

City of Maribyrnong

Storm and Flood Emergency Plan

A Complementary Plan of the Maribyrnong Municipal Emergency Management Plan

For VICSES Unit Footscray

Version 5.2

Reviewed December 2021



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Distribution List

Copy No.	Issue To:		Date
	Position	Organisation	
Original	MEMP Committee Executive Officer	Maribyrnong Council	
1	MEMP Committee Chairperson	Maribyrnong Council	
2	MEMO	Maribyrnong Council	
3	Deputy MEMO	Maribyrnong Council	
4	MRM	Maribyrnong Council	
5	Deputy MRM	Maribyrnong Council	
6	MERC	Vic Police	
7	Deputy MERC	Vic Police	
8	RERC	Vic Police	
9	North West REMI	Vic Police	
10	Operations Officer Emergency Management	VICSES Central Region	
11	Controller	VICSES Footscray Unit	
12	Group Manager	Ambulance Victoria	
13	Emergency Management Coordinator	Department of Families, Fairness and Housing	
14	Regional Emergency Management Officer	Department of Transport: Burwood office	
15	FRV Commander	Western Zone	
16	Emergency Management Officer	St John Ambulance	
17	Emergency Management Coordinator	City Water	
18	Coordinator Management Systems	Western Water	
19	Team Leader Hydrology & Flood Warnings	Melbourne Water	

Document Transmittal Form / Amendment Certificate

This Municipal Storm and Flood Emergency Plan (MSFEP) will be amended, maintained and distributed as required by the Victoria State Emergency Service (VICSES) in consultation with the Maribyrnong City Council

Suggestions for amendments to this Plan should be forwarded to:

VICSES Central Region Sunshine Office
239 Proximity Drive,
Sunshine West VIC 3020

Amendments listed below have been included in this Plan and promulgated to all registered copyholders.

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

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 Council's 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	IMS	Incident Management System
AEP	Annual Exceedance Probability	IEMT	Incident Emergency Management Team
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	LSIO	Land Subject to Inundation Overlay
AIIMS	Australasian Inter-service Incident Management System	CEOC	Council Emergency Operation Centre
AoCC	Area of Operations Control Centre / Command Centre	MEMO	Municipal Emergency Management Officer
ARI	Average Recurrence Interval	MEMP	Municipal Emergency Management Plan
AV	Ambulance Victoria	MEMPC	Municipal Emergency Management Planning Committee
BoM	Bureau of Meteorology	MERC	Municipal Emergency Response Coordinator
CEO	Chief Executive Officer	MRM	Municipal Recovery Manager
CERA	Community Emergency Risk Assessment	PMF	Probable Maximum Flood
CFA	Country Fire Authority	RAC	Regional Agency Commander
CMA	Catchment Management Authority	RCC	Regional Control Centre
DELWP	Department of Environment, Land, Water and Planning	RDO	Regional Duty Officer
DFFH	Department of Families, Fairness and Housing	RERC	Regional Emergency Response Coordinator
DH	Department of Health	RERCC	Regional Emergency Response Coordination Centre
DJPR	Department of Jobs, Precincts and Regions	SBO	Special Building Overlay
DoI	Department of Infrastructure	SCC	State Control Centre
DoT	Department of Transport	SEMP	State Emergency Management Plan
EMLO	Emergency Management Liaison Officer	SERP	State Emergency Response Plan
EMV	Emergency Management Victoria	SEWS	Standard Emergency Warning Signal
EMT	Emergency Management Team	SHERP	State Health Emergency Response Plan
EO	Executive Officer	SOP	Standard Operating Procedure
FO	Floodway Overlay	VicPol	Victoria Police
FRV	Fire Rescue Victoria	VICSES	Victoria State Emergency Service
FWS	Flood Warning System		
FZ	Floodway Zone		
IC	Incident Controller		
ICC	Incident Control Centre		

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 Municipal Endorsement

This Municipal Storm and Flood Emergency Plan (MSFEP) has been prepared by the Maribyrnong Municipal Emergency Management Planning Committee (MEMPC) pursuant to Part 6A of the Emergency Management Act, 2013.

This MSFEP is a complementary plan to the Maribyrnong Municipal Emergency Management Plan (MEMP).

It is also consistent with the Victoria State Emergency Service (VICSES) Central Region Storm and Flood Emergency Plans and the Victorian Flood Management Strategy, and takes into account the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the **Maribyrnong MEMPC**.

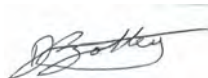
This MFSEP is a result of the cooperative efforts of the Maribyrnong MEMPC and its member agencies.

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

Minor and administrative amendments will be made to this MSFEP from time to time without re-presenting the Plan to the MEMPC. Any major structural or policy changes will be considered before adoption.

1.1.1 Endorsement

Endorsement



Diana Batley (Regional Operations Manager, VICSES Central Region)
31/01/2022

Date:



Chair – Municipal Emergency Management Planning Committee (MEMPC)
31/01/2022

Date:

1.2 Purpose and Scope of this Storm and Flood Emergency Plan

The purpose of this MSFEP 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 Municipal Emergency Management Planning Committee (MEMPC)

Membership of the Maribyrnong MEMPC is comprised of representatives from various agencies and organisations. Contact lists for the MEMPC membership are available in the Maribyrnong MEMP.

1.4 Responsibility for Planning, Review and Maintenance of this Plan

This MSFEP must be maintained and kept up to date in order to remain effective. This Plan must be assured, approved and published every three years, or more frequently if required.

VICSES through the MSFEPC has responsibility for preparing, reviewing, maintaining and distributing this plan.

The MEMPC may delegate to a subcommittee or working group to meet at least once per year to review the Plan and provide advice back to the MEMPC accordingly.

The MSFEPC will meet as least once per year or as required.

The plan should be reviewed and where necessary, arrangements and information contained in it should be amended:

- Following any new flood or stormwater drainage study.
- Following a change in non-structural and/or structural flood mitigation measures.
- After the occurrence of a significant storm and/or flood event within the Municipality.

Part 2. BEFORE: PREVENTION / PREPAREDNESS ARRANGEMENTS

2.1 Community Awareness for all Types of Storm and Flooding

Details of this MSFEP will be released to the community through the local media, VICSES community education programs, websites (VICSES and the Municipality) upon formal endorsement by the Maribyrnong MEMPC.

VICSES with the support of City of Maribyrnong and Melbourne Water will coordinate community education programs for storm and flooding within the council area (e.g. Local Flood Guides and public events). Engagement will include raising awareness about the projected impacts on the frequency and intensity of flood and storm events and what actions can be taken to minimise these impacts.

2.2 Structural Flood Mitigation Measures

Structural flood mitigation measures existing within the City of Maribyrnong area are contained in **Appendix C**.

2.3 Non-structural Flood Mitigation Measures

2.3.1 Exercising the Plan

Arrangements for exercising this Plan will be at the discretion of the MEMPC. This Plan should be regularly exercised, preferably on an annual basis and/or reviewed after a significant event.

2.3.2 Storm and Flood Warning

Arrangements for storm and flood warning are contained within the State Flood Emergency Plan, State Storm Emergency Plan (ses.vic.gov.au/em-sector/viceses-emergency-plans), the SEMP and on the Bureau of Meteorology (BoM) website (bom.gov.au).

Specific details of local storm and flood warning system arrangements are provided in **Appendix E**.

2.3.1 Local Knowledge

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

There are no official Community Flood Observers within the Maribyrnong municipality however local knowledge is incorporated into this plan through consultation with local response agencies.

Previous event history and likely operational considerations are noted in the Flood Intelligence Cards in **Appendix C**.

In line with the VICSES Local Knowledge Policy, reviews of this Plan will be undertaken with input from multiple local sources to ensure appropriate local knowledge can be captured before, during and after incidents.

Part 3. DURING: RESPONSE ARRANGEMENTS

3.1 Introduction

3.1.1 Activation of Response

Storm and Flood response arrangements may be activated by the VICSES Regional Duty Officer (RDO), Regional Agency Commander (RAC) or Incident Controller (IC).

The VICSES RDO, RAC or IC will activate agencies as required and documented in the VICSES Central Region Flood and Storm Emergency Plans, the State Flood Emergency Plan and the State Storm Emergency Plan (see ses.vic.gov.au/em-sector/vicses-emergency-plans).

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 storm and/or flood within the City of Maribyrnong. These agencies will be engaged through the Incident Emergency Management Team (IEMT).

The general roles and responsibilities of supporting agencies are as agreed within the City of Maribyrnong MEMP, the SEMP ([Roles and Responsibilities](#)), State Flood and Storm Emergency Plans and VICSES Central Region Flood and Storm Emergency Plans. (See ses.vic.gov.au/em-sector/vicses-emergency-plans).

3.1.3 Council Emergency Operation Centre (CEOC)

The function, location, establishment and operation of the CEOC will be determined by the Maribyrnong Municipal Emergency Management Officer (MEMO).

Liaison with the CEOC will be through the VICSES RDO/IC or established ICC. In the event that the CEOC is not operating, the Maribyrnong MEMO will be contacted.

For flooding of the Maribyrnong River, CEOC will be activated for events greater than 2.6M AHD.

3.1.4 Escalation

Most storm and/or flood incidents are of local concern and an appropriate response can usually be coordinated using local resources. However, when these resources are exhausted, the Regional 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

To provide guidance to the Incident Management Team (IMT) and Incident Emergency Management Team (IEMT), the following State Emergency Management Priorities, shall form the basis of incident action planning processes:

1. Protection and preservation of life is paramount. This includes:
 - a) Safety of emergency response personnel; and
 - b) Safety of community members including vulnerable community members and visitors/tourists.
2. Issuing of community information and community warnings detailing incident information that is timely, relevant and tailored to assist community members make informed decisions about their safety.
3. Protection of critical infrastructure and community assets that supports community resilience.
4. Protection of residential property as a place of primary residence.
5. Protection of assets supporting individual livelihoods and economic production that supports individual and community financial sustainability.
6. Protection of environmental and conservation assets that considers the cultural, biodiversity, and social values of the environment.

Circumstances may arise where the IC is required to vary these priorities, with the exception being that the protection of life should remain the highest. This shall be done in consultation with the State Response Controller and relevant stakeholders based on sound incident predictions and risk assessments.

3.3 The Six C's

Arrangements in this MSFEP must be consistent with the Six C's detailed in State and Regional Flood and Storm Emergency Plans. For further information, refer to the SEMP.

- **Control:** Overall direction of response activities in an emergency, operating horizontally across agencies.
- **Command:** Internal direction of personnel and resources of an agency.
- **Coordination:** Bringing together agencies and resources to ensure effective preparation for response and recovery.
- **Consequences:** Management of the effect of emergencies on individuals, communities, infrastructure and the environment.
- **Communication:** Engagement and provision of information across agencies and proactively with the community around preparation, response and recovery in emergencies.
- **Community Connection:** Understanding and connecting with trusted networks, leaders and all communities to support resilience and decision making.

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.

Table 9 of the SEMP ([Roles and Responsibilities](#)), identifies VICSES as the Control Agency for storm and flood. It identifies the Department of Environment, Land, Water and Planning DELWP as the Control Agency responsible for dam safety, water and sewerage asset related incidents and other emergencies.

All storm and flood response activities within the City of Maribyrnong, 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 his / her delegated representative.

3.3.2 Incident Controller (IC)

An Incident Controller (IC) will be appointed by VICSES (as the Control Agency) to command-and-control available resources in response to a storm and/or flood event on the advice of the BoM (or other reliable source) that a storm and/or flood event will occur, or is occurring. The IC responsibilities are defined in the SEMP.

3.3.3 Incident Control Centre (ICC)

As required, the IC will establish ICC from which to initiate incident response command and control functions. The decision as to if and when the ICC should be activated, rests with the Control Agency (VICSES).

Pre-determined Incident Control Centre locations are

- Sunshine ICC
- Ferntree Gully ICC
- Dandenong ICC

3.3.4 Divisions and Sectors

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

The following Divisions and Sectors may be established to assist with the management of storms and flooding within the Municipality.

Pre-determined Division Command locations are:

- VICSES Brimbank Unit LHQ, Stadium Drive, Keilor Park.
- VICSES Essendon Unit LHQ, 9 Rutherford Street, Aberfeldie.
- VICSES Wyndham West LHQ, 418 Ballan Road, Wyndham Vale
- VICSES Broadmeadows Unit LHQ, 434 Mahoneys Road, Campbellfield

Sector Command locations are to be allocated on an as needs basis

3.3.5 Incident Management Team (IMT)

The IC will form an IMT in line with Australasian Inter-service Incident Management System (AIIMS) principles.

Refer to the SEMP for guidance on IMTs

3.3.6 Incident Emergency Management Team (IEMT)

The IC will establish a multi-agency IEMT to assist with the storm and/or flood response. The IEMT will consist of key personnel (with appropriate authority) from stakeholder agencies and relevant organisations who need to be informed of strategic issues related to incident control and who are able to provide high level strategic guidance and policy advice to the IC for consideration in developing incident management strategies.

Organisations required within the IEMT (including Maribyrnong City Council) 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.

Refer to the SEMP for further guidance on IEMTs.

3.3.7 On Receipt of a Flood Watch / Severe Weather Warning

The VICSES RDO (until an IC is appointed) will undertake actions as defined within the Flood Intelligence Cards (**Appendix C**). General considerations by the Incident Controller/VICSES RDO will be as follows:

- Review storm and flood intelligence to assess likely storm and flood consequences, including:
 - Melbourne Water rainfall and river monitoring - [melbournewater.com.au/water-data-and-education/rainfall-and-river-levels - /](https://melbournewater.com.au/water-data-and-education/rainfall-and-river-levels/)).
- Monitor weather and flood information – bom.gov.au
- Assess Command and Control requirements.
- Review local resources and consider needs for further resources regarding personnel, property protection, storm/ flood rescue and air support.
- Notify and brief appropriate officers. This includes the Regional Control Centre (RCC) (if established), State Control Centre (SCC) (if established), Maribyrnong Council, and other emergency services through the IEMT.
- Assess ICC readiness (including staffing of IMT and IEMT) and open if required.
- Ensure flood bulletins and community information are prepared and issued to the community.
- Monitor watercourses and undertake reconnaissance of low-lying areas.
- Develop media and community information management strategy.
- Ensure storm and flood mitigation works are being checked by owners.
- Develop and issue incident action plan, if required.
- Develop and issue situation report, if required.

3.3.8 On Receipt of the First and Subsequent Storm and Flood Warnings

The VICSES RDO (until an incident controller is appointed) or the IC will undertake actions as defined within the Flood Intelligence Cards (**Appendix C**). General considerations by the IC/VICSES RDO will be as follows:

- Develop an appreciation of current flood levels and predicted levels: determine if floodwaters are rising, peaking or falling.
- Review storm and flood intelligence to assess likely flood consequences. Consider:
 - What areas may be at risk of inundation.
 - What areas may be at risk of isolation.
 - What areas may be at risk of indirect affects as a consequence of power, gas, water, telephone, sewerage, health, transport or emergency service infrastructure interruption.
 - The characteristics of the populations at risk.
 - What areas may be at risk of building damage.
- Determine what the at-risk community need to know and do as the storm and/or flood develops.
- Warn the at-risk community by ensuring that an appropriate warning and community information strategy. This includes:
 - The current storm and/or flood situation.
 - Storm and/or Flood predictions.
 - What the consequences of predicted storm activity or flood 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 (i.e. water and power utilities).
- Implement response strategies as required based upon storm and/or flood consequence assessment.
- Continue to monitor the flood situation – (bom.gov.au/vic/flood/).
- Continue to conduct reconnaissance of low-lying areas.

3.4 Community Information and Warnings

Guidelines for the distribution of community information and warnings are contained in the VICSES Central Region Storm and Flood Emergency Plans, and the State Flood and Storm Emergency Plans.

Community information and warnings communication methods available locally include:

- Emergency Alert.
- Phone messages (including SMS).
- Radio and Television.

- Two-way radio.
- Mobile and fixed public address systems.
- Sirens.
- Verbal Messages (i.e. Doorknocking).
- Agency Websites, including the VicEmergency website.
- VicEmergency Hotline.
- Variable Message Signs (i.e. road signs).
- Community meetings.
- Newspapers.
- Email.
- Newsletters.
- Letter drops.
- Social media and/or social networking sites (i.e. Twitter and/or Facebook).

Refer to **Appendix C and E** for the specific details of how community information and warnings are to be provided.

The release of flood bulletins and information with regard to response activities at the time of a flood event is the responsibility of VICSES, as the Control Agency.

Responsibility for public information, including media briefings, rest with VICSES as the Control Agency. Maribyrnong Council will assist VICSES to warn individuals within the community including activation of flood warning systems, where they exist.

Other agencies such as the Country Fire Authority (CFA), DELWP and Victoria Police (VicPol) may be requested to assist VICSES with the communication of community storm and/or flood warnings.

In cases where severe flash flooding is predicted, dam failure or landslide is likely or flooding necessitating evacuation of communities is predicted, the IC may consider the use of the Emergency Alert System and Standard Emergency Warning System (SEWS).

The Department of Health (DH) will coordinate information regarding public health and safety precautions.

3.5 Media Communication

The IC through the Public Information Cell established at the ICC will manage Media communication. If the ICC is not established, the VICSES RDO will manage all media communication.

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.

3.6 Impact Assessments (IA)

Impact assessments can be conducted in accordance with State doctrine and Standard Operating Procedures (SOPs) to assess and record the extent and nature of damage caused by storms and /or flooding. This information may then be used to provide the basis for further needs assessment and recovery planning by DFFH, Maribyrnong Council and applicable recovery agencies.

The control agency is responsible for coordinating the collection, collation and dissemination of IA information on a whole of government basis during the emergency response.

The purpose, function and conduct if IAs are outlined in the State Flood Emergency Plan and State Storm Emergency Plan. All IAs should be conducted in accordance with current State impact assessment doctrine and SOPs.

3.7 Preliminary Deployments

When storm impacts and/or flooding are 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 might include emergency service personnel, food items and non-food items such as medical supplies, shelter, assembly areas and relief centres in line with the Maribyrnong MEMP.

3.8 Response to Flash and Riverine Flooding

Emergency management response to flash/riverine flooding should be consistent with the guideline for the emergency management of flash/riverine flooding contained within the VICSES Central Region Storm and Flood Emergency Plans and State Storm and Flood Emergency Plans.

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

1. Determine if there are barriers to evacuation by considering warning time, safe routes and resources available.
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 options, safety advice needs to be provided to people at risk advising them not to attempt to flee by entering floodwater if they become trapped, and that it may be safer to seek the highest point within the building and to telephone 000 if they require rescue. This advice needs to be provided even when evacuation may be possible, due the likelihood that not all community members will evacuate.
4. For buildings known to be structurally un-suitable an earlier evacuation trigger will need to be established (return to step 1 of this cycle).
5. If an earlier evacuation is not possible then specific preparations must be made to rescue occupants trapped in structurally unsuitable buildings either pre-emptively or as those people call for help.

6. Contact the Municipal Emergency Response Coordinator (MERC) and Maribyrnong Council MEMO and Municipal Recovery Manager (MRM) at the earliest opportunity to allow relief preparation to commence.

Due to the rapid development of flash flooding it will often be difficult to establish evacuation relief centres ahead of actually triggering the evacuation. This is normal practice, but this is insufficient justification for not adopting evacuation.

Response arrangements for flash and riverine flood events may be contained in **Appendix C**. Refer to the VicTraffic website for road closures. (alerts.vicroads.vic.gov.au).

3.9 Evacuation

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

The decision to recommend or warn people to prepare to evacuate or to evacuate immediately rests with the IC and where possible the IEMT.

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

Once the decision is made VicPol are responsible for the coordination 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.

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

Evacuation operations should be consistent with the Joint Standard Operating Procedure on Evacuation (JSOP3.12). Guidelines for best practice for planning evacuations are provided in Australian Institute for Disaster Resilience Handbook 4, available at: knowledge.aidr.org.au/resources/handbook-evacuation-planning/.

Refer to details within the Maribyrnong Relief and Recovery section of the MEMP (including Section 7: Relief and Recovery arrangements for further guidance of evacuations for flood emergencies. If evacuation is determined as appropriate, Maribyrnong MEMO and MRM should be notified as soon as possible.

Refer to **Appendix D** of this Plan for detailed evacuation arrangements for the City of Maribyrnong.

3.10 Flood Rescue

VicPol as the designated Control Agency for water rescue and coordinates rescues undertaken during flood events.

In order to activate water rescue services, VICSES as the Control Agency for overall flood response, will identify areas at risk of requiring rescue and notify the Officer in Charge of the Water Police Search and Rescue Squad to request pre-deployment of rescue resources to those areas.

In conducting rescues, VicPol may require the assistance of appropriately trained and equipped personnel. In these circumstances, appropriately trained and equipped VICSES units or other agencies 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.

3.11 Aircraft Management

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

Air support operations will be conducted under the control of the IC in line with State Aircraft Unit Policy 01-Air Operations. The IC may request aircraft support through the State Aircraft Desk located at the SCC. The SCC will establish priorities.

Suitable airbase facilities are located at:

- Essendon
- Moorabbin

3.12 Resupply

Communities, neighbourhoods or households can become isolated during storms and floods 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 indicate that communities, neighbourhoods and/or households may become isolated, and if time permits, VICSES will advise businesses and/or households that they should stock up on essential items.

After the impact, agencies may assist with the transport of essential items to isolated communities and assist with logistics functions.

Resupply operations are to be included as part of the emergency relief arrangements as outlined in the Maribyrnong MEMP.

3.13 Essential Infrastructure and Property Protection

Essential Infrastructure and Property (e.g. residences, roads, utilities, telecommunications, power supply etc.) may be affected in the event of a storm and/or flood.

