

OFFICIAL

City of Moonee Valley

Storm and Flood Emergency Plan

A Sub-Plan of the Municipal Emergency Management Plan

For Moonee Valley City Council
And
VICSES Unit Essendon

Final Version 7.2
Reviewed November 2023



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Distribution List

Copy No.	Issue To:		Date
	Position	Organisation	
Original	MEMP Committee Executive Officer	Moonee Valley Council	
1	MEMO	Moonee Valley Council	
2	Essendon Unit	VICSES	
3	Sunshine ICC	VICSES	
4	ROEM	VICSES	
5	MERC	Victoria Police	
6	Floodplain Management Team	Melbourne Water	
7	MEMPC membership	Various (electronic copy only)	
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Document Transmittal Form / Amendment Certificate

This Municipal Storm and Flood Emergency Plan (MSFEP) will be amended, maintained and distributed as required by VICSES in consultation with City of Moonee Valley.

Suggestions for amendments to this Plan should be forwarded to:

VICSES Regional Office Central Region (West)
239 Proximity Dr
SUNSHINE WEST 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
01	16/3/2012	Alison Tuxworth	Population of template
02	3/12/2012	Greg Mulcahy	Population of template
03	02/07/2014	Ross Butler	Update of Appendix Information & Mapping. Addition of Catchment Schematics
04	1/3/16	Alison Tuxworth	Minor amendments
05	18/5/2017	Gerabeth Abbott	Update Part 1-4 references, inclusion of storm detail and Storm Appendix
06	19/12/2017	Ross Butler and Gerabeth Abbott	Update of Appendix A, B, C, F & G. Update of legislative references
6.1	26/02/2018	MVCC FMPC	Review of Plan, incorporation of local knowledge
7.0	03/03/2022	Ross Butler	Application of new template. Update of Appendix A, B, C, F & G
7.1	11/09/2023	Ross Butler	Update of agency names and references. Update of Appendix C3 based on Interim recalibrated Maribyrnong flood model. Associated mapping in Appendix F updated.
7.2	16/11/2023	Ross Butler	Update of property list and intelligence card in Appendix C3

This plan will be maintained on the VICSES and City of Moonee Valley websites www.mvcc.vic.gov.au and www.vicses.vic.gov.au and on the Fire and Emergency Management Portal (IFMP).

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)	IC	Incident Controller
AIDR	Australian Institute of Disaster Resilience	ICC	Incident Control Centre
AIIMS	Australasian Inter-service Incident Management System	IMT	Incident Management Team
AoCC	Area of Operations Control Centre / Command Centre	LSIO	Land Subject to Inundation Overlay
ARI	Average Recurrence Interval	MEMO	Municipal Emergency Management Officer
AV	Ambulance Victoria	MEMP	Municipal Emergency Management Plan
BoM	Bureau of Meteorology	MEMPC	Municipal Emergency Management Planning Committee
CEO	Chief Executive Officer	MERC	Municipal Emergency Response Coordinator
CEOC	Council Emergency Operations Centre	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
DEECA	Department of Energy, Environment and Climate Action	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
DSIR	Department of Skills, Industry and Regions	SBO	Special Building Overlay
DoI	Department of Infrastructure	SCC	State Control Centre
DTP	Department of Transport and Planning	SEMP	State Emergency Management Plan
EMLO	Emergency Management Liaison Officer	SERP	State Emergency Response Plan
EMV	Emergency Management Victoria	SEWS	Standard Emergency Warning Signal
EO	Executive Officer		
FO	Floodway Overlay	SOP	Standard Operating Procedure
FRV	Fire Rescue Victoria	VicPol	Victoria Police
FWS	Flood Warning System	VICSES	Victoria State Emergency Service
FZ	Floodway Zone		
HESP	Health Emergency Sub Plan		

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 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 City of Moonee Valley Flood Planning Committee (MFPC) and with the authority of the MEMPC – (refer to section 1.6 endorsement of plan) pursuant to Section 20 of the Emergency Management Act 1986 (as amended).

This MSFEP has undertaken the following consultations with the community about the arrangements contained within this plan:

- Plan has been reviewed and approved by the MEMPC.
- Plan has been made available for public comment on the Council website, comments have been reviewed by the MFPC and appropriate adjustments made.
- Plan has been endorsed by Council.

This MFEP is a sub plan to the City of Moonee Valley Municipal Emergency Management Plan (MEMP), is consistent with the Emergency Management Manual Victoria (EMMV) and the Victoria Flood Management Strategy, and takes into account the outcomes of the Community Emergency Risk Assessment (CERA) process undertaken by the Municipal Emergency Management Planning Committee (MEMPC).

The Municipal Storm and Flood Emergency Plan is consistent with the Regional Flood Emergency Plan, Regional Storm Emergency Plan and the State Flood Emergency Plan.

This Municipal Flood Emergency Plan is a result of the cooperative efforts of the City of Moonee Valley Flood Planning Committee (MFPC) and its member agencies.

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

This Plan is endorsed by the Moonee Valley MFPC as a sub-plan to the MEMP.

Agency Endorsement

<p>.....</p> <p>Nicholas Cowham (ACO Unit Support EM & Community Engagement, VICSES Western Region)</p> <p>Date _____</p>

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 flood incidents within the City of Moonee Valley.

As such, the scope of the Plan is to:

- Identify the Storm and Flood Risk to City of Moonee Valley;
- Support the implementation of measures to minimise the causes and impacts of storm and flood incidents within the City of Moonee Valley;
- 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 Storm and Flood Planning Committee (MSFPC)

Membership of the Moonee Valley Flood Planning Committee (MSFPC) will comprise of the following representatives from the following agencies and organisations:

- VICSES (i.e. Unit Controller & Regional Officer – Emergency Management) (**Chair**),
- City of Moonee Valley representatives,
- Victoria Police (i.e. Municipal Emergency Response Co-ordinator) (MERC),
- Water Authorities as required,
- Other agencies as required

1.4 Responsibility for Planning, Review and Maintenance of this Plan

This MSFEP must be maintained in order to remain effective.

VICSES through the Municipal Storm and Flood Planning Committee (MSFPC) has responsibility for preparing, reviewing, maintaining and distributing this plan. The MSFPC will meet at least once per year, or as required.

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

- Following any new flood or stormwater drainage study;
- Following change in non-structural and/or structural flood mitigation measures;
- After the occurrence of a significant storm 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 local media, VICSES Community Education programs, websites (VICSES and the Municipality) upon formal adoption by the City of Moonee Valley.

VICSES with the support of the City of Moonee Valley and Melbourne Water will coordinate community education programs for storm and flooding within the council area, (i.e. Local Flood Guides and public events).

2.2 Structural Flood Mitigation Measures

Structural flood mitigation measures existing within the City of Moonee Valley are contained in **Appendix A** and **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 reviewed following a significant event.

2.3.2 Severe Weather and Flood Warnings

Arrangements for storm and flood warning are contained within the State Flood Emergency Plan and State Storm Emergency Plan (ses.vic.gov.au/em-sector/vicses-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 Moonee Valley 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 Storm and Flood Emergency Plans, the State Storm Emergency Plan and the State Flood Emergency Plan (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 or flood within the City of Moonee Valley. 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 Moonee Valley City MEMP, the SEMP ([Roles and Responsibilities](#)), State Flood and Storm Emergency Plans and VICSES Central Region Storm and Flood Emergency Plans (ses.vic.gov.au/em-sector/vicses-emergency-plans).

3.1.3 Council Emergency Operations Centre (CEOC)

Where activated, the function, location, establishment and operation of the CEOC will be as detailed in the Moonee Valley City MEMP.

Liaison with the CEOC will be through the VICSES RDO/IC or established ICC.

In the event that a CEOC is not operating, the Moonee Valley City Council Municipal Emergency Management Officer (MEMO) will be contacted.

3.1.4 Escalation

Most storm and flood incidents are of local concern and an appropriate response can usually be coordinated using local resources. However, when these resources are exhausted, 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 Command, Control, Coordination, Consequences, Communication and Community

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 Moonee Valley, including those arising from a dam failure or retarding basin/levee bank failure incident, will therefore be under the control of the appointed IC, or his/her delegated representative.

3.3.2 Incident Controller (IC)

An 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 as defined in the SEMP.

3.3.3 Incident Control Centre (ICC)

As required, the IC will establish an 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 Centres are located at:

- 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.

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

Predetermined Divisional Command locations are:

- Essendon Unit LHQ, Bruce St , Moonee Ponds
- Brimbank Unit LHQ, Stadium Drive, Keilor Park
- Broadmeadows Unit LHQ, 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 Moonee Valley 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 guidance on IEMTs.

3.3.7 On Receipt of a Flood Watch / Severe Weather Warning

The IC or VICSES RDO (until an incident controller 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 flood consequences
- Monitor weather and flood information – www.bom.gov.au
- Assess Command and Control requirements.
- Review local resources and consider needs for further resources regarding personnel, property protection, flood rescue and air support
- Notify and brief appropriate officers. This includes RCC (if established), SCC (if established), City of Moonee Valley and other emergency services through the IEMT.
- Assess ICC readiness (including staffing of IMT and EMT) 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 Flood Warnings

The VICSES Central Region RDO or IC will undertake actions as defined within the Flood Intelligence Cards (**Appendix C**). General considerations by the VICSES Central Region DO/ IC will be as follows:

- Develop an appreciation of current flood levels and predicted levels. Are floodwaters, rising, peaking or falling?
- Review flood and storm 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
- Determine what the at-risk community need to know and do as the flood or storm develops.
- Warn the at-risk community including ensuring that an appropriate warning and community information strategy is implemented. This includes:
 - The current storm and/or flood situation
 - Storm and/or flood predictions

- What the consequences of predicted activity or 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 flood consequence assessment.
- Continue to monitor the flood situation – www.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 Storm and Flood Emergency Plans.

Community information and warnings communication methods available 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 VicEmergency website;
- VicEmergency Hotline, previously VICSES Flood Storm Information Line;
- Variable Message Signs (i.e. road signs);
- Community meetings;
- Newspapers;
- Email;
- Telephone trees;
- Fax Stream;
- 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.

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

Other agencies such as CFA, DELWP and VicPol may be requested to assist VICSES with the communication of community storm and flood warnings.

In cases where severe flash flooding is predicted, dam failure or landslip 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 Unit established at the ICC will manage Media communication. If the ICC is not established, the VICSES RDO will manage all media communication. Moonee Valley City Council will work with the /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 (IA) can be conducted in accordance with State doctrine and Standard Operating Procedures (SOPs) to assess and record the extent and nature of damage caused by storms and/or flooding. This information may then be used to provide the basis for further needs assessment and recovery planning by Moonee Valley City Council, DFFH and other applicable recovery agencies.

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

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

3.7 Preliminary Deployments

When storm impact or flooding is expected to be severe enough to cut access to towns, suburbs and/or communities the IC will consult with relevant agencies to ensure that resources are in place if required to provide emergency response. These resources might include emergency service personnel, food items and non-food items such as medical supplies, shelter, assembly areas, relief centres etc. in line with the Moonee Valley MEMP.

3.8 Response to Flash Flooding

Emergency management response to flash flooding should be consistent with the guideline for the emergency management of flash 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 floods the following steps should be followed, and in the order as given:

1. Determine if there are barriers to evacuation by considering warning time, safe routes, resources available etc;
2. Should evacuation be the adopted strategy, it must be supported by public information capability and a rescue contingency plan;
3. Where it is likely people will become trapped by floodwaters 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.

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 Moonee Valley MERC and MEMO 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 emergency 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 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 Incident Controller 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 Moonee Valley Council MEMP (including Section 5.12: Relocation and Evacuation, and Section 7.5: Evacuation) for further guidance on evacuations for emergencies. If evacuation is determined as appropriate, Moonee Valley Council 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 Moonee Valley.

3.10 Flood Rescue

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

In order to activate water rescue services, VICSES as a 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 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 or 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 indicates 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, VICSES 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 Monee Valley MEMP. It is expected that any resupply operations will be short term in nature, predominantly in response to medical requirements.

3.13 Essential Infrastructure and Property Protection

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

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

City of Moonee Valley maintains a small stock of sandbags for use by emergency service agencies, with back-up supplies available through the VICSES Unit and Regional Headquarters. The Incident

Controller will determine the priorities related the use of sandbags, which will be consistent with the strategic priorities.

If VICSES sandbags are becoming limited in supply, then priority will be given to protection of Essential Infrastructure. If time permits, requests for supplementary supply should be carried out in line with the Moonee Valley 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, Moonee Valley 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 required.

3.14 Disruption to Services

Disruption to services other than essential infrastructure and property can occur in storm and 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 Moonee Valley.

3.15 Road Closures

Moonee Valley Council, VicPol and the Department of Transport and Planning (DTP) will carry out their formal functions of road closures. This includes the observation and placement of warning signs and road blocks to its designated local and regional roads, bridges, walking and bike trails. VicPol may liaise with Moonee Valley City Council and DTP as to the need to erect warning signs and / or close roads and bridges under its jurisdiction. DTP are responsible for designated main roads and highways and Councils are responsible for the designated local and regional road network.

