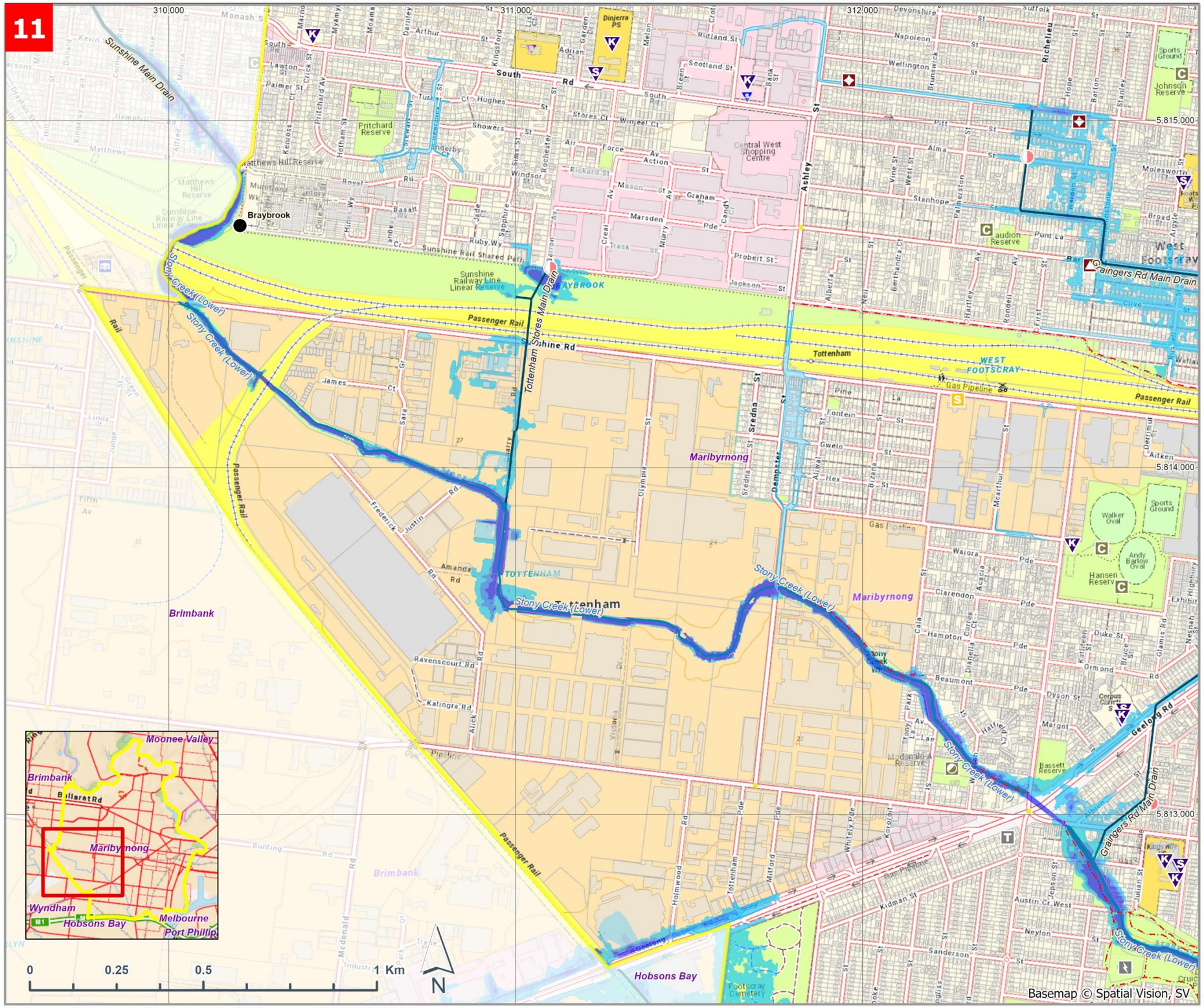
- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Drain
- Flood Model Extent
- Bicycle / Walking Trails
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Education Facility
- Fire Station
- Hospital / Day Procedure
- Municipal Offices / Civic Centre
- Place Of Worship
- Police Station
- Telephone Exchange
- Power Facility
- Retirement Village
- Sewer Pump Station (MW)
- Sewer Emergency Relief Structure (MW)
- Sewer Emergency Relief Structure (Retail)
- Maribyrnong Boundary

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

10. Footscray Main Drain (Footscray)

Footscray Main Drain flood modelling completed by AECOM, December 2009. Maribyrnong River flood modelling completed by Jacobs, April 2024. Map produced by VICSES 27/05/2024 8:52 AM



LAND USE

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

- Building
- Property
- 1% AEP Flood Extent (Council) (Depth Unavailable)
- 1% AEP Flash Flood Extent (MWC) (Depth Unavailable)

1% AEP Depth

- Up to 30cm
- Between 30cm and 50cm
- Greater than 50cm
- Waterway
- Melbourne Water Stormwater Drain
- Bicycle / Walking Trails
- VICSES Unit
- Aged Care / Disability Support
- Child Care / Kindergarten
- Community Venue
- Municipal Depot
- Education Facility
- Place Of Worship
- Telephone Exchange
- Caravan Park
- Power Facility
- Sewer Emergency Relief Structure (Retail)
- Rain Gauge
- Maribyrnong Boundary

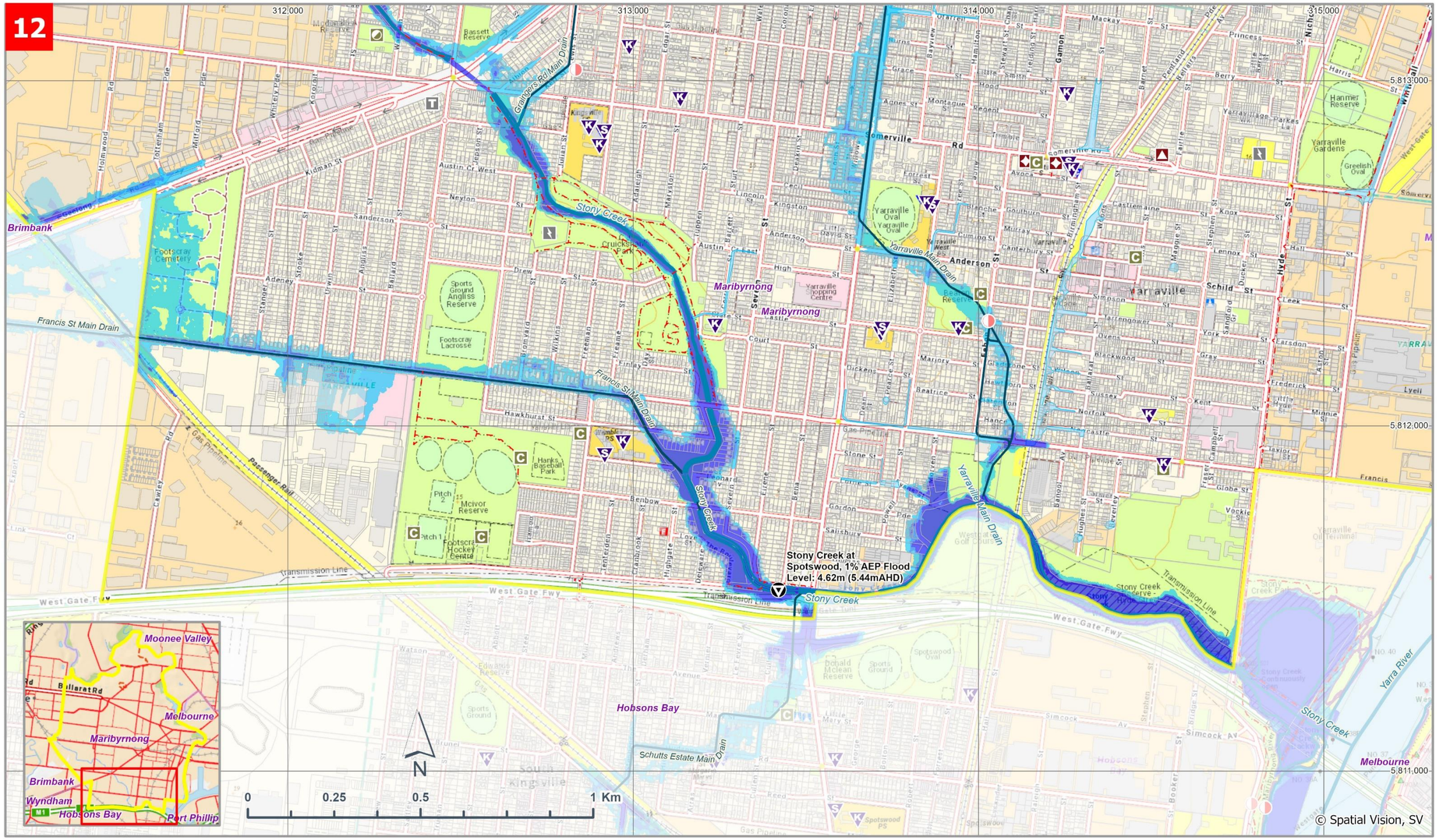
CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