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

The IC will determine the priorities related the use of sandbags, which will be consistent with the State Emergency Management Priorities.

The City of Maribyrnong holds a limited number of sandbags with back up supplies available via the VICSES Regional Headquarters.

If VICSES sandbags are becoming limited in supply, then priority will be given to protection of Essential Infrastructure. Other high priorities may include, for example, the protection of historic buildings. If time permits, requests for supplementary supply should be carried out in line with the Maribyrnong MEMP.

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 Melbourne Water, Maribyrnong Council and VicPol and within appropriate approval frameworks.

Refer to **Appendix C** for further specific details of essential infrastructure requiring protection. Sandbag collection points will be established as needed.

3.14 Disruption to Services

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

3.15 Levees

Levee owners/operators are responsible for the maintenance, operation and monitoring of their levees.

Levee owners/operators must keep the IC informed of levee status' and be prepared to provide expert advice to the IC about the design and construction of their levees.

In accordance with the State Emergency Management Priorities, the IC may assist levee owners to coordinate resources, both technical and physical, to provide advice and affect temporary repairs to, or augmentation of levees.

3.16 Waste Water related Public Health Issues and Critical Sewerage Assets

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

- Advise VICSES and the Maribyrnong MEMO 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 VICSES RDO/IC or established ICC in the event of inundation of critical sewerage assets.

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

General public health information and messages are provided by Maribyrnong Council, DFFH and DH and may contain information that is relevant prior to, during and following an incident. Information may also be provided in sub plans to the MEMP, specific health notifications and, after discussions within the IEMT, may be included in Flood Bulletins.

3.17 Road Closures

Maribyrnong City Council, VicPol and the Department of Transport (DoT) will carry out their formal functions of road closures. This includes the observation and placement of warning signs and road blocks on designated local and regional roads, bridges, walking and bike trails.

VicPol may liaise with and advise Maribyrnong Council and DoT about the need to erect warning signs and / or closed roads and bridges. DoT are responsible for designated main roads and highways and Councils are responsible for the designated local and regional road network.

DoT, VicPol, and City of Maribyrnong will communicate community information regarding road closures as outlined in the Maribyrnong MEMP.

3.18 Dam Spilling / Failure

DELWP is the Control Agency for dam safety incidents (e.g. breach, failure or potential breach/failure of a dam), however VICSES is the Control Agency for any flooding that may result.

The Maribyrnong municipality may be impacted by the failure of the Rosslynne Reservoir (Rosslynne Reservoir Dam Safety Emergency Plan, Southern Rural Water, May 2015).

Major dams with potential to cause structural and community damage (in the event of a failure) within the Municipality are contained in **Appendix A**.

3.19 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.

3.20 After Action Review

As the lead agency, VICSES will coordinate the After-Action Review (AAR) arrangements for storm/flood operations as soon as practical following an event.

All agencies involved in the storm/ flood incident should be represented at the AAR.

Part 4. AFTER: EMERGENCY RELIEF AND RECOVERY ARRANGEMENTS

4.1 General

Arrangements for relief and recovery from a storm/flood incident within the Maribyrnong are detailed in the Maribyrnong MEMP.

4.2 Emergency Relief

The IC determines the need for emergency relief services with advice from the emergency management team (such as the IEMT), including the MRM, in accordance with the SEMP Relief arrangements. The IC is responsible for ensuring that relief arrangements have been considered and implemented where required under the State Emergency Relief and Recovery Plan. This should be carried out in line with the Maribyrnong MEMP.

The IC should ensure that the MERC, the Regional Recovery Coordinator and the MRM are kept informed of arrangements for relief.

The range and type of emergency relief services to be provided in response to a storm/flood event will be dependent upon the size, impact, and scale of the event. Refer to the SEMP for further information.

Suitable emergency relief/recovery facilities identified for use during storms and/or floods are detailed in the Maribyrnong MEMP and the Maribyrnong Relief and Recovery Plan. The MRM will facilitate access to emergency relief facilities as required. The MEMO will facilitate access to staging areas as required.

4.3 Animal Welfare

Matters relating to the welfare of livestock (including feeding and rescue), are to be referred to the Department of Jobs, Precincts and Regions (DJPR).

Matters relating to companion animals will be shared between Maribyrnong Council and RSPCA. Council assists, where possible, in the support and temporary rehousing of displaced companion animals.

Matters relating to the welfare of wildlife are to be referred to DELWP and Maribyrnong Council.

4.4 Transition from Response to Recovery

VICSES, as the Control Agency, is responsible for ensuring effective transition from response to recovery. Transition should occur in consultation with the emergency management teams (including the IEMT and the MRM). Further information about transition is provided in the SEMP and the Maribyrnong MEMP.

APPENDIX A - FLOOD THREATS FOR 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 1,622 properties within the municipality that are affected by flooding from waterways and overland flows in a 1% Annual Chance flood event (Melbourne Water, 2016).

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

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

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

The 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.

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 G**) 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 G**) 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 Storms and Floods

Significant floods (with high flood gauge levels and likely flooding consequences to property and infrastructure) to have occurred within the City of Maribyrnong are as follows in the table below. To view the locations of these floods, see mapping in **Appendix F**.

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		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
11 th July 1891		✓	-	-	-	3.32m	-	-
23 rd April 1901		✓	-	-	-	2.22m	-	-
8 th September 1906		✓	-	-	-	4.50m	-	-
18 th June 1911		✓	-	-	-	2.16m	-	-
22 nd September 1916		✓	-	-	-	4.26m	-	-
4 th March 1919		✓	-	-	-	2.16m	-	-
25 th August 1924		✓	-	-	-	2.98m	-	-
29 th August 1932		✓	-	-	-	2.37m	-	-
25 th February 1946		✓	-	-	-	2.13m	-	2.72m
7 th November 1954		✓	-	-	-	2.83m	-	-
11 th December 1954		✓	-	-	-	2.98m	-	-
13 th July 1963		✓	-	-	-	2.10m	-	-
6 th November 1971		✓	-	-	-	2.52m	-	-
14 th May 1974		✓	-	7.22m	-	4.20m	-	-
18 th September 1975		✓	-	7.42m	-	2.67m	-	-
21 st October 1975		✓	-	5.84m	-	1.75m	-	-
25 th October 1975		✓	-	6.93m	-	2.61m	-	-
23 rd September 1976		✓	-	5.41m	-	1.39m	-	-

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		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
8 th April 1977		✓	-	7.31m	-	2.74m	-	2.74m
19 th June 1977		✓	-	5.87m	-	1.58m	-	-
1 st July 1977		✓	-	6.34m	-	1.87m	-	-
8 th August 1978		✓	-	7.70m	-	2.94m	-	-
20 th November 1978		✓	-	6.42m	-	1.74m	-	-
16 th October 1983		✓	121mm / 34 hrs	5.78m	-	3.37m	-	-
10 th December 1985		✓	70mm / 69 hrs	4.01m	-	1.89m	-	-
30 th July 1987		✓	75mm / 34 hrs	5.74m	-	3.16m	-	-
11 th June 1989		✓	23mm / 20 hrs	4.81m	-	2.25m	-	-
18 th July 1990		✓	39mm / 11 hrs	4.00m	-	1.97m	-	-
15 th September 1993		✓	57mm / 28 hrs	6.84m	47mm / 27 hrs	3.83m	-	-
23 rd October 2000		✓	75mm / 41 hrs	4.25m	97mm / 48 hrs	1.90m	78mm / 47 hrs	1.75m
22 nd March 2001		✓	119mm / 10 hrs	1.36m	75mm / 9 hrs	1.36m	74mm / 11 hrs	2.50m
3 rd February 2005		✓	149mm / 29 hrs	4.25m	158mm / 28 hrs	2.21m	148mm / 30 hrs	1.80m
6 th March 2010	✓	✓	88mm / 41 hrs	0.93m	99mm / 41 hrs	0.65m	72mm / 41 hrs	2.19m
14 th January 2011		✓	50mm / 31 hrs	5.61m	44mm / 28 hrs	2.21m	78mm / 73 hrs	1.53m
4 th February 2011		✓	58mm / 12 hrs	1.54m	60mm / 13 hrs	0.72m	90mm / 32 hrs	2.22m
25 th December 2011	✓	✓	37mm / 5 hrs	0.68m	39mm / 5 hrs	0.61m	39mm / 5 hrs	2.08m
12 th August 2013	✓		0mm	0.59m	0mm	0.31m	0mm	0.51m
1 st October 2013	✓		0mm	0.48m	0mm	0.98m	0mm	0.20m
24 th June 2014	✓		2mm / 1 hr	0.29m	2mm / 1 hr	1.23m	4mm / 2 hrs	0.89m
30 th January 2016	✓	✓	17mm / 2 hrs	0.34m	25mm / 2 hrs	0.45m	28mm / 2 hrs	2.01m
9 th October 2016	✓		0mm	0.68m	0mm	0.43m	0mm	0.21m

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		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
29 th July 2017	✓		0mm	0.38m	0mm	0.61m	0mm	0.07m
1 st & 2 nd December 2017		✓	31mm / 19 hrs	0.46m	30mm / 21 hrs	0.62m	23mm / 20 hrs	1.41m

Table A2 – Selection of historical flood 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 25 recorded occasions. 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.

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.

The 1974 flood (third largest on record for the region) resulted in the greatest 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. 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.

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. See Dam Failure in Section 3.16 of this plan for more information. 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 A3 –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). Hence, 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. Lastly this may be because of the existence of a retarding basin between the two gauges.

Typical Travel Times

Location From (gauge)	Location To (gauge)	Typical Travel Time	Flood Class	Comments
MARIBYRNONG RIVER				
Keilor	Maribyrnong	Between 1 to 6 hours	Minor Flood at Maribyrnong	Inflows from Jacksons Creek & Deep Creek upstream of Keilor North will likely impact on flood magnitude downstream at Maribyrnong.
Keilor	Maribyrnong	Between 2 to 5 hours	Moderate Flood at Maribyrnong	
Keilor	Maribyrnong	Between 2 to 4 hours	Major Flood at Maribyrnong	

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				Maribyrnong
18 th September 1975	Keilor	Maribyrnong	3 hours	Moderate
21 st October 1975	Keilor	Maribyrnong	1 hour	Minor
24 th October 1975	Keilor	Maribyrnong	5 hours	Moderate
23 rd September 1976	Keilor	Maribyrnong	6 hours	Below Minor
7 th -8 th April 1977	Keilor	Maribyrnong	5 hours	Moderate
19 th June 1977	Keilor	Maribyrnong	4 hours	Below Minor
30 th June-1 st July 1977	Keilor	Maribyrnong	2 hours	Minor
8 th August 1978	Keilor	Maribyrnong	4 hours	Major
19 th -20 th September 1978	Keilor	Maribyrnong	5 hours	Minor
16 th October 1983	Keilor	Maribyrnong	4 hours	Major
11 th December 1985	Keilor	Maribyrnong	3 hours	Minor
30 th July 1987	Keilor	Maribyrnong	2 hours	Major
11 th June 1989	Keilor	Maribyrnong	1 hour	Minor
18 th July 1990	Keilor	Maribyrnong	1 hour	Minor
15 th September 1993	Keilor	Maribyrnong	3 hours	Major
23 rd October 2000	Keilor	Maribyrnong	6 hours	Minor
3 rd February 2005	Keilor	Maribyrnong	Keilor peaked 5 hours before Maribyrnong	Minor
5 th September 2010	Keilor	Maribyrnong	3 hours	Minor
28 th November 2010	Keilor	Maribyrnong	5 hours	Minor
14 th January 2011	Keilor	Maribyrnong	3 hours	Minor
18 th August 2012	Keilor	Maribyrnong	3 hours	Minor
14 th September 2016	Keilor	Maribyrnong	11 hours	Below Minor

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	456				
Residential	449				
Commercial	3				
Industrial	0				
Public Land	4				
Rural	0				
Community Infrastructure					
Places of Worship	1	Ethiopian Orthodox Church			
Essential Infrastructure					
Major Roads	3	Famsworth Ave, Raleigh Rd & Van Ness Ave			
Rail / Tramway	2	Trams 57 & 82			
Bus Routes	2	Routes 468 & 952			
Sewerage Facilities	5	Sewerage Emergency Relief Points			
Tourism / Recreation					
Sports Facilities	1	Maribyrnong Reserve			
Recreation Facilities	4	Burton Crescent Reserve; Coulson Gardens; Maribyrnong River Trail; & Pipemakers Park			
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. Flooding as a result is more likely to last for 24-48 hours but historical events have spanned a week. See mapping in **Appendix F** for more insight into flooding in the area.

Gauges and Warnings

Warnings are available for flooding expected along the Maribyrnong River at the Maribyrnong Township and surrounding area. Telemetry gauges exist along the Maribyrnong River and its upstream tributaries. Melbourne Water manages a series of gauges at the locations in the table below to provide a timely warning of expected flooding. See Appendix B for information on these gauges and flood peak travel times.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Jacksons Creek at Sunbury	230104A	West side of the Creek, north side of Sunbury Road bridge, Sunbury	✓	✓	382 H5
Deep Creek at Konagaderra	230107A	West side of the creek 200m north of The Ridge Walking Trail, Oaklands Junction	✓	✓	365 C2
Deep Creek at Bulla (SWRMP site)	230102A	South side of the creek at Bulla Rd bridge, Bulla	✓		177 A6
Bulla	587014	105 Loemans Rd, Bulla		✓	177 A10
Maribyrnong River d/s Jacksons Creek, Keilor North	230237A	Southwest side of River in Sydenham Park, Keilor North	✓		4 B7
Maribyrnong River at Keilor (SWRMP site)	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 C1.2 – 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.

VICSES and Maribyrnong City Council are expected to receive 8 to 12 hours warning of a flood peak occurring at the Maribyrnong Floodplain, including how high the water levels will rise. These warnings are related to gauges at Keilor and Maribyrnong shown in Table C1.3 below.

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 A5 – Gauges with established flood class levels used for Flood Warning for the City of Maribyrnong

At these sites on the Maribyrnong River, the Bureau of Meteorology (the Bureau) in consultation with Melbourne Water will issue flood warnings if levels reach those classified above. This warning will be placed on the Bureau's website (<http://www.bom.gov.au/vic/warnings/index.shtml>). and the VicEmergency website <https://emergency.vic.gov.au/>. While the City of Maribyrnong monitors these warnings in times of high rainfall, there are no specific guidelines to advise how these situations should be responded to.

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



Map Produced by VICSES January 2021.

<p>CITY OF MARIBYRNONG 1% AEP (100yr ARI) Flooding C1. Areas of Flood Risk along the Maribyrnong River</p>	<p> N</p>	<p> Waterbody</p> <p> 1% AEP Flash Flood Extent</p> <p> 1% AEP Riverine Flood Extent</p> <p> 1% AEP Storm Surge Extent</p> <p> Retarding Basin</p> <p> Waterway</p> <p> Melbourne Water Stormwater Drain</p> <p> Sewer Emergency Relief Point</p>	<p> Caravan Park</p> <p> State Emergency Service</p> <p> Community Centre</p> <p> Fire Station</p> <p> Hospital</p> <p> Police Station</p> <p> Levee</p>	<p> Rain Gauge</p> <p> Stream Level Gauge</p> <p> Municipal Office</p> <p> Telephone Exchange</p>	<p>LAND USE</p> <p> Residential</p> <p> Commercial and Business</p> <p> Industrial</p> <p> Public Parks / Cemeteries / Recreation</p> <p> Utilities and Local Government Facilities</p> <p> Education</p> <p> Boundary for this Appendix</p>	<p> VICTORIA State Emergency Service</p> <p> Melbourne Water</p> <p>This map publication is presented by the Victoria State Emergency Service for the purpose of disseminating emergency management information. The contents of the information have not been independently verified by the Victoria State Emergency Service. No liability is accepted for any damage, loss or injury caused by errors or omissions in this information or for any action taken by any person in reliance upon it. This map has not been endorsed by council.</p>
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Figure C2 – Areas of flood risk along the Maribyrnong River in the City of Maribyrnong

Properties at Flood Risk

A Summary of Properties at flood risk in the Maribyrnong Township

Flood Class	River Height at Chifley Dr Gauge	Properties Flooded (flooding in yard)		Residences / Businesses Likely Flooded Over-Floor		Total Flooded
		New at Level	Total	New at Level	Total	
Bank Full	Less than 1.7m	0	0	0	0	0
Minor	1.7m – 2.3m	38	38	1	1	39
Moderate	2.3m – 2.6m	39	77	1	2	80
Moderate	2.6m – 2.9m	37	72	56	58	130
Major	2.9m – 3.2m	71	143	31	89	232
Major	3.2m – 3.75m	131	160	156	245	405
Major	3.75 – 4.4m	51	137	74	319	456
1% AEP (100yr ARI)	4.4m	-	137	-	319	456

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

Properties listed in the table below are at risk from flooding over-floor along the Maribyrnong River in Maribyrnong. 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 pose an isolation risk. As more intelligence becomes available, this list is expected to change. This table has been populated based on modelling work as part of the Maribyrnong River (Melbourne Water, February 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 along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
			✓	30 Alameda Avenue	Maribyrnong	Maribyrnong River	Riverine
✓	✓	✓	✓	2 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/10 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
			✓	12 Anglers Way	Maribyrnong	Maribyrnong River	Riverine
✓	✓	✓	✓	7 Burton Crescent	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	15 Burton Crescent	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	17 Burton Crescent	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
		✓	✓	19 Burton Crescent	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	9 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	13A Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	17 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	19 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	21 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	27 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	29 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	31 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	33 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
			✓	87 Chifley Drive	Maribyrnong	Maribyrnong River	Riverine
			✓	1 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	9/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	10/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	11/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	12/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	13/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14/8-10 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	9 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	11 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	12 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	13 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	15 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	16 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	17 Clyde Street	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
	✓	✓	✓	18 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	20 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	22 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	23 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	24 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	25 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
			✓	26 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
			✓	36 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
			✓	38 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	40 Clyde Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	9 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	10 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	11 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	12 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	13 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
			✓	16 Duffy Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1A Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	8/3 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4 Ensign Street	Maribyrnong	Maribyrnong River	Riverine
			✓	2A Hillside Crescent	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/1 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
			✓	100 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
			✓	102 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
			✓	104 Hortense Street	Maribyrnong	Maribyrnong River	Riverine
			✓	1 Leopold Street	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
		✓	✓	2 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
			✓	1/4 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/4 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/4 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
			✓	4/4 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
			✓	5/4 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
			✓	8 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
			✓	10 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	12 Leopold Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1 Middle Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3 Middle Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3A Middle Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4 Middle Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	1/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	2/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	3/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	4/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	5/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	6/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	7/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
			✓	8/8 Middle Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/4 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/6 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7-9 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	10 Navigator Street	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
	✓	✓	✓	11 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	8/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	9/12 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/13 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/14 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/15 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	17 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	18 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	19 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
			✓	25 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
			✓	27 Navigator Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	5 Newstead Street	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
	✓	✓	✓	1/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	8/6 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	7 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	4/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	5/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	6/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	7/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	8/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	9/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	10/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	11/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	12/8 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	9 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	1/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	2/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	8/10 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	11 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	12 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	13 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4/14 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	16 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	21 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	23 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	27 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	28 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	29 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	30 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
			✓	31 Newstead Street	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
			✓	33 Newstead Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	2 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	3 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	4 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	8 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	9 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	11 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	12 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	13 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	15 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	16 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
			✓	17 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	18 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	19 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	20 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	21 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
			✓	22 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	23 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
			✓	24 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	25 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	26 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	27 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	28 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	29 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	30 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
			✓	31 Oakland Street	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	20 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	22 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	24 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	26 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	28 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	30 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	31 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	32 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	33 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	36 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	37 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	38 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	39 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	40 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	41-45 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong

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	2% AEP	1% AEP				
	✓	✓	✓	42 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	51 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	53 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	55 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	56 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	57 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	59 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	60 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	61 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	63 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	65 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	67 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
			✓	69 Raleigh Road	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	1 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	3 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	5 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	6 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	7 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	9 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	12 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	13 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	14 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	15 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	16 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	26 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	27 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	29 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	30 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	1/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	2/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	3/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	4/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	5/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	6/31 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	35 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	38 The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	38A The Esplanade	Maribyrnong	Maribyrnong River	Riverine
			✓	1/19 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
			✓	2/19 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
			✓	3/19 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
			✓	21 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	23 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
	✓	✓	✓	25 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine

Properties at risk from Flooding Over-Floor along the Maribyrnong River in Maribyrnong							
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	2% AEP	1% AEP				
		✓	✓	27 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
		✓	✓	29 Van Ness Avenue	Maribyrnong	Maribyrnong River	Riverine
Totals							
2	89	245	319				

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.

Essential Infrastructure

- 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 411 residential properties.

Apart from the roads outlined below, all other essential infrastructure and services areas along the Maribyrnong River 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 Maribyrnong. Check the VicRoads 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.