DTP, VicPol and the City of Moonee Valley will communicate community information regarding road closures as outlined in the Moonee Valley MEMP.

3.16 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.

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

3.17 Waste Water related Public Health Issues and Critical Sewerage Assets

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

- Advise VICSES and the Moonee Valley 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 ICC in the event of inundation of critical sewerage assets.

While there are no septic tanks within Moonee Valley, upstream flows may affect the Municipality.

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

3.18 Levee Management

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 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.

- Several small levees identified in the City of Moonee Valley have been detailed in **Appendix C**.

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

VICSES will coordinate the after action review arrangements of storm/flood operations as soon as practical following an event.

All agencies involved in the storm/ flood incident should be represented at the after action review.

Part 4. AFTER: EMERGENCY RELIEF AND RECOVERY ARRANGEMENTS

4.1 General

Arrangements for recovery from a storm or flood incident within the City of Moonee Valley are detailed in the Moonee Valley MEMP and relief and recovery sub plan.

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 Moonee Valley 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 and/or flood event will be dependent upon the size, impact, and scale of the storm/flood. Refer to the SEMP for further information.

Suitable relief facilities identified for use during floods as with the associated relief and recovery arrangements are detailed in City of Moonee Valley MEMP and the Moonee Valley Relief and Recovery sub-plan. The Moonee Valley MRM will facilitate access to emergency relief facilities 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 Moonee Valley Council and RSPCA. Council assists, where possible, in the support and temporary rehoming of displaced companion animals.

Matters relating to the welfare of wildlife are to be referred to DELWP and Moonee Valley City Council.

Refer to **Appendix D** for animal shelter compound locations.

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 emergency management teams (including the IEMT and MRM). Further information about transition is provided in the SEMP and the Moonee Valley MEMP.

APPENDIX A - FLOOD THREATS FOR CITY OF MOONEE VALLEY

General

The municipality faces a number of local flood management and drainage challenges. There are over 600 properties within Special Building Overlays (SBO) and therefore known to be at risk of flooding during 1% AEP flood events. Overland flows also impact properties during more frequent flood events where existing drainage infrastructure is under capacity.

Maribyrnong River, Steele Creek (Maribyrnong Catchment) and Upper and Lower Moonee Ponds Creeks (Yarra Catchment) make up the majority of the waterways within the municipality.

The Municipality is bounded on the northwest by the Albion-Jacana railway line between the Maribyrnong River and Moonee Ponds Creek, then to the east and north east by the Moonee Ponds Creek to Racecourse Road in Flemington. The southern boundary is formed by Racecourse Road, Epsom Road, Langs Road, Leonard Crescent and Fisher Parade until the Maribyrnong River. The Maribyrnong River completes the southerly boundary.

Description of Major Waterways and Drains

There are three major waterways running through the City of Moonee Valley:

- Maribyrnong River** begins at the confluence of Jacksons and Deep Creeks in Keilor North, just west of Melbourne Airport. The river enters the city at Avondale Heights/Keilor East, receiving several drains and Steele Creek while forming the southern boundary of the Municipality and leaving Moonee Valley at Flemington. See **Appendix G** for a schematic of Maribyrnong River.
- Moonee Ponds Creek** forms the north-eastern boundary of the municipality. It rises in Oaklands Junction east of Mickleham Road and joins enters Moonee Valley at Strathmore Heights, receiving Mascoma Street Drain, Five Mile Creek and Bent Street Main Drain as it forms the eastern boundary of the municipality. Moonee Ponds Creek leaves Moonee Valley at Racecourse Road in Flemington and continues on to flow into the Yarra River in Docklands. See **Appendix G** for a schematic of Moonee Ponds Creek
- Steele Creek** rises in Tullamarine near Melbourne Airport and enters the municipality in Airport West. It continues through Keilor East, Niddrie and Avondale Heights, receiving several drains before discharging into the Maribyrnong River at Steele Creek Reserve near the cliffs in Essendon West.

Other waterways and drains within the City of Moonee Valley are listed in the table below.

Melbourne Water Drains & Waterways	Suburb/s	Melbourne Water Drains & Waterways	Suburb/s
Aberfeldie Main Drain	Aberfeldie, Essendon	Hoffmans Road Drain	Essendon, Essendon West, Niddrie,
Airport West Drain	Airport West	Holmes Road Main Drain	Moonee Ponds
Ascot Vale Main Drain	Ascot Vale	Hutchison Street Drain	Niddrie
Bent Street Main Drain	Moonee Ponds	Magdala Avenue Main Drain	Strathmore, Essendon
Clarinda Road Diversion Drain	Moonee Ponds	Mascoma Street Drain	Strathmore Heights
Clydesdale Road Drain	Airport West	Milleara Road Drain	Avondale Heights, Keilor East
Five Mile Creek	Essendon	Niddrie West Drain	Keilor East

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

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 Moonee Valley are as follows in the table below. Levels and rain totals in black indicate large-scale impacts to surrounding areas were recorded, whereas grey figures indicate localised impacts if any occurred. To view the locations of a selection of these severe weather events, see mapping in **Appendix F**.

Event	Moonee Ponds Creek at Jacana (229665A)		Moonee Ponds Creek at Flemington (229643A)		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Steele Creek at Keilor East (230236A)
	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Tide Level	Rainfall at Gauge	Creek Level	Creek Level
Normal Water Level		0.3m		0.3m		0.4m		0.5m	0.2m
Minor Flood Class		-		-		3.5m		1.70m	-
Moderate Flood Class		-		-		5.4m		2.30m	-
Major Flood Class		-		-		6.1m		2.90m	-
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	-
7 th November 1954	-	-	-	-	-	-	-	2.83m	-
11 th December 1954	-	-	-	-	-	-	-	2.98m	-
13 th July 1963	-	-	-	-	-	-	-	2.10m	-
6 th November 1971	-	-	-	-	-	-	-	2.52m	-
15 th May 1974	-	-	-	-	-	7.22m	-	4.20m	-
18 th September 1975	-	-	-	-	-	7.43m	-	2.67m	-
10 th October 1975	-	-	-	-	-	4.22m	-	1.43m	-
21 st October 1975	-	-	-	-	-	5.84m	-	1.75m	-

Event	Moonee Ponds Creek at Jacana (229665A)		Moonee Ponds Creek at Flemington (229643A)		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Steele Creek at Keilor East (230236A)
	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Tide Level	Rainfall at Gauge	Creek Level	Creek Level
Normal Water Level		0.3m		0.3m		0.4m		0.5m	0.2m
Minor Flood Class						3.5m		1.70m	
Moderate Flood Class		-		-		5.4m		2.30m	-
Major Flood Class		-		-		6.1m		2.90m	-
24 th October 1975	-	-	-	-	-	6.93m	-	2.61m	-
1 st November 1975	-	-	-	-	-	4.84m	-	1.59m	-
23 rd September 1976	-	-	-	-	-	5.41m	-	1.39m	-
16 th October 1976	-	-	-	-	-	5.17m	-	1.59m	-
8 th April 1977	-	-	-	-	-	7.31m	-	2.74m	-
19 th June 1977	-	-	-	-	-	5.87m	-	1.58m	-
1 st July 1977	-	-	-	-	-	6.34m	-	1.87m	-
13 th September 1977	-	-	-	-	-	4.24m	-	-	-
4 th July 1978	-	-	-	-	-	4.33m	-	-	-
8 th August 1978	-	-	-	-	-	7.70m	-	2.94m	-
13 th August 1978	-	-	-	-	-	4.09m	-	1.34m	-
19 th September 1978	-	-	-	-	-	4.95m	-	1.26m	-
27 th September 1978	-	-	-	-	-	4.19m	-	-	-
19 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	5.75m	-	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	8mm / 27 hrs	0.19m	2mm / 6 hrs	1.65m	57mm / 28 hrs	6.84m	47mm / 27 hrs	3.83m	-
27 th December 1999	-	5.88m	43mm / 29 hrs	2.27m	77mm / 28 hrs	1.18m	55mm / 27 hrs	0.96m	3.15m
25 th October 2000	77mm / 49 hrs	6.85m	69mm / 48 hrs	1.93m	75mm / 41 hrs	4.25m	97mm / 48 hrs	1.90m	1.29m
23 rd March 2001	65mm / 14 hrs	7.72m	58mm / 10 hrs	2.07m	119mm / 10 hrs	1.36m	75mm / 9 hrs	1.36m	4.64m

Event	Moonee Ponds Creek at Jacana (229665A)		Moonee Ponds Creek at Flemington (229643A)		Maribyrnong River at Keilor (230105A)		Maribyrnong River at Maribyrnong (230106A)		Steele Creek at Keilor East (230236A)
	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Creek Level	Rainfall at Gauge	Tide Level	Rainfall at Gauge	Creek Level	Creek Level
Normal Water Level		0.3m		0.3m		0.4m		0.5m	0.2m
Minor Flood Class						3.5m		1.70m	
Moderate Flood Class		-		-		5.4m		2.30m	-
Major Flood Class		-		-		6.1m		2.90m	-
3 rd December 2003	8mm / 8 hrs	3.42m	38mm / 2 hrs	2.32m	5mm / 1 hr	0.27m	26mm / 1 hr	0.85m	0.60m
3 rd February 2005	157mm / 28 hrs	12.57m	148mm / 28 hrs	2.61m	149mm / 29 hrs	4.26m	158mm / 28 hrs	2.21m	3.01m
6 th March 2010	29mm / 11 hrs	1.36m	36mm / 5 hrs	1.66m	42mm / 2 hrs	0.60m	62mm / 2 hrs	0.49m	2.55m
5 th September 2010	10mm / 21 hrs	0.84m	12mm / 22 hrs	1.07m	12mm / 22 hrs	3.79m	14mm / 22 hrs	0.98m	0.58m
30 th October 2010	39mm / 7 hrs	2.47m	39mm / 7 hrs	1.77m	33mm / 8 hrs	0.61m	42mm / 7 hrs	0.66m	1.71m
28 th November 2010	27mm / 24 hrs	2.94m	21mm / 19hrs	1.51m	19mm / 19 hrs	4.49m	62mm / 41 hrs	1.50m	1.19m
15 th January 2011	43mm / 27 hrs	2.80m	39mm / 28 hrs	1.50m	50mm / 31 hrs	5.61m	44mm / 28 hrs	2.21m	1.54m
5 th February 2011	62mm / 13 hrs	3.79m	64mm / 14 hrs	1.64m	58mm / 12 hrs	1.72m	60mm / 13 hrs	0.72m	2.05m
25 th December 2011	40mm / 5 hrs	3.31m	32mm / 5 hrs	2.19m	37mm / 5 hrs	0.68m	39mm / 5 hrs	0.61m	2.51m
18 th August 2012	10mm / 11 hrs	1.50m	5mm / 12 hrs	1.22m	-	4.04m	6mm / 15 hrs	1.09m	0.93m
1 st June 2013	75mm / 14 hrs	5.38m	57mm / 15 hrs	3.13m	46mm / 18 hrs	0.77m	45mm / 14 hrs	0.89m	1.22m
30 th January 2016	24mm / 2 hrs	0.91m	12mm / 1 hr	1.88m	17mm / 2 hrs	0.38m	24mm / 2 hrs	0.45m	1.99m
14 th September 2016	23mm / 16 hrs	1.70m	11mm / 14 hrs	1.45m	20mm / 16 hrs	3.81m	24mm / 16 hrs	0.95m	1.21m
29 th December 2016	55mm / 10 hrs	8.25m	21mm / 10 hrs	1.82m	17mm / 10 hrs	0.97m	11mm / 9 hrs	0.52m	2.18m
15 th January 2020	18mm / 4 hrs	0.25m	20mm / 5 hrs	0.23m	42mm / 3 hrs	0.59m	28mm / 3 hrs	0.75m	3.10m
14 th October 2022	25mm / 17 hrs	5.49m	27mm / 19 hrs	1.92m	25mm / 19 hrs	8.60m	25mm / 18 hrs	4.21m	1.34m

Table A8 – Selection of Historical Flooding Events along Moonee Ponds Creek and Maribyrnong River

Dam Spilling / Failure

Flooding resulting from failure of the following dam is likely to cause significant structural and community damage within the City of Moonee Valley. See Dam Failure in Section 3 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.

Melbourne Water Dam	Location	Watercourse	Dam Capacity	Full Supply Level	Melway Reference
Greenvale Reservoir	Greenvale	Moonee Ponds Creek	27,195MI at FSL	167.12m AHD	179 D6

Table A9 – Melbourne Water Reservoirs that pose a risk to the City of Moonee Valley from Dam Failure

Service Reservoirs located within the Municipality are listed below.

Service Reservoir Name	Location	Owner	Material	Reservoir Capacity	Melway Reference
Essendon North Steel Tank No.1	Essendon Airport, Lebanon St Strathmore	Melbourne Water	Steel	23.3MI	16 D7
Essendon North Steel Tank No.2	Essendon Airport, Lebanon St Strathmore	Melbourne Water	Steel	23.3MI	16 D7
Essendon North Steel Tank No.3	Essendon Airport, Lebanon St Strathmore	Melbourne Water	Steel	23.3MI	16 D7
Essendon North Steel Tank No.4	Essendon Airport, Lebanon St Strathmore	Melbourne Water	Steel	23.3MI	16 D7
Essendon North Steel Tank No.5	Essendon Airport, Lebanon St Strathmore	Melbourne Water	Steel	23.3MI	16 D7

Table A10 –Service Reservoirs in the City of Moonee Valley

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.