11. Stony Creek (Tottenham)

SES · VICTORIA State Government · Melbourne Water

Stony Creek flood modelling completed by Melbourne Water, February 2013. Map produced by VICSES 24/05/2024 10:51 AM



Flood modelling completed by Water Technology, May 2013. Map produced by VICSES 24/05/2024 10:33 AM

Building
Property
1% AEP Flash Flood Extent (Council) (Depth Unavailable)
1% AEP Flash Flood Extent (MWC) (Depth Unavailable)
1% AEP Coastal Flood Extent

1% AEP Depth
Up to 30cm
Between 30cm and 50cm
Greater than 50cm
Melbourne Water Stormwater Drain
Waterway
Bicycle / Walking Trail

Stream Level & Rain Gauge
Aged Care / Disability Support
Child Care / Kindergarten
Community Venue
Municipal Depot
Education Facility

Place Of Worship
Museum
Telephone Exchange
Power Facility
Sewer Emergency Relief Structure (MW)
Sewer Emergency Relief Structure (Retail)
Municipal Boundary

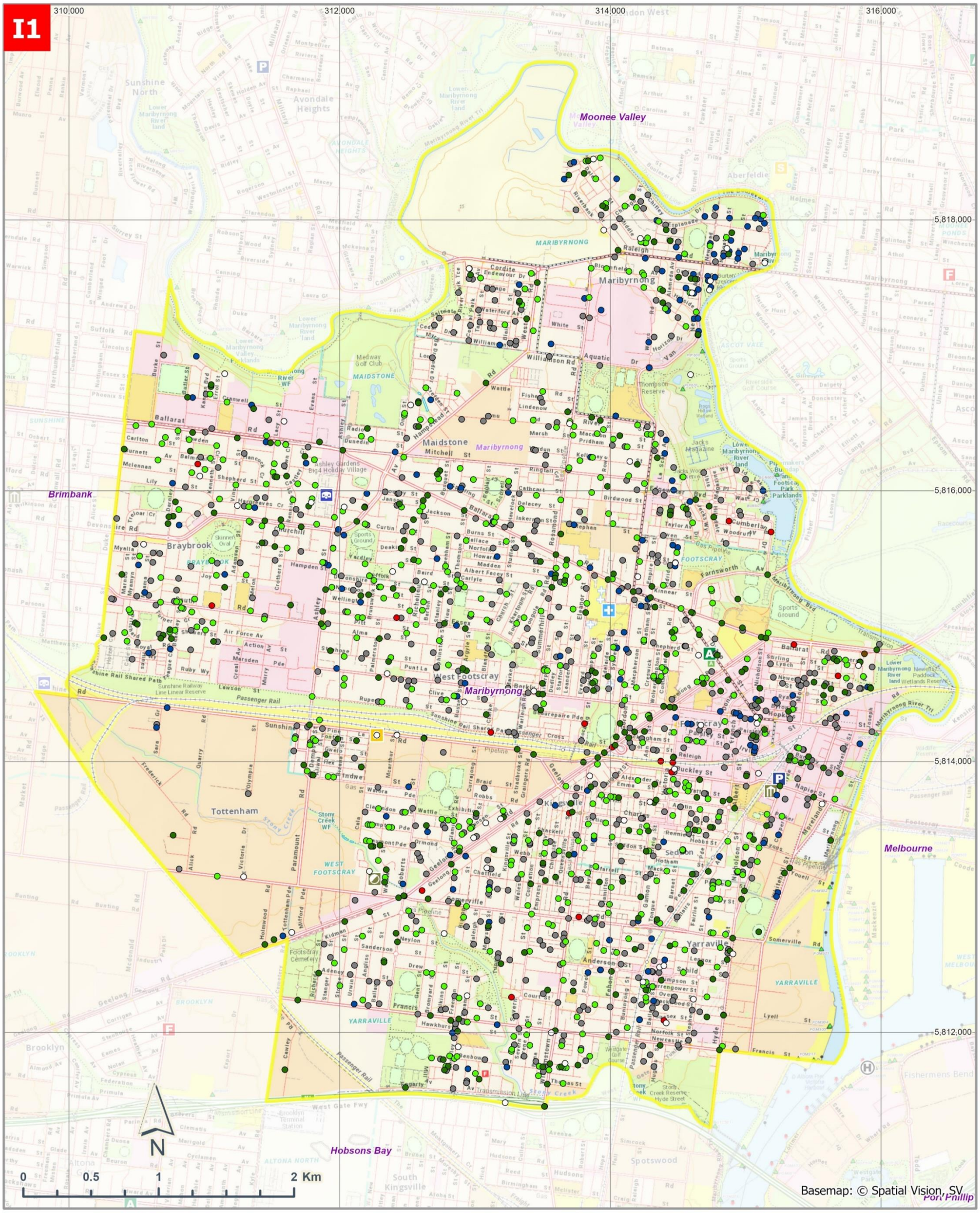
LAND USE
Residential
Commercial and Business
Industrial
Public Parks / Cemeteries / Recreation
Utilities and Local Government Facilities
Education

CITY OF MARIBYRNONG

1% AEP (100yr ARI) Flooding

12. Stony Creek (Yarraville)

Severe Weather VICSES Requests for Assistance Maps



Map produced by VICSES March 2024.

CITY OF MARIBYRNONG

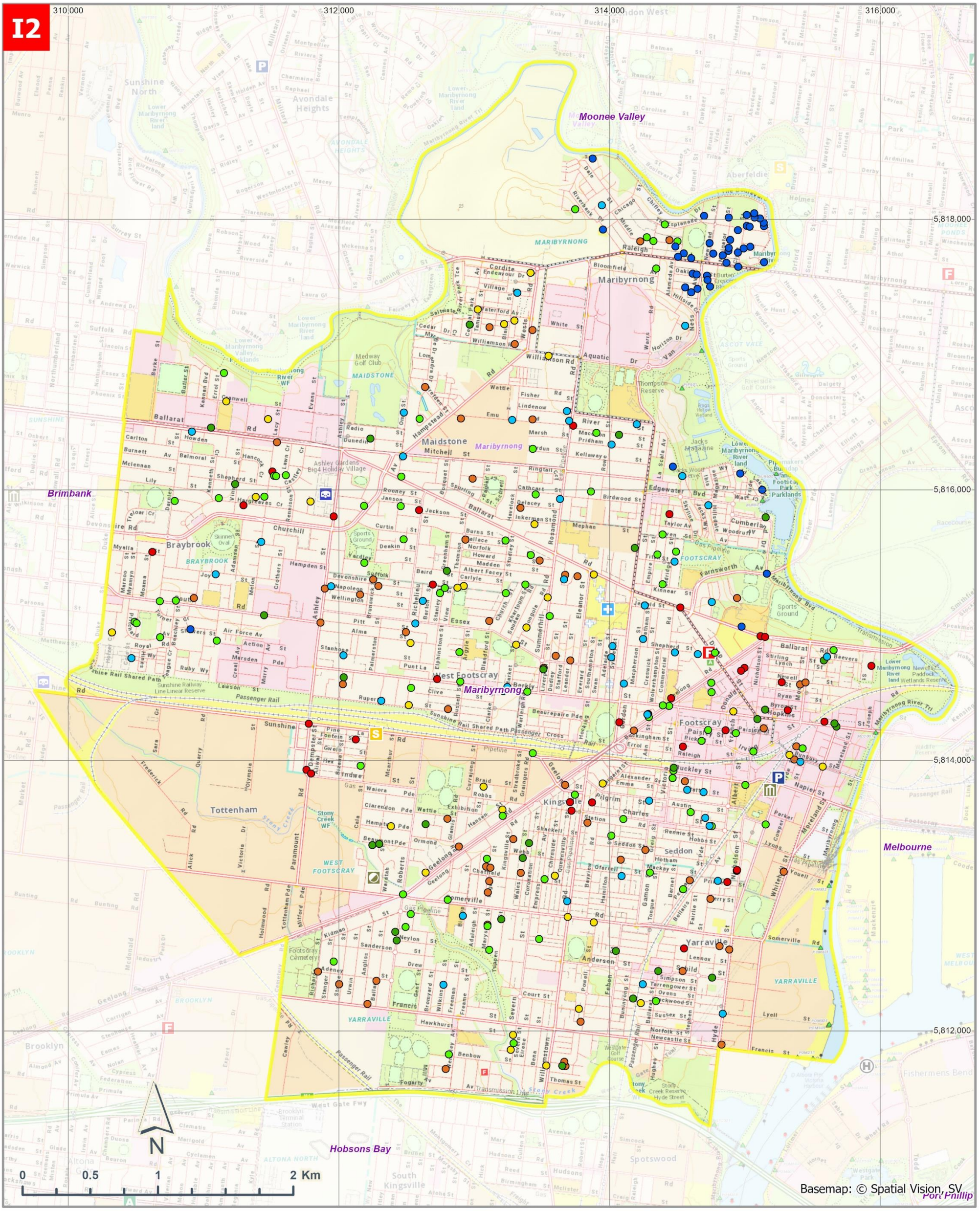
I1 - VICSES Severe Weather Requests for Assistance (RFA) by Job Type (July 2009 to March 2024)