Department of Transport (VicRoads) Roads flooded in a 1% AEP (100yr ARI) event
<ul style="list-style-type: none"> Farnsworth Avenue, Footscray
<ul style="list-style-type: none"> Raleigh Road, Maribyrnong between the bridge and Van Ness Avenue
<ul style="list-style-type: none"> Van Ness Avenue, Maribyrnong between Raleigh Road and Hillside Crescent

Table C1.6 – Department of Transport (VicRoads) Possible Road Closures during a flooding event

Maribyrnong City Council Roads flooded in a 1% AEP (100yr ARI) event			
FOOTSCRAY	<ul style="list-style-type: none"> Chicago Street 	<ul style="list-style-type: none"> Hortense Street 	<ul style="list-style-type: none"> Oakland Street
<ul style="list-style-type: none"> Maribyrnong Boulevard 	<ul style="list-style-type: none"> Chifley Drive 	<ul style="list-style-type: none"> Lakeside Crescent 	<ul style="list-style-type: none"> Plantation Street
<ul style="list-style-type: none"> Meyers Road 	<ul style="list-style-type: none"> Clyde Street 	<ul style="list-style-type: none"> Leopold Street 	<ul style="list-style-type: none"> Regatta Lane
MARIBYRNONG	<ul style="list-style-type: none"> Duffy Street 	<ul style="list-style-type: none"> Magazine Way 	<ul style="list-style-type: none"> The Esplanade
<ul style="list-style-type: none"> Anglers Way 	<ul style="list-style-type: none"> Ensign Street 	<ul style="list-style-type: none"> Navigator Street 	<ul style="list-style-type: none"> Waterside Place
<ul style="list-style-type: none"> Burton Crescent 	<ul style="list-style-type: none"> Harbour Lane 	<ul style="list-style-type: none"> Newstead Street 	

Table C1.7 – Maribyrnong City Council Possible Road Closures during a flooding event

Flood Mitigation

No formal Retarding Basins, Pumping Stations or Levees exist along the Maribyrnong River in the City of Maribyrnong. Note through there is a flood wall along the Flemington Racecourse in the City of Melbourne. See the Melbourne Municipal Flood Emergency Plan for details of the flood wall.

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 table.

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	River Park Terrace, Maribyrnong	27 H8
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)		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.

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 Operational Considerations (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 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 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.**



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 (8 th September 1906)

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
1.70m	MINOR FLOOD LEVEL 20% AEP (5yr ARI) Flood Level	<p>Properties at Flood Risk (Over-Floor)</p> <p>1 New at Level; 1 Property in Total</p> <ul style="list-style-type: none"> 2 Anglers Way, Maribyrnong (The Anglers Tavern Lounge Room) 	<p>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</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Traffic Management</p> <p>Council/VicPol/ VicRoads: Traffic barricades to be installed at following intersections:</p> <ul style="list-style-type: none"> Chifley Drive with Plantation, Newstead, Clyde and Ensign Streets. Chifley Drive with the Esplanade and Leopold Street.

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
2.21m	January 2011 Flood Level (Minor)	Event Summary <ul style="list-style-type: none"> • Flooding of the lower floor at the Anglers Tavern, 2 Anglers Way, Maribyrnong • Closure of Chifley Dr; Plantation St; & nearby joining roads • Garage in Burton St flooded 	
2.30m	MODERATE FLOOD LEVEL	Community Infrastructure Impacted <ul style="list-style-type: none"> • Maribyrnong River Trail flooded at various locations • Burton Crescent Reserve at 2-4 Burton Crescent, Maribyrnong Water Over Road (Over 300mm Depth) <ul style="list-style-type: none"> • Chifley Drive, Maribyrnong from Leopold Street to Chicago Street 	Traffic Management Council/VicPol/ VicRoads: Additional traffic barricades to be installed at following intersections: <ul style="list-style-type: none"> • 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
2.60m	10% AEP (10-year ARI) Flood Level (Moderate)	Properties at Flood Risk (Over-Floor) 1 New at Level; 2 Properties in Total <ul style="list-style-type: none"> • 7 Burton Crescent, Maribyrnong Community Infrastructure Impacted <ul style="list-style-type: none"> • Coulson Gardens at 35-55 Chifley Drive, Maribyrnong • Pipemakers Park at 2 Van Ness Avenue, Maribyrnong starts flooding Water Over Road (Over 300mm Depth) <ul style="list-style-type: none"> • Burton Crescent, Maribyrnong • Ensign Street, Maribyrnong 	Council Consider opening CEOC / deploying EMLO to ICC when established by VICSES
2.64m	July 1987 Flood Level (Moderate)	Event Summary <ul style="list-style-type: none"> • 3 residencies flooded over-floor • 75 properties flooded 	Traffic Management Council/VicPol/ VicRoads: 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 at Flood Risk (Over-Floor) 56 New at Level; 58 Properties in Total <ul style="list-style-type: none"> • 15 Burton Crescent, Maribyrnong • 17 & 21 Chifley Drive, Maribyrnong • 3, 5, 7, 9, 18 & 20 Clyde Street, Maribyrnong • 10 & 12 Duffy Street, Maribyrnong • 2 Ensign Street • 12 Leopold Street, Maribyrnong • 2, Units 1-6/4, Units 1-6/6, 7-9, 11 & Units 1-9/12 Navigator Street, Maribyrnong • Units 1-8/6 Newstead Street, Maribyrnong • 2, 3, 8 & 9 Oakland Street, Maribyrnong • 32, 36, 37, 39, 40, 41-45 & 42 Raleigh Road, Maribyrnong Community Infrastructure Flooded	

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> Ethiopian Orthodox Church at 7-9 Navigator Street, Maribyrnong <p>Essential Infrastructure Impacted</p> <ul style="list-style-type: none"> Tram Services along Routes 57 & 82 likely to be affected by flooding at stops 42 & 43 along Raleigh Road Buses 468 & 952 along Raleigh Road <p>Water Over Road (Over 300mm Depth)</p> <ul style="list-style-type: none"> Anglers Way, Maribyrnong Raleigh Road, Maribyrnong between the bridge and Van Ness Avenue 	
3.20m	5% AEP (20yr ARI) Flood Level (Major)	<p>Properties at Flood Risk (Over-Floor) 31 New at Level; 89 Properties in Total</p> <ul style="list-style-type: none"> 5 Chifley Drive, Maribyrnong 13 & 25 Clyde Street, Maribyrnong Units 1-8/3 & 4 Ensign Street, Maribyrnong 1, 5 & 10 Navigator Street, Maribyrnong 2 & Units 1-12/8 Newstead Street, Maribyrnong 26 Raleigh Road, Maribyrnong 1 The Esplanade, Maribyrnong 25 Van Ness Avenue, Maribyrnong <p>Water Over Road (Over 300mm Depth)</p> <ul style="list-style-type: none"> Clyde Street, Maribyrnong Leopold Street, Maribyrnong The Esplanade, Maribyrnong Navigator Street, Maribyrnong Newstead Street, Maribyrnong Oakland Street, Maribyrnong Duffy Street, Maribyrnong Van Ness Avenue, Maribyrnong between Raleigh Road and Hillside Crescent 	<p>Traffic Management</p> <p>Previous barricades to be maintained. Extra barricade to be erected at Chicago Street and The Esplanade</p>
3.31m	September 1993 flood (Major)	<p>Event Summary</p> <ul style="list-style-type: none"> Anglers Tavern Lounge & Bistro area under nearly 2m of water 50 residences flooded over-floor 	
3.75m	2% AEP (50yr ARI) Flood Level (Major)	<p>Properties at Flood Risk (Over-Floor) 156 New at Level; 245 Properties in Total</p> <ul style="list-style-type: none"> 8 & Units 1-8/10 Anglers Way, Maribyrnong 17 & 19 Burton Crescent, Maribyrnong 3, 7, 9, 13A, 19, 27, 29, 31 & 33 Chifley Drive, Maribyrnong 2, 4, 6, Units 1-14/8-10, 11, 12, 14, 15, 16, 17, 22, 23, 24 & 40 Clyde Street, Maribyrnong 5, 7, 8, 9, 11, 13 & 14 Duffy Street, Maribyrnong 1 & 1A Ensign Street, Maribyrnong Units 1-6/1 Hortense Street, Maribyrnong 2, 3, Units 2-3/4 & 6 Leopold Street, Maribyrnong 1, 3, 3A, 4 & 6 Middle Road, Maribyrnong 	<p>Traffic Management</p> <ul style="list-style-type: none"> Maintain all existing barricades with the exception of the following: Move barricades from Alameda St (at intersection of Duffy and Oakland Sts) south to the intersection of Hillside St and Alameda St. Nth bound traffic to be diverted further along Hillside Cres to Warrs Rd.

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> • 3, 8, Units 1-8/13, Units 1-8/1414, Units 1-8/15, 17, 18 & 19 Navigator Street, Maribyrnong • 1, 4, Units 1-8/10, 12, 14 & 4/14 Newstead Street, Maribyrnong • 4, 6, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 23, 25, 26, 27, 28, 29 & 30 Oakland Street, Maribyrnong • 20, 22, 24, 28, 30, 31, 33, 38, 59 & 61 Raleigh Road, Maribyrnong • 3, 5, 6, 7, 9, 12, 14, 15 & 27 The Esplanade, Maribyrnong • 23, 27 & 29 Van Ness Avenue, Maribyrnong <p>Community Infrastructure Impacted</p> <ul style="list-style-type: none"> • Maribyrnong Reserve on The Esplanade flooded <p>Water Over Road (Over 300mm Depth)</p> <ul style="list-style-type: none"> • Chicago Street, Maribyrnong at Chifley Drive • Chifley Drive, flooded along entire length • Plantation Street, Maribyrnong near Chifley Drive • Hortense Street, Maribyrnong • Farnsworth Avenue, Footscray 	
4.40m	1% AEP (100yr ARI) Flood Level (Major)	<p>Properties at Flood Risk (Over-Floor) 74 New at Level; 319 Properties in Total</p> <ul style="list-style-type: none"> • 30 Alameda Avenue, Maribyrnong • 12 Anglers Way, Maribyrnong • 87 Chifley Drive, Maribyrnong • 1, 26, 36 & 38 Clyde Street, Maribyrnong • 16 Duffy Street, Maribyrnong • 2A Hillside Crescent • 100, 102 & 104 Hortense Street, Maribyrnong • 1, 1/4, Units 4-5/4, 8 & 10 Leopold Street, Maribyrnong • Units 1-8/8 Middle Road, Maribyrnong • 25 & 27 Navigator Street, Maribyrnong • 5, 7, 9, 11, 13, 16, 21, 23, 27, 28, 29, 30, 31 & 33 Newstead Street, Maribyrnong • 17, 22, 24 & 31 Oakland Street, Maribyrnong • 51, 53, 55, 56, 57, 60, 63, 65, 67 & 69 Raleigh Road, Maribyrnong • 13, 16, 26, 29, 30, Units 1-6/31, 35, 38 & 38A The Esplanade, Maribyrnong • Units 1-3/19 & 21 Van Ness Avenue, Maribyrnong <p>Water Over Road (Over 300mm Depth)</p> <ul style="list-style-type: none"> • Magazine Way, Maribyrnong • Waterside Place, Maribyrnong • Harbour Lane, Maribyrnong • Lakeside Crescent, Maribyrnong • Regatta Lane, Maribyrnong • Meyers Road, Footscray • Maribyrnong Boulevard, 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

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.

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

Gauges and Warnings

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, Braybrook, Seddon and parts of West Footscray

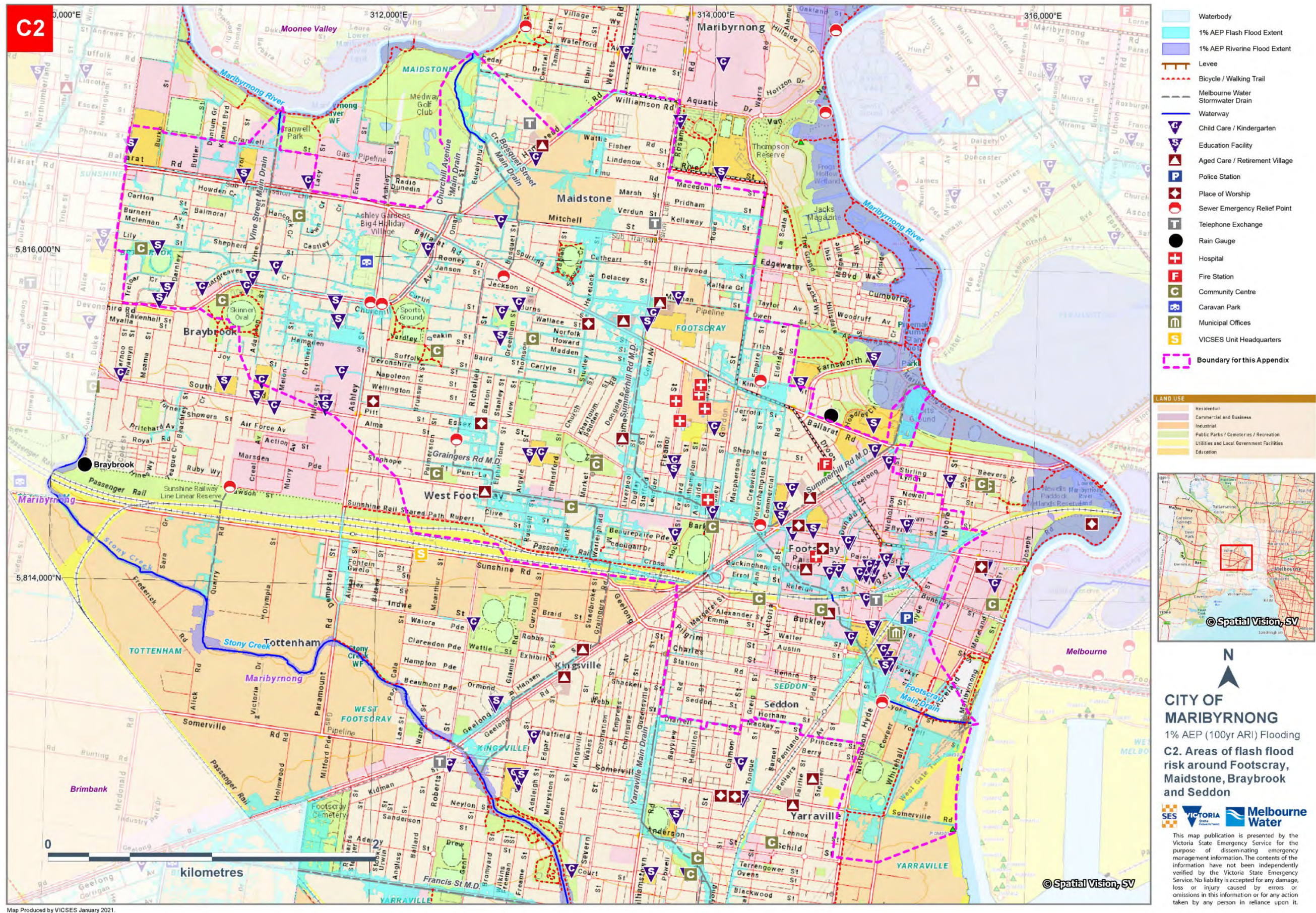


Figure C3 – Areas of flood risk around Footscray, Maidstone, Braybrook, Seddon and parts of West Footscray in the City of Maribyrnong

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

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

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

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 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 <ul style="list-style-type: none"> Hampstead Road, Maidstone at Richards Street Graingers Road Main Drain <ul style="list-style-type: none"> 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; 48mm in 3 hours; or	5% AEP (20-year ARI)	Properties at Flood Risk (Over-Floor) 47 Properties in Total <ul style="list-style-type: none"> Footscray Main Drain 43-57 Buckley Street, Footscray 152-154 Cowper Street, Footscray 120-122 Geelong Road, 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
<p>60mm in 6 hours</p> <p>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.</p>		<ul style="list-style-type: none"> • 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 <p>Community Infrastructure Flooded</p> <ul style="list-style-type: none"> • 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 <p>Essential Infrastructure Likely Impacted</p> <ul style="list-style-type: none"> • Bus Routes 220 and 409 at the Napier Street Railway Underpass • Bus Routes 215 and 408 on Hampstead Road, Maidstone <p>Water Over Road (Over 300mm Depth)</p> <p>Churchill Avenue Main Drain</p> <ul style="list-style-type: none"> • Hampden Street, Braybrook • Holland Court, Maidstone • Hampstead Road, Maidstone at Richards Street • Smith Street, Maidstone <p>Summerhill Road Main Drain</p> <ul style="list-style-type: none"> • 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 <p>Footscray Main Drain</p> <ul style="list-style-type: none"> • 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 <p>Graingers Road Main Drain</p>	<p>an appropriate response arrangement to suit the level of incident.</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements</p>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
<p>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</p> <p>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.</p>	<p>1% AEP (100-year ARI)</p>	<ul style="list-style-type: none"> • Beaufort Way, Footscray • Newman Drive, Footscray <p>Properties at Flood Risk (Over-Floor) 126 Properties in Total</p> <ul style="list-style-type: none"> • 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 <p>Community Infrastructure Flooded</p> <ul style="list-style-type: none"> • 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 	<p>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.</p> <p>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.</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements</p>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<p>Essential Infrastructure Impacted</p> <ul style="list-style-type: none"> 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 <p>Essential Infrastructure Likely Impacted</p> <ul style="list-style-type: none"> 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 <p>Water Over Road (Over 300mm Depth)</p> <p>Churchill Avenue Main Drain</p> <ul style="list-style-type: none"> Elizabeth Street, Braybrook Hampden Street, Braybrook Riley Court, Braybrook Holland Court, Maidstone Keith Street, Maidstone Hampstead Road, Maidstone at Richards Street Smith Street, Maidstone <p>Summerhill Road Main Drain</p> <ul style="list-style-type: none"> 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 <p>Footscray Main Drain</p> <ul style="list-style-type: none"> Geelong Road (City Bound Lane), Footscray near Barkly Street Victoria Street, Footscray at Railway Underpass Buckley Street, Seddon at the Bus Depot Napier Street, Footscray at the Railway Underpass 	

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> • 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 & 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

Gauges and Warnings

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

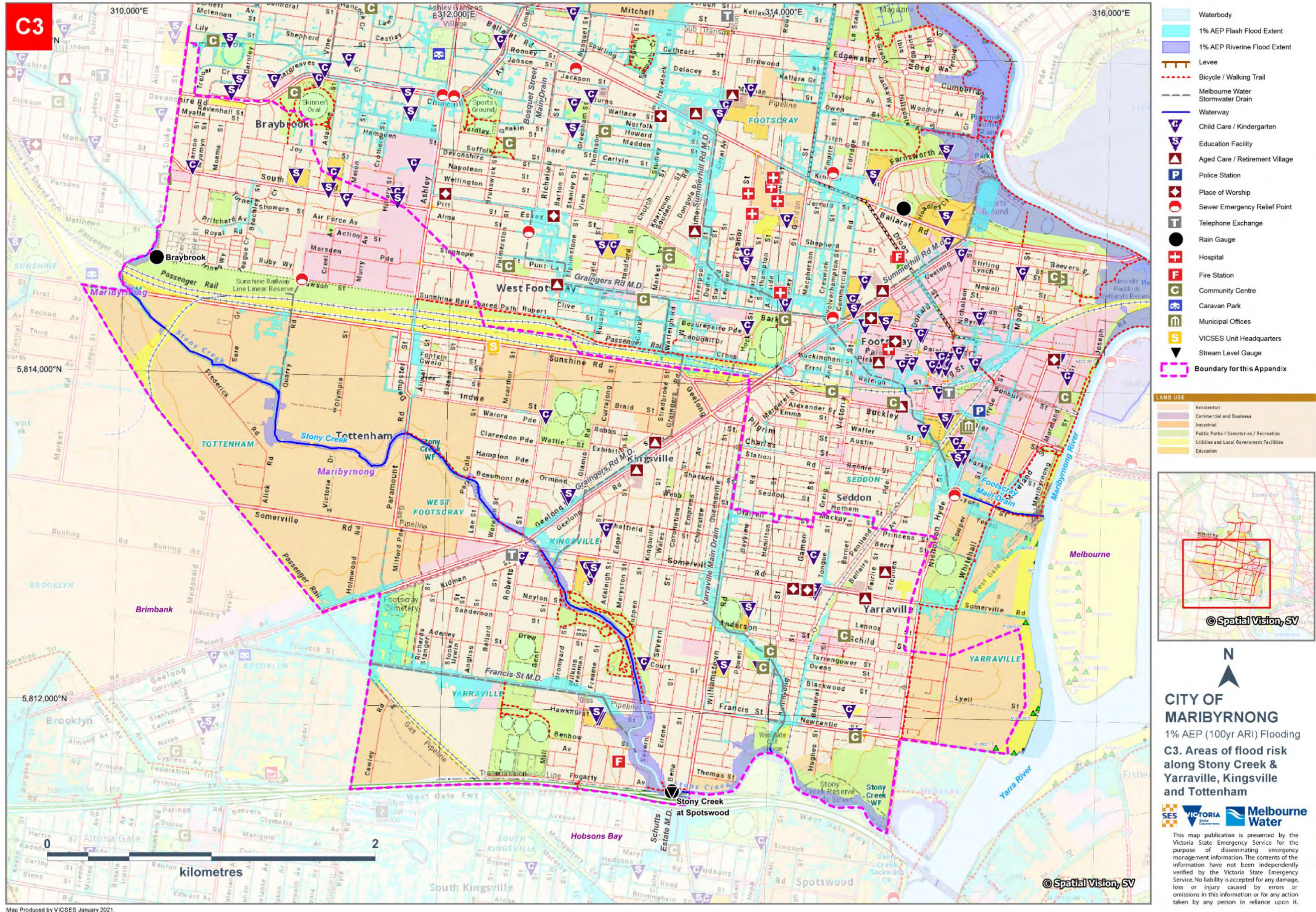


Figure C4 – Areas of flood risk along Stony Creek and the Yarraville Main Drain in the City of Maribyrnong

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 Operational Considerations (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.