Typical Travel Times have been collated from recorded historical events.

Typical Travel Times

Location From	Location To	Typical Travel Time	Flood Class Level	Comments
MOONEE PONDS CREEK				
Jacana	Flemington	First Peak: Flemington to peak 15 hours to 5 hours before Jacana Second Peak: Flemington to peak 1 hour before Jacana or 1 to 5 hours afterwards	-	Two flood peaks occur and are generally experienced downstream earlier than upstream because of the existence of the Retarding Basin at Jacana
MARIBYRNONG RIVER (DEEP, EMU AND JACKSONS CREEKS)				
Darraweit Guim	Keilor	Between 9 and 20 hours	Minor Flood at Keilor	Inflows from Jacksons and Emu Creeks likely to significantly impact travel times to Keilor
		Between 6 and 18 hours	Moderate Flood at Keilor	
		Between 4 and 16 hours	Major Flood at Keilor	
Clarkefield	Keilor	Between 10 and 18 hours	Minor Flood at Keilor	Inflows from Deep and Jacksons Creeks likely to significantly impact travel times to Keilor
		Between 8 and 17 hours	Moderate Flood at Keilor	
		Between 5 and 16 hours	Major Flood at Keilor	
Sunbury	Keilor	Between 7 and 14 hours	Minor Flood at Keilor	Inflows from Deep and Emu Creeks likely to significantly impact travel times to Keilor
		Between 5 and 13 hours	Moderate Flood at Keilor	
		Between 4 and 12 hours	Major Flood at Keilor	
Bulla	Keilor	Between 4 and 10 hours	Minor Flood at Keilor	Inflows from Jacksons Creek likely to significantly impact travel times to Keilor
		Between 3 and 8 hours	Moderate Flood at Keilor	
		Between 2 and 5 hours	Major Flood at Keilor	
Keilor	Maribyrnong	Between 1 and 8 hours	Minor Flood at Maribyrnong	Inflows from Steele Creek as well as tidal flows up to Maribyrnong may impact travel times to Maribyrnong
		Between 1 and 4 hours	Moderate Flood at Maribyrnong	
		Between 2 and 5 hours	Major Flood at Maribyrnong	

Table B1 – Typical Flood Travel Times between gauges on Moonee Ponds Creek and Maribyrnong River

Historical Travel Times

Flood Event	Location From (gauge)	Location To (gauge)	Flood Peak Travel Time	Flood Class
MOONEE PONDS CREEK				
27 th December 1999	Jacana	Flemington	Less than 1 hour	-
24 th October 2000	Jacana	Flemington	First Peak: Flemington peaked 6 hours before Jacana; Second Peak: 3 hours	-
22 nd March 2001	Jacana	Flemington	Flemington peaked 5 hours before Jacana	-
3 rd December 2003	Jacana	Flemington	First Peak: Flemington peaked 10 hours before Jacana; Second Peak: Both gauges peaked within an hour of each other	-
3 rd February 2005	Jacana	Flemington	First Peak: Flemington peaked 5 hours before Jacana; Second Peak: 1 hour	-
5 th February 2011	Jacana RB	Flemington	First Peak: Flemington peaked 13 hours before Jacana; Second Peak: Flemington peaked 1 hour before Jacana	-
25 th December 2011	Jacana	Flemington	First Peak: Flemington peaked 15 hours before Jacana; Second Peak: Flemington peaked 1 hour before Jacana	-
1 st June 2013	Jacana	Flemington	3 hours	-
29 th December 2016	Jacana	Flemington	First Peak: 1 hours; Second Peak: 5 hours	-
MARIBYRNONG RIVER				Maribyrnong
18 th September 1975	Clarkefield	Keilor	20 hours	Moderate
	Bulla		4 hours	
	Keilor	Maribyrnong	2 hours	
21 st October 1975	Darraweit Guim	Keilor	8 hours	Minor
	Clarkefield		11 hours	
	Bulla		Keilor peaked 5 hours before Bulla	
	Keilor	Maribyrnong	Less than 1 hour	
24 th October 1975	Darraweit Guim	Keilor	15 hours	Moderate
	Clarkefield		17 hours	
	Sunbury		12 hours	
	Bulla		5 hours	
	Keilor	Maribyrnong	17 hours	
7 th -8 th April 1977	Darraweit Guim	Keilor	2 hours	Moderate
	Clarkefield		Less than 1 hour	
	Sunbury		5 hours	
	Bulla		3 hours	
	Keilor	Maribyrnong	3 hours	
30 th June-1 st July 1977	Darraweit Guim	Keilor	10 hours	Minor
	Clarkefield		5 hours	
	Sunbury		4 hours	
	Bulla		3 hours	
	Keilor	Maribyrnong	Less than 1 hour	
8 th August 1978	Darraweit Guim	Keilor	7 hours	Major
	Clarkefield		15 hours	
	Sunbury		7 hours	
	Bulla		3 hours	

Flood Event	Location From (gauge)	Location To (gauge)	Flood Peak Travel Time	Flood Class
	Keilor	Maribyrnong	2 hours	
MARIBYRNONG RIVER				Maribyrnong
16 th October 1983	Darraweit Guim	Keilor	9 hours	Major
	Clarkefield		11 hours	
	Sunbury		5 hours	
	Bulla		9 hours	
	Keilor	Maribyrnong	2 hours	
30 th July 1987	Darraweit Guim	Keilor	6 hours	Major
	Clarkefield		9 hours	
	Sunbury		8 hours	
	Bulla		3 hours	
	Keilor	Maribyrnong	2 hours	
11 th June 1989	Darraweit Guim	Keilor	10 hours	Minor
	Clarkefield		14 hours	
	Sunbury		9 hours	
	Bulla		Less than 1 hour	
	Keilor	Maribyrnong	1 hour	
18 th -19 th July 1990	Darraweit Guim	Keilor	12 hours	Minor
	Clarkefield		13 hours	
	Sunbury		8 hours	
	Bulla		10 hours	
	Keilor	Maribyrnong	1 hour	
15 th September 1993	Darraweit Guim	Keilor	4 hours	Major
	Clarkefield		9 hours	
	Sunbury		-	
	Bulla		2 hours	
	Keilor	Maribyrnong	3 hours	
24 th October 2000	Darraweit Guim	Keilor	20 hours	Minor
	Clarkefield		34 hours	
	Sunbury		27 hours	
	Bulla		8 hours	
	Keilor	Maribyrnong	5 hours	
3 rd February 2005	Darraweit Guim	Keilor	5 hours	Minor
	Clarkefield		4 hours	
	Sunbury		Less than 1 hour	
	Bulla		4 hours	
	Keilor	Maribyrnong	Maribyrnong peaked 5 hours before Keilor	
14 th -15 th January 2011	Darraweit Guim	Keilor	19 hours	Minor
	Clarkefield		14 hours	
	Sunbury		10 hours	
	Bulla		6 hours	
	Keilor	Maribyrnong	3 hours	
14 th October 2022	Darraweit Guim	Keilor	11 hours	Major
	Clarkefield		11 hours	
	Sunbury		7 hours	
	Bulla		5 hours	
	Keilor	Maribyrnong	4 hours	

Table B2 – Historical Flood Travel Times between gauges on Moonee Ponds Creek and Maribyrnong River

APPENDIX C1 – MOONEE PONDS CREEK FLOOD EMERGENCY PLAN

Overview of Flooding Consequences

Moonee Ponds Creek forms the north-eastern boundary of the municipality, entering Moonee Valley at Strathmore Heights, receiving Mascoma Street Drain, Five Mile Creek and Bent Street Main Drain as it travel through Essendon North, Strathmore and Moonee Ponds. Moonee Ponds Creek continues to flow south toward Travancore before leaving Moonee Valley at Racecourse Road in Flemington. After leaving the Municipality, Moonee Ponds Creek continues on to flow into the Yarra River in Docklands. From Strathmore to Flemington, Moonee Ponds Creek takes the form of an open concreted stormwater drain, aside from a section in Brunswick West between Acacia Grove and Donald Avenue. Water levels can rise and fall very quickly along Moonee Ponds Creek, with the Moonee Ponds Creek Trail subject to flooding in low lying sections.

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 Moonee Ponds Creek and its stormwater drains in the City of Moonee Valley

Property					
Properties	92				
Residential	90				
Commercial	1	Parts of Moonee Valley Racecourse			
Industrial	0				
Public Land	1				
Rural	0				
Community Infrastructure					
Essential Infrastructure					
Major Roads	5	Mount Alexander Road, Pascoe Vale Road, Woodland Street and at two locations on the Tullamarine Freeway			
Major Rail	3	Strathmore, Glenbervie and Newmarket Railway Station pedestrian underpasses may be flooded in flash flood events			
Sewerage Facilities	8	Emergency Relief Points			
Levees	2	Mt Alexander Rd to Manningham Rd & Macaulay Rd to Mt Alexander Rd			
Tourism / Recreation					
Sports Facilities	1	Parts of Moonee Valley Racecourse			
Recreation Facilities	2	Moonee Ponds Creek Trail; Salmon Reserve; Woodlands Park			
Government Boundaries					
Local Gov't Areas	1	Moonee Valley	CMA	1	Port Phillip & Westernport
Adjacent LGAs	3	Hume, Moreland and City of Melbourne	CFA District	0	
SES Resp' Boundary	1	Essendon	FRV District	1	Western

Table C1.1 – Consequence Summary of 1% AEP flood along Moonee Ponds Creek in Moonee Valley

Gauges and Warnings

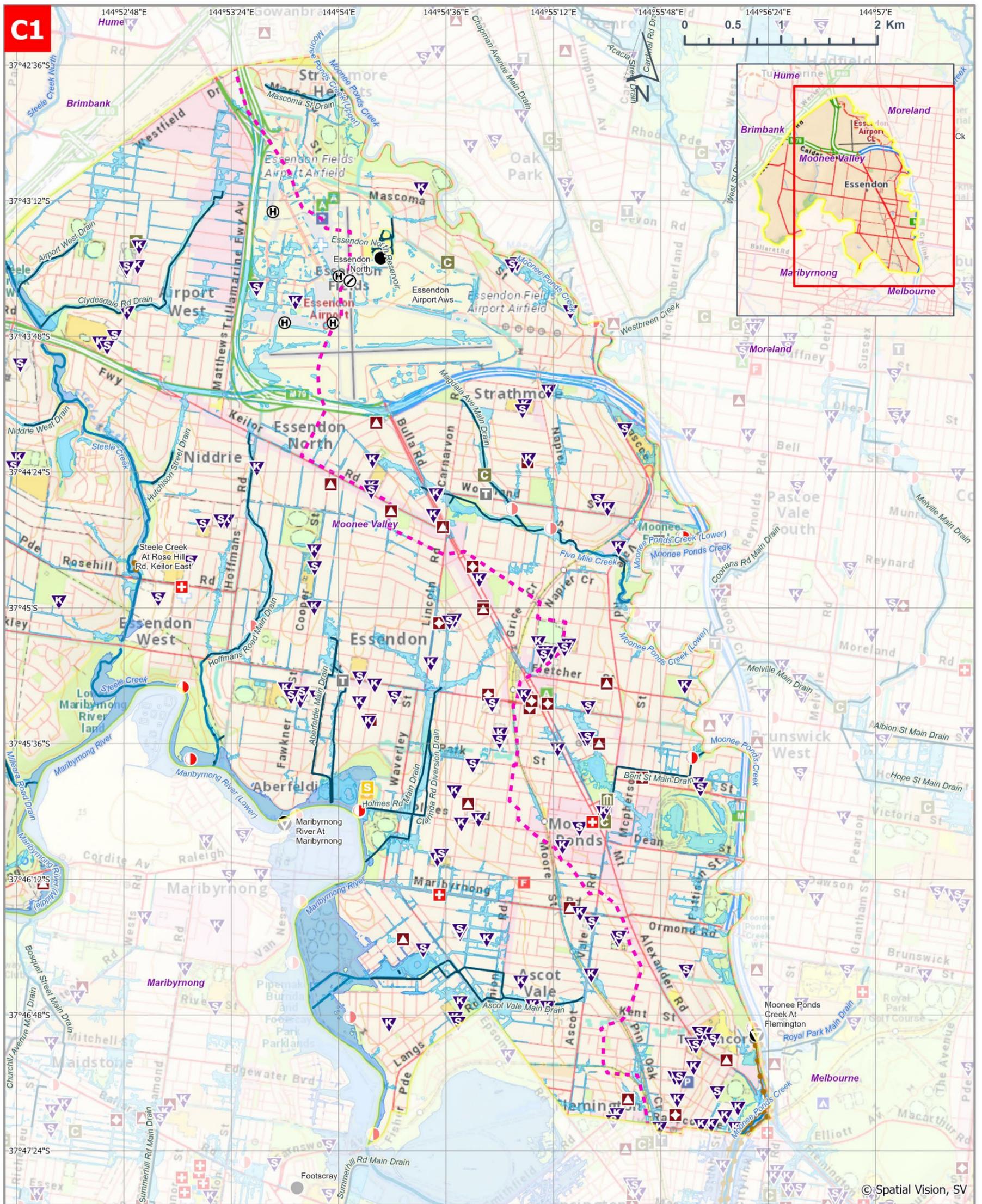
Neither the Bureau of Meteorology nor Melbourne Water currently provides flood forecasts for Moonee Ponds Creek. All flood response actions must therefore be driven by rainfall and / or river level observations. Telemetered water level / flood gauges are located at Jacana and Flemington. See **Appendix B** for typical flood travel times for Moonee Ponds Creek.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Moonee Ponds Creek at Jacana Retarding Basin	229665A	Jacana Retarding Basin near Embankment, Glenroy	✓	✓	6 D12
Essendon North	586182	North Essendon Service Reservoirs on Lebanon St, Essendon Fields		✓	16 D7
Moonee Ponds Creek at Flemington	229643A	West side of the channel along the Moonee Ponds Creek Trail near Delhi Ct, Travancore	✓	✓	29 B11
Essendon Airport AWS	86038	Essendon Airport at Perimeter Rd, Essendon Fields		✓	16 E8