Severe Weather RFAs (Storm or Flood)
- Building Damage
- Flood
- Landslide
- Rescue
- Tree Down
- Tree down: Traffic Hazard
- Other

- Waterbody
- VICSES Unit
- Ambulance Station
- Municipal Depot
- Fire Station
- Hospital (Emergency)
- Municipal Offices / Civic Centre
- Police Station
- Caravan Park
- Helipad
- Maribyrnong Boundary

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

SES
VICTORIA State Government
Melbourne Water



Map produced by VICSES March 2024.

VICSES Severe Weather RFAs (Storm or Flood)
(By request (Greater than 30 requests received)

- 12-13th August 2013 (40)
- 1st-3rd October 2013 (72)
- 24-25th June 2014 (35)
- 10-12th October 2016 (87)
- 29-30th July 2017 (31)
- 29th October - 1st November 2021 (50)
- 14-15th October 2022 (49)

- Waterbody
- VICSES Unit
- Ambulance Station
- Municipal Depot
- Fire Station
- Hospital (Emergency)
- Municipal Offices / Civic Centre
- Police Station
- Caravan Park
- Helipad
- Maribyrnong Boundary

LAND USE

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

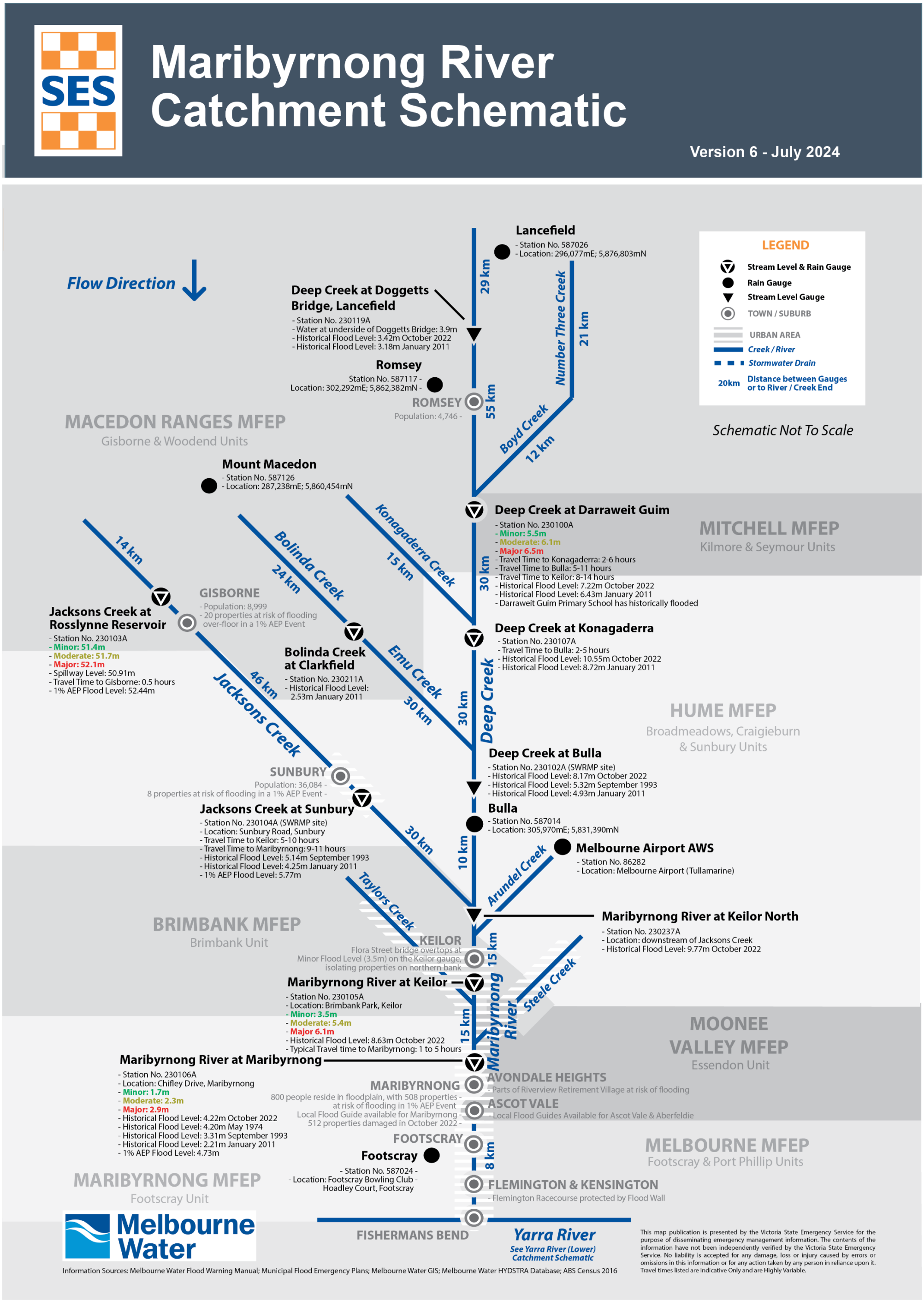
CITY OF MARIBYRNONG

I2 - VICSES Severe Weather Requests for Assistance (RFA) by Event (July 2009 to March 2024)