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 side of the creek, west of Williamstown Road bridge
CURRENT LEVEL:	https://www.melbournwater.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
LEEVE HEIGHT:	N/A
HIGHEST RECORDED FLOOD:	2.50m (22 nd March 2001)

Creek Height	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
2.90m	20% AEP (5yr ARI) Flood Level	<ul style="list-style-type: none"> Nil Expected 	
3.10m	10% AEP (10yr ARI) Flood Level	<ul style="list-style-type: none"> Nil Expected 	
4.14m	5% AEP (20yr ARI) Flood Level	Water Over Road (Over 300mm Depth) <ul style="list-style-type: none"> The Boulevard, Yarraville 	
4.40m	2% AEP (50yr ARI) Flood Level	Community Infrastructure Flooded <ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> Waratah Street, West Footscray Hawkhurst Street, Yarraville St Leonards Avenue, Yarraville Benbow Street, Yarraville The Boulevard, Yarraville Francis Street, Yarraville at the Railway underpass 	<p>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.</p> <p>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.</p> <p>Council and VicRoads (as appropriate) to provide road closure signage under predetermined arrangements</p>
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
		<ul style="list-style-type: none"> • 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 <p>Community Infrastructure Flooded</p> <ul style="list-style-type: none"> • 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 <p>Water Over Road (Over 300mm Depth)</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> 45 Powell Street, Yarraville Water Over Road (Over 300mm Depth) Yarraville Main Drain <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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
<p>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.</p>		<ul style="list-style-type: none"> • 12 Quarry Road, Tottenham • Yarraville Main Drain • 50 Fehon Street, Yarraville • 45 Powell Street, Yarraville • 176 Somerville Road, Yarraville <p>Water Over Road (Over 300mm Depth)</p> <p>Francis Street Main Drain</p> <ul style="list-style-type: none"> • Geelong Road (City Bound Lanes), Tottenham at Cemetery Road <p>Yarraville Main Drain</p> <ul style="list-style-type: none"> • Francis Street, Yarraville at the Railway Underpass 	
<p>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</p> <p>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.</p>	<p>1% AEP (100-year ARI)</p>	<p>Properties at Flood Risk (Over-Floor)</p> <p>33 Properties in Total</p> <ul style="list-style-type: none"> • 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 <p>Essential Infrastructure Likely Impacted</p> <ul style="list-style-type: none"> • Bus Route 431 along Francis Street, Yarraville • Bus Routes 411, 412 and 414 along Geelong Road (City Bound) <p>Water Over Road (Over 300mm Depth)</p> <p>Francis Street Main Drain</p> <ul style="list-style-type: none"> • Geelong Road (City Bound Lanes), Tottenham at Cemetery Road • Francis Street, Yarraville between Cemetery Road and Williamstown Road • Hawkhurst Street, Yarraville <p>Yarraville Main Drain</p>	

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> 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

Withdrawal will be controlled by VicPol. VICSES may provide advice regarding most appropriate evacuation routes and locations for at-risk communities to evacuate to.

VICSES, MFB, AV and Local Government will provide resources where available to support VicPol/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 at the request of the IC or via the appointed VicPol Evacuation Manager.

Vulnerable People in Emergencies

Vulnerable people living in the community will be identified through funded agencies, community services organisations or other community networks. Such people will be assessed against the definition of a vulnerable person and may qualify for registration on the Vulnerable Persons Register (VFR).

A list of facilities where vulnerable people may be located is also kept by Council. These may be funded facilities including education, health and childcare, Commonwealth regulated aged care facilities and other locally identified facilities. Further information on Vulnerable People in Emergencies can be obtained from the Maribyrnong Council MRM.

Phase 4 – Shelter

Emergency Relief/Recovery Centres and/or assembly areas which cater for people's basic needs may be established to meet the immediate needs of people affected by flooding. Relief Centres will be determined dependant on the location and size of the event.

VicPol in consultation with VICSES will liaise with Maribyrnong City Council and DHHS (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 through the Incident Emergency Management Team (IEMT).

Animal Shelter

The need for animal shelter compounds will be determined dependent on the location and size of the event.

Details of emergency relief and recovery arrangements can be found in the City of Maribyrnong Relief and Recovery Plan.

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.

APPENDIX E - FLOOD WARNING SYSTEMS

Storm and Flood Warning

Storm and Flood Warning products and Flood Class Levels can be found on the BoM website and the VicEmergency website. Storm and Flood Warning Products include Severe Thunderstorm Warnings, Severe Weather Warnings, Flood Watches and Flood Warnings. See below for an example of a BOM Flood Warning on the VicEmergency page.

Flood Bulletins

VICSES distributes flood emergency information to the media through "Flood Bulletins". Flood Bulletins provide BoM Flood Warning information as well as information regarding possible flood consequences and safety advice, not contained in BoM Flood Warning products. VICSES uses the title Flood Bulletin to ensure emphasis is placed upon BoM Flood Warning product titles.

The relevant VICSES RDO or the established ICC will normally be responsible for drafting, authorising and issuing of Flood Bulletins, using the VicEmergency system.

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

Flood Bulletins should follow the following structure

- What is the current flood situation.
- What is the predicted flood situation.
- What are the likely flood consequences.
- What should the community do in response to flood warnings.
- Where to seek further information.
- Who to call if emergency assistance is required.

It is important that the description of the predicted flood situation is consistent with and reflects the relevant BoM Flood Warning.

Flood Bulletins should be focused on specific gauge (or in the absence of gauges, catchment) reference areas, that is the area in which flood consequences specifically relate to the relevant flood gauge.

Flood Bulletins 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 flood bulletins are released in a timely manner, standardised flood bulletins may be drafted based on different scenarios, prior to events occurring. The standardised flood bulletins can then be adapted to the specifics of the event occurring or predicted to occur.

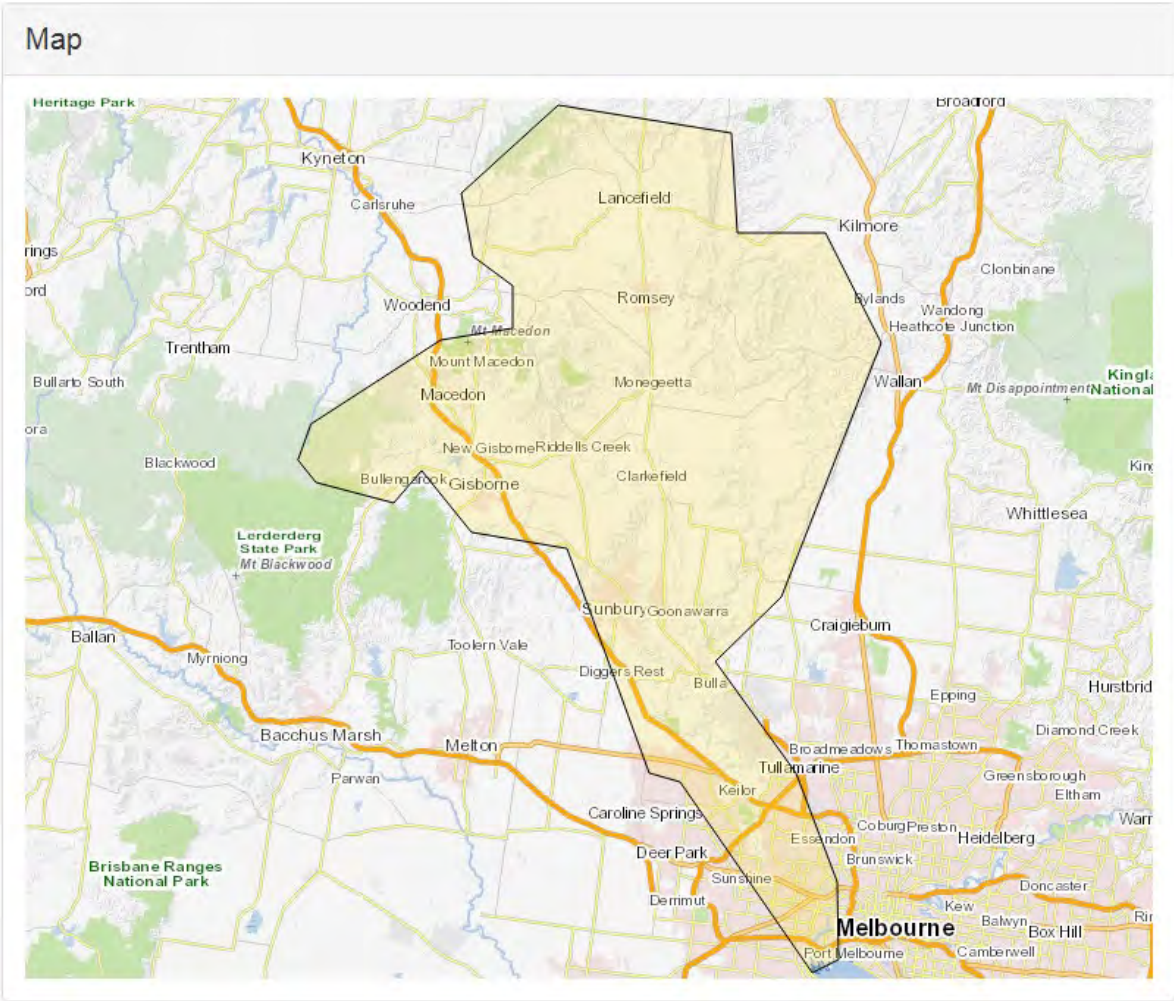
Local Flood Warning System Arrangements

No formal local arrangements in place.

BOM Flood Warning Example

ADVICE - FLOOD

Incident Location: Maribymong
Incident Name: MaribymongFloodSept2016
Issued: Set at publish time
Next Update Expected:



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](http://www.AgricultureVictoria.com.au) on 136 186 or your local vet.

APPENDIX F – MAPS AND SCHEMATICS

Overview

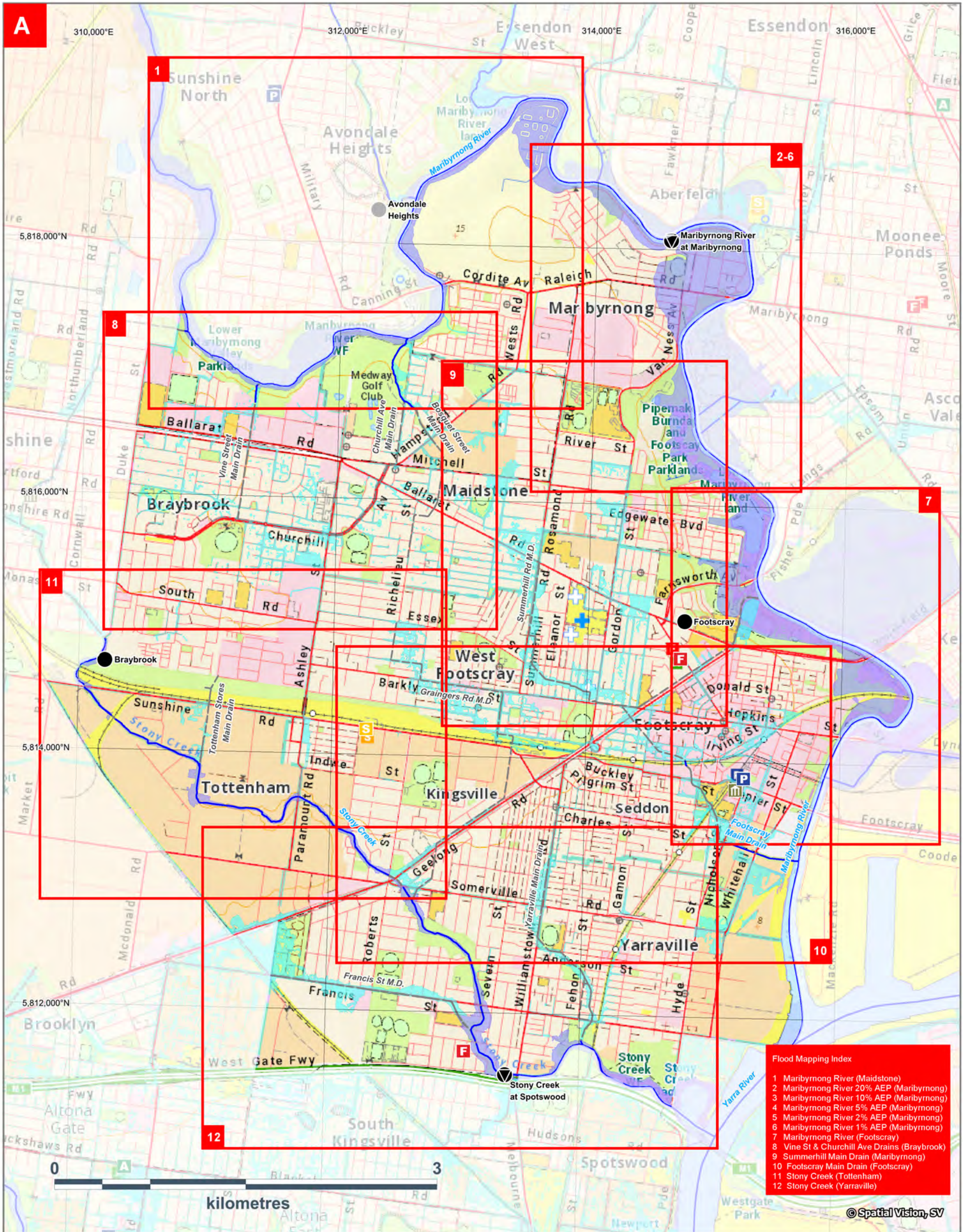
Maps considered useful to flood response are included in this Appendix. They include:

- 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 1 in 100-year ARI (1% AEP) flood extents and floodways (together with volume, height and water quality data) are shown at DELWP's mapshare website <http://mapshare.maps.vic.gov.au/MapShareVic/index.html?viewer=MapShareVic.PublicSite&locale=en-AU>

City of Maribyrnong Municipal Maps (sourced Melbourne Water GIS)



Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
Version 4: January 2021
A. Flood Mapping Index Map

- | | |
|----------------------------------|-------------------------|
| Waterbody | Stream Level Gauge |
| 1% AEP Flash Flood Extent | Rain Gauge |
| 1% AEP Riverine Flood Extent | State Emergency Service |
| 1% AEP Storm Surge Extent | Municipal Office |
| Melbourne Water Retarding Basin | Police Station |
| Melbourne Water Stormwater Drain | Fire Station |
| Waterway | Ambulance Station |
| Flood Map Border | |



SES VICTORIA **Melbourne Water**

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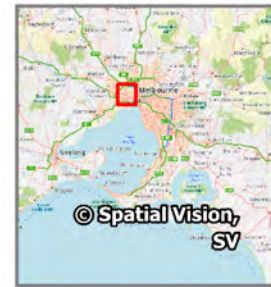
Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG

Version 4: January 2021

B. 1% AEP (100yr ARI) Flood Mapping

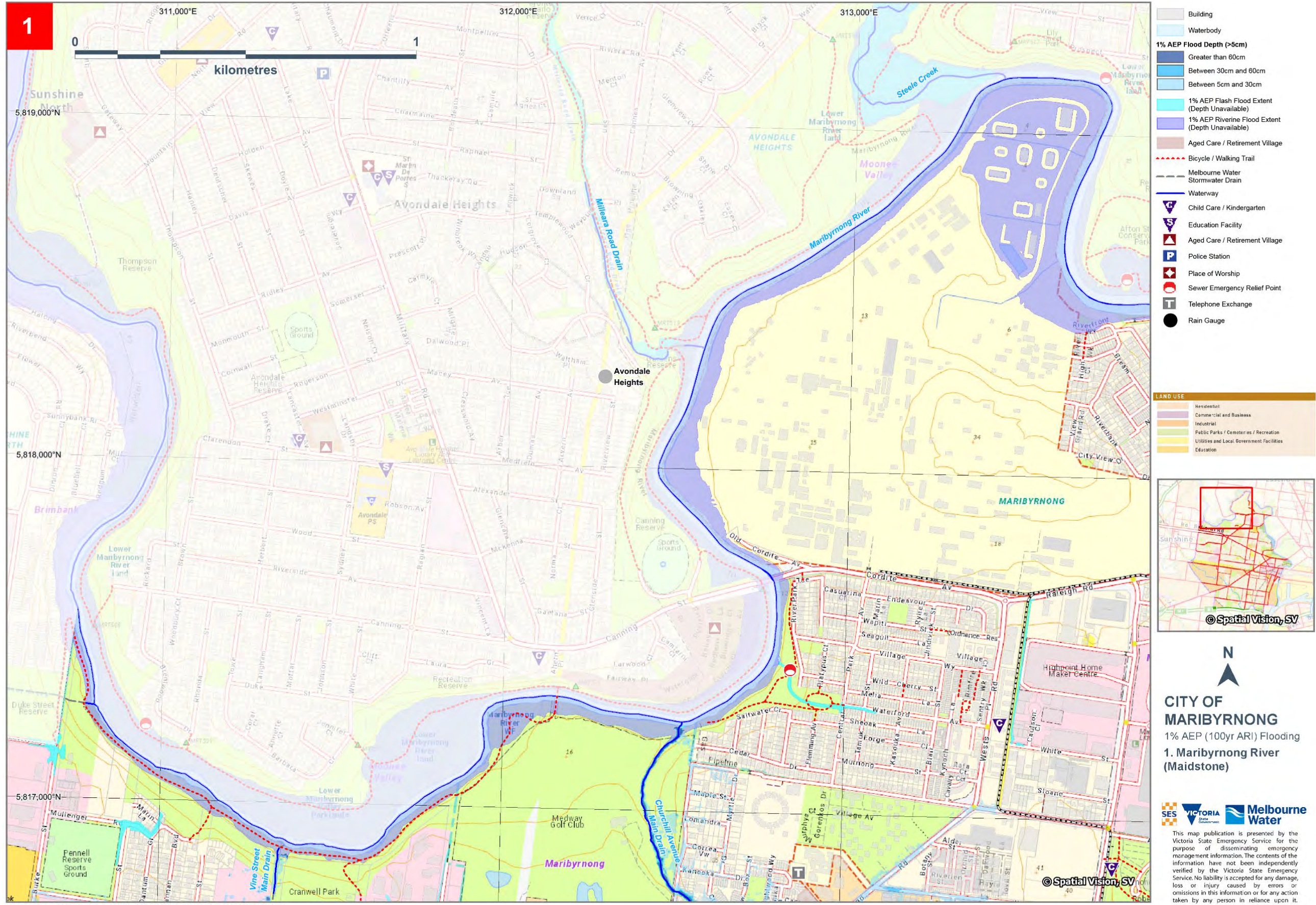
- Waterbody
- 1% AEP Flash Flood Extent
- 1% AEP Riverine Flood Extent
- 1% AEP Storm Surge Extent
- Melbourne Water Retarding Basin
- Melbourne Water Stormwater Drain
- Waterway
- Stream Level Gauge
- Rain Gauge
- State Emergency Service
- Municipal Office
- Police Station
- Fire Station
- Ambulance Station

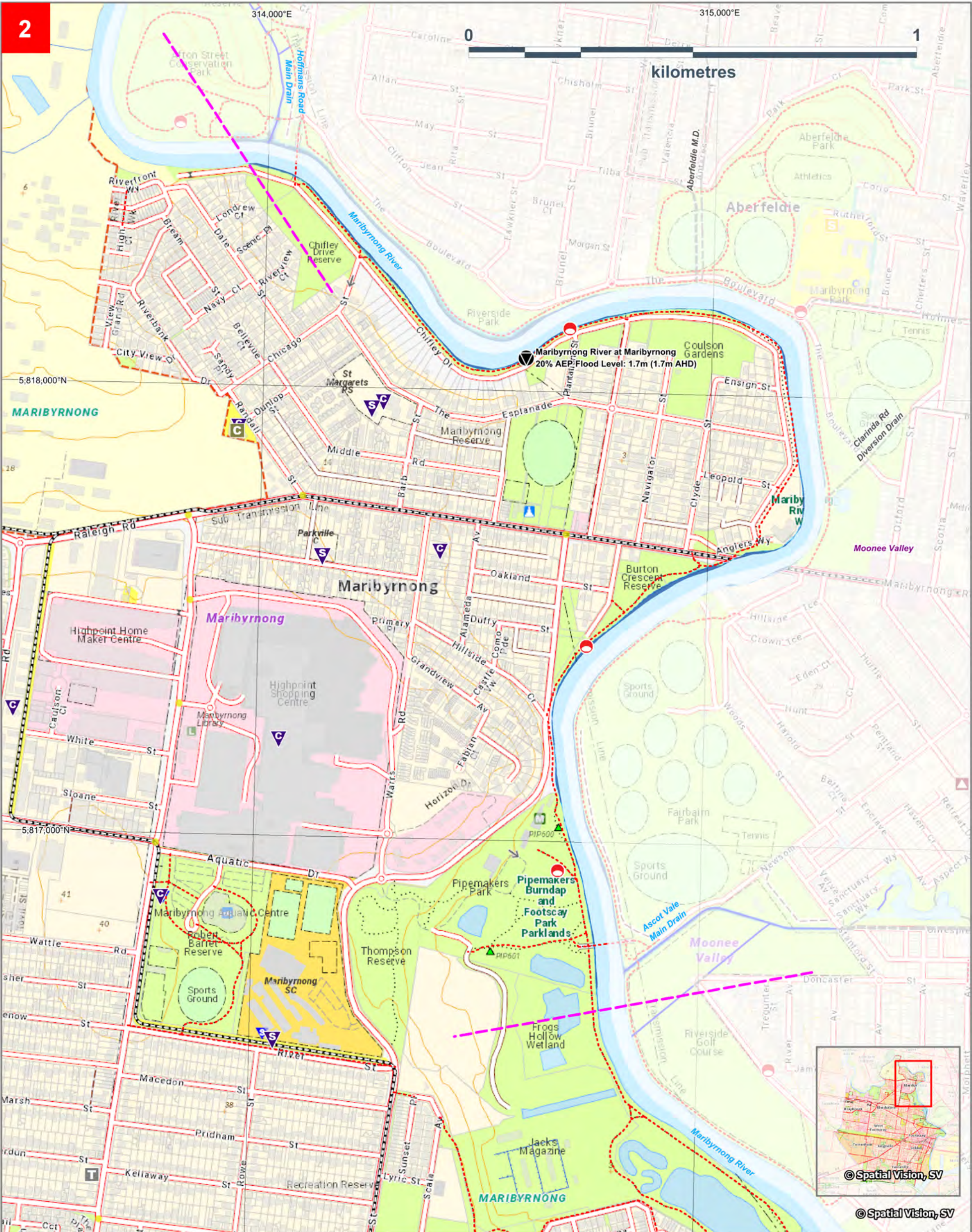


SES VICTORIA **Melbourne Water**

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Flood Extent Maps (sourced Melbourne Water GIS)





Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

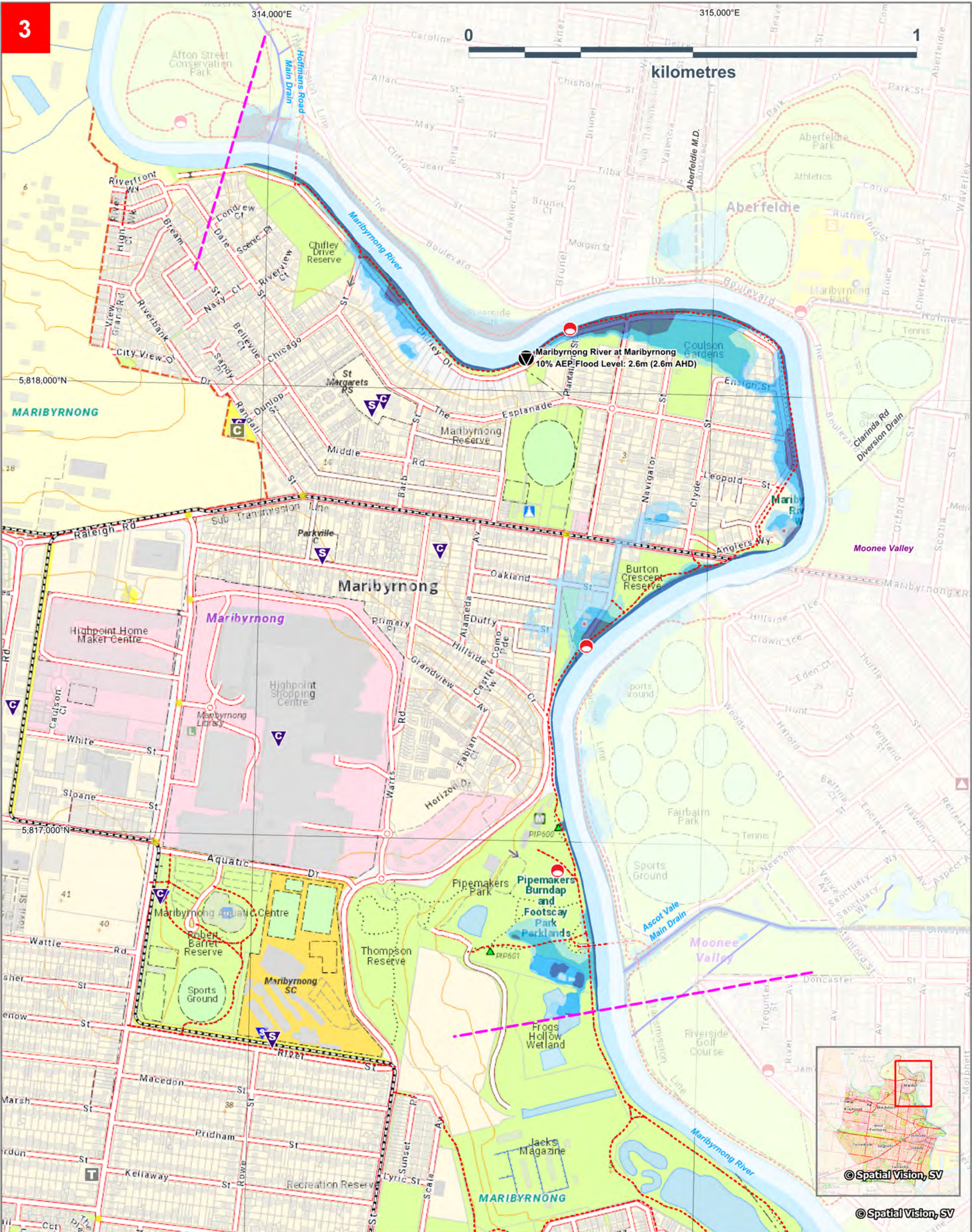
CITY OF MARIBYRNONG
 20% AEP (100yr ARI) Flooding
2. Maribyrnong River (Maribyrnong)

- | | | |
|--|----------------------------------|--------------------------------------|
| Building | Waterway | Rain Gauge |
| Waterbody | Melbourne Water Stormwater Drain | Sewer Emergency Relief Point |
| 20% AEP Flood Depth (>5cm) Greater than 60cm | Bicycle / Walking Trail | Stream Level Gauge & 20% Flood Level |
| 20% AEP Flood Depth (>5cm) Between 30cm and 60cm | Flood Model Limit | VICSES Unit Headquarters |
| 20% AEP Flood Depth (>5cm) Between 5cm and 30cm | Child Care / Kindergarten | |
| | Education Facility | |
| | Community Centre | |
| | Aged Care / Retirement Village | |
| | Telephone Exchange | |

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

SES VICTORIA **Melbourne Water**

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
 10% AEP (100yr ARI) Flooding
3. Maribyrnong River (Maribyrnong)

- | | | |
|----------------------------|----------------------------------|--------------------------------------|
| Building | Waterway | Rain Gauge |
| Waterbody | Melbourne Water Stormwater Drain | Sewer Emergency Relief Point |
| 10% AEP Flood Depth (>5cm) | Bicycle / Walking Trail | Stream Level Gauge & 10% Flood Level |
| Greater than 60cm | Flood Model Limit | VICSES Unit Headquarters |
| Between 30cm and 60cm | Child Care / Kindergarten | 10% AEP Over-Floor Flooding Risk |
| Between 5cm and 30cm | Education Facility | |
| | Community Centre | |
| | Aged Care / Retirement Village | |
| | Telephone Exchange | |

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

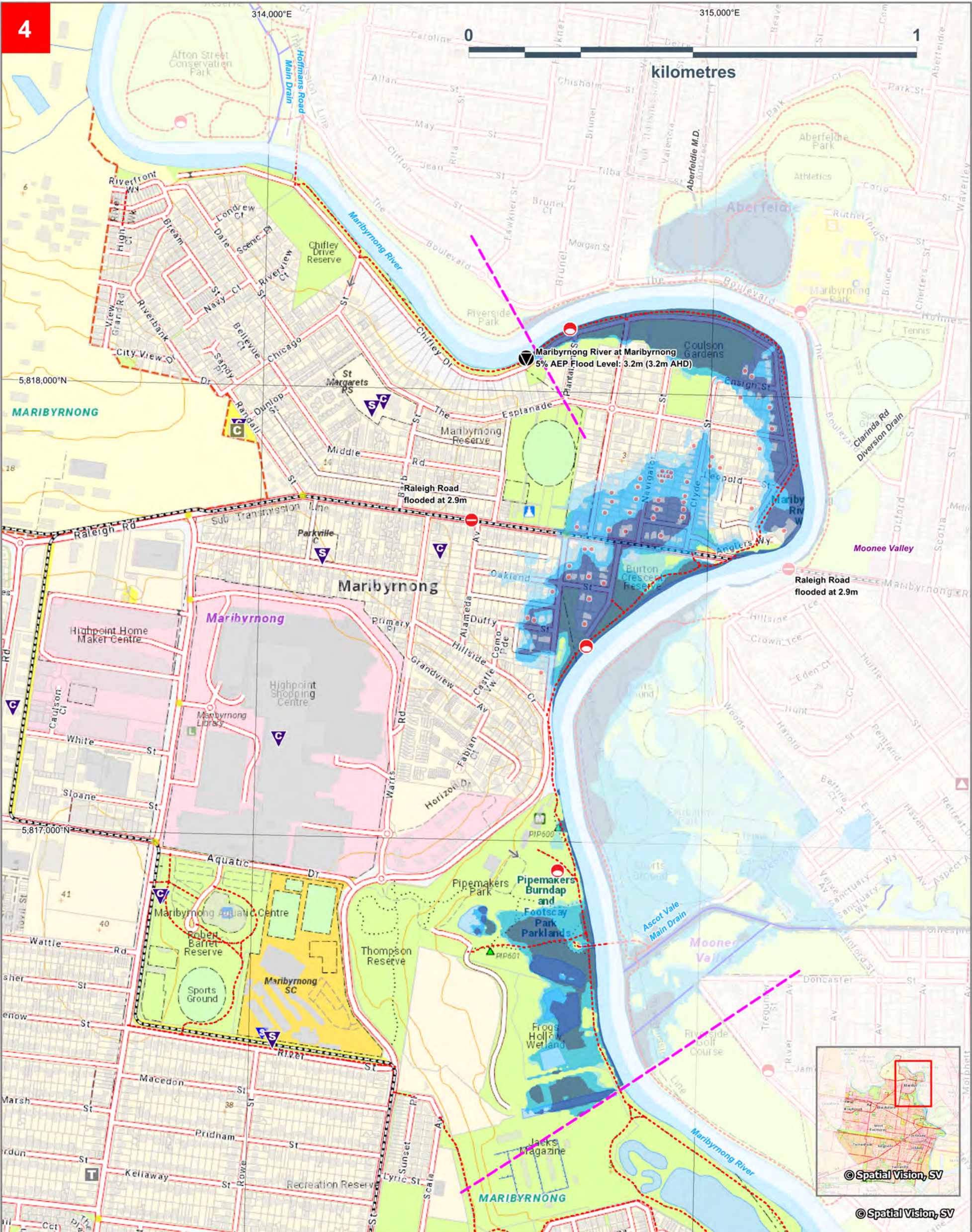


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SES VICTORIA State Government Melbourne Water

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

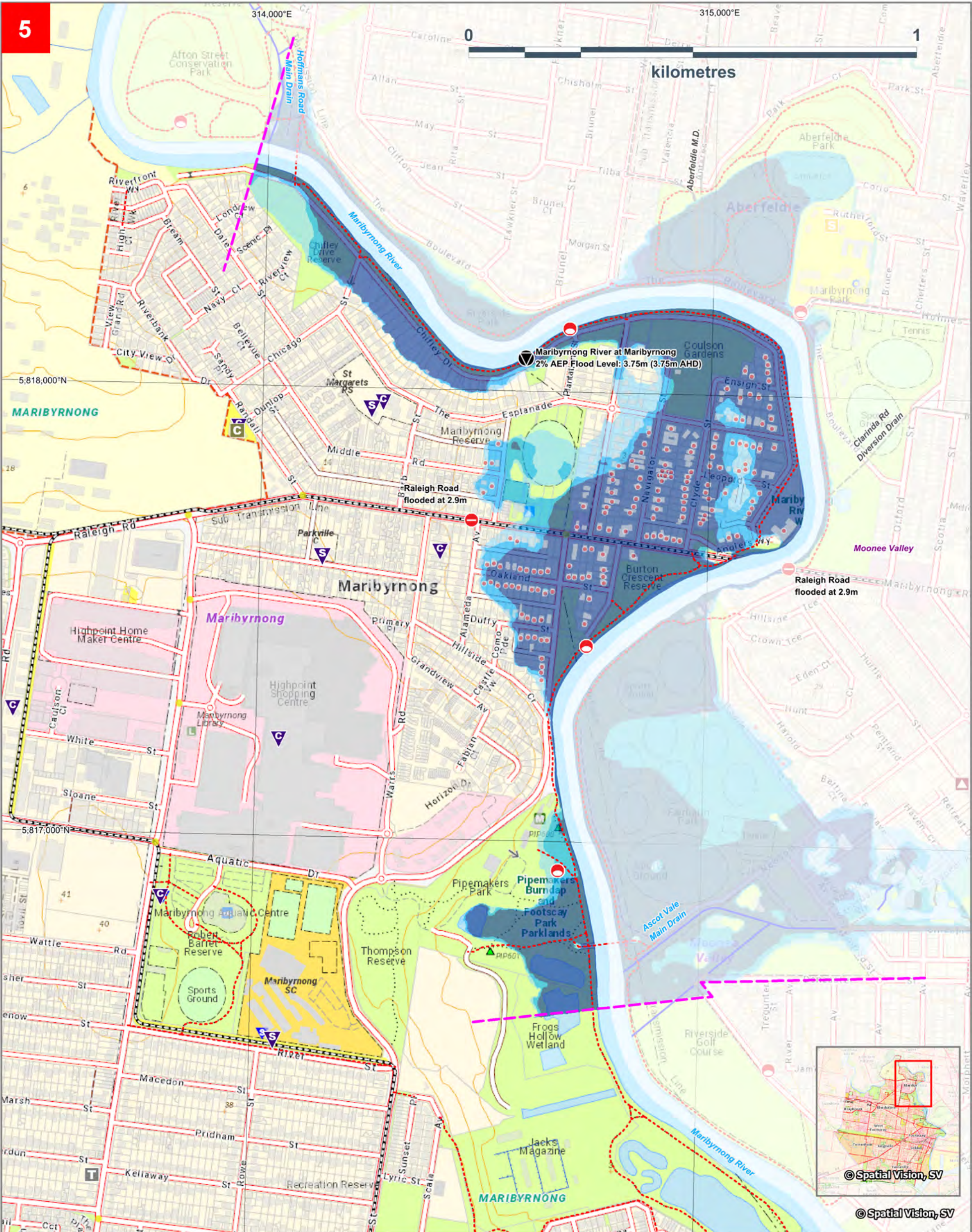
CITY OF MARIBYRNONG
 5% AEP (100yr ARI) Flooding
4. Maribyrnong River (Maribyrnong)

- Building
- Waterbody
- 5% AEP Flood Depth (>5cm)**
- Greater than 60cm
- Between 30cm and 60cm
- Between 5cm and 30cm
- Likley Road Closure Required
- Waterway
- Melbourne Water Stormwater Drain
- Bicycle / Walking Trail
- Flood Model Limit
- Child Care / Kindergarten
- Education Facility
- Community Centre
- Aged Care / Retirement Village
- Telephone Exchange
- Rain Gauge
- Sewer Emergency Relief Point
- Stream Level Gauge & 5% Flood Level
- VICSES Unit Headquarters
- 5% AEP Over-Floor Flooding Risk

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

SES VICTORIA State Emergency Service **Melbourne Water**

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

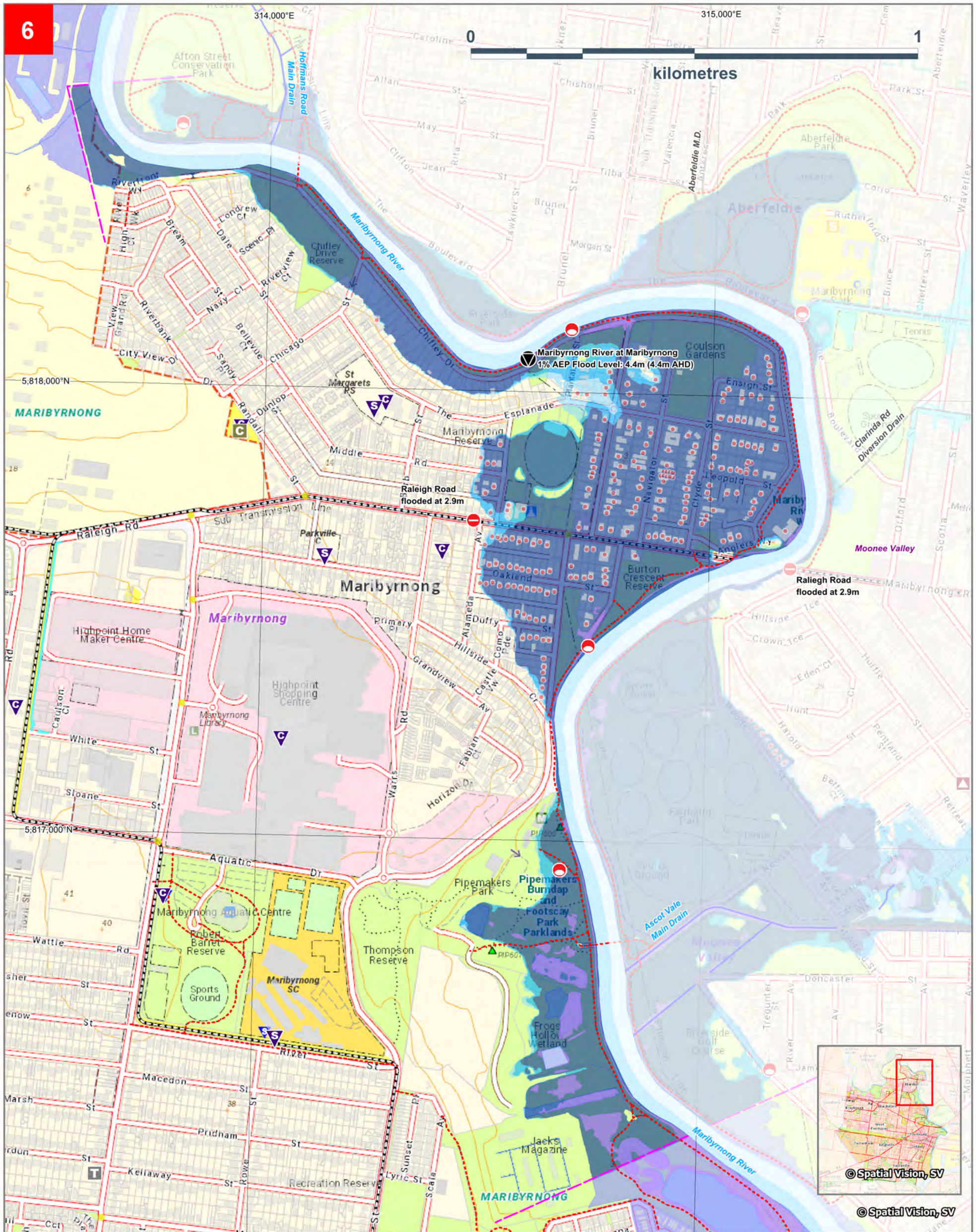
CITY OF MARIBYRNONG
 2% AEP (100yr ARI) Flooding
5. Maribyrnong River (Maribyrnong)

- | | | |
|--|----------------------------------|-------------------------------------|
| Building | Waterway | Rain Gauge |
| Waterbody | Melbourne Water Stormwater Drain | Sewer Emergency Relief Point |
| 2% AEP Flood Depth (>5cm)
Greater than 60cm | Bicycle / Walking Trail | Stream Level Gauge & 2% Flood Level |
| Between 30cm and 60cm | Flood Model Limit | VICSES Unit Headquarters |
| Between 5cm and 30cm | Child Care / Kindergarten | 2% AEP Over-Floor Flooding Risk |
| Likley Road Closure Required | Education Facility | |
| | Community Centre | |
| | Aged Care / Retirement Village | |
| | Telephone Exchange | |

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

SES VICTORIA **Melbourne Water**

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
1% AEP (100yr ARI) Flooding
6. Maribyrnong River (Maribyrnong)

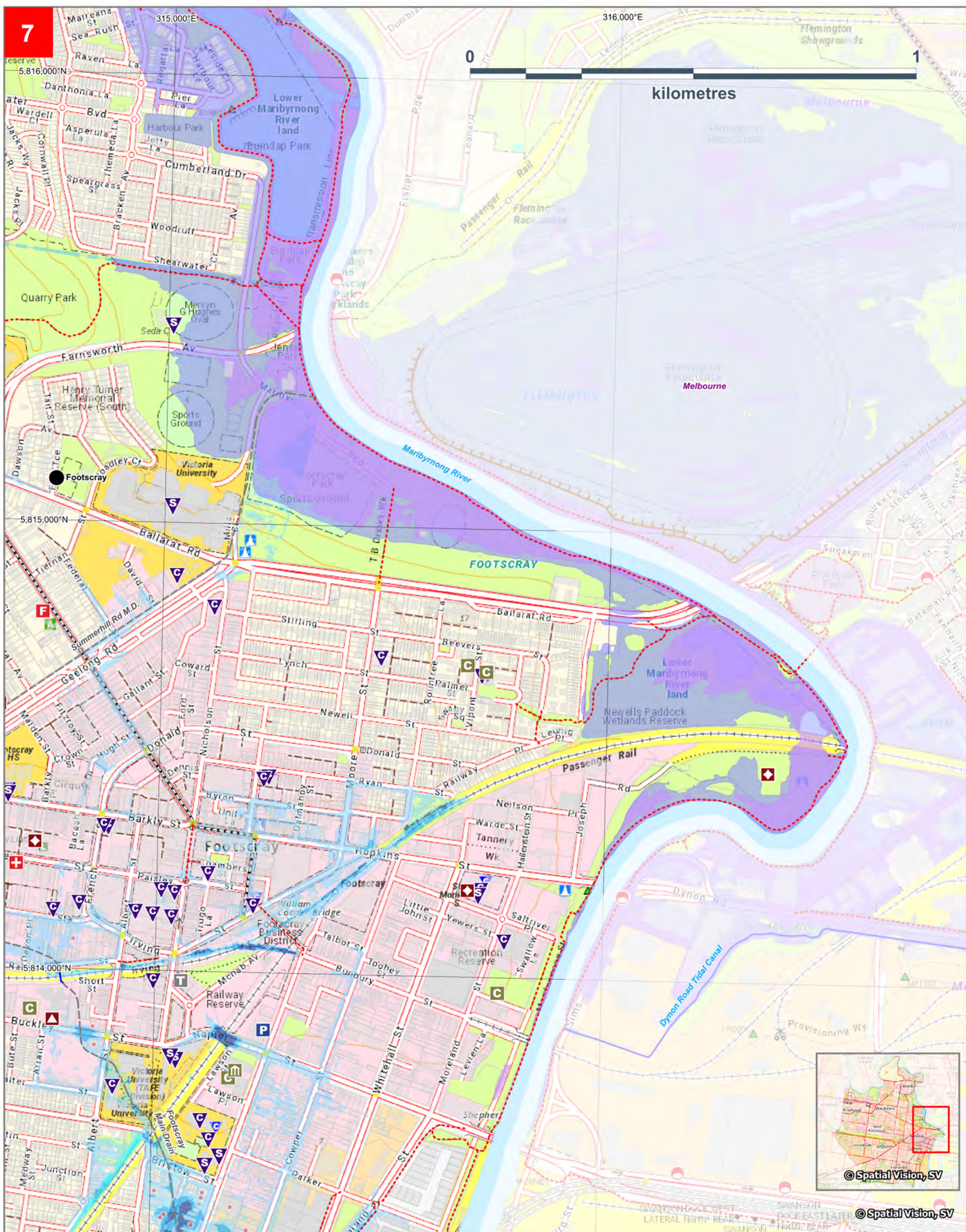
Building	Waterway	Rain Gauge
Waterbody	Melbourne Water Stormwater Drain	Sewer Emergency Relief Point
1% AEP Flood Depth (>5cm) Greater than 60cm	Bicycle / Walking Trail	Stream Level Gauge & 1% Flood Level
1% AEP Flood Depth (5cm and 60cm) Between 30cm and 60cm	Flood Model Limit	VICSES Unit Headquarters
1% AEP Flood Depth (5cm and 30cm) Between 5cm and 30cm	Child Care / Kindergarten	1% AEP Over-Floor Flooding Risk
1% AEP Storm Surge Extent (Depth Unavailable)	Education Facility	Likely Road Closure Required
1% AEP Riverine Flood Extent (Depth Unavailable)	Community Centre	
	Aged Care / Retirement Village	
	Telephone Exchange	

LAND USE

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

SES **VICTORIA** State Government **Melbourne Water**

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.