Table C1.2– Gauges within the Moonee Ponds Creek catchment monitoring flood levels for the City of Moonee Valley

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 Moonee Ponds Creek catchment



Map produced by VICSES: 8/09/2023 9:23 AM

CITY OF MOONEE VALLEY 1% AEP (100yr ARI) Flooding C1. Areas of flood risk along Moonee Ponds Creek

- | | | |
|---------------------------------|--------------------|----------------------------|
| Waterbody | Child Care Centre | Helipad |
| 1% AEP Flash Flood Extent | Fire Station | Place Of Worship |
| 1% AEP Riverine Flood Extent | Community Venue | Telephone Exchange |
| Waterway | Aged Care Facility | Stream Level & Rain Gauge |
| Melbourne Water Stormwater Main | Municipal Office | Stream Level Gauge |
| Bicycle / Walking Trail | Municipal Depot | Rain Gauge |
| Police Stations | Hospitals | Moonee Valley |
| VICSES Units | Airfield | Boundary for this Appendix |
| Education Centre | | |



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.

Figure C1 – Areas of flood risk around Moonee Ponds Creek in the City of Moonee Valley and area covered by this appendix

Properties at Flood Risk

No properties are currently identified as being at risk from flooding along Moonee Ponds Creek in the City of Moonee Valley. As more intelligence becomes available, this list may change.

Properties listed in the table below are at risk from flooding (over 30cm at building footprint) along the stormwater drains within the Moonee Ponds Creek catchment in the City of Moonee Valley. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Moonee Ponds Creek Upper (Engeny, January 2020) and Moonee Ponds Creek Lower (Engeny, January 2020) flood mapping and risk assessment programs. Note that any multi-lot properties situated above ground floor likely impacted by isolation only with flooding on ground floor impacting access to common areas and/or carpark and storage facilities. Information on above ground-floor properties is not available in this list.

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 30cm at building footprint) along Moonee Ponds Creek's stormwater drains					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	10 Acacia Lane	Flemington	Local Drainage	Flash
	✓	12 Acacia Lane	Flemington	Local Drainage	Flash
✓	✓	3/71 Bent Street	Moonee Ponds	Local Drainage	Flash
✓	✓	4/71 Bent Street	Moonee Ponds	Local Drainage	Flash
	✓	4/75 Bent Street	Moonee Ponds	Local Drainage	Flash
	✓	4/77 Bent Street	Moonee Ponds	Local Drainage	Flash
	✓	89 Bent Street	Moonee Ponds	Local Drainage	Flash
	✓	91 Bent Street	Moonee Ponds	Local Drainage	Flash
	✓	11 Brosnan Crescent	Strathmore	Local Drainage	Flash
	✓	49 Bulla Road	Essendon North	Five Mile Creek	Flash
	✓	51 Bulla Road	Essendon North	Five Mile Creek	Flash
	✓	2 Crown Street	Flemington	Local Drainage	Flash
	✓	4A Crown Street	Flemington	Local Drainage	Flash
	✓	4 Crown Street	Flemington	Local Drainage	Flash
	✓	6 Crown Street	Flemington	Local Drainage	Flash
	✓	8 Crown Street	Flemington	Local Drainage	Flash
✓	✓	31 Dean Street	Moonee Ponds	Local Drainage	Flash
	✓	3 Elm Street	Flemington	Local Drainage	Flash
	✓	5 Elm Street	Flemington	Local Drainage	Flash
	✓	7 Elm Street	Flemington	Local Drainage	Flash
	✓	41 Glenbervie Road	Strathmore	Magdala Ave M.D.	Flash
	✓	15 Heritage Street	Moonee Ponds	Local Drainage	Flash
	✓	17 Heritage Street	Moonee Ponds	Local Drainage	Flash
	✓	19 Heritage Street	Moonee Ponds	Local Drainage	Flash
	✓	1/3A Hesleden Street	Essendon	Five Mile Creek	Flash
	✓	2/3A Hesleden Street	Essendon	Five Mile Creek	Flash

Properties at risk from Flooding (over 30cm at building footprint) along Moonee Ponds Creek's stormwater drains

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	3/3A Hesleden Street	Essendon	Five Mile Creek	Flash
	✓	26 Hesleden Street	Essendon	Five Mile Creek	Flash
	✓	6 Ivan Street	Strathmore	Local Drainage	Flash
	✓	8 Ivan Street	Strathmore	Local Drainage	Flash
	✓	5 Kenna Street	Moonee Ponds	Local Drainage	Flash
	✓	7 Kenna Street	Moonee Ponds	Local Drainage	Flash
	✓	4/42 Kerferd Street	Essendon North	Five Mile Creek	Flash
	✓	59 Kernan Street	Strathmore	Magdala Ave M.D.	Flash
	✓	3/28 Kipling Street	Moonee Ponds	Local Drainage	Flash
✓	✓	186 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	188 Napier Street	Essendon	Five Mile Creek	Flash
	✓	190A Napier Street	Essendon	Five Mile Creek	Flash
	✓	190B Napier Street	Essendon	Five Mile Creek	Flash
	✓	192 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	194 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	196 Napier Street	Essendon	Five Mile Creek	Flash
	✓	198 Napier Street	Essendon	Five Mile Creek	Flash
	✓	200 Napier Street	Essendon	Five Mile Creek	Flash
	✓	202 Napier Street	Essendon	Five Mile Creek	Flash
	✓	204 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	206 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	208 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	1/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	2/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	3/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	4/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	5/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	6/209 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	210 Napier Street	Essendon	Five Mile Creek	Flash
✓	✓	212 Napier Street	Essendon	Five Mile Creek	Flash
	✓	1 Oak Street	Flemington	Local Drainage	Flash
	✓	4A Orange Grove	Essendon North	Five Mile Creek	Flash
	✓	6 Orange Grove	Essendon North	Five Mile Creek	Flash
	✓	8 Orange Grove	Essendon North	Five Mile Creek	Flash
	✓	12 Orange Grove	Essendon North	Five Mile Creek	Flash
	✓	9 Pattison Street	Moonee Ponds	Local Drainage	Flash
	✓	11 Pattison Street	Moonee Ponds	Local Drainage	Flash
	✓	13 Pattison Street	Moonee Ponds	Local Drainage	Flash
	✓	15 Pattison Street	Moonee Ponds	Local Drainage	Flash
	✓	8/7 Royal Avenue	Essendon North	Five Mile Creek	Flash
✓	✓	6/13 Royal Avenue	Essendon North	Five Mile Creek	Flash
✓	✓	7/13 Royal Avenue	Essendon North	Five Mile Creek	Flash

Properties at risk from Flooding (over 30cm at building footprint) along Moonee Ponds Creek's stormwater drains					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	30 Schofield Street	Essendon	Five Mile Creek	Flash
	✓	2A Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	4 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	21/5 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	22/5 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	23/5 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	24/5 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	25/5 Turner Street	Moonee Ponds	Local Drainage	Flash
	✓	33 Walker Street	Moonee Ponds	Local Drainage	Flash
	✓	143 Woodland Street	Essendon	Five Mile Creek	Flash
	✓	145 Woodland Street	Essendon	Five Mile Creek	Flash
	✓	147 Woodland Street	Essendon	Five Mile Creek	Flash
	✓	2/149 Woodland Street	Essendon	Five Mile Creek	Flash
✓	✓	1/1 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	2/1 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	2 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	3 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	4 Woodvale Close	Essendon	Five Mile Creek	Flash
✓	✓	8 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	9 Woodvale Close	Essendon	Five Mile Creek	Flash
	✓	10 Woodvale Close	Essendon	Five Mile Creek	Flash
✓	✓	2 Woodvale Grove	Essendon	Five Mile Creek	Flash
✓	✓	29 Wright Street	Essendon	Five Mile Creek	Flash
✓	✓	30 Wright Street	Essendon	Five Mile Creek	Flash
Totals					
24	92				

Table C1.3 – Properties at risk of flooding along Moonee Ponds Creek's stormwater drains in the City of Moonee Valley

Isolation

No major isolation risks exist for areas around Strathmore Heights, Strathmore, Essendon, Moonee Ponds and Travancore during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding.

Essential Infrastructure

There are several sewers adjacent to Moonee Ponds Creek that may be discharged during intense rainfall events.

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 Moonee Valley is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/35_Moonee-Valley_LAM_July-2020.pdf

Apart from the roads outlined below, all other essential infrastructure and services areas around Moonee Ponds Creek 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 Strathmore Heights, Strathmore, Essendon, Moonee Ponds and Travancore. Check the VicRoads website for more details: <http://alerts.vicroads.vic.gov.au/>

Department of Transport and Planning (DTP) (VicRoads) Roads likely flooded in a 1% AEP (100yr ARI) event
<ul style="list-style-type: none"> • Mount Alexander Road, Flemington at Citylink Underpass
<ul style="list-style-type: none"> • Pascoe Vale Road, Essendon at Cameron Road
<ul style="list-style-type: none"> • Tullamarine Freeway, Airport West at English Street underpass
<ul style="list-style-type: none"> • Tullamarine Freeway, Strathmore at Bulla Road underpass
<ul style="list-style-type: none"> • Woodland Street, Strathmore at Bulla Road intersection

Table C1.4 – DTP Possible Road Closures during a flooding event

Moonee Valley City Council Roads likely flooded in a 1% AEP (100yr ARI) event			
ESSENDON	FLEMINGTON	MOONEE PONDS	STRATHMORE HEIGHTS
<ul style="list-style-type: none"> • Salmon Avenue 	<ul style="list-style-type: none"> • Acacia Lane 	<ul style="list-style-type: none"> • Heritage Street 	<ul style="list-style-type: none"> • De Havilland Avenue
<ul style="list-style-type: none"> • Napier Street 	<ul style="list-style-type: none"> • Crown Street 	<ul style="list-style-type: none"> • Pattison Street 	TRAVANCORE
<ul style="list-style-type: none"> • Hesleden Street 			<ul style="list-style-type: none"> • Hockey Lane
			<ul style="list-style-type: none"> • Mooltan Street

Table C1.5 – Moonee Valley City Council Possible flooded roads due to flash flooding over 30cm depth

Flood Mitigation

Retarding Basins

There are no retarding basins near Moonee Ponds Creek in Moonee Valley. Recreation areas such as Woodlands Park may act as retarding basins during intense rainfall events. Jacana retarding basin lies less than 2km north of Moonee Valley and may provide an upstream mitigation effect in high intensity rainfall events.

Melbourne Water Retarding Basin	On Drain/ Waterway	Area	Spillway Crest Level	Full Supply Level	Embankment Crest Height	Storage Capacity	ANCOLD Hazard Rating	Houses In Flow Path (sunny day)	Melway Reference
Jacana Retarding Basin South (City of Hume)	Moonee Ponds Creek	65 ha	First: 66.6m AHD Second: 68.0 AHD	68m AHD	11.6m	2850MI	Extreme	40	6 D12

Table C1.6 – Melbourne Water Retarding Basins impacting the Moonee Ponds Creek catchment in the City of Moonee Valley

Levees

Melbourne Water Levee	Reach	Side	Levee Height	Levee Length	Expected Level of Protection	ANCOLD Hazard Rating	Houses at risk behind Levee	Melway Reference
Moonee Ponds Creek	Mt Alexander Rd to Manningham Rd	West	2.2m	510m	1% AEP (100yr ARI) event with 500mm freeboard	Low	1 House and 2 Industrial Properties to the west of the levee flooded	29B12
Moonee Ponds Creek	Macaulay Rd to Mt Alexander Rd	West	2.6m: (4.51m AHD) upstream to (4.20m AHD) downstream	990m	1% AEP (100yr ARI) event with 500mm freeboard	Significant	10 Houses and 28 Industrial Properties to the west of the levee flooded	43A3-43B1

Table C1.7 – Melbourne Water Levees within the Moonee Ponds Creek catchment in the City of Moonee Valley

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located along Moonee Ponds Creek is contained within the following table.