SES VICTORIA State Government

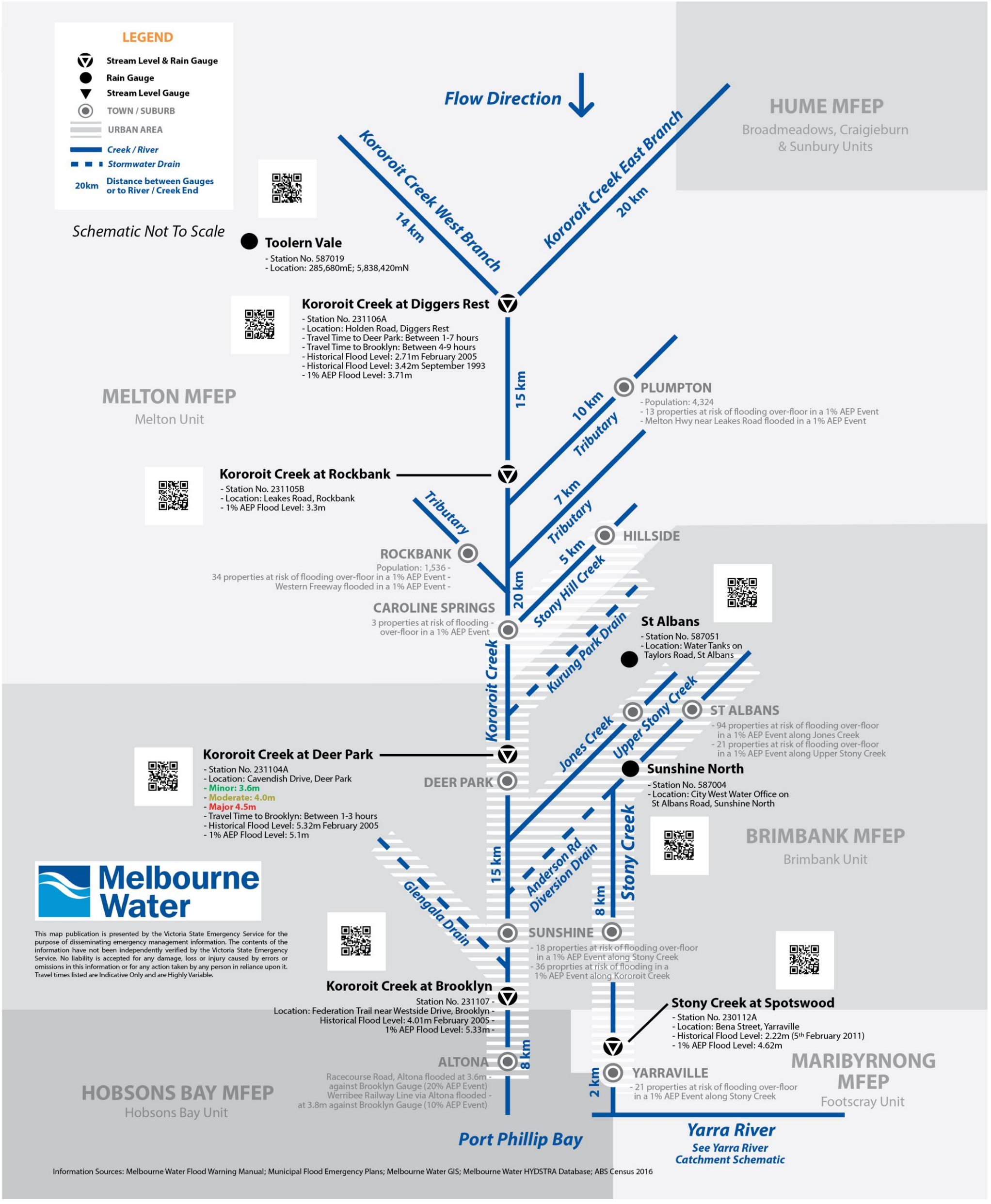
Melbourne Water

Catchment Schematics



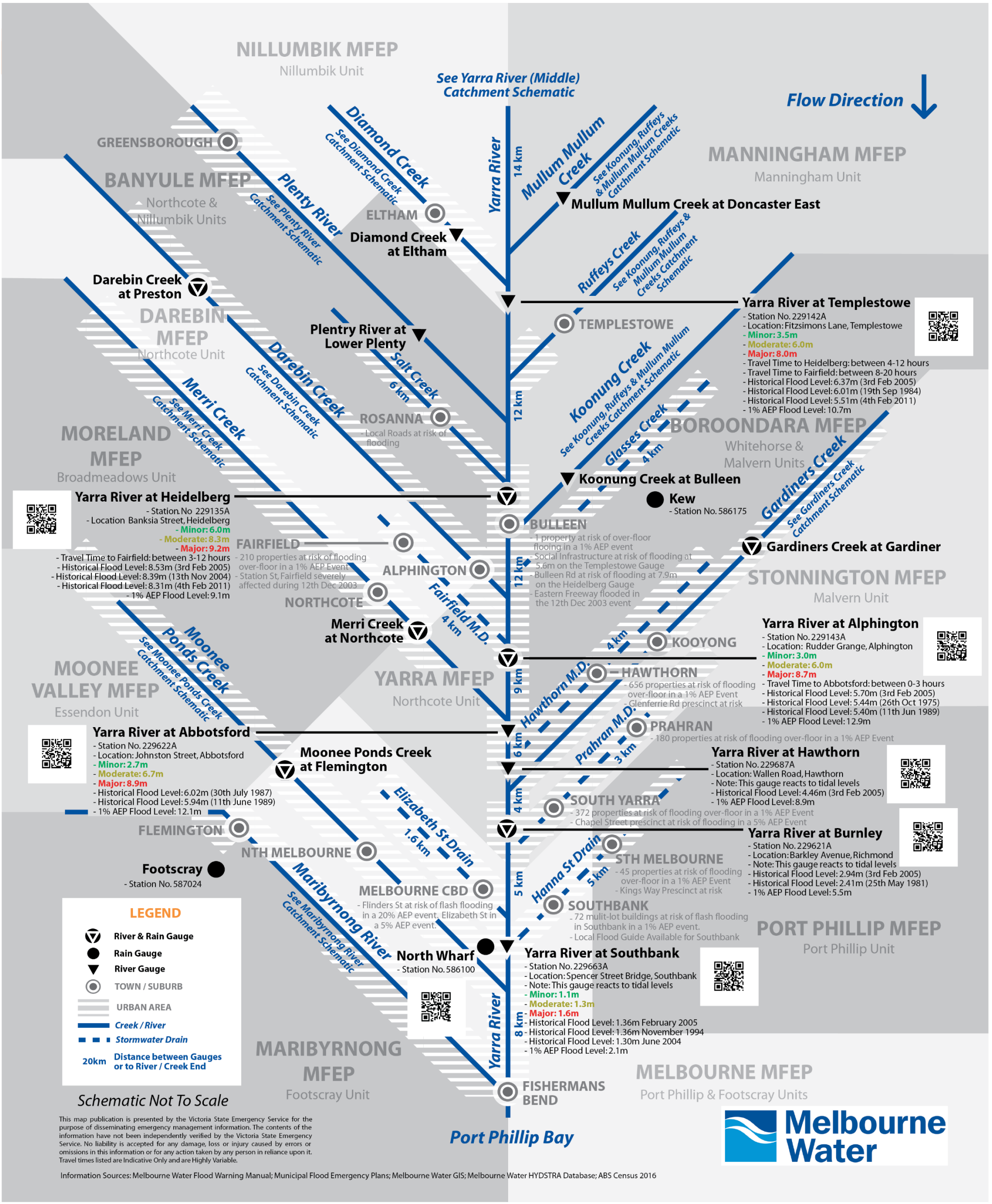
Kororoit Creek & Stony Creek Catchment Schematic

Version 5 - June 2021



Yarra River (Lower) Catchment Schematic

Version 6 - February 2021



Information Sources: Melbourne Water Flood Warning Manual; Municipal Flood Emergency Plans; Melbourne Water GIS; Melbourne Water HYDSTRA Database; ABS Census 2016

Appendix G – Local Knowledge Arrangements

As control agency for flood 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.

Information from community sources including but not limited to observations, historical information and information about current and possible consequences of an incident may be utilised to help inform the process of incorporating local knowledge into decision making during an incident.

Field Observers

Field Observers may support:

- The monitoring and reporting on observations of incidents. For example, during a flood event a Field Observer may be regularly taking photos via mobile app technology of the local stream gauge board if it is safe to do so.
- The provision of local advice regarding the consequences of incidents.
- Establishing linkages with key groups within local communities during emergency management planning and operational response.
- During operational response, this may be through a Local Information Officer or direct to the Intelligence cell. In some circumstances it may also be through a Community Liaison Officer if one is in place within the Public Information Unit.
- The provision of authorised information to community members where requested.

Intelligence Gathering System - Snap Send Solve

Historically, the gathering of local flood/storm or other VICSES hazard intelligence during an event has been varied and inefficient. It creates a frustrating and difficult environment for intelligence teams in an Incident Management Team (IMT) to sift through relevant information. VICSES has teamed up with Snap Send Solve to create a flood/storm and other VICSES hazard observation App and Portal.

Snap Send Solve is an existing app currently used by the community to notify local councils and other authorities of issues that need addressing such as cracked pavements, parking problems, dumped rubbish and graffiti.

The existing functionality of the smartphone app has been adapted for VICSES in a well presented and user-friendly way. The app is used to capture field observations during an event such as a flood, by filling in a simple form on a smartphone and using the camera to upload photos. This information is then displayed through an administration portal to collate and view the data.

The app component will be made available to trusted field observers in the community, and their observations will be visible via EMCOP where Intelligence personnel in Incident Management Teams can access them during events. The intent is that better access to local knowledge will add to information sources in order to maximise public information communications and response efforts.

Trusted field observers include both internal and external stakeholders (community members, ESOs such as CFA/VicPol). They can be activated and deployed by the VICSES RDO to use the app during an event and to report on valuable information with a level of accuracy.

The portal has been successfully integrated with EMCOP and eMap, both platforms are available to use in an IMT. The Snap Send Solve logo also appears within the intelligence section on the EM-COP desktop for easy access to the portal.