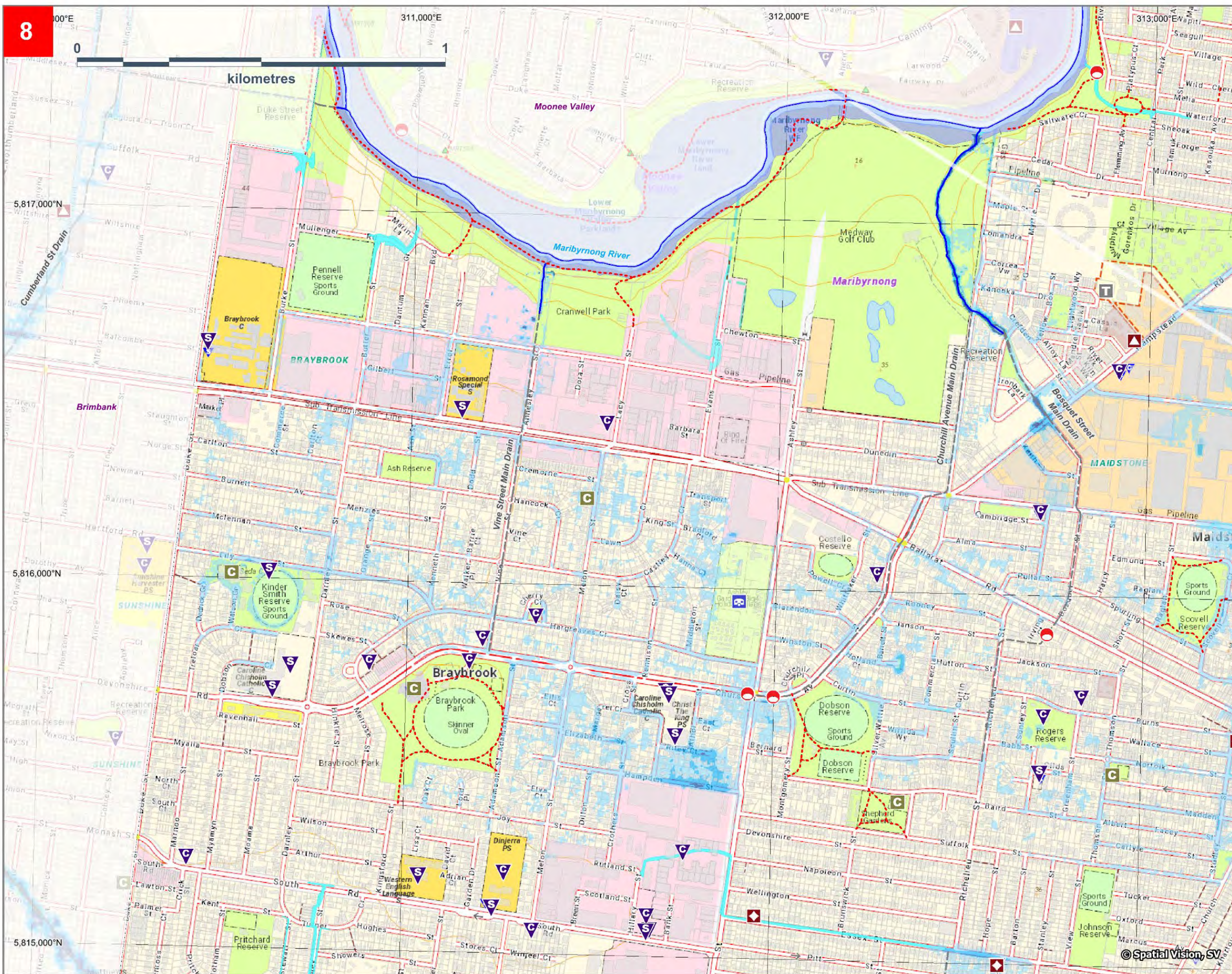
CITY OF MARIBYRNONG
 1% AEP (100yr ARI) Flooding
7. Maribyrnong River (Footscray)

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> Building Waterbody 1% AEP Flood Depth (>5cm) Greater than 60cm Between 30cm and 60cm Between 5cm and 30cm 1% AEP Storm Surge Extent (Depth Unavailable) 1% AEP Riverine Flood Extent (Depth Unavailable) Aged Care / Retirement Village | <ul style="list-style-type: none"> Waterway Melbourne Water Stormwater Drain Bicycle / Walking Trail Child Care / Kindergarten Education Facility Community Centre Aged Care / Retirement Village Place Of Worship Ambulance Station | <ul style="list-style-type: none"> Rain Gauge Sewer Emergency Relief Point Fire Station Hospital Police Station Telephone Exchange Municipal Offices 1% AEP Over-Floor Flooding Risk |
|---|--|--|

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

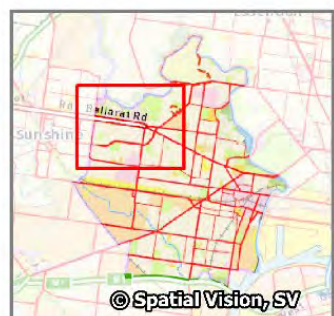
SES **VICTORIA** State Government **Melbourne Water**

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- Building
- Waterbody
- 1% AEP Flood Depth (>5cm)**
 - Greater than 60cm
 - Between 30cm and 60cm
 - Between 5cm and 30cm
- 1% AEP Flash Flood Extent (Depth Unavailable)
- Aged Care / Retirement Village
- Bicycle / Walking Trail
- Melbourne Water Stormwater Drain
- Waterway
- Child Care / Kindergarten
- Education Facility
- Aged Care / Retirement Village
- Community Centre
- Place of Worship
- Sewer Emergency Relief Point
- Telephone Exchange

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



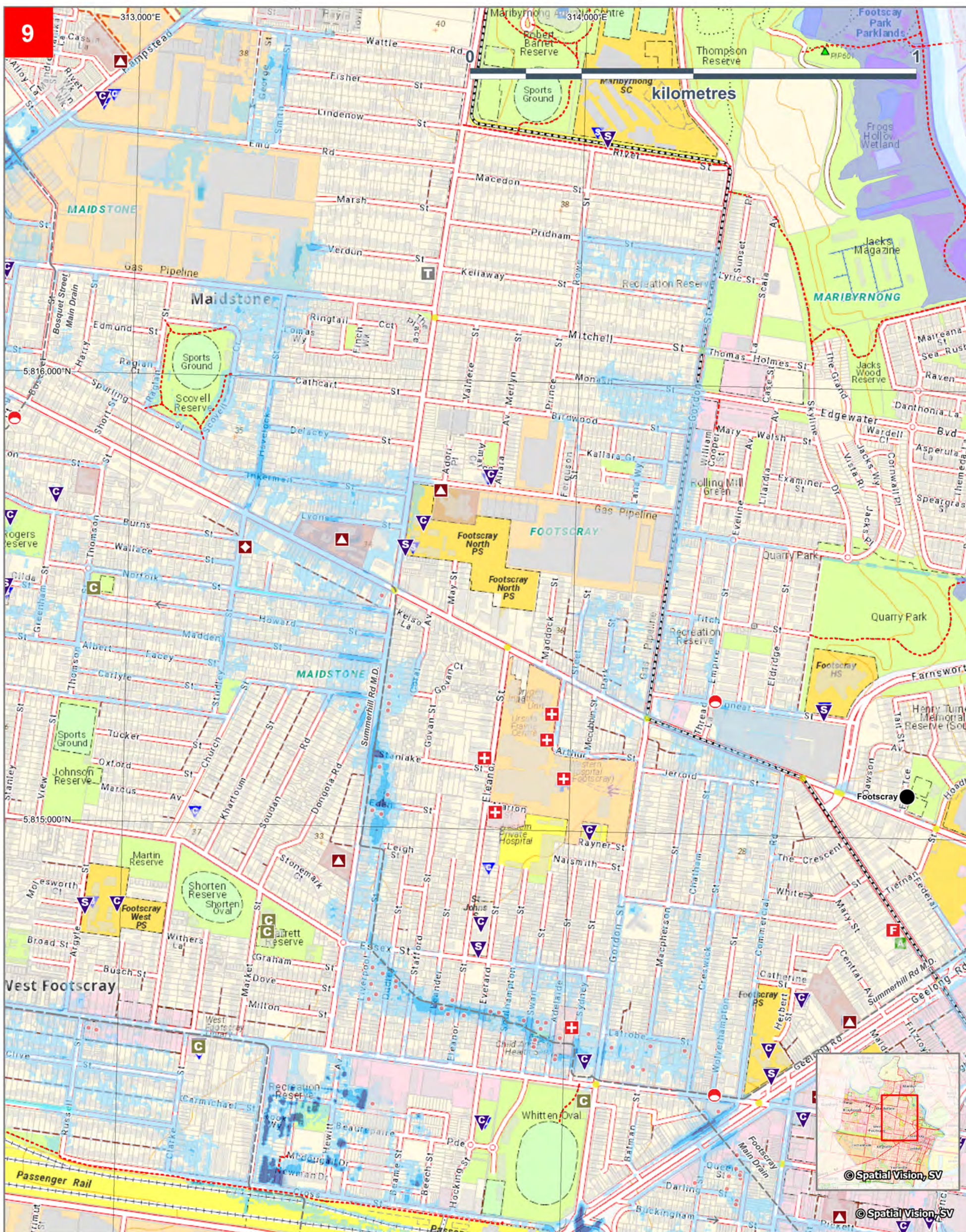
N

CITY OF MARIBYRNONG
 1% AEP (100yr ARI) Flooding
8. Vine Street Main Drain & Churchill Ave Main Drain (Braybrook)



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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.



Flood modelling completed by AECOM, December 2009. Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
1% AEP (100yr ARI) Flooding
9. Summerhill Main Drain (Footscray & Maribyrnong)

1% AEP Flood Depth (>5cm)

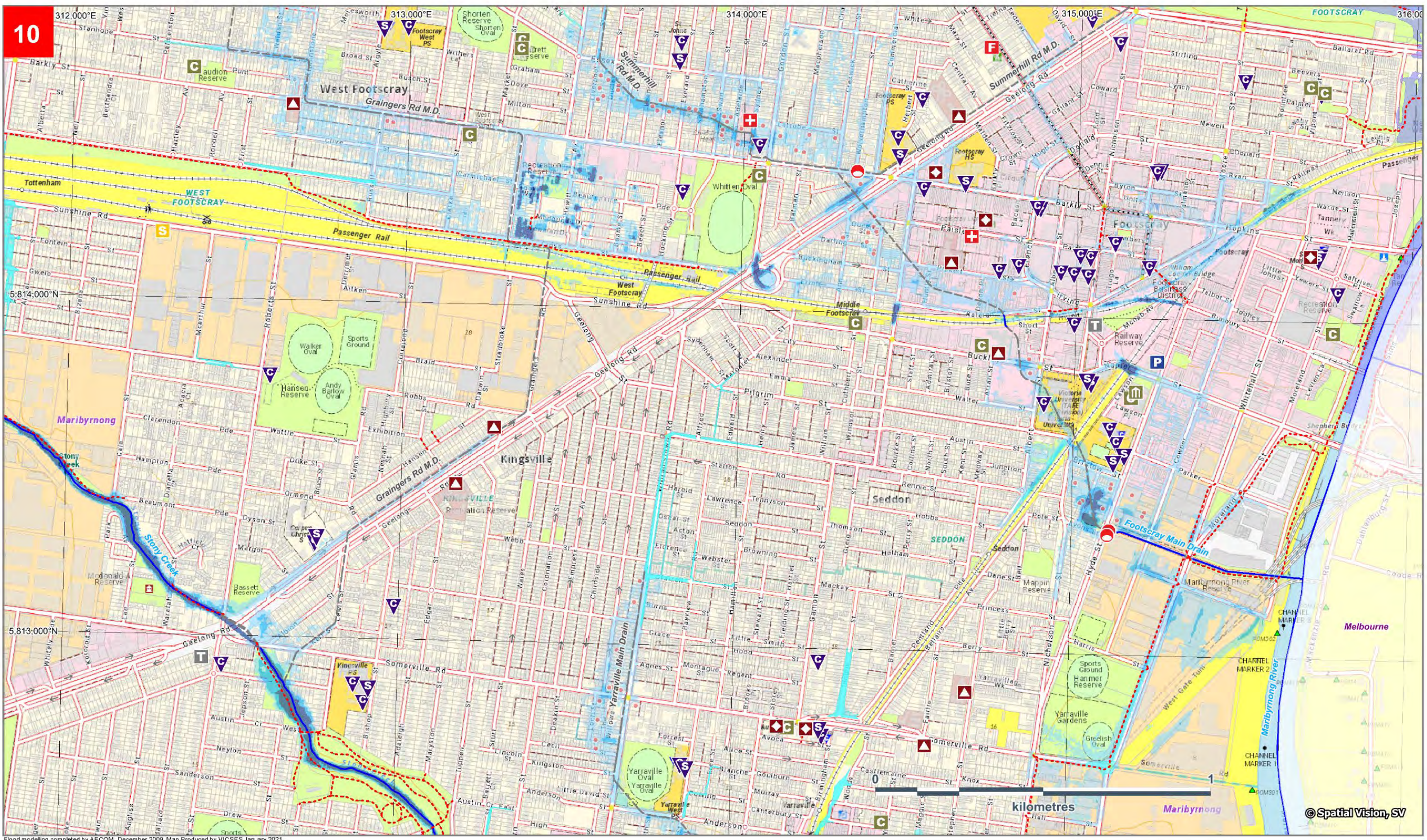
- Greater than 60cm
- Between 30cm and 60cm
- Between 5cm and 30cm
- 1% AEP Storm Surge Extent (Depth Unavailable)
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- Aged Care / Retirement Village

LAND USE

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

LEGEND

- Building
- Waterbody
- Melbourne Water Stormwater Drain
- Bicycle / Walking Trail
- Child Care / Kindergarten
- Education Facility
- Community Centre
- Aged Care / Retirement Village
- Place Of Worship
- Telephone Exchange
- Waterway
- Rain Gauge
- Sewer Emergency Relief Point
- Fire Station
- Hospital
- 1% AEP Over-Floor Flooding Risk



Flood modelling completed by AECOM, December 2008. Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
 1% AEP (100yr ARI) Flooding
10. Footscray Main Drain (Footscray)

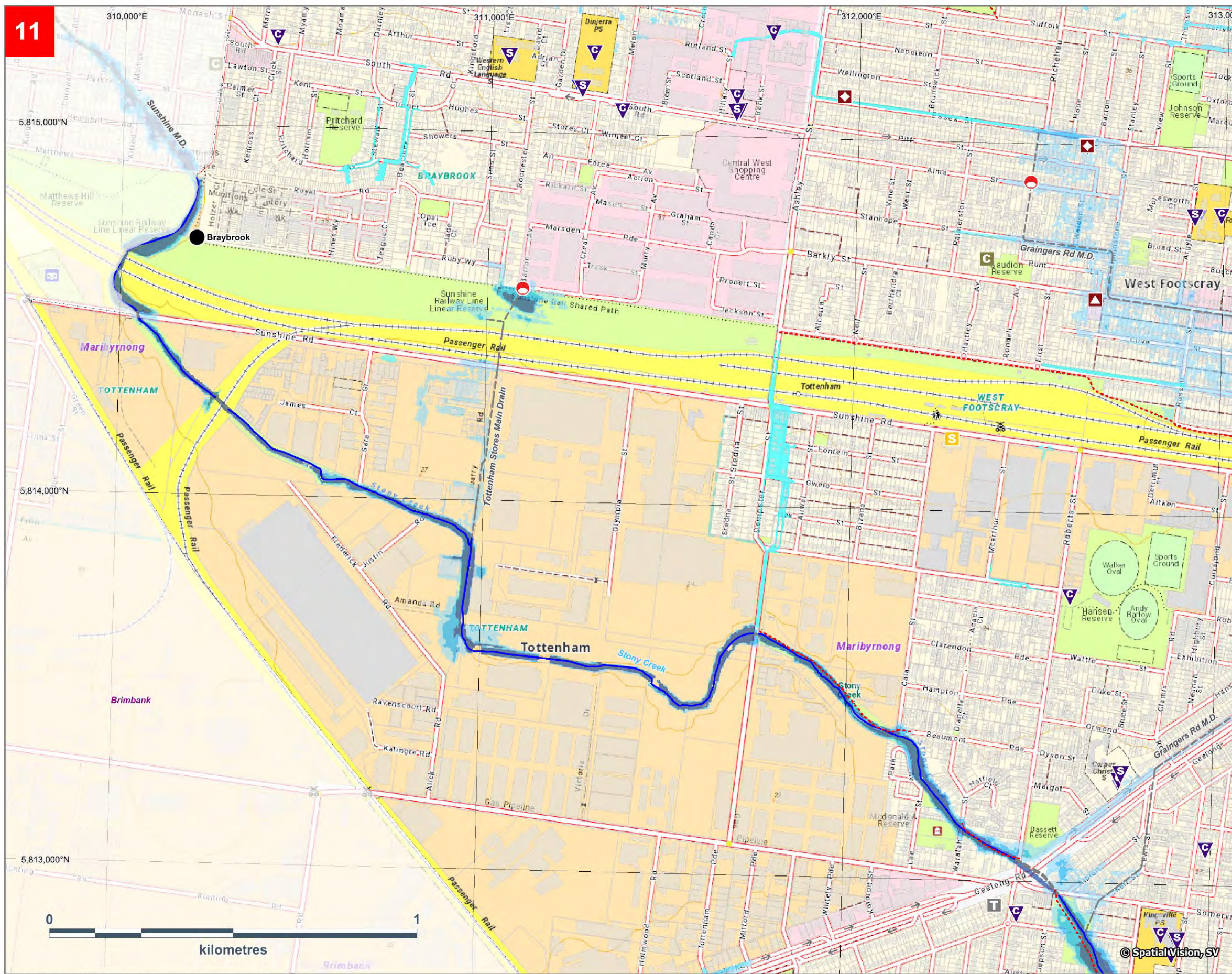
- | | | |
|---|----------------------------------|--|
| Building | Melbourne Water Stormwater Drain | Fire Station |
| Waterbody | Waterway | School / College |
| 1% AEP Flood Depth (>5cm) | Bicycle / Walking Trail | Police Station |
| Greater than 60cm | Aged Care / Retirement | Hospital |
| Between 30cm and 60cm | Child Care / Kindergarten | Place Of Worship |
| Between 5cm and 30cm | Community Centre | 1% Over-Floor Flooding Risk |
| Aged Care / Retirement Village | Sewer Emergency Relief Point | 1% AEP Riverine Flood Extent (Depth Unavailable) |
| 1% AEP Flash Flood Extent (Depth Unavailable) | VICSES Unit Headquarters | Municipal Offices |

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



SES VICTORIA State Emergency Service
Melbourne Water

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- Building
- Waterbody
- 1% AEP Flood Depth (>5cm)**
- Greater than 60cm
- Between 30cm and 60cm
- Between 5cm and 30cm
- 1% AEP Flash Flood Extent (Depth Unavailable)
- Bicycle / Walking Trail
- Melbourne Water Stormwater Drain
- Waterway
- Child Care / Kindergarten
- Education Facility
- Aged Care / Retirement Village
- Caravan Park
- Community Centre
- Place of Worship
- Sewer Emergency Relief Point
- Telephone Exchange
- Rain Gauge
- VICSES Unit Headquarters