Sewer Emergency Relief Points

There are Sewer Emergency Relief Points along Moonee Ponds Creek that will affect the City of Moonee Valley. Contact the Melbourne Water 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	Location	Melway Reference
Moonee Ponds Creek	East Bank	Pascoe Vale Road, Pascoe Vale	16 J9
Moonee Ponds Creek	West Bank	Cross Keys Reserve, Woodland Street, Strathmore	29 A1
Moonee Ponds Creek	East Bank	Parkside Boulevard, Pascoe Vale South	28 K3
Moonee Ponds Creek (Bent Street Main Drain)	West Bank	Fanny Street, Moonee Ponds	29 A6
Moonee Ponds Creek	West Bank	Moonee Ponds Creek Trail at Travancore Park, Travancore	29 B11
Five Mile Creek	-	Woodland Street, Strathmore	16 E12
Five Mile Creek	-	Salmon Avenue, Essendon	28 G1
Five Mile Creek	-	Napier Street, Essendon	28 H1

Table C1.8 – Sewer Emergency Relief Points in the Moonee Ponds Catchment for the City of Moonee Valley

Control, Command 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 SEMP. 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 Moonee Ponds Creek and its tributaries at various creek or drain heights or rain totals within Moonee Valley. 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:

- Moonee Ponds Creek at Flemington
- Moonee Ponds Creek Tributaries

FLOOD INTELLIGENCE CARD – FLEMINGTON GAUGE, MOONEE PONDS CREEK

Version 4 – March 2022



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:	West side of the channel along the Moonee Ponds Creek Trail near Delhi Ct, Travancore
CURRENT LEVEL:	https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/229643A
STREAM:	Moonee Ponds Creek (Lower)
GAUGE NUMBER:	229643A
GAUGE ZERO:	2.37m AHD
GAUGE TYPE:	Stream Level, Flow & Rain

MELWAY REFERENCE:	29 B12
MINOR:	Not Established
MODERATE:	Not Established
MAJOR:	Not Established
LEEVE HEIGHT:	2.2m – 2.6m
HIGHEST RECORDED FLOOD:	3.13m (1st June 2013)

Creek Height	Annual Exceedance Probability (% AEP)	Consequence / Impact	Action
2.94m	1% AEP (100yr ARI) Flood Level	<ul style="list-style-type: none"> Note: It is not known at what level infrastructure contained below starts being flooded Properties at Flood Risk <ul style="list-style-type: none"> Nil impact likely in Moonee Valley Community Infrastructure Flooded <ul style="list-style-type: none"> Moonee Ponds Creek Trail at various locations Essential Infrastructure Impacted <ul style="list-style-type: none"> Sewer Emergency Relief Structures likely activated <ul style="list-style-type: none"> Pascoe Vale Road, Pascoe Vale Cross Keys Reserve, Woodland Street, Strathmore Fanny Street, Moonee Ponds Moonee Ponds Creek Trail at Travancore Park, Travancore Water Over Road <ul style="list-style-type: none"> Nil impact likely in Moonee Valley 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer 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>MVCC EHOs to have awareness of Sewer Emergency Relief Structures within floodwaters</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements.</p>
3.44m		<ul style="list-style-type: none"> Levee Height of Levee Macaulay Rd to Mt Alexander (West) 	Maintain contact with Melbourne Water regarding status of levee

Table C1.9 – Breakdown of likely consequences at various creek gauge level heights along Moonee Ponds Creek with operational considerations

FLOOD INTELLIGENCE CARD – MOONEE PONDS CREEK TRIBUTARIES (UNGAUGED)

Version 2 – March 2022



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:	Essendon North
LOCATION:	North Essendon Service Reservoirs on Lebanon St, Essendon Fields
RECENT RAINFALL:	https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/586182

MELWAY REF:	16 D7
GAUGE NUMBER	586182
GAUGE TYPE	Rain

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
14mm in 10 mins; 22mm in 30 mins; 28mm in 1 hour; 35mm in 2 hours; 40mm in 3 hours; or 50mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungauged nature of the catchment. This should be used as a guide only.	10% AEP (10-year ARI)	<p>Properties at Flood Risk (over 30cm depth in yard at building footprint)</p> <p>24 Properties in Total</p> <p>Five Mile Creek</p> <ul style="list-style-type: none"> 186, 188, 194, 196, 206, 208, Units 1-6/209, 210 & 212 Napier Street, Essendon 6/13 & 7/13 Royal Avenue, Essendon North 1/1 & 8 Woodvale Close, Essendon 2 Woodvale Grove, Essendon 29 & 30 Wright Street, Essendon <p>Local Drainage</p> <ul style="list-style-type: none"> 3/71 & 4/71 Bent Street, Moonee Ponds 31 Dean Street, Moonee Ponds <p>Community Infrastructure Likely Flooded</p> <p>Five Mile Creek</p> <ul style="list-style-type: none"> Salmon Reserve, Salmon Avenue, Essendon <p>Tourism / Recreation Likely Impacted</p> <ul style="list-style-type: none"> Parts of Moonee Valley Racecourse at 31 Dean Street, Moonee Ponds <p>Water Over Road (over 30cm depth) Roads in Red are DTP Roads</p> <p>Local Drainage</p> <ul style="list-style-type: none"> Acacia Lane, Flemington Crown Street, Flemington Mooltan Street, Travancore Pattison Street, Moonee Ponds 	

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
<p>24mm in 10 mins; 39mm in 30 mins; 49mm in 1 hour; 60mm in 2 hours; 69mm in 3 hours; or 87mm 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"> Tullamarine Freeway, Airport West at English Street underpass <p>Properties at Flood Risk (over 30cm depth in yard at building footprint)</p> <p>92 Properties in Total</p> <p>Five Mile Creek</p> <ul style="list-style-type: none"> 49 & 51 Bulla Road, Essendon North 1/3A, 2/3A, 3/3A & 26 Hesleden Street, Essendon 4/42 Kerferd Street, Essendon North 186, 188, 190A, 190B, 192, 194, 196, 198, 200, 202, 204, 206, 208, Units 1-6/209, 210 & 212 Napier Street, Essendon 4A, 6, 8 & 12 Orange Grove, Essendon North 8/7, 6/13 & 7/13 Royal Avenue, Essendon North 30 Schofield Street, Essendon 143, 145, 147 & 2/149 Woodland Street, Essendon 1/1, 2/1, 2, 3, 4, 8, 9 & 10 Woodvale Close, Essendon 2 Woodvale Grove, Essendon 29 & 30 Wright Street, Essendon <p>Local Drainage</p> <ul style="list-style-type: none"> 10 & 12 Acacia Lane, Flemington 3/71, 4/71, 4/75, 4/77, 89 & 91 Bent Street, Moonee Ponds 11 Brosnan Crescent, Strathmore 2, 4A, 4, 6 & 8 Crown Street, Flemington 31 Dean Street, Moonee Ponds 3, 5 & 7 Elm Street, Flemington 15, 17 & 19 Heritage Street, Moonee Ponds 6 & 8 Ivan Street, Strathmore 5 & 7 Kenna Street, Moonee Ponds 3/28 Kipling Street, Moonee Ponds 1 Oak Street, Flemington 9, 11, 13 & 15 Pattison Street, Moonee Ponds 2A, 4, 21/5, 22/5, 23/5, 24/5 & 25/5 Turner Street, Moonee Ponds 33 Walker Street, Moonee Ponds <p>Magdala Avenue Main Drain</p> <ul style="list-style-type: none"> 41 Glenbervie Road, Strathmore 59 Kernan Street, Strathmore <p>Community Infrastructure Likely Flooded</p> <p>Five Mile Creek</p> <ul style="list-style-type: none"> Woodlands Park, Woodland Street Essendon Salmon Reserve, Salmon Avenue, Essendon <p>Essential Infrastructure Likely Impacted</p>	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding.</p> <p>The VICSES Central Duty Officer 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>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> • Strathmore, Glenbervie and Newmarket Railway Station pedestrian underpasses may be flooded in flash flood events Tourism / Recreation Likely Impacted • Parts of Moonee Valley Racecourse at 31 Dean Street, Moonee Ponds Water Over Road (over 30cm depth) Roads in Red are DTP Roads Five Mile Creek • Hesleden Street, Essendon • Napier Street, Essendon • Pascoe Vale Road, Essendon at Cameron Road • Salmon Avenue, Essendon Local Drainage • Acacia Lane, Flemington • Crown Street, Flemington • Heritage Street, Moonee Ponds • Hockey Lane, Travancore • Mooltan Street, Travancore • Mount Alexander Road, Flemington at Citylink Underpass • Pattison Street, Moonee Ponds • Tullamarine Freeway, Airport West at English Street underpass • Tullamarine Freeway, Strathmore at Bulla Road underpass • Woodland Street, Strathmore at Bulla Road Mascoma Street Drain • De Havilland Avenue, Strathmore Heights 	<p>Station platforms still accessible via roadside platforms</p> <p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements.</p>

Table C1.10 – Breakdown of possible consequences at various rainfall intensities around Strathmore Heights, Strathmore, Essendon & Moonee Ponds with operational considerations

APPENDIX C2 – STEELE CREEK FLOOD EMERGENCY PLAN

Overview of Flooding Consequences

Steele Creek flows from Airport West to the Maribyrnong River in Essendon West, passing through Keilor East, Niddrie and Avondale Heights and receiving Airport West Drain, Clydesdale Road Drain, Niddrie West Drain and Hutchison Street Drain. The majority of the Creek within Moonee Valley is as a natural waterway, though from entry to the municipality to Fullarton Road, Steele Creek takes the form of an open concreted stormwater drain. Floodwaters will generally be contained to the reserves bordering Steele Creek, but high intensity, short duration rainfall events can cause flash flooding in the surrounding suburbs, affecting roads and properties in the region.

Summary of Consequences in a 1% AEP (100yr ARI) flood along Steele Creek & its Stormwater Drains

Property					
Properties	95				
Residential	91				
Commercial	4				
Industrial	0				
Public Land	0				
Rural	0				
Community Infrastructure					
Essential Infrastructure					
Major Roads	3	Calder Freeway; Milleara Road; and Tullamarine Freeway			
Tourism / Recreation					
Recreation Facilities	4	Steele Creek Trail; Maribyrnong River Trail; Spring Gully Reserve; & AJ Davis Reserve			
Government Boundaries					
Local Gov't Areas	1	Moonee Valley	CMA	1	Port Phillip & Westernport
Adjacent LGAs	1	Brimbank	CFA District	0	
SES Resp' Boundary	1	Essendon	FRV District	1	Western

Table C2.1 – Consequence Summary of 1% AEP flood along Steele Creek

Gauges and Warnings

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

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Steele Creek at Rose Hill, Keilor East	230236A	East bank of the creek on North side of Rosehill Road	✓		27 J2

Table C2.2 – Gauges within the Steele 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 Steele Creek catchment



Map Produced by VICSES March 2022.

CITY OF MOONEE VALLEY
 Version 4: March 2022
C2 - Area of Flood Risk along Steele Creek

- | | | |
|----------------------------------|-------------------------|---|
| Waterbody | Stream Level Gauge | LAND USE |
| 1% AEP Flash Flood Extent | Rain Gauge | Residential |
| 1% AEP Riverine Flood Extent | State Emergency Service | Commercial and Business |
| Melbourne Water Retarding Basin | Municipal Office | Industrial |
| Melbourne Water Stormwater Drain | Police Station | Public Parks / Cemeteries / Recreation |
| Waterway | Fire Station | Utilities and Local Government Facilities |
| Boundary for this Appendix | Ambulance Station | Education |

SES VICTORIA **Melbourne Water**
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Figure C2 – Areas of flood risk around Steele Creek in the City of Moonee Valley and area covered by this appendix

Properties at Flood Risk

Properties listed in the table below are at risk from flooding along Steele Creek and its stormwater drains in the City of Moonee Valley. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Steele Creek (Engeny, January 2020) flood mapping and risk assessment program. Note that any multi-lot properties situated above ground floor likely impacted by isolation only with flooding on ground floor impacting access to common areas and/or carpark and storage facilities. Information on above ground-floor properties is not available in this list.