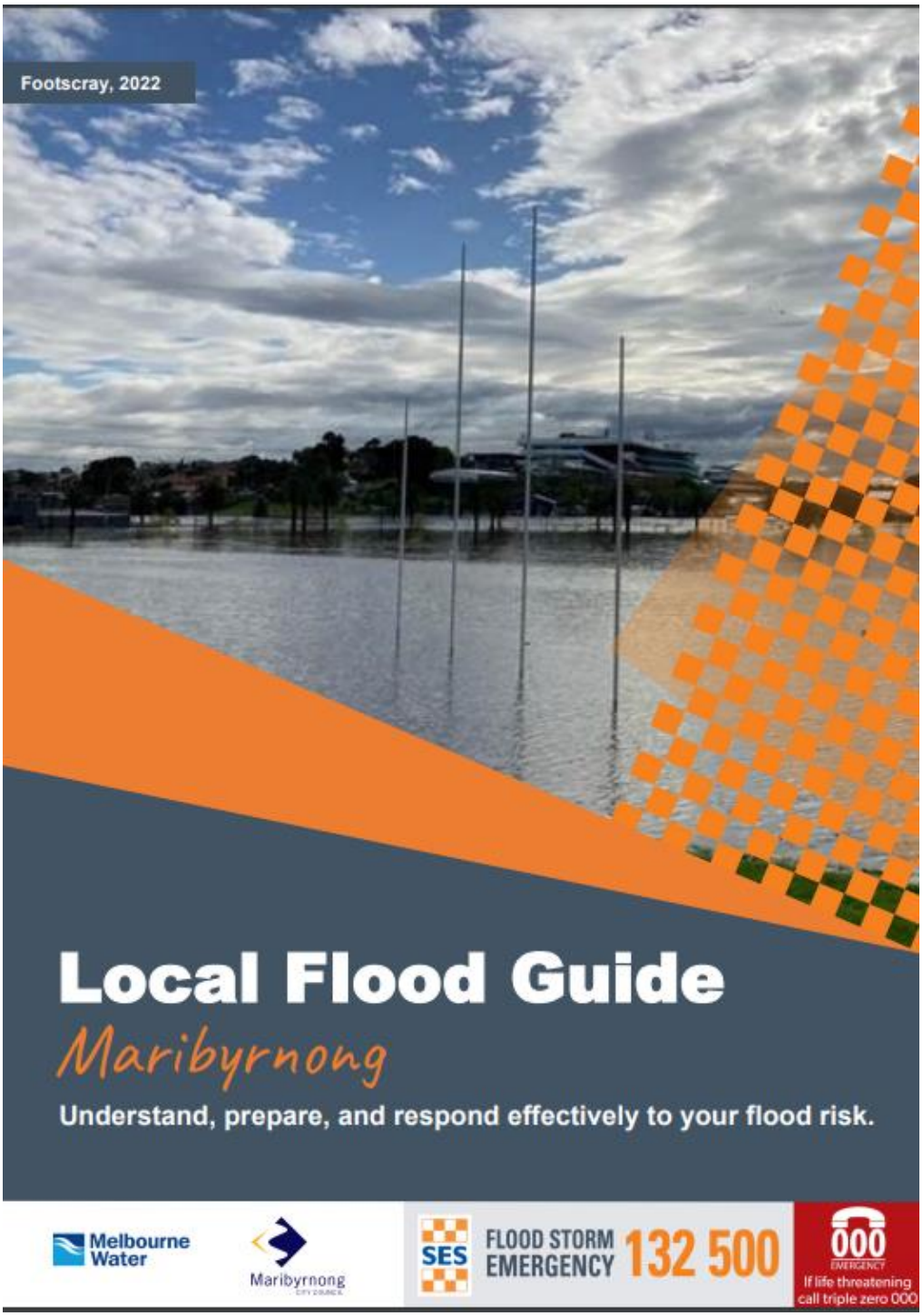
Important Notes

These arrangements do not give field observers and existing agency networks any responsibility for operational decisions. Nor does it permit field observers and existing agency networks to direct operational activity, including the management of flood levees.

Information provided from sources of local knowledge must be processed and validated before it can become intelligence to inform decision making.

Appendix H - Local Flood Information

Provide the link to any relevant LFG's in the municipality. www.ses.vic.gov.au/get-ready/your-local-flood-information



Appendix I1 – Storm Response

Consequences of Severe Thunderstorm

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.

Areas Most Likely to be Affected by Storm Damage

Maribyrnong municipality is susceptible to severe weather events because of a combination of its flat terrain, urban boundary location and wind exposed properties. Storm events in the City of Maribyrnong may be subject to include wind storms, hailstorms, and thunderstorms (including lightning activity). There have also been occurrences of atmospheric downbursts/microburst within Maribyrnong and adjacent municipalities.

Severe storm activity could result in injuries and increase in road accidents. Damaging wind events will tend to lead to trees down, with damage to the built and natural environment. Obstructions across roads could disrupt services, affect community functioning and have great potential for road traffic delays.

Locations of Historic Storm Damage

Maps located in Appendix F titled ‘VICSES Severe Weather Request for Assistance Maps’ highlight the areas of previous storm and flood damage impact. Note that while the maps are based on historic data, a severe storm can affect any part of the municipality.

Bureau of Meteorology Weather Districts

The municipality falls within the weather district of Central

Storm Specific Community Engagement Programs

VICSES provides standard community awareness material on what to do during a storm on its public website.

There are a number of things that you can do to make sure you and your property stay safe during storms. Remember, for storm emergency assistance from VICSES call 132 500. For life-threatening emergencies call triple-zero (000).

On this page:

Be Storm Smart
Are you storm ready?
How to plan and stay safe before a storm hits
What to do during a storm
Recovery after a storm

Check out our Be Storm Smart online interactive page for more information

Appendix I2 - Storm Damage Specific Response Arrangements

In the initial response phase, managing the response to widespread property damage resulting from a severe thunderstorm involves the coordinated assignment of resources to individual requests for assistance. It is akin to a fire service suddenly having to respond to a widespread outbreak of individual domestic house fires at the same time.

This is different to the approach taken for some other hazards such as riverine flooding or bushfire, where there is more likely to be a need to undertake common tasks around building defensive structures or control lines.

After the initial response phase, and in the most severe cases, relief and recover may take on a more familiar look to other natural hazards. However, there may be unique aspects that vary from planning associated with riverine flooding.

An example of this may be assisting vulnerable people. In a flood, the plans typically identify the areas subject to inundation, whereas in a storm, the damage may occur anywhere. As such, there may be high risk premises such as aged care or medical facilities that need assistance after a severe storm but are not identified as at risk from riverine flooding.

In the example of the 2021 cyclogenesis windstorm event that affected the Dandenong Ranges, parts of Gippsland, Macedon Ranges and other localities, the effect on the community lasted weeks with access and power restoration taking weeks to achieve. In the aftermath of that event the community gained value from the sector establishing early on, relief centres and community hubs, however, their establishment was hindered due to the consequences of the storm and flood event.

In addition, initial welfare calls made to community members by the Department of Families, Fairness and Housing (DFFH) and AusNet due to being listed as a power dependent customer or experiencing prolonged power outages were generally appreciated.

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Response Planning and Escalation

In the initial response phase, units will receive requests for assistance (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.

As a unit begins to receive a volume of RFAs, it is important that it shifts focus to efficient use of resources through the application of:

- ensuring it has geographic situational awareness through visualising the location and spread of RFAs via EM-COP situation map or if unable to login, via the public access Emergency.vic.gov.au incidents and warnings page. This will prevent unnecessary travel times and can assist in allocating resources to manage a number of RFAs located in nearby streets.
- Triaging RFAs including call-backs to residents where appropriate to clarify needs and priority
- Seeking support via the RDO and escalation of response arrangements as appropriate (transfer of control from level 1 to level 2 response arrangements).
- Potential deployment of field observers and intelligence gathering via Snap Send Solve to assess areas where the storm impacted as in many cases, there will be unreported cases of damage that requires assistance from the community

Support Arrangements – Other Agencies Assistance

While VICSES units provide the initial response to storm damage, this section details the local arrangements for events where VICSES will require support from local emergency services and government departments/agencies to manage a large number of requests for assistance from the community.

For agencies that are likely to provide regular assistance such as CFA brigades and FRV, it is strongly encouraged that these organisations promote to its responders the benefit of completing the E-learn Maintain safety at storm and flood operations. This E-Learn is accessible via the EMV intranet site EM-Learning.

In the municipality, the following agencies typically provide immediate support to assist VICSES units in responding to RFAs.