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

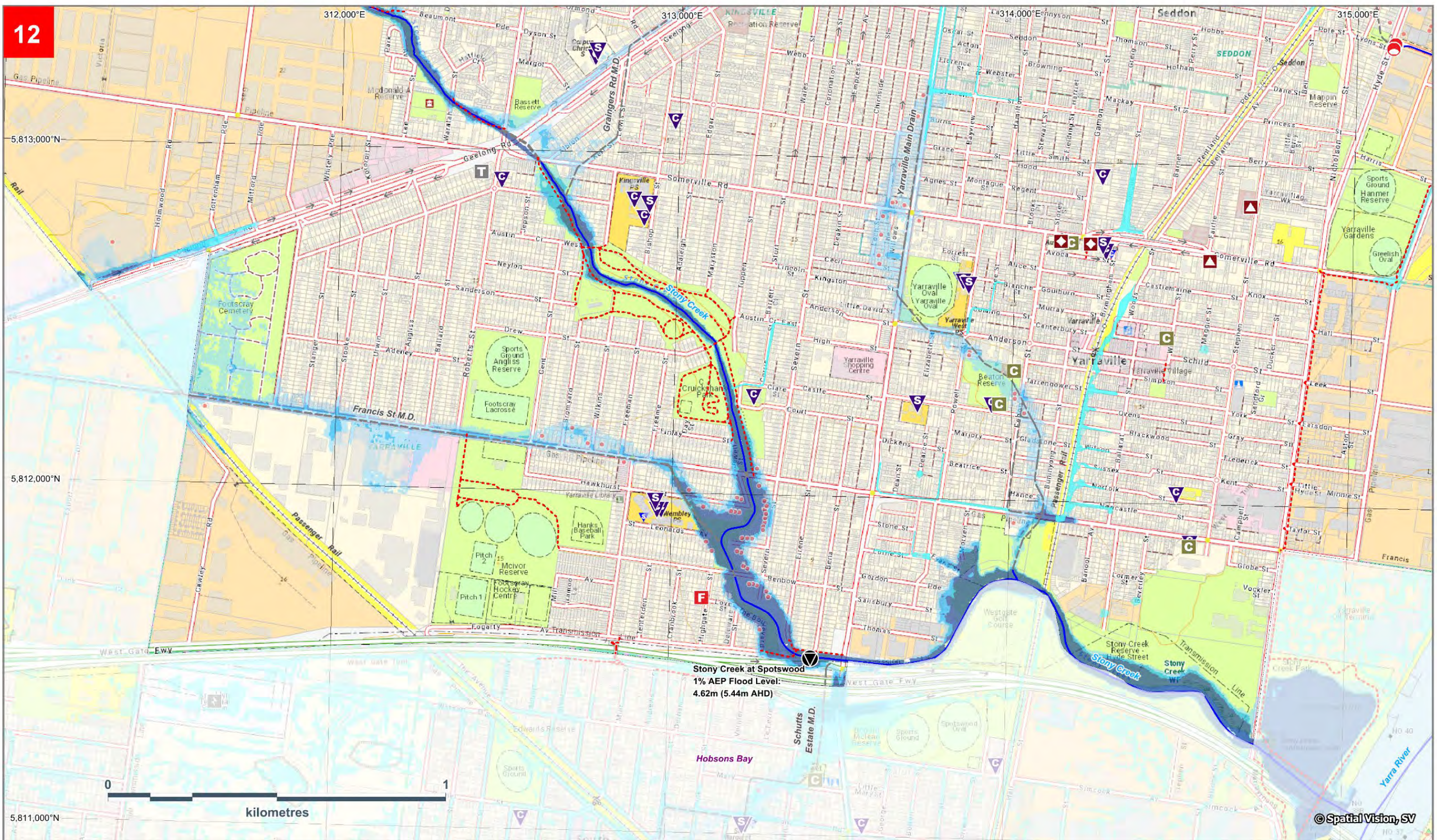


N

CITY OF MARIBYRNONG
1% AEP (100yr ARI) Flooding
11. Stony Creek (Tottenham)

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Flood modelling completed by Melbourne Water, February 2013. Map Produced by VICSES January 2021.



Flood modelling completed by Water Technology, May 2013. Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG
 1% AEP (100yr ARI) Flooding
12. Stony Creek
 (Yarraville)

- | | | |
|---|---|-----------------------------|
| Building | Melbourne Water Stormwater Drain | Fire Station |
| Waterbody | Waterway | School / College |
| 1% AEP Flood Depth (>5cm) | Bicycle / Walking Trail | Rain Gauge |
| Greater than 60cm | Aged Care / Retirement | Power Terminal Station |
| Between 30cm and 60cm | Child Care / Kindergarten | Place Of Worship |
| Between 5cm and 30cm | Community Centre | 1% Over-Floor Flooding Risk |
| Aged Care / Retirement Village | Sewer Emergency Relief Point | |
| 1% AEP Flash Flood Extent (Depth Unavailable) | Stream Level Gauge & 1% AEP Flood Level | |

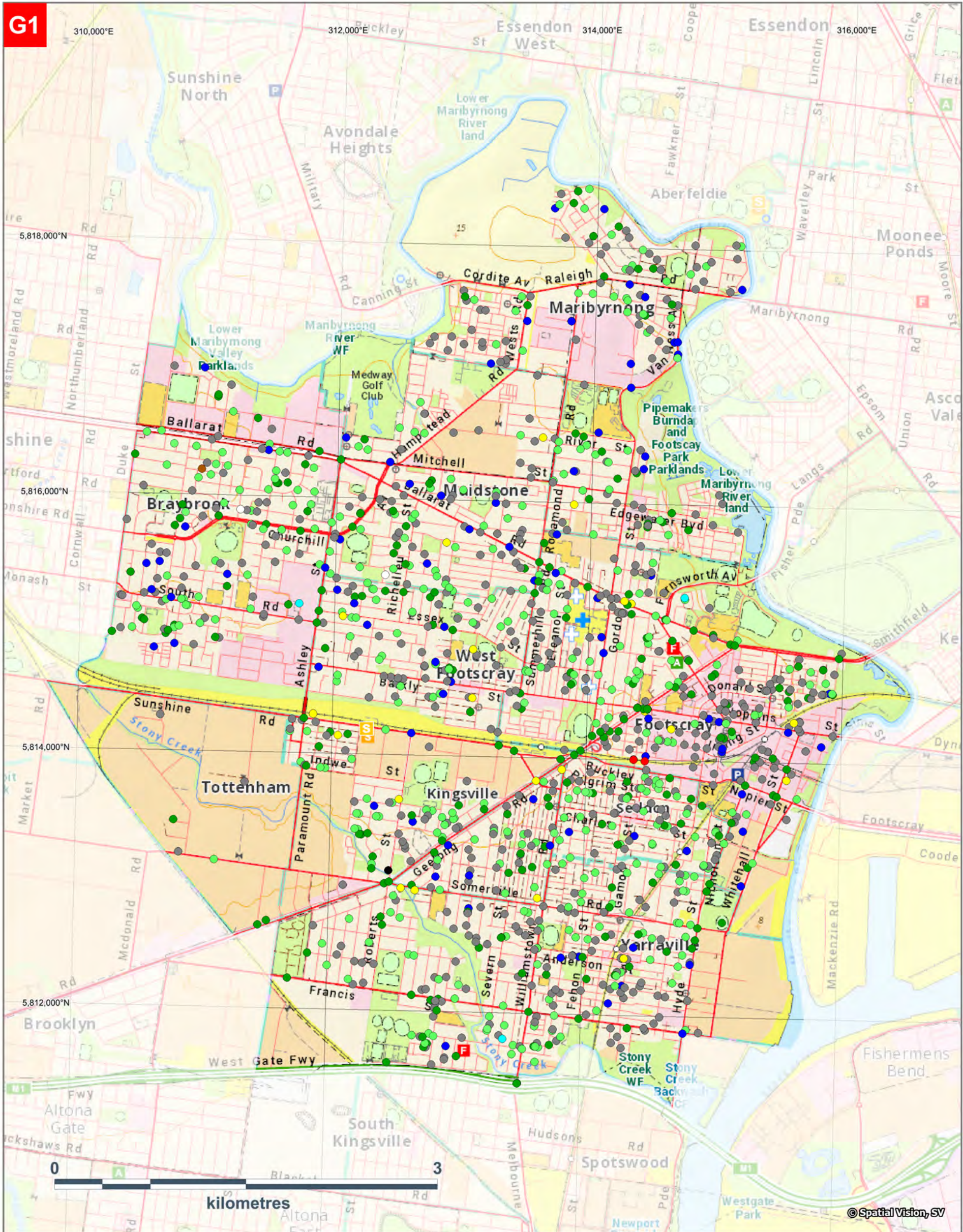
LAND USE	
	Residential
	Commercial and Business
	Industrial
	Public Parks / Cemeteries / Recreation
	Utilities and Local Government Facilities
	Education



SES VICTORIA **Melbourne Water**

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Severe Weather VICSES Requests for Assistance Maps



Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG

Version 4: January 2021

G1. VICSES Severe Weather Requests for Assistance (RFA) by Job Type (July 2009 to December 2020)

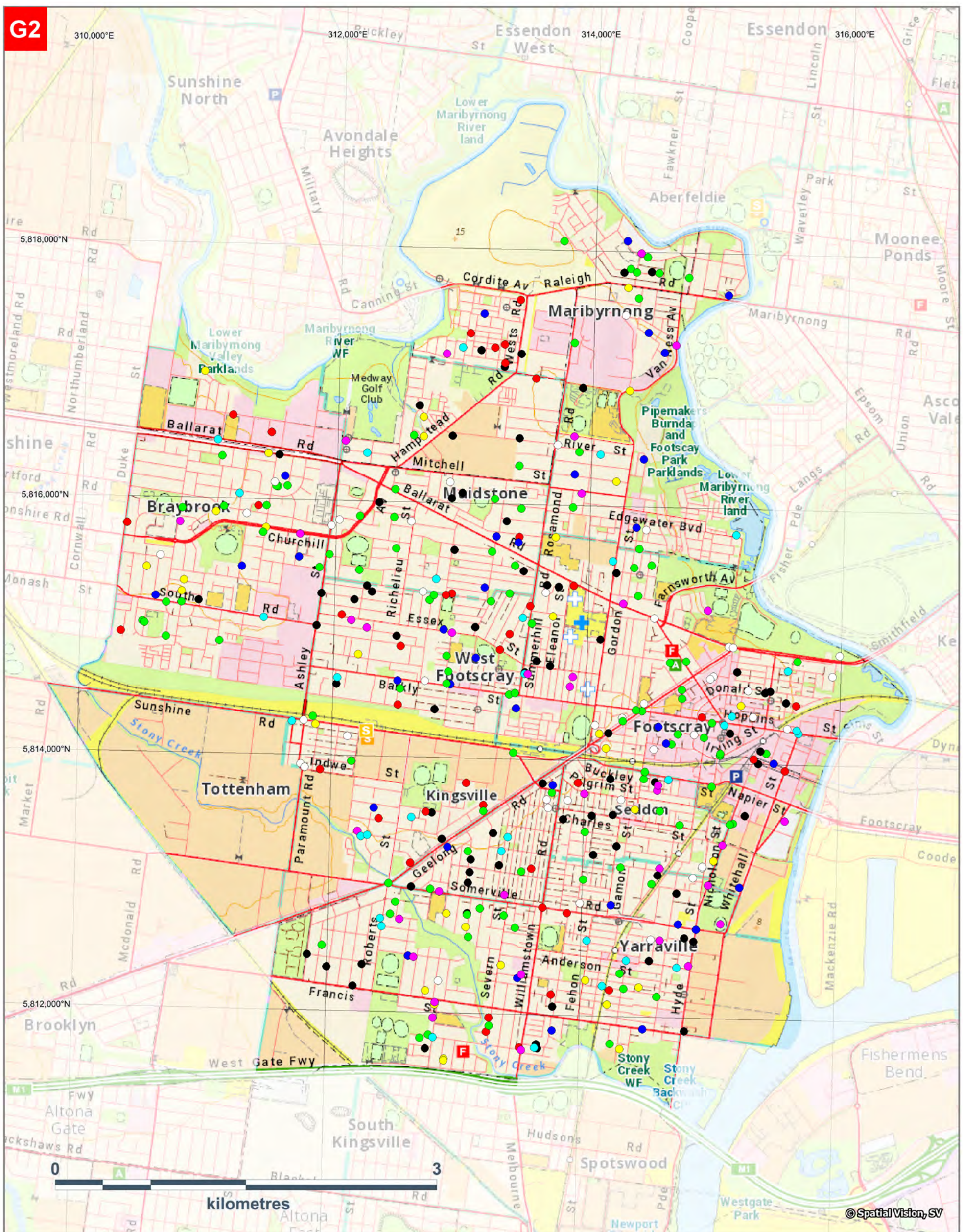
VICSES Severe Weather Requests for Assistance (RFA)

- Assist Agency (3)
- Building Damage (579)
- Dam Incident (1)
- Flooding (102)
- Landslide (1)
- Loose Debris / Objects / Fence (22)
- Other (2)
- Rescue (2)
- Tree Down (415)
- Tree Down Traffic Hazard (255)

S State Emergency Service



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Map Produced by VICSES January 2021.

CITY OF MARIBYRNONG

Version 4: January 2021

G2. VICSES Severe Weather Requests for Assistance (RFA) by Event (July 2009 to December 2020)

Severe Weather Requests for Assistance (RFA) (Storm or Flood)
(by month greater than 30 requests received)

○ August 2013	(48)	● October 2016	(107)
● October 2013	(85)	● July 2017	(34)
● June 2014	(40)	● December 2017	(36)
● January 2016	(33)	● January 2020	(38)

S State Emergency Service



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Maribyrnong River Catchment Schematic

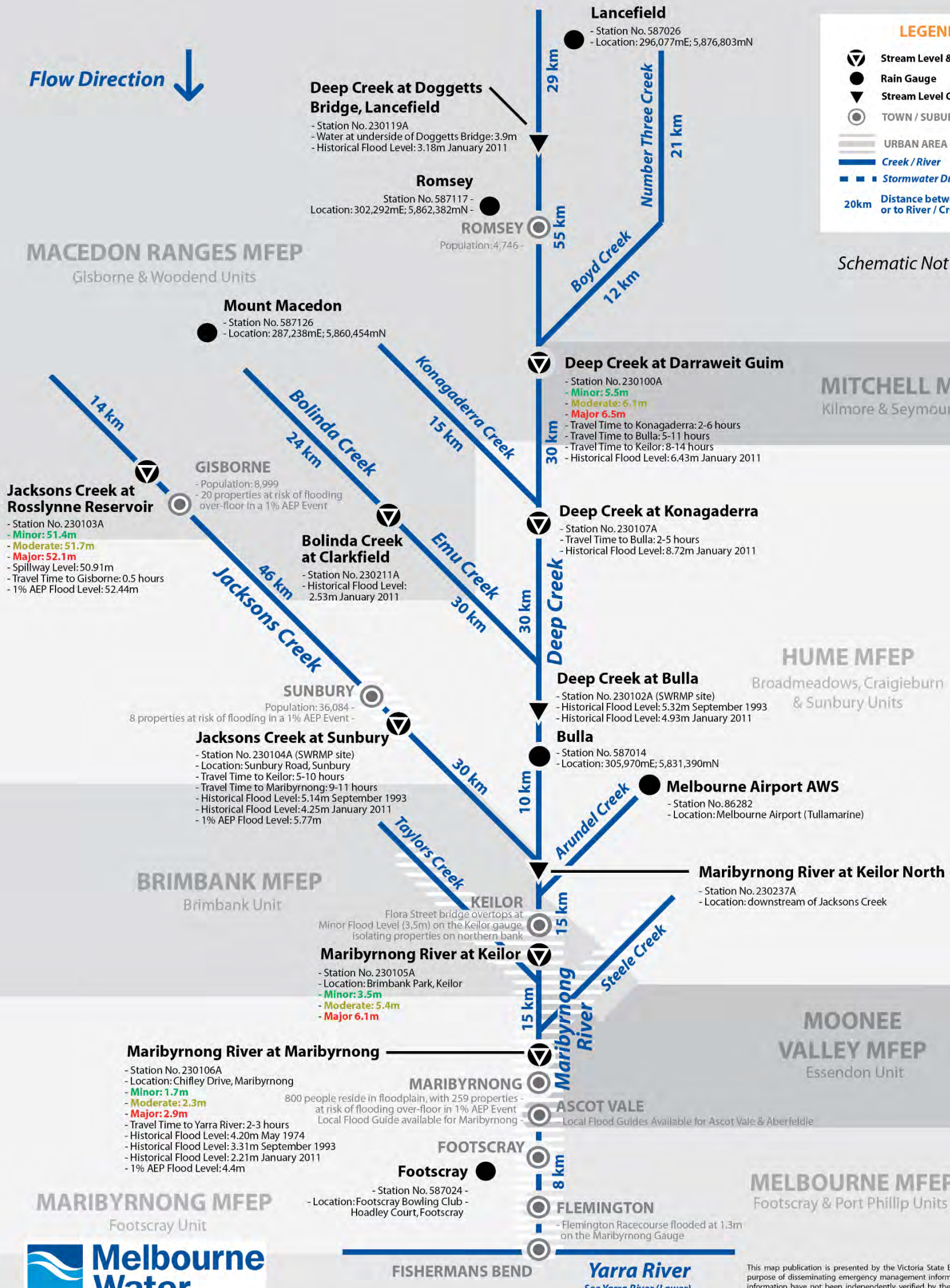
Version 4 - January 2020

Flow Direction ↓

LEGEND

- ▼ Stream Level & Rain Gauge
- Rain Gauge
- ▼ Stream Level Gauge
- TOWN / SUBURB
- ▭ URBAN AREA
- ▬ Creek / River
- ▬ Stormwater Drain
- 20km Distance between Gauges or to River / Creek End

Schematic Not To Scale



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

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Kororoit Creek & Stony Creek Catchment Schematic

Version 4 - February 2019

LEGEND

- Stream Level & Rain Gauge
- Rain Gauge
- Stream Level Gauge
- TOWN / SUBURB
- URBAN AREA
- Creek / River
- Stormwater Drain
- 20km Distance between Gauges or to River / Creek End

Schematic Not To Scale

Flow Direction ↓

HUME MFEP

Broadmeadows, Craigieburn & Sunbury Units

Toolern Vale
 - Station No. 587019
 - Location: 285,680mE; 5,838,420mN

Kororoit Creek at Diggers Rest

- Station No. 231106A
 - Location: Holden Road, Diggers Rest
 - Travel Time to Deer Park: Between 1-7 hours
 - Travel Time to Brooklyn: Between 4-9 hours
 - Historical Flood Level: 2.71m February 2005
 - Historical Flood Level: 3.42m September 1993
 - 1% AEP Flood Level: 3.71m

MELTON MFEP

Melton Unit

Kororoit Creek at Rockbank

- Station No. 231105B
 - Location: Leakes Road, Rockbank
 - 1% AEP Flood Level: 3.3m

ROCKBANK

Population: 1,536
 - 34 properties at risk of flooding over-floor in a 1% AEP Event
 - Western Freeway flooded in a 1% AEP Event

CAROLINE SPRINGS

3 properties at risk of flooding over-floor in a 1% AEP Event

Kororoit Creek at Deer Park

- Station No. 231104A
 - Location: Cavendish Drive, Deer Park
 - Minor: 3.6m
 - Moderate: 4.0m
 - Major: 4.5m
 - Travel Time to Brooklyn: Between 1-3 hours
 - Historical Flood Level: 5.32m February 2005
 - 1% AEP Flood Level: 5.1m

DEER PARK

St Albans

- Station No. 587051
 - Location: Water Tanks on Taylors Road, St Albans

ST ALBANS

- 94 properties at risk of flooding over-floor in a 1% AEP Event along Jones Creek
 - 21 properties at risk of flooding over-floor in a 1% AEP Event along Upper Stony Creek

Sunshine North

- Station No. 587004
 - Location: City West Water Office on St Albans Road, Sunshine North

BRIMBANK MFEP

Brimbank Unit



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Kororoit Creek at Brooklyn

Station No. 231107
 Location: Federation Trail near Westside Drive, Brooklyn
 Historical Flood Level: 4.01m February 2005
 1% AEP Flood Level: 5.33m

ALTONA

Pacecourse Road, Altona flooded at 3.6m against Brooklyn Gauge (20% AEP Event)
 Werribee Railway Line via Altona flooded at 3.8m against Brooklyn Gauge (10% AEP Event)

HOBSONS BAY MFEP

Hobsons Bay Unit

Port Phillip Bay

Stony Creek at Spotswood

- Station No. 230112A
 - Location: Bena Street, Yarraville
 - Historical Flood Level: 2.22m (5th February 2011)
 - 1% AEP Flood Level: 4.62m

YARRAVILLE

- 21 properties at risk of flooding over-floor in a 1% AEP Event along Stony Creek

MARIBYRNONG MFEP

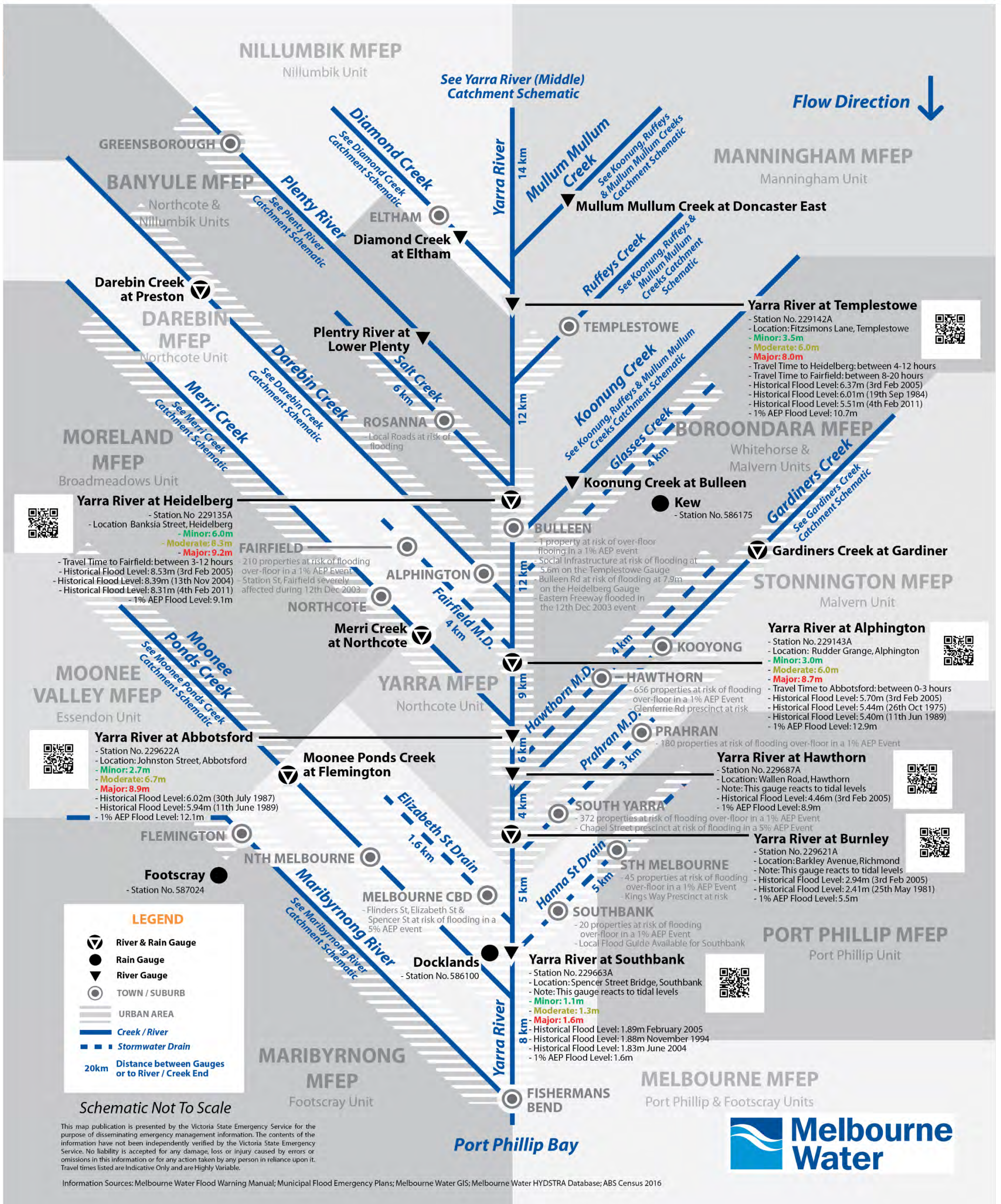
Footscray Unit

Yarra River
 See Yarra River Catchment Schematic



Yarra River (Lower) Catchment Schematic

Version 5 - February 2020



APPENDIX H – SEVERE WEATHER (STORM) EVENTS

Overview

Maribyrnong municipality is susceptible to severe weather events because of a combination of its undulating terrain, urban boundary location and wind exposed properties. The City of Maribyrnong may be subject to severe weather events such as 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 obstructions across roads which can disrupt services affect community functioning and have great potential for road traffic delays and an increase in road accidents.