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Properties at risk from Flooding along Steele Creek and its stormwater drains					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	25A Bedford Street	Airport West	Airport West Drain	Flash
	✓	25B Bedford Street	Airport West	Airport West Drain	Flash
	✓	34 Bedford Street	Airport West	Airport West Drain	Flash
	✓	36 Bedford Street	Airport West	Airport West Drain	Flash
	✓	36A Bedford Street	Airport West	Airport West Drain	Flash
	✓	131A Brees Road	Keilor East	Local Drainage	Flash
	✓	131 Brees Road	Keilor East	Local Drainage	Flash
	✓	3/5-7 Deidre Court	Airport West	Airport West Drain	Flash
✓	✓	5/5-7 Deidre Court	Airport West	Airport West Drain	Flash
	✓	6/5-7 Deidre Court	Airport West	Airport West Drain	Flash
	✓	9 Deidre Court	Airport West	Airport West Drain	Flash
	✓	1/11 Deidre Court	Airport West	Airport West Drain	Flash
	✓	2/11 Deidre Court	Airport West	Airport West Drain	Flash
	✓	13 Deidre Court	Airport West	Airport West Drain	Flash
	✓	3/3 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	4/3 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	3/7 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	3/9 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	4/9 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	35 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	37 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	39 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	41A El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	41 El Reno Crescent	Airport West	Clydesdale Road Drain	Flash
✓	✓	7 English Street	Essendon Fields	Local Drainage	Flash
✓	✓	1 Etka Avenue	Keilor East	Niddrie West Drain	Flash
✓	✓	3 Etka Avenue	Keilor East	Niddrie West Drain	Flash
✓	✓	5 Etka Avenue	Keilor East	Niddrie West Drain	Flash
	✓	27 Etzel Street	Airport West	Airport West Drain	Flash
✓	✓	6 George Street	Niddrie	Local Drainage	Flash

Properties at risk from Flooding along Steele Creek and its stormwater drains

Properties at risk from Flooding along Steele Creek and its stormwater drains					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	23 Glenys Avenue	Airport West	Airport West Drain	Flash
	✓	8/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	9/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	10/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	11/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	26/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	27/21-25 Goble Street	Niddrie	Steele Creek	Flash
	✓	2 Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	4 Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	17 Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	17A Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	1/19 Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	2/19 Haldane Road	Niddrie	Hutchison Street Drain	Flash
	✓	2/43-45 Hart Street	Airport West	Local Drainage	Flash
	✓	3/43-45 Hart Street	Airport West	Local Drainage	Flash
	✓	4/43-45 Hart Street	Airport West	Local Drainage	Flash
	✓	29 Herbert Crescent	Keilor East	Local Drainage	Flash
	✓	31 Herbert Crescent	Keilor East	Local Drainage	Flash
	✓	33 Herbert Crescent	Keilor East	Local Drainage	Flash
	✓	4 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	6 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	8 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	10 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	12 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	14 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	16 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	18 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	20 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	2/22-24 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	3/22-24 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
	✓	4/22-24 Highridge Crescent	Airport West	Clydesdale Road Drain	Flash
✓	✓	51 Hilbert Road	Airport West	Airport West Drain	Flash
	✓	53 Hilbert Road	Airport West	Airport West Drain	Flash
	✓	31C Hotham Road	Niddrie	Hutchison Street Drain	Flash
	✓	32 Hotham Road	Niddrie	Hutchison Street Drain	Flash
	✓	34 Hotham Road	Niddrie	Hutchison Street Drain	Flash
	✓	517 Keilor Road	Niddrie	Hutchison Street Drain	Flash
	✓	519 Keilor Road	Niddrie	Hutchison Street Drain	Flash
	✓	521 Keilor Road	Niddrie	Hutchison Street Drain	Flash
	✓	3/42 Kingsley Road	Airport West	Airport West Drain	Flash
	✓	44 Kingsley Road	Airport West	Airport West Drain	Flash
	✓	31 Mark Street	Keilor East	Local Drainage	Flash
✓	✓	54 Mcnamara Avenue	Airport West	Clydesdale Road Drain	Flash

Properties at risk from Flooding along Steele Creek and its stormwater drains					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	33A North Street	Airport West	Airport West Drain	Flash
	✓	33 North Street	Airport West	Airport West Drain	Flash
	✓	5 Roberts Road	Airport West	Clydesdale Road Drain	Flash
	✓	8 Roberts Road	Airport West	Clydesdale Road Drain	Flash
	✓	1/104 Roberts Road	Airport West	Airport West Drain	Flash
	✓	2/104 Roberts Road	Airport West	Airport West Drain	Flash
	✓	3/104 Roberts Road	Airport West	Airport West Drain	Flash
	✓	28 South Road	Airport West	Airport West Drain	Flash
	✓	31 South Road	Airport West	Airport West Drain	Flash
	✓	29 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	2/31 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	3/31 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	4/31 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	3/33 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	4/33 Surrey Drive	Keilor East	Local Drainage	Flash
	✓	2 Thomas Street	Airport West	Airport West Drain	Flash
	✓	4 Thomas Street	Airport West	Airport West Drain	Flash
	✓	6 Thomas Street	Airport West	Airport West Drain	Flash
	✓	8A Thomas Street	Airport West	Airport West Drain	Flash
	✓	8 Thomas Street	Airport West	Airport West Drain	Flash
	✓	1/22A Wyong Street	Keilor East	Local Drainage	Flash
	✓	2/22A Wyong Street	Keilor East	Local Drainage	Flash
Totals					
8	95				

Table C2.3 – Properties at risk of flooding along Steele Creek and its stormwater drains in the City of Moonee Valley

Isolation

No major isolation risks exist for areas around Airport West, Niddrie, Keilor East, Avondale Heights and Essendon West during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding.

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 Moonee Valley is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/35_Moonee-Valley_LAM_July-2020.pdf

Apart from the roads outlined below, all other essential infrastructure and services areas around Airport West, Niddrie, Keilor East, Avondale Heights and Essendon West 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 Airport West, Niddrie, Keilor East, Avondale Heights and Essendon West. Check the VicRoads website for more details:

<http://alerts.vicroads.vic.gov.au/>

Department of Transport and Planning (DTP) (VicRoads) Roads likely flooded in a 1% AEP (100yr ARI) event
<ul style="list-style-type: none"> Calder Freeway, Airport West between Keilor Road and Matthews Avenue underpasses
<ul style="list-style-type: none"> Milleara Road, Keilor East at Wunnamurra Drive
<ul style="list-style-type: none"> Tullamarine Freeway at English Street underpass

Table C2.4 – DTP Possible Road Closures during a flooding event

Moonee Valley City Council Roads likely flooded in a 1% AEP (100yr ARI) event			
AIRPORT WEST	<ul style="list-style-type: none"> Hawker Street 	<ul style="list-style-type: none"> Parer Road 	KEILOR EAST
<ul style="list-style-type: none"> Roberts Road 	<ul style="list-style-type: none"> Marshall Road 	<ul style="list-style-type: none"> Rodd Road 	<ul style="list-style-type: none"> Nicholas Court
<ul style="list-style-type: none"> Bedford Street 	<ul style="list-style-type: none"> McIntosh Street 	<ul style="list-style-type: none"> Victory Road 	ESSENDON FIELDS
<ul style="list-style-type: none"> Etzel Street 	<ul style="list-style-type: none"> McNamara Avenue 	<ul style="list-style-type: none"> Webb Road 	<ul style="list-style-type: none"> Hammond Avenue
			<ul style="list-style-type: none"> Nomad Road

Table C2.5 – Moonee Valley City Council Possible flooded roads due to flash flooding over 30cm depth

Flood Mitigation

Retarding Basins

There are no retarding basins alongside Steele Creek or its tributaries within Moonee Valley. Reserves such as AJ Davis Reserve in Airport West may act as retarding basins during intense rainfall events.

The Steele Creek retarding basin is situated 1-2km northwest of Moonee Valley, within the City of Brimbank and may provide some moderating effect for flows through the City of Moonee Valley. Details of this basin can be found below.

Melbourne Water Retarding Basin	On Drain/Waterway	Spillway Crest Level	Full Supply Level	1% AEP Flood Level	Embankment Crest Height	Storage Capacity	ANCOLD Hazard Rating	Houses In Flow Path (sunny day)	Melway Reference
Steele Creek Retarding Basin	Steele Creek	65.9m AHD	66.2m AHD	65.82m AHD	66.4m AHD	18MI	Unclassified	Unavailable	15 D5

Table C2.6 – Melbourne Water Retarding Basins within the Steele Creek catchment adjacent to the City of Moonee Valley

Sewerage Infrastructure

There is no sewerage infrastructure expected to impact or be impacted by floodwaters during severe flood events around Airport West, Keilor East, Niddrie or Avondale Heights.

Control, Command 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 SEMP. 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 Steele Creek and stormwater tributaries at various creek heights or rain totals within Moonee Valley. 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:

- Keilor East Gauge, Steele Creek
- Steele Creek Stormwater Tributaries

FLOOD INTELLIGENCE CARD – KEILOR EAST GAUGE, STEELE CREEK

Version 2 – March 2022



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

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LOCATION:	East bank of the creek on North side of Rosehill Road, Keilor East
CURRENT LEVEL:	https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/230236A
STREAM:	Steele Creek
GAUGE NUMBER:	230236A
GAUGE ZERO:	7.25m AHD
GAUGE TYPE:	Stream Level & Flow

MELWAY REFERENCE:	27 J2
MINOR:	Not Established
MODERATE:	Not Established
MAJOR:	Not Established
LEVEE HEIGHT:	Not Applicable
HIGHEST RECORDED FLOOD:	4.64m (23 rd March 2001)

Creek Height	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
3.54m	10% AEP (10yr ARI) Flood Level	<p>Properties at Flood Risk (over 30cm depth in yard at the primary building on property) 0 Properties in Total</p> <ul style="list-style-type: none"> Nil expected along Steele Creek in City of Moonee Valley <p>Community Infrastructure Likely Flooded</p> <ul style="list-style-type: none"> Maribyrnong River Trail at Steele Creek crossing Spring Gully Reserve on Keilor Road, Keilor East <p>Water Over Road (over 30cm depth)</p> <ul style="list-style-type: none"> Nil expected along Steele Creek in City of Moonee Valley 	
4.21m	1% AEP (100yr ARI) Flood Level	<p>Properties at Flood Risk (over 30cm depth in yard at the primary building on property) 6 Properties in Total</p> <ul style="list-style-type: none"> Units 8-11/21-25 & Units 26-27/21-25 Goble Street, Niddrie <p>Community Infrastructure Likely Flooded</p> <ul style="list-style-type: none"> AJ Davis Reserve at 298 Fullarton Road, Airport West Maribyrnong River Trail at Steele Creek crossing Spring Gully Reserve on Keilor Road, Keilor East Steele Creek Trail at various locations between Quarry Close and Buckley Street <p>Water Over Road (over 30cm depth)</p> <ul style="list-style-type: none"> Roberts Road, Airport West 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer 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>

Table C2.7 – Breakdown of likely consequences at various Keilor East gauge level heights along Steele Creek with operational considerations

FLOOD INTELLIGENCE CARD – STEELE CREEK STORMWATER TRIBUTARIES (UNGAUGED)

Version 4 – March 2022



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:	Essendon North
LOCATION:	North Essendon Service Reservoirs on Lebanon St, Essendon Fields
RECENT RAINFALL:	https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/586182

MELWAY REF:	16 D7
GAUGE NUMBER	586182
GAUGE TYPE	Rain

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Consideration
14mm in 10 mins; 22mm in 30 mins; 28mm in 1 hour; 35mm in 2 hours; 40mm in 3 hours; or 50mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungauged nature of the catchment. This should be used as a guide only.	10% AEP (10-year ARI)	Properties at Flood Risk (over 30cm depth in yard at the primary building on property) 8 Properties in Total Airport West Drain <ul style="list-style-type: none"> 5/5-7 Deidre Court, Airport West 51 Hilbert Road, Airport West Clydesdale Road Drain <ul style="list-style-type: none"> 54 McNamara Avenue, Airport West Local Drainage <ul style="list-style-type: none"> 7 English Street, Essendon Fields 6 George Street, Niddrie Niddrie West Drain <ul style="list-style-type: none"> 1, 3 & 5 Etko Avenue, Keilor East Water Over Road (over 30cm depth) Roads in Red are DTP Roads Local Drainage <ul style="list-style-type: none"> Calder Freeway, Airport West between Keilor Road and Matthews Avenue underpasses Milleara Road, Keilor East at Wunnamurra Drive Nicholas Court, Keilor East Tullamarine Freeway at English Street underpass 	