- Maribyrnong City Council
- CFA
- FRV
- Forest Fire Management Victoria (DEECA, Parks Victoria)
- DTP (Vicroads)
- Panel of contractors

External panel of contractors (how to access it)

the Victorian Government has established a panel of contractors that are approved to provide services in emergencies without the need for quote or tender processes.

Tree surgeons

Bulldozers/debris clearance equipment such as front-end loaders and dump trucks.

Power Utilities

In the event of a severe storm, significant loss of mains electricity/power is highly likely. Ensuring there is effective coordination between the power distribution network operators and the Incident Control Centre will enhance community information and assist with elements of relief such as ensuring vulnerable people that require medical / or other life sustaining equipment remains functional.

Early liaison with the distribution networks may assist in establishing priorities for power restoration, identifying areas of outages and matching this with any known vulnerable premises such as aged care, medical facilities.

Considerations for Operating with Other Agencies

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. This may include:
  - Use of other agency portable radios at the Sector/Division command point
  - Embedding an CFA member in the comms team so that they can page allocated tasks via EAS/VIPER direct to its brigade resources
  - Embedding an EMLO from other assisting agencies at the sector/Division command point for comms purposes
  - Use of mobile phones or sat phones to communicate
- Determining an agreed response to downed powerlines as this is often a predominant hazard for storm events
- Ensuring other agency personnel who are undertaking 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)

Appendix I3 - Activation Triggers

VICSES Flood Readiness and Activation Levels - V5.0 - August 2023

CD/23/1932

Readiness Level	RL 1 - Agency Business as Usual		RL 2 - Moderate	RL 3 - High	RL 4 - Extreme	RL 5 - Catastrophic
Activation Considerations	**Severe Weather Intelligence Briefing (SWIB), issued Monday, Wednesday, and Friday. Warnings issued by the BoM ad hoc.**					
Severe Weather Intelligence Briefing (SWIB) *Issued Monday, Wednesday, and Friday.*	No colour: - Catchments able to absorb predicted rain for consecutive days.	No colour: - Forecast rain. - Catchments able to absorb predicted rain for consecutive days with minor flooding occurring.	No colour: - Forecast rain. - Catchments able to absorb predicted rain for consecutive days with minor/moderate flooding occurring.	Coloured yellow for riverine flood: - Forecast heavy rain. - Catchments are saturated and unable to absorb continued rain.	Coloured orange for riverine flood: - Forecast heavy/intense rain. - Catchments are saturated and unable to absorb continued rain.	Coloured red for riverine flood: - Forecast heavy/intense rain. - Catchments are saturated and unable to absorb continued rain.
				Discussion to be held with the BoM and Hydro at the SWIB meeting to determine final RL based on expected impacts of flooding.		
Riverine flood warning(s) *Issued up to 24hrs before forecast flooding.* **Flood Scenario Product** *Issued ahead of forecast RL3 or higher in consultation with the Flood team*	No active warnings.	Flood watch issued and/or flood warning issued.	Flood warning (minor, moderate) with low consequence.	Flood warning (minor, lower end of moderate) with expected impacts. Flood warning (major) with low or nil consequence.	Flood warning (multiple upper end moderate, major) with expected impacts.	Flood warning (multiple moderate and/or multiple major) with significant consequence.
Expected impacts	Nil impacts or consequences expected.	Low lying areas next to water courses are inundated.	Areas of inundation are more substantial in size but consequence is low.	Areas of inundation are more substantial with increased consequence.	Extensive rural areas and/or urban areas are inundated.	Extensive rural areas and/or urban areas are inundated
		No expected residential flooding impacts.	No expected above floor flooding.	Properties may be isolated and a small number affected above the floor level.	Many properties affected above floor level.	Significant number of properties affected above floor level.
		No isolation of communities.	No isolation of communities.	No isolation of communities.	One to two communities isolated.	Three or more communities isolated.
		No impact to transport routes.	Small number of minor transport routes may be affected.	Small number of transport routes may be affected.	Number of transport routes may be affected, some closed.	Major transport routes closed.
		No evacuation required.	Evacuation not expected to be required.	Planning for possible evacuation.	Evacuation of flood affected areas likely.	Evacuation of large number of people/communities required.
		No impact to utility services.	No impact to utility services.	No impact to utility services.	Utility services may be impacted.	Utility services will be impacted.
		No expected dam failure.	No expected dam failure.	No expected dam failure.	Dam failure possible.	Dam failure considered very likely.
		No relocation of stock and/or equipment.	Possible relocation of stock and/or equipment.	Low number of relocation of stock and/or equipment.	Medium number of relocation of stock and/or equipment.	Large number of relocation of stock and/or equipment.
Readiness	**VICSES - Business As Usual - Operations**			**Multi Agency Operations under JSOP 2.03**		
State Command SAC, SDO, SOCC	SDO/SAC rostered. Standard VICSES on call arrangements.	SDO/SAC rostered. Standard VICSES on call arrangements.	SDO/SAC rostered. Standard VICSES on call arrangements.	SCC SAC - in place. SDO - in place. Night shift on standby or remote. ESTA SOCC - on standby.	SCC SAC - in place. SDO - in place. Night shift on standby. ESTA SOCC - in place. Night shift on standby.	SCC SAC - in place for day and night shifts. SDO - in place for day and night shifts. ESTA SOCC - in place for day and night shifts.
Regional Command RDO, RAC	RDO/RAC rostered. Standard VICSES on call arrangements.	RDO/RAC rostered. Standard VICSES on call arrangements. Consider rostering of additional warnings support for the RDO, dependent on number of active flood warnings.	RDO/RAC rostered. Standard VICSES on call arrangements. Consider rostering of additional warnings support for the RDO, dependent on number of active flood warnings.	RCC RAC - in place. Night shift on standby or remote. ROCC RDO - in place. Resources - in place (if required). Logistics - in place (if required). Night shift RDO on standby or remote.	RCC RAC - in place. Night shift on standby or remote. ROCC RDO - in place. Resources - in place. Logistics - in place. Night shift RDO on standby or remote.	RCC RAC - in place for day and night shifts. ROCC RDO - in place. Resources - in place. Logistics - in place. Night shift RDO on standby or remote. Consider additional management support member if RDO activated for night shift alone.
Unit Command UDO, ICP, SCP, DCP	UDO rostered.	UDO rostered.	UDO rostered.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.
Incident Control Centre(s)	N/A	N/A	N/A	Activated as per JSOP2.03 *Where an ICC is not active, consider roles in place at a ROCC to support critical functions such as warnings and public info.*	Activated as per JSOP2.03	Activated as per JSOP2.03