This Appendix uses Request for Assistance (RFA) data from the Victoria State Emergency Service (VICSES) to display areas at risk from severe weather events.

Large Storm Events

Typically, the Footscray unit would expect to be impacted by a large storm event once or twice a year (more than 30 RFA's per event).

Since 2009 the following larger storm events have occurred in the City of Maribyrnong:

- October 2013 – Windstorm event that saw **85** requests received for trees down and building damage.
- June 2014 – Another high wind event that saw **40** requests received for tree damage and building damage.
- October 2016 – Flood and storm event which saw **107** requests received, coinciding with major floods impacting Victoria across the state (biggest flood event since 2011)

VICSES Requests for Assistance (RFA)

The Victoria State Emergency Service records requests for assistance made by the public during severe weather events. Table 1 below is a breakdown of requests by suburb and damage type during the period July 2009 and December 2020.

VICSES Request for Assistance (July 2009 – December 2020)					
Suburb	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other *
Braybrook	58	62	29	11	3
Footscray	141	71	69	24	10
Kingsville	24	16	10	5	3
Maidstone	49	37	19	14	3
Maribyrnong	73	44	24	21	1
Seddon	33	35	15	3	0
Tottenham	4	1	3	0	0
West Footscray	74	60	38	13	7
Yarraville	123	88	46	11	4

Table G1 – Breakdown of severe weather RFAs received by VICSES Footscray Unit by suburb in City of Maribyrnong

*Assist Agency, Fence Down, Landslide, Loose Debris / Objects, Rescue Persons Trapped, Rescue Structure Collapse, Rescue Vehicle into Structure and Sandbag Request

Table G2 is a breakdown of requests for assistance by date (month) and damage type.

VICSES Request for Assistance (July 2009 – December 2020)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
July 2009	1	0	2	0	0
August 2009	11	0	8	5	0
September 2009	4	0	1	1	0
October 2009	0	0	1	0	0
November 2009	2	2	0	1	0
December 2009	1	0	1	4	0
January 2010	0	0	4	1	0
February 2010	12	2	0	2	0
March 2010	18	9	0	0	0
April 2010	0	0	1	2	0
May 2010	0	0	1	0	0
June 2010	4	0	1	1	0
July 2010	1	0	1	2	0
August 2010	4	0	6	2	0
September 2010	5	0	4	1	0
October 2010	10	3	2	1	0
November 2010	4	4	0	1	0
December 2010	2	0	2	1	0
January 2011	7	3	2	0	0
February 2011	15	5	1	1	0
March 2011	2	0	2	0	0
April 2011	5	1	0	0	0
May 2011	2	0	0	0	0
June 2011	0	0	0	0	0
July 2011	0	0	2	1	0
August 2011	2	0	0	0	0
September 2011	2	1	3	1	0
October 2011	0	0	1	0	0
November 2011	0	0	1	2	0

VICSES Request for Assistance (July 2009 – December 2020)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
December 2011	8	3	4	2	0
January 2012	2	0	4	6	0
February 2012	7	1	8	4	1
March 2012	4	1	1	0	0
April 2012	3	1	1	3	0
May 2012	6	0	2	1	0
June 2012	2	0	3	0	0
July 2012	2	0	0	0	0
August 2012	0	0	0	1	0
September 2012	3	0	7	4	0
October 2012	1	0	0	1	0
November 2012	0	0	3	0	0
December 2012	5	1	4	4	0
January 2013	1	0	1	1	0
February 2013	1	0	1	1	0
March 2013	12	0	11	4	0
April 2013	0	0	0	0	0
May 2013	1	0	0	0	0
June 2013	0	1	0	0	0
July 2013	2	0	3	1	0
August 2013	13	0	24	11	0
September 2013	14	1	7	7	0
October 2013	30	1	41	13	0
November 2013	0	0	2	1	0
December 2013	2	1	0	0	0
January 2014	1	0	3	1	0
February 2014	1	0	2	0	0
March 2014	0	0	0	1	0
April 2014	4	0	0	0	0
May 2014	1	0	0	0	0
June 2014	25	0	12	3	0
July 2014	7	0	2	1	0
August 2014	0	0	1	1	0
September 2014	11	0	4	1	0
October 2014	4	0	2	2	0
November 2014	2	0	1	1	0
December 2014	2	1	4	3	0
January 2015	3	2	3	4	0
February 2015	2	0	2	2	0
March 2015	3	0	6	3	0
April 2015	1	2	0	0	0
May 2015	1	0	0	0	0
June 2015	2	0	0	0	0
July 2015	5	1	2	2	0
August 2015	2	0	0	0	0
September 2015	1	0	0	0	0
October 2015	3	0	1	0	0
November 2015	6	0	7	5	0
December 2015	0	0	2	2	0
January 2016	18	9	2	4	0
February 2016	0	0	0	2	0
March 2016	2	0	6	1	0
April 2016	0	0	0	0	0
May 2016	3	0	0	1	0
June 2016	3	0	0	1	0
July 2016	5	0	2	3	0
August 2016	3	1	0	0	0

VICSES Request for Assistance (July 2009 – December 2020)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
September 2016	2	0	0	1	0
October 2016	47	1	38	21	0
November 2016	4	0	3	1	0
December 2016	2	1	2	3	0
January 2017	0	0	0	2	0
February 2017	2	1	1	1	0
March 2017	2	0	2	0	0
April 2017	6	1	3	1	0
May 2017	0	2	0	0	0
June 2017	0	0	0	0	0
July 2017	16	0	11	7	0
August 2017	3	0	2	1	0
September 2017	5	0	0	0	0
October 2017	1	0	1	0	0
November 2017	0	0	0	0	0
December 2017	25	6	5	0	0
January 2018	1	1	1	3	0
February 2018	4	0	4	9	0
March 2018	2	0	1	1	0
April 2018	0	0	2	2	0
May 2018	4	0	1	1	0
June 2018	3	2	1	2	0
July 2018	2	0	1	1	0
August 2018	1	1	0	3	0
September 2018	1	1	3	0	0
October 2018	0	0	1	0	0
November 2018	12	6	1	1	0
December 2018	7	2	0	1	1
January 2019	0	1	1	1	1
February 2019	2	1	3	3	0
March 2019	0	0	1	1	0
April 2019	1	2	1	2	0
May 2019	2	2	1	1	0
June 2019	0	0	0	0	2
July 2019	4	0	0	1	0
August 2019	2	1	0	1	1
September 2019	4	0	0	3	0
October 2019	3	1	9	0	2
November 2019	5	0	6	8	1
December 2019	3	0	7	4	2
January 2020	6	4	17	10	1
February 2020	3	2	3	4	0
March 2020	2	1	2	1	0
April 2020	5	1	7	3	2
May 2020	1	2	1	0	1
June 2020	1	1	0	0	0
July 2020	5	0	1	0	0
August 2020	6	1	8	1	2
September 2020	6	0	3	0	3
October 2020	1	1	4	1	3
November 2020	5	0	7	2	2
December 2020	3	2	11	5	5

Table G2 – Breakdown of severe weather RFAs received by VICSES Hastings and Sorrento Units by month

*Assist Agency, Dam Incident, Fence Down, Landslide, Loose Debris / Objects, Rescue Persons Trapped, Rescue Structure Collapse, Rescue Vehicle into Structure and Sandbag Request

Activation Triggers

Triggers for activation in flood and storm have been identified as follows:

FLOOD READINESS AND ACTIVATION TRIGGER CONSIDERATIONS - V3.0 - SEPTEMBER 2017						
Readiness Level	RL 1- LOW TO MODERATE	RL 2 - HIGH	RL 3(A) - VERY HIGH	RL 3(B) - VERY HIGH	RL 4 - SEVERE	RL 5 - EXTREME
FDI	0 - 11	12 - 24	25 - 34*	35 - 49*	50 - 74	75 - 99
Fire Behaviour	Fires can be easily controlled	Fires can be controlled, expect short distance spotting	Fires can be difficult to control, crown fires may develop in forest.	Fires can be difficult to control, crown fires may develop in forest.	Fires may be uncontrollable and move quickly. Spot fires may occur up to 4km ahead of the fire.	Fires will be uncontrollable, unpredictable and fast moving. Spot fires up to 6km ahead of the fire.
	Minor		Moderate		High End Moderate to Major	
Flood Prediction	Flood Watch issued and/or Minor Flood warning issued	Minor Flood Warning issued	Low to Mid range Moderate Flood warning issued with low consequences for built environment based on risk	Moderate to High end MODERATE Flood Warning with moderate consequences for built environment based on risk	MAJOR Flood Warning predicted and/or >2 high end MODERATE Flood warnings with risks and consequences for built environment & economic	Two or more MAJOR Flood warning(s) or One with significant consequences / widespread evacuations for built environment, exceeding 1 in 100 year riverine event. Multiple MODERATE Flood Warnings. Large Dam failure considered very likely.
Flood Behaviour	Anticipated continued light rain. Catchments able to absorb predicted rain for consecutive days but may lead to flooding. Nil impacts or consequences predicted unless identified.	Anticipated continued rain. Catchments able to absorb predicted rain for consecutive days with minor flooding occurring. Low-lying areas next to water courses are inundated. Minor roads may be closed and low-level bridges submerged. In urban areas inundation may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas removal of stock and equipment may be required	Anticipated continued rain. Catchments likely to be saturated and unable to absorb continued rain. Areas of inundation are more substantial in size but consequence low. Main traffic routes may be affected. Unlikely for buildings to be affected above the floor level. Evacuation of flood affected areas may start to be considered. In rural areas removal of stock is required.	Anticipated continued rain. Catchments are saturated and unable to absorb continued rain. Areas of inundation are more substantial. Main traffic routes may be affected. Some buildings may be affected above the floor level. Evacuation of flood affected areas may be planned for. In rural areas removal of stock is required. Impact assessment may be required.	Anticipated continued high rain. Catchments are saturated and unable to absorb continued rain and runoff. Extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas likely. Utility services likely to be impacted.	Anticipated significant extreme weather event that will lead to rapidly rising river conditions. Catchments are saturated and unable to absorb current or additional runoff. Extensive rural areas and/or urban areas are inundated. Many buildings may be affected above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of flood affected areas are likely. Utility services will be impacted.
Readiness Level (State)	Preparedness WHITE SDO and SAC (monitor)	Preparedness WHITE SDO and SAC (monitor)	Preparedness WHITE SDO and SAC (monitor)	SCC level BLUE or when ICC activated SDO and SAC in place METRO: RCC open, Base RCT in place	SCC level ORANGE. Multiple ICCs activated or multi region SDO and SAC in place Consider day & night	SCC Level RED. Multiple ICCs activated or multi region SDO and SAC in place Day & night
Readiness levels (Regional)	Preparedness WHITE RAC (Monitoring)	Preparedness WHITE RAC (Monitoring)	Regional Command (on call/ STBY) RAC (Monitoring)	RURAL: Regional Cmd in place, RC notified. METRO: RCC OPEN, base RCT in place RAC and RDO at the RCC	RCC OPEN: RCT in place, some agencies available on immediate recall RAC and RDO at the RCC	RCC OPEN: Full RCT and most REMT in place RAC and RDO at the RCC
Readiness levels (Incident)	RDO (monitor and issuing public information)	RDO (monitor and issuing warnings)	RDO (issuing warnings - oversighting basic response (eg: evac caravan park))	FULL RCT on Standby REMT Briefed by RAC	REMT briefed by RAC and on standby to come in (as required)	RCT, RAC and RDO in place at RCC
			Base IMT (Rostered STBY)	Base IMT (In Place - Primary ICC)	RURAL - BASE IMT (In Place), CORE (on call/ Stby) METRO - CORE IMT (In Place) Observed activity - CORE IMT (In Place)	RURAL - CORE IMT (In Place), FULL (on call/Stby) METRO - FULL IMT (In Place) Observed activity - FULL IMT (In Place)

STORM READINESS AND ACTIVATION TRIGGER CONSIDERATIONS - V3.0 - SEPTEMBER 2017

Readiness Level	RL 1 - LOW TO MODERATE	RL 2 - HIGH	RL 3(A) - VERY HIGH	RL 3(B) - VERY HIGH	RL 4 - SEVERE	RL 5 - EXTREME
FDI	0 - 11	12 - 24	25 - 34*	35 - 49*	50 - 74	75 - 99
Fire Behaviour	Fires can be easily controlled	Fires can be controlled, expect short distance spotting	Fires can be difficult to control, crown fires may develop in forest.	Fires can be difficult to control, crown fires may develop in forest.	Fires may be uncontrollable and move quickly. Spot fires may occur up to 4km ahead of the fire.	Fires will be uncontrollable, unpredictable and fast moving. Spot fires up to 6km ahead of the fire.
	THUNDERSTORM FORECAST CHART [TFC] issued daily Oct - Apr			SEVERE WEATHER INTELLIGENCE BRIEFING [SWIB] issued TUE & FRI		
Storm Prediction or Warning READINESS CONSIDERATION	No Thunderstorms No Severe Weather	TFC show THUNDERSTORMS POSSIBLE No SWW	TFC shows SEVERE THUNDERSTORMS POSSIBLE SWW issued for winds and/or possible heavy rainfall STW issued for wind and/or heavy rainfall and/or hail	Severe Weather Intelligence Briefing (SWIB) colored YELLOW TFC shows SEVERE THUNDERSTORM LIKELY SWW issued for wind and/or heavy rainfall and/or hail	SWIB colored ORANGE for winds and rainfall, showing TFC shows SEVERE THUNDERSTORMS LIKELY including potential for LARGE Hail, Damaging Winds, Heavy Rainfall leading to flash flooding SWW issued for Damaging Winds and/or Heavy Rainfall STW issued for wind and/or heavy rainfall and/or hail	SWIB colored RED for Damaging to Destructive Winds and Very Heavy Rainfall TFC shows SEVERE THUNDERSTORMS LIKELY including potential for GAINT Hail, Damaging Winds, Heavy Rainfall leading to flash flooding SWW for damage or destructive winds or heavy rainfall STW - Super Cells possible, Heavy Rain and/or Very Dangerous Thunderstorm warning issued
Storm Behaviour READINESS CONSIDERATIONS	No Thunderstorms No Severe Weather	Wind gusts < 90km/h, rain rates not conducive to flash flooding, small hail (<2cm)	SWIB - 50km/hr+ average winds, gusts reaching 90-100 km/hr for prolonged periods. TFC - Possibility of Thunderstorms, may or may not include small hail <3cm. SWW or STW - Chance of flash flooding and damaging winds considered Possible.	SWIB - 60km/hr+ average winds, gusts reaching over 100km/hr (101-109 km/hr) for 6 or more hour period. TFC - Severe Thunderstorms Possible, high possibility of 3 or 4cm hail, wind gusts over 100km/hr. SWW - Heavy Rainfall leading to flash flooding across Districts considered 'Possible' STW - Localised flash flooding rates of >20mm per 30mins likely.	SWIB - 70km/hr+ average winds, DAMAGING gusts reaching over 110km/hr (110-120 km/hr) for 3 or more hour period. TFC - Severe Thunderstorms LIKELY SWW - Heavy Rainfall leading to flash and/or riverine flooding across Districts considered 'Likely' STW - Possibility of hail of 4-5cm, wind gusts over 110km/hr. POTENTIAL for Super Cell, Squall or Tornado. Localised flash flooding rates of >30mm per 30mins likely.	SWIB - Very unstable weather conditions including 80km/hr+ average winds, DAMAGING (120km/hr to DESTRUCTIVE > 125km/hr for 3 or more hour period CERTAIN. TFC - Severe Thunderstorms more LIKELY. SWW - Heavy Rainfall leading to flash and/or riverine flooding across Districts considered 'Very Likely' STW - Super Cells including Hail > 5cm, wind gusts > 120km/hr. Localised flash flooding rates of >40mm per 30mins. Squalls or likely Tornado.
NOTE: ADD 10km/hr to average winds and/or gusts when considering Alpine District predictions and/or warnings						
Storm Activity ACTIVATION CONSIDERATIONS	Local level unit response with less than 10 RFAs	Local level unit response with less than 10 RFAs	Local Unit level response with local agency support METRO 30+ RFA active at each 8-10 Units RURAL 15+ RFA active at each 4-6 Units	Multi-Unit responses with increasing multi-agency responses METRO 250+ active RFA in the region, where multi Units have more than 30 RFAs, ESTA has activated Critical Incident Response Plan (CIRP) Level 1 RURAL 100+ active RFA across the region, where Units have 15+ RFA at more than 5 Units	Multi-Unit response activity with multi-agency support and high level of multi-agency response activity (eg: Fire Alarms) METRO 400+ RFA active across the region, where Units have more than 30 RFAs or ESTA CIRP Level 2, event creation has increased to 2-4 per minute, < 15 calls waiting RURAL 250+ RFA, where multi Units have more than 30+ RFA each	Multi-Unit response and high level of multi-agency response activity with significant impacts across multi municipalities METRO 1000+ RFA across ICC footprint, where Units have more than 60 RFAs or ESTA CIRP Level 2 event creation has increased to more than 4 per minute, 15+ calls waiting consistently RURAL 500+ RFA across ICC footprint, where multi Units have more than 45+ RFA each
	VICSES - Business as Usual Operations			JSOP 2.03 LINE OF CONTROL		
Readiness (State)	SCC Level White SAC and SDO (monitor)	SCC Level White SAC and SDO (monitor)	SCC Level White/Blue SAC and SDO (actively monitoring)	SCC Level Blue or when ICC activated SDO and SAC in place	SCC Level Orange. Multiple ICCs activated or multi region SDO and SAC in place. Consider day/ night	SCC Level Red. Multiple ICCs activated or multi region SDO and SAC in place day and night
Readiness levels (Regional)	RDO (monitor)	RAC (monitor)	Regional Command IN PLACE	RURAL: Regional Cmd In Place, RC notified METRO - RCC OPEN: Base RCT in place	RCC OPEN: RCT in place, some agencies available on immediate recall	RCC OPEN: Full RCT/ most REMT in place
Readiness levels (Incident)	RDO (monitor)	RDO (monitor)	RDO - RAC IN PLACE Resource Officer (STBY-OnCall) Management Support (STBY)	RURAL - BASE IMT (Rostered) METRO - BASE IMT (In Place) Observed activity - BASE IMT (In Place)	RURAL - BASE IMT (In Place), CORE (Stby) METRO - CORE IMT (In Place) Observed activity - CORE IMT (In Place)	RURAL - CORE IMT (In Place), FULL (Stby) METRO - FULL IMT (In Place) Observed activity - FULL IMT (In Place)