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Consideration
<p>24mm in 10 mins; 39mm in 30 mins; 49mm in 1 hour; 60mm in 2 hours; 69mm in 3 hours; or 87mm 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 30cm depth in yard at the primary building on property)</p> <p>121 Properties in Total</p> <p>Airport West Drain</p> <ul style="list-style-type: none"> • 25A, 25B, 34, 36 & 36A Bedford Street, Airport West • 3/5-7, 5/5-7, 6/5-7, 9, 1/11, 2/11 & 13 Deidre Court, Airport West • 27 Etzel Street, Airport West • 23 Glenys Avenue, Airport West • 51 & 53 Hilbert Road, Airport West • 3/42 & 44 Kingsley Road, Airport West • 33A & 33 North Street, Airport West • 1/104, 2/104 & 3/104 Roberts Road, Airport West • 28 & 31 South Road, Airport West • 2, 4, 6, 8A & 8 Thomas Street, Airport West <p>Clydesdale Road Drain</p> <ul style="list-style-type: none"> • 3/3, 4/3, 3/7, 3/9, 4/9, 35, 37, 39, 41A & 41 El Reno Crescent, Airport West • 4, 6, 8, 10, 12, 14, 16, 18, 20, 2/22-24, 3/22-24 & 4/22-24 Highridge Crescent, Airport West • 54 Mcnamara Avenue, Airport West • 5 & 8 Roberts Road, Airport West • 2, 4, 17, 17A, 1/19 & 2/19 Haldane Road, Niddrie • 31C, 32 & 34 Hotham Road, Niddrie • 517, 519 & 521 Keilor Road, Niddrie <p>Local Drainage</p> <ul style="list-style-type: none"> • 131A & 131 Brees Road, Keilor East • 7 English Street, Essendon Fields • 6 George Street, Niddrie • 2/43-45, 3/43-45 & 4/43-45 Hart Street, Airport West • 29, 31 & 33 Herbert Crescent, Keilor East • 31 Mark Street, Keilor East • 29, 2/31, 3/31, 4/31, 3/33 & 4/33 Surrey Drive, Keilor East • 1/22A & 2/22A Wyong Street, Keilor East <p>Niddrie West Drain</p> <ul style="list-style-type: none"> • 1, 3 & 5 Etko Avenue, Keilor East <p>Water Over Road (over 30cm depth) Roads in Red are DTP Roads</p> <p>Airport West Drain</p> <ul style="list-style-type: none"> • Bedford Street, Airport West • Etzel Street, Airport West <p>Clydesdale Road Drain</p> <ul style="list-style-type: none"> • Hawker Street, Airport West • McIntosh Street, Airport West • McNamara Avenue, Airport West 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding.</p> <p>The VICSES Central Duty Officer 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>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Consideration
		<p>Local Drainage</p> <ul style="list-style-type: none"> • Calder Freeway, Airport West between Keilor Road and Matthews Avenue underpasses • Hammond Avenue, Essendon Fields • Marshall Road, Airport West • Milleara Road, Keilor East at Wunnamurra Drive • Nicholas Court, Keilor East • Nomad Road, Essendon Fields • Parer Road, Airport West • Rodd Road, Airport West • Tullamarine Freeway at English Street underpass • Victory Road, Airport West • Webb Road, Airport West 	<p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements</p>

Table C2.7 – Breakdown of possible consequences at various rainfall intensities around Airport West, Niddrie & Keilor East with operational considerations

APPENDIX C3 – MARIBYRNONG RIVER FLOOD EMERGENCY PLAN

Overview of Flooding Consequences

Aberfeldie, Ascot Vale, Avondale Heights and Essendon West are among the southern suburbs of Moonee Valley. High intensity, short duration rainfall events can cause flash flooding in these suburbs. Prolonged rainfall can cause the Maribyrnong River to flood, further affecting these suburbs by restricting drainage, but having a greater effect in Maribyrnong on the southern bank on the river.

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 Moonee Valley

Property					
Properties	105				
Residential	95	Includes 74 properties within Riverview Retirement Village			
Commercial	0				
Industrial	0				
Public Land	10				
Rural	0				
Community Infrastructure					
Community Venues	8	Parks, Scouts & Bicycle Trail			
Retirement Villages	1	Riverview Retirement Village, Avondale Heights			
Essential Infrastructure					
Sewerage Facilities	6	Emergency Relief Points			
Tourism / Recreation					
Sports Facilities	3	Athletics Track, Golf & Tennis Centre & Rowing Club			
Government Boundaries					
Local Gov't Areas	1	Moonee Valley	CMA	1	Port Phillip & Westernport
Adjacent LGAs	3	Brimbank, Maribyrnong & Melbourne	CFA District	0	
SES Resp' Boundary	1	Essendon	FRV District	1	Western

Table C3.1 – Consequence Summary of 1% AEP flood along the Maribyrnong River in Moonee Valley

Gauges and Warnings

Warnings are available for flooding expected along the Maribyrnong River which include areas adjacent to the river between Avondale Heights and Ascot Vale. Flood class levels for the Darraweit Guim, Rosslynne Reservoir, Keilor and Maribyrnong gauges are detailed in table C3.2 and are used in the issuing of a flood warning for Deep Creek, Jacksons Creek and the Maribyrnong River. These and other gauge details within the Maribyrnong catchment are contained within table C3.3.

Gauge	River / Creek Flood Class Level		
	Minor	Moderate	Major
Deep Creek at Darraweit Guim	5.5m	6.1m	6.5m
Jacksons Creek at Rosslynne Reservoir	51.4m	51.7m	52.1m
Maribyrnong River at Keilor	3.5	5.4	6.1
Maribyrnong River at Maribyrnong	1.7	2.3	2.9

Table C3.2 – Gauges with established Flood Class Levels within the Maribyrnong River Catchment

At these sites within the Maribyrnong River catchment, the Bureau of Meteorology (the BoM) in consultation with Melbourne Water will issue flood warnings if levels reach those classified above. Warnings 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 Moonee Valley monitors these warnings in times of high rainfall, there are no specific guidelines to advise how these situations should be responded to.

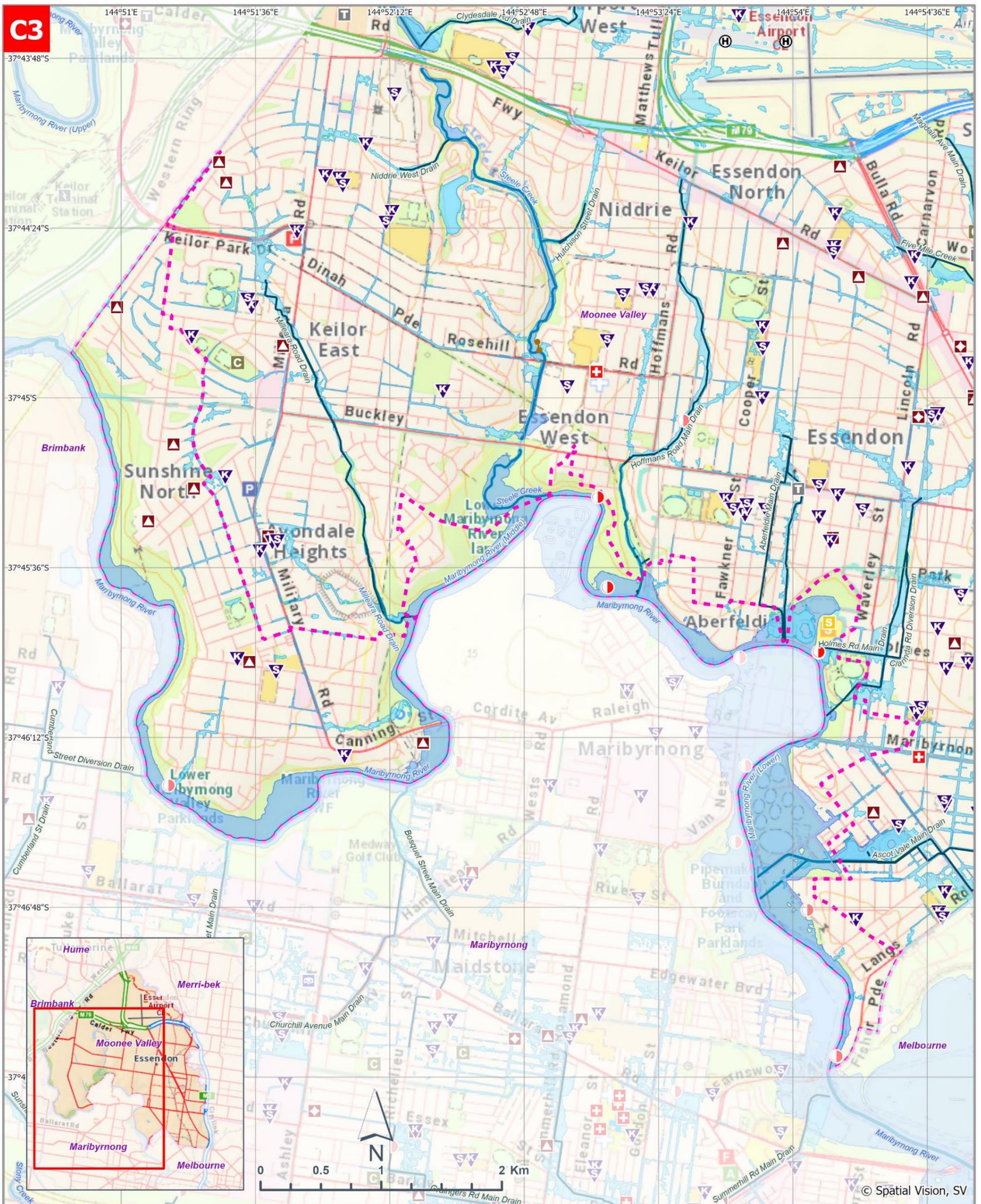
Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Deep Creek at Lancefield	230119A	At Doggetts Bridge on Kilmore-Lancefield Road, Lancefield	✓		VicMap Central: 6277 D9
Romsey	587117	Portingsales Lane, Romsey		✓	VicMap Central: 6361 C3
Deep Creek at Darraweit Guim	230100A	East side of the creek, 200m South of Beveridge – Darraweit Guim Road, Wallan	✓	✓	VicMap Central: 6362 E8
Bolinda Creek at Clarkefield	230211A	North side of the creek, west side of Lancefield Rd, Clarkefield	✓		VicMap Central: 6361 A14
Deep Creek at Konagaderra	230107A	West side of the creek 200m north of The Ridge Walking Trail, Oaklands Junction	✓	✓	Melway: 365 C2
Deep Creek at Bulla	230102A	South side of the creek at Bulla Rd bridge, Bulla	✓		Melway: 177 A6
Bulla	587014	105 Loemans Rd, Bulla		✓	Melway: 177 A10
Jacksons Creek at Rosslynne Reservoir	230103A	Rosslynne Reservoir, Gisborne	✓	✓	VicMap Central: 6443 F1
Jacksons Creek at Sunbury	230104A	West side of the Creek, north side of Sunbury Road bridge, Sunbury	✓	✓	Melway: 382 H5
Maribyrnong River d/s Jacksons Creek, Keilor North	230237A	Southwest side of River in Sydenham Park, Keilor North	✓		Melway: 4 B7
Maribyrnong River at Keilor	230105A	South side of the River in Brimbank Park, Keilor East	✓	✓	14 J8
Maribyrnong River at Maribyrnong	230106A	South bank of the River on Chifley Drive west of Plantation Street	✓	✓	28 B7

Table C3.3 – Gauges within the Maribyrnong River catchment

These Gauges may provide some warning of expected flooding. See the Melbourne Water website for more information on these gauges:

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

Area Map of Flood Risk within the Maribyrnong River catchment



Maribyrnong River flood modelling completed by Jacobs, September 2023. Map produced by VICSES: 8/09/2023 9:19 AM

CITY OF MOONEE VALLEY 1% AEP (100yr ARI) Flooding C3. Areas of flood risk along the Maribyrnong River

- | | | | | | |
|--|---------------------------------|--|--------------------|--|----------------------------|
| | Waterbody | | Education Centre | | Helipad |
| | 1% AEP Flash Flood Extent | | Child Care Centre | | Place Of Worship |
| | 1% AEP Riverine Flood Extent | | Fire Station | | Telephone Exchange |
| | Waterway | | Community Venue | | Stream Level & Rain Gauge |
| | Melbourne Water Stormwater Main | | Aged Care Facility | | Stream Level Gauge |
| | Ambulance Stations | | Municipal Office | | Rain Gauge |
| | Bicycle / Walking Trail | | Municipal Depot | | Boundary for this Appendix |
| | Police Stations | | Caravan Park | | Moonee Valley |
| | VICSES Units | | Hospitals | | |

SES **VICTORIA** State Government

Melbourne Water

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Figure C3 – Areas of flood risk around Aberfeldie, Ascot Vale, Avondale Heights and Essendon West in the City of Moonee Valley and area covered by this appendix.