Effect	**Potential Consequences**		
People	Some minor inconvenience around local roads.	Increased number of roads being impacted. Traffic management plan should be considered.	Significant number of roads impacted. Traffic management plan is required. Some major roads closed with isolation or evacuation possible.
Remote Communities	Inconvenience only.	Some minor isolation and loss of utilities of individual properties or remote communities is likely.	Community isolation likely with resupply requirements as well as evacuation considerations needed.
Health	Little impact expected. Some local issues might be encountered, but managed locally within own facility plans.	Consideration for review and familiarisation with facility plans. VICPOL and DHHS to review Vulnerable persons list.	Highly likely some hospitals and vulnerable people will become isolated and require evacuation.
Critical Infrastructure	Nil impact.	May require some preparatory work and discussion with owner of infrastructure.	Significant work likely to be required to protect critical infrastructure. Contingency plans put in place if loss of the infrastructure occurs.
Public Infrastructure **Essential Community Infrastructure**	Limited impact.	Some disruption to access to parks and low lying community areas and infrastructure. Some minor damage to community infrastructure built on floodplains.	Significant damage to road infrastructure and community facilities. Long term closure of key community facilities likely.
Power	Possible power disruptions.	Likely short term power disruptions.	Power disruptions likely, with some substations impacted and potential long term outages.
Water Utilities	Little impact expected some local issues might be encountered but managed locally.	Increased potential but still managed locally. May be minor sewerage overflow issues in isolated areas.	Highly likely that some infrastructure will be impacted. Water authorities should develop or initiate their plans to address issues. Significant potential for pollutants including sewerage in water.
Telecommunications	Nil impact.	Minimal impact to individual premises only.	Significant impact with loss of landlines and mobile powers which will affect people's capacity to receive warnings and information.
Gas	Little impact expected Some local issues might be encountered but managed locally.	Increased potential for infrastructure damage and disruption but still managed locally.	Likely that some infrastructure will be impacted, supply authorities should develop or initiate their plans to address issues.
Road Network	Unlikely to impact.	Some minor roads may be impacted with possible disruption to critical needs supplies such as milk.	Highly likely for roads to be cut and egress and access impacted. Major roads potentially cut in some locations, traffic diversions in place. Potential rescue of trapped persons in vehicles. Expected impact on rail routes. Economic impact likely with loss of commercial transport routes.
Public Transport	Limited impact on public transport routes.	Impact to public transport routes may occur but likely to be minimal with diversions possible.	Public transport impacts will occur with roads and rail lines cut and no alternative route available. Significant disruption to people movement likely.
Education	Unlikely impact.	Some impact expected. Traffic management plan for school buses should be considered.	Some school and preschools may be inundated. School bus routes closures.
Public Events	Maybe cancelled due to weather conditions only.	Some public events may need to be cancelled or rescheduled due to safety of patrons either whilst at event or travelling to/from the event.	Likely cancellation of major events due to risk, and potential flooding impact on venue or ability to attend or leave event.
Tourism	Unlikely that event(s) will be impacted but consideration must be given to any event occurring to ensure it is safe to continue.	Potential impact on tourist locations if area not safe to visit or isolated due to road closures.	May impact on high value tourist locations and facilities with long term impacts in the social and economic environment of communities.
Agriculture **Animal welfare**	No impact likely with landowners managing any localised issues.	Potential impact with losses to live stock, fencing and crops including high intensive farming of produce and tree farms.	Substantial impact to live stock, fencing (widespread), farm machinery and crops. Short and long term impacts to high intensive produce farming due to loss of soil and erosion. Highly likely need for stock movement support and fodder resupply for isolated stock
Environmental	Minimal impact, some minor watercourse erosion.	Stream erosion and loss of vegetation around watercourses.	Significant disturbance to soil and vegetation.
Cultural Heritage	Minimal impact likely.	Some disturbance along watercourses may occur but likely to be minimal.	Potential for significant disturbance especially of flood of significance in area and flood of record height.
Relief and Recovery	Relief and recovery activity unlikely, may be some local issues.	Increased potential for relief and recovery activity but likely to be managed locally by LGA with support of DHHS.	Formal arrangements put in place for relief and recovery activity. Regional Recovery Commander appointed. Health Commander in place. Demands on relief and recovery to be substantial and potentially long term.

Regional Agency Commander (VICSES) provides advice to the Regional Controller - State Agency Commander (VICSES) provides advice to State Response Controller re: forecast, impacts, and consideration for varying the actual number, distribution and level of IMT required.

VICSES Severe Weather Readiness and Activation Levels - V5.0 - August 2023

CD/23/1932

Readiness Level	RL 1 - Agency Business as Usual		RL 2 - Moderate	RL 3 - High	RL 4 - Extreme	RL 5 - Catastrophic
Activation Considerations	**Severe Weather Intelligence Briefing (SWIB), issued Monday, Wednesday, and Friday. Thunderstorm Forecast Chart (TFC), issued daily. Warnings issued by the BoM ad hoc.**					
Severe Weather Intelligence Briefing (SWIB) *Issued Monday, Wednesday, and Friday.*	No colour.	No colour.	No colour.	*Discussion to be held with the BoM at the SWIB meeting to determine final RL.* *Consider: time of day, location, extent of forecast impact area for EM Region, previous impacts.* Coloured yellow for winds and/or rainfall.	Coloured orange for winds and/or rainfall.	Coloured red for winds and/or rainfall.
Thunderstorm Forecast Chart (TFC), issued daily. *Note: this will not impact colour on the SWIB.*	No thunderstorms.	Thunderstorms possible.	Severe thunderstorms likely for 4 or more weather districts. Consider: - Extent of district - Central district may have increased consequences. Detail from BoM discussion and/or issued severe thunderstorm warning to determine readiness level.	*Advice to be sought from the BoM to determine RL based on the TFC.* *Consider: time of day, location, extent of forecast impact area for EM Region, previous impacts.* Severe thunderstorms likely for majority of state. Consider: - Extent of district - Central weather district may have increased consequences. Detail from BoM discussion and/or issued severe thunderstorm warning to determine readiness level.	Severe thunderstorms likely for majority/whole of state. Consider. - Extent of district - Central weather district may have increased consequences. Key words to consider in forecast: - Supercells. - Organised storm cells. - Tornados / microbursts. Detail from BoM discussion and/or issued severe thunderstorm warning to determine readiness level.	
Severe Weather or Severe Thunderstorm Warning *Issued up to 24hrs in advance of the forecast event.*	*Consider: time of day, location, extent of forecast impact area for EM Region, previous impacts, AEP.* *Add 10km/hr to Alpine areas.* No severe weather or severe thunderstorm warning.	Possible for: - Average Winds (up to 60 km/hr) - Wind gusts (up to 90 km/hr) - Rainfall - Hail (<2cm)	Possible for: - Average winds (up to 60 km/hr) - Wind gusts (90 to 100 km/hr) - Heavy rainfall - Hail (<3cm) - Flash flooding	Possible for: - Average winds (60 - 80 km/hr) - Wind gusts (101-115 km/hr) - Heavy rainfall - Hail (3-5cm) - Flash flooding	Likely for: - Average winds (60 - 80 km/hr) - Wind gusts (101-115 km/hr) - Heavy rainfall - Hail (3-5cm) - Flash flooding Possible for: - Average winds (80+ km/hr) - Wind gusts (115+ km/hr) - Intense rainfall - Giant hail (5cm+) - Flash flooding - Tornado - Microburst	Likely for: - Average winds (60+ km/hr) - Wind gusts (115+ km/hr) - Intense rainfall - Giant hail (5cm+) - Flash flooding - Tornado - Microburst
Response Activity	*Consider: Increase level based on consequences of RFAs (e.g. power outages, significant roof/building damage to multiple properties).*					
	Local level Unit response Impacts / consequences of RFAs warrant activation. OR Active RFAs per Unit: Rural 1 - 10 Urban/Metro 1 - 20	Local level Unit response Impacts / consequences of RFAs warrant activation. OR Active RFAs per Unit: Rural 11 - 40 Urban/Metro 21 - 60	Local level Unit response with additional local agency support. Impacts / consequences of RFAs warrant activation. OR Active RFAs per Unit: Rural 41 and above Urban/Metro 61 and above Active RFAs per EM Region: Rural 60 - 100 Urban/Metro 100 - 250	Multi-unit response with increasing multi-agency response. Impacts / consequences of RFAs warrant activation. OR Active RFAs per EM Region: Rural 100 - 250 Urban/Metro 250 - 400 ESTA - Critical Incident Response Plan (CIRP) Level 1 activated.	Multi-unit response with multi-agency support and high level of multi-agency resources utilised. Impacts / consequences of RFAs warrant activation. OR Active RFAs per EM Region: Rural 250 - 500 Urban/Metro 400 - 1,000 ESTA - Critical Incident Response Plan (CIRP) Level 2 activated. Event creation has increased to 2-4 per minute. <15 calls waiting.	Multi-unit response and high level of multi-agency response activity with significant impacts across municipalities. Impacts / consequences of RFAs warrant activation. OR Active RFAs per EM Region: Rural 500+ Urban/Metro 1,000+ ESTA - Critical Incident Response Plan (CIRP) Level 3 activated. Event creation has increased to 4+ per minute. 15+ calls waiting.

Readiness	VICSES - Business As Usual - Operations			Multi Agency Operations under JSOP 2.03		
State Command SAC, SDO, SOCC	SDO/SAC rostered. Standard VICSES on call arrangements.	SDO/SAC rostered. Standard VICSES on call arrangements.	SCC SAC - consider in place based on forecast areas and timings of impact. SDO - consider in place based on forecast areas and timings of impact.	SCC SAC - in place. SDO - in place. Replacement shift on standby / remote. ESTA SOCC - in place. Replacement shift on standby. VicPol RCC Consider State Water Rescue Commander in place based on risk/impact of flash flood.	SCC SAC - in place. SDO - in place. Replacement shift on standby / in place dependent on timings of impact. ESTA SOCC - in place. Replacement shift on standby / in place dependent on timings of impact. VicPol RCC Consider State Water Rescue Commander in place based on risk/impact of flash flood. Replacement shift on standby / in place dependent on timings of impact.	SCC SAC - in place. SDO - in place. Replacement shift in place where SCC is active day/night. ESTA SOCC - in place. Replacement shift in place dependent on timings of impact. VicPol RCC Consider State Water Rescue Commander in place based on risk/impact of flash flood. Replacement shift in place dependent on timings of impact.
Regional Command RDO, RAC	RDO/RAC rostered. Standard VICSES on call arrangements.	RDO/RAC rostered. Standard VICSES on call arrangements.	ROCC RAC & RDO - consider in in place based on risk/impact to forecast areas and timings of impact. Warnings - consider member in place/standby/remote based on risks/impacts of flash flood in EM Region. Media Liaison - consider member in place/standby/remote to manage media enquiries.	RCC RAC - in place. Replacement shift on standby / remote. ROCC RDO - in place. Replacement shift RDO on standby / remote. Resources - in place (if required). Logistics - in place (if required). *Where, based on RC discretion, an ICC is not active, consider Warnings and Media roles in place/standby/remote.*	RCC RAC - in place. Replacement shift on standby / remote. ROCC RDO - in place. Replacement shift RDO on standby / remote. Resources - in place (if required). Logistics - in place (if required).	RCC RAC - in place. Replacement shift in place where RCC is active day/night. ROCC RDO - in place. Replacement shift RDO on standby / remote. Consider additional support member if RDO activated for night shift alone. Resources - in place. Logistics - in place.
Unit Command UDO, ICP, SCP, DCP	UDO rostered.	UDO rostered.	UDO rostered. Consider plan for activation of ICP if required.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.
Incident Control Centre(s)	N/A	N/A	N/A	Activated as per JSOP2.03	Activated as per JSOP2.03	Activated as per JSOP2.03

Unplanned Activation	VICSES - Business As Usual - Operations			Multi Agency Operations under JSOP 2.03		
State Command SAC, SDO, SOCC	Standard VICSES on call arrangements.	SDO & SAC aware.	SCC SAC & SDO - consider activation to SCC based on impacts / consequences of RFAs. OR 2 or more EM Regions with impacts activate a ROC.	SCC SAC - activated to SCC. SDO - activated to SCC. Replacement shift on standby / remote. ESTA SOCC - on standby.	SCC SAC - activated to SCC. SDO - activated to SCC. Consideration of replacement shifts to be sourced to manage fatigue. ESTA SOCC - activated to ESTA. Consideration of replacement shifts to be sourced to manage fatigue.	SCC SAC - activated to SCC. SDO - activated to SCC. Consideration of replacement shifts to be sourced to manage fatigue. ESTA SOCC - activated to ESTA. Consideration of replacement shifts to be sourced to manage fatigue.
Regional Command RDO, RAC	Standard VICSES on call arrangements.	RDO actively monitoring as required. RAC monitoring.	ROC RAC & RDO - activated to ROC if EM Region meets identified RFA triggers above. OR Impacts / consequences of RFAs warrant activation. Warnings - consider warnings member activated to based on risks/impacts of flash flood in EM Region.	RCC RAC - activated to RCC. Consideration of replacement shifts to be sourced to manage fatigue. ROC RDO - activated to ROC. Consider additional management support member if RDO activated to ROC alone. Consideration of replacement shifts to be sourced to manage fatigue.	RCC RAC - activated to RCC. Consideration of replacement shifts to be sourced to manage fatigue. ROC RDO - activated to ROC. Consider additional management support member if RDO activated to ROC alone. Consideration of replacement shifts to be sourced to manage fatigue.	RCC RAC - activated to RCC. Consideration of replacement shifts to be sourced to manage fatigue. ROC RDO - activated to ROC. Consider additional management support member if RDO activated to ROC alone. Consideration of replacement shifts to be sourced to manage fatigue.
Unit Command UDO, ICP, SCP, DCP	Consider activation of ICP dependent on consequences / impacts.	Consideration for ICP to be activated if an individual Unit meets identified RFA triggers above. OR Impacts / consequences of RFAs warrant activation.	ICP to be activated if an individual Unit meets identified RFA triggers above. OR Impacts / consequences of RFAs warrant activation.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.	ICP/SCP/DCP activated as per advised command structure.
Incident Control Centre(s)	N/A	N/A	N/A	Activated as per JSOP2.03	Activated as per JSOP2.03	Activated as per JSOP2.03

Effect	Potential Consequences		
People	Some minor inconvenience around local roads.	Increased number of roads being impacted. Traffic management plan should be considered.	Significant number of roads impacted. Traffic management plan is required. Some major roads closed with tree blockages or flash flooding impacts.
Remote Communities	Inconvenience only.	Some minor isolation and loss of utilities of individual properties or remote communities is likely.	Community isolation and loss of food/supplies potential with resupply requirements dependant on time of power or access outages.
Health	Little impact expected. Some local issues might be encountered, but managed locally within own facility plans.	Consideration for review and familiarisation with facility plans. VICPOL and DHHS to review Vulnerable persons list.	Highly likely vulnerable people impacted by power outage will require relocation. Communities without power for days needing support.
Critical Infrastructure	Nil impact.	May require some preparatory work and discussion with owner of infrastructure.	Significant work likely to be required to protect critical infrastructure. Contingency plans put in place if lose of the infrastructure occurs.
Public Infrastructure **Essential Community Infrastructure**	Limited impact.	Some disruption to access to parks and vegetated community areas and infrastructure. Some minor damage to community infrastructure.	Significant damage to community infrastructure and community facilities. Long term closure of key community facilities likely.
Power	Possible power disruptions.	Likely short term power disruptions.	Power disruptions almost guaranteed, with potential long term outages.
Water Utilities	Little impact expected some local issues might be encountered but managed locally.	Increased potential but still managed locally. May be minor sewerage overflow issues in isolated areas.	Highly likely that some infrastructure will be impacted, water authorities should develop or initiate their plans to address issues. Significant potential for pollutants including sewerage in water and loss of power will exasperate the impacts.
Telecommunications	Unlikely impacts.	Minimal impact to individual premises only.	Significant impact with loss of landlines and mobile powers which will affect peoples capacity to receive warnings and information. Commercial Business impacts with loss of phone services.
Gas	Little impact expected Some local issues might be encountered but managed locally.	Increased potential for infrastructure damage and disruption but still managed locally.	Likely that some infrastructure will be impacted, supply authorities should develop or initiate their plans to address issues.
Road Network	Unlikely impacts.	Some minor roads may be impacted with possible disruption to critical needs supplies such as milk.	Highly likely for roads to be cut and egress and access impacted. Major roads potentially cut in some locations traffic diversions in place. Potential rescue of trapped persons in vehicles highly likely. Expected impact on rail routes. Economic impact likely with loss of power and utilities supply for lengthy period.
Public Transport	Limited impact on public transport routes.	Impact to public transport routes may occur but likely to be minimal with diversions possible	Public transport impacts will occur with roads and rail lines cut and no alterative route available Significant disruption to people movement likely.
Education	Unlikely impacts.	Some impact expected. Traffic management plan for school buses should be considered.	Some school and preschools may be impacted by utilities loss and damage to infrastructure. School bus routes closed for period of time
Public Events	May be cancelled due to weather conditions only.	Some public events may need to be cancelled or rescheduled due to safety of patrons either whilst at event or travelling to/from the event.	Public events impacted likely cancellation of major events due to wind impacts and risk, and potential flooding impact on venue or ability to attend or leave event.
Tourism	Unlikely that event(s) will be impacted but consideration must be given to any event occurring to ensure it is safe to continue.	Potential impact on tourist locations if area not safe to visit or isolated due to road closures.	May impact on high value tourist locations and facilities with long term impacts in the social and economic environment of communities.
Agriculture **Animal welfare**	No impact likely with landowners managing any localised issues.	Potential impact with losses to live stock, fencing and crops including high intensive farming of produce and tree farms.	Substantial impact to crops, including high intensive produce farming (vegetables and fruit) and tree farms with short and long term impacts due to loss of crops. Economic impact to area.
Environmental	Minimal impact.	Potential for stream erosion and loss of vegetation around watercourses. Minor tree damage.	Significant disturbance to vegetation with some areas heavily impacted.
Cultural Heritage	Minimal impact likely.	Some disturbance along watercourses may occur, but likely to be minimal.	Potential for impact on historical structures and features.
Relief and Recovery	Relief and recovery activity unlikely may be some local issues.	Increased potential for relief and recovery activity, but likely to be managed locally by LGA with support of DHHS.	Formal arrangements put in place for relief and recovery activity. Regional Recovery Commander appointed. Health Commander in place Demands on relief and recovery to be substantial and potentially long term.

Regional Agency Commander (VICSES) provides advice to the Regional Controller - State Agency Commander (VICSES) provides advice to State Response Controller re: forecast, impacts, and consideration for varying the actual number, distribution and level of IMT required.