Properties at Flood Risk

Properties listed in the table below are at risk from flooding along the Maribyrnong River. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Maribyrnong River (Jacobs, September 2023) 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 along the Maribyrnong River during a 1% AEP event				
Residential	Commercial	Industrial	Rural	Public Use
Street No. at Risk	Street	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
58-98	Afton Street	Essendon West	Maribyrnong River	Riverine
25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
1/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
2/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
3/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
4/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
5/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
6/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
7/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
8/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
9/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
10/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
11/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
12/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
13/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
14/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
15/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
16/25	Bellavista Drive	Avondale Heights	Maribyrnong River	Riverine
2	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
4	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
6	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
8	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
10	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
12	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
14	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
16	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
18	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
20	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
22	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
24	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
26	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
28	Blueridge Close	Avondale Heights	Maribyrnong River	Riverine
22	Enclave Avenue	Ascot Vale	Maribyrnong River	Riverine
1	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine

Properties at risk from Flooding along the Maribyrnong River during a 1% AEP event

Properties at risk from Flooding along the Maribyrnong River during a 1% AEP event				
Residential	Commercial	Industrial	Rural	Public Use
Street No. at Risk	Street	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
2	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
3	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
4	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
5	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
6	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
7	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
8	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
9	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
10	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
11	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
12	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
13	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
14	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
15	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
16	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
17	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
18	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
19	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
20	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
21	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
22	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
23	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
24	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
25	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
26	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
27	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
28	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
29	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
30	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
31	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
32	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
33	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
34	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
35	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
36	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
37	Evergreen Avenue	Avondale Heights	Maribyrnong River	Riverine
30	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
32	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
34	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
36	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
60	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
75	Newsom Street	Ascot Vale	Maribyrnong River	Riverine
2-50	Park Crescent	Aberfeldie	Maribyrnong River	Riverine
48	The Boulevard	Aberfeldie	Maribyrnong River	Riverine

Properties at risk from Flooding along the Maribyrnong River during a 1% AEP event				
Residential	Commercial	Industrial	Rural	Public Use
Street No. at Risk	Street	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
92-94	The Boulevard	Aberfeldie	Maribyrnong River	Riverine
101	The Boulevard	Aberfeldie	Maribyrnong River	Riverine
110	Walter Street	Ascot Vale	Maribyrnong River	Riverine
2	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
3	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
4	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
5	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
6	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
7	Watergum Terrace	Avondale Heights	Maribyrnong River	Riverine
22	Woods Street	Ascot Vale	Maribyrnong River	Riverine
22A	Woods Street	Ascot Vale	Maribyrnong River	Riverine
29	Woods Street	Ascot Vale	Maribyrnong River	Riverine
31	Woods Street	Ascot Vale	Maribyrnong River	Riverine
33	Woods Street	Ascot Vale	Maribyrnong River	Riverine
35	Woods Street	Ascot Vale	Maribyrnong River	Riverine
37	Woods Street	Ascot Vale	Maribyrnong River	Riverine
39	Woods Street	Ascot Vale	Maribyrnong River	Riverine
41	Woods Street	Ascot Vale	Maribyrnong River	Riverine
43	Woods Street	Ascot Vale	Maribyrnong River	Riverine
45	Woods Street	Ascot Vale	Maribyrnong River	Riverine
47	Woods Street	Ascot Vale	Maribyrnong River	Riverine
53	Woods Street	Ascot Vale	Maribyrnong River	Riverine
55	Woods Street	Ascot Vale	Maribyrnong River	Riverine
55A	Woods Street	Ascot Vale	Maribyrnong River	Riverine
57	Woods Street	Ascot Vale	Maribyrnong River	Riverine
59	Woods Street	Ascot Vale	Maribyrnong River	Riverine
61	Woods Street	Ascot Vale	Maribyrnong River	Riverine
Total				
105				

Table C3.4 – Properties at risk of flooding along the Maribyrnong River in the City of Moonee Valley

Isolation

No major isolation risks exist for areas around Aberfeldie, Ascot Vale, Avondale Heights and Essendon West during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding.

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 Moonee Valley is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/35_Moonee-Valley_LAM_July-2020.pdf

Apart from the roads and sewers outlined in **tables C3.5** and **C3.6** respectively, all other essential infrastructure and services areas around Avondale Heights, Essendon West, Aberfeldie and Ascot Vale are expected to remain unaffected by flooding during a 1% AEP (100yr ARI) event.

Road Closures

No roads are subject to closure during flooding around Avondale Heights, Essendon West, Aberfeldie and Ascot Vale. Check the VicRoads website for more details: <http://alerts.vicroads.vic.gov.au/>

Department of Transport (VicRoads) Roads likely flooded in a 1% AEP (100yr ARI) event
<ul style="list-style-type: none"> • Nil

Table C3.5 – Department of Transport (VicRoads) Possible Road Closures during a flooding event

Moonee Valley City Council Roads likely flooded in a 1% AEP (100yr ARI) event		
ABERFELDIE	ASCOT VALE	AVONDALE HEIGHTS
<ul style="list-style-type: none"> • Afton Street 	<ul style="list-style-type: none"> • Angler Parade 	<ul style="list-style-type: none"> • Blueridge Close
<ul style="list-style-type: none"> • Holmes Road 	<ul style="list-style-type: none"> • Aspect Avenue 	<ul style="list-style-type: none"> • Evergreen Avenue
<ul style="list-style-type: none"> • The Boulevard 	<ul style="list-style-type: none"> • Bettina Court 	<ul style="list-style-type: none"> • Watergum Terrace
	<ul style="list-style-type: none"> • Doncaster Street 	
	<ul style="list-style-type: none"> • Newsom Street 	
	<ul style="list-style-type: none"> • Stanford Street 	
	<ul style="list-style-type: none"> • Woods Street 	

Table C3.6 – Moonee Valley City Council Possible flooded roads during a 1% AEP flood event

Flood Mitigation

No formal Retarding Basins, Pumping Stations or Levees exist along the Maribyrnong River upstream or in the City of Moonee Valley.

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located along the Maribyrnong River in the City of Moonee Valley is contained within the following table.

Sewer Emergency Relief Points

There are Sewer Emergency Relief Points along the Maribyrnong River that will affect the City of Moonee Valley. Contact the Melbourne Water 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	Location	Melway Reference
Maribyrnong River	North Bank	Maribyrnong River Bicycle Trail at Brentwood Drive, Avondale Heights	27 C9
Maribyrnong River	North Bank	Along the bank of the Maribyrnong River off Prospect Street, Essendon West	27 K4
Maribyrnong River	North Bank	Along the bank of the Maribyrnong River in Afton Street Conservation Park (Riverside Park), Essendon West	27 K6
Maribyrnong River	North Bank	Intersection of The Boulevard and Holmes Road in Moonee Ponds	28 D7
Maribyrnong River	East Bank	Angler Parade, Ascot Vale	28 D11
Maribyrnong River	East Bank	Fisher Parade, Flemington	42 D1

Table C3.7 – Sewer Emergency Relief Points along the Maribyrnong River affecting the City of Moonee Valley

Control, Command 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 SEMP. During significant events, VICSES will conduct incident management using multi-agency resources.

Flood Impacts and Operational Considerations (Intelligence Cards)

The table on the following pages provide a breakdown of the possible consequences of flooding along the Maribyrnong River at various river heights within Moonee Valley. 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 4 – March 2022



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, Maribyrnong
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:	0.0m AHD
GAUGE TYPE:	Stream Level, Flow & Rain

MELWAY REFERENCE:	28 B7
MINOR:	1.70m AHD
MODERATE:	2.30m AHD
MAJOR:	2.90m AHD
LEVEE HEIGHT:	Not Applicable
HIGHEST RECORDED FLOOD:	4.50m (8 th Sept 1906)

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
1.70m	MINOR FLOOD LEVEL 20% AEP (5year ARI) Flood Level	Essential Infrastructure Likely Impacted Sewer Emergency Relief Points may be activated <ul style="list-style-type: none"> Off Prospect Street, Essendon West Afton Street Conservation Park (Riverside Park), Essendon West Junction of Maribyrnong River and Hoffmans Rd Main Drain, Afton Street, Essendon West Junction of Maribyrnong River and Holmes Rd Main Drain, cnr The Boulevard and Holmes Road, Moonee Ponds 	VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer in conjunction with the Regional Agency Commander will maintain operational awareness and form an appropriate response arrangement to suit the level of incident. MVCC EHOs to have awareness of Sewer Emergency Relief Structures within floodwaters. EPA and Water providers to report on potential contamination issues
2.21m	15 th January 2011 Flood Level Peak		
2.30m	MODERATE FLOOD LEVEL		
2.60m	10% AEP (10year ARI) Flood Level		
2.90m	MAJOR FLOOD LEVEL		

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
3.20m	5% AEP (20year ARI) Flood Level (Major)	<p>Properties at Flood Risk</p> <p>4 Properties in Total</p> <ul style="list-style-type: none"> 22 & 22A Woods Street, Ascot Vale 60 & 75 Newsom Street, Ascot Vale <p>Community Infrastructure Flooded</p> <ul style="list-style-type: none"> Afton Reserve including Carpark, Afron Street, Aberfeldie Aberfeldie Park, The Boulevard, Aberfeldie 15th Essendon Sea Scouts, Woods Street, Ascot Vale Fairbairn Park, Woods Street, Ascot Vale Maribyrnong River Trail flooded at various locations Riverside Park, The Boulevard, Aberfeldie <p>Tourism / Recreation Likely Impacted</p> <ul style="list-style-type: none"> Riverside Golf & Tennis Centre, 60 Newsom Street, Ascot Vale <p>Water Over Road</p> <ul style="list-style-type: none"> Afron Street, Aberfeldie Newsome Street, Ascot Vale Stanford Street, Ascot Vale 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer 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 DTP (as appropriate) to provide road closure signage under predetermined arrangements</p>
3.75m	2% AEP (50year ARI) Flood Level (Major)	<p>Properties at Flood Risk</p> <p>6 New at Level; 10 Properties in Total</p> <ul style="list-style-type: none"> 48 The Boulevard, Moonee Ponds 39, 41, 43, 45 & 47 Woods Street, Ascot Vale <p>Community Infrastructure Likely Flooded</p> <ul style="list-style-type: none"> Walter Reserve, Walter Street, Ascot Vale <p>Tourism / Recreation Likely Impacted</p> <ul style="list-style-type: none"> Aberfeldie Park Athletics Track, Corio Street, Aberfeldie Essendon Rowing Club and Boat Ramp, The Boulevard, Moonee Ponds <p>Water Over Road</p> <ul style="list-style-type: none"> The Boulevard between Brunel Street & Holmes Road, Aberfeldie Woods Street, Ascot Vale 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer 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 DTP (as appropriate) to provide road closure signage under predetermined arrangements</p>
4.20m		<ul style="list-style-type: none"> Note: Information currently unavailable at what level some of the property and infrastructure contained at this level starts being flooded <p>Properties at Flood Risk</p> <p>67 New at Level; 77 Properties in Total</p> <ul style="list-style-type: none"> 58-98 Afron Street, Essendon West 22 Enclave Avenue, Ascot Vale 2-50 Park Crescent, Aberfeldie 92-94 & 101 The Boulevard, Aberfeldie 110 Walter Street, Ascot Vale 31, 33, 35, 37, 53, 55 & 61 Woods Street, Ascot Vale 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer in conjunction with the Regional Agency Commander will maintain operational awareness and form an appropriate response arrangement to suit the level of incident</p>

River Height	Flood Class or Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> Riverview Retirement Village Properties <ul style="list-style-type: none"> 25 Bellavista Drive, Avondale Heights (Community Centre) Apartments 1-16/25 Bellavista Drive, Avondale Heights (Access possibly restricted by flooded elevator) 4, 6, 8, 10, 12, 16, 24 & 26 Blueridge Close, Avondale Heights 1 to 21 and 23 to 30 Evergreen Avenue, Avondale Heights <p>Water Over Road</p> <ul style="list-style-type: none"> Blueridge Close, Avondale Heights Doncaster Street, Ascot Vale Evergreen Avenue, Avondale Heights 	<p>VICSES to respond on a request-by-request basis.</p> <p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements</p>
4.21m	14 th October 2022 Flood Level Peak	<p>Event Summary</p> <ul style="list-style-type: none"> Parts of Riverview Retirement Village impacted with a number of properties along Blueridge Close and Evergreen Avenue flooded Essendon Sea Scouts & Essendon Canoe Club in Fairbairn Park Sporting Facilities in Fairbairn Park impacted 	
4.40m	1% AEP (100year ARI) Flood Level (Major)	<p>Properties at Flood Risk</p> <p>28 New at Level; 105 Properties in Total</p> <ul style="list-style-type: none"> 30, 32, 34 & 36 Newsom Street, Ascot Vale 29, 55A, 57 & 59 Woods Street, Ascot Vale Riverview Retirement Village Properties <ul style="list-style-type: none"> 2, 14, 18, 20, 22 & 28 Blueridge Close, Avondale Heights 22, 31, 32, 33, 34, 35, 36 & 37 Evergreen Avenue, Avondale Heights 2, 3, 4, 5, 6 & 7 Watergum Terrace Avondale Heights <p>Water Over Road</p> <ul style="list-style-type: none"> Aspect Avenue, Ascot Vale Angler Parade, Ascot Vale Bettina Court, Ascot Vale Holmes Road, Aberfeldie Watergum Terrace, Avondale Heights 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer 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>MVCC EHOs to have awareness of Sewer Emergency Relief Structures within floodwaters</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements</p>

Table C3.7 – Breakdown of likely consequences at various Maribyrnong gauge level heights along the Maribyrnong River with operational considerations

APPENDIX C4 – MARIBYRNONG RIVER’S STORMWATER DRAINS FLOOD EMERGENCY PLAN

Overview of Flooding Consequences

Avondale Heights, Aberfeldie, Ascot Vale, Essendon, Essendon West and Moonee Ponds comprise the southern suburbs of Moonee Valley. High intensity, short duration rainfall events can cause flash flooding in these suburbs. Prolonged rainfall can cause the Maribyrnong River to flood, further affecting these suburbs through reduced drainage capacity.

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 Maribyrnong River’s stormwater Drains in Moonee Valley

Property Risk (over 30cm depth in yard at the primary building on property)					
Properties	274				
Residential	263				
Commercial	11	On Buckley Street, Essendon			
Industrial	0				
Public Land	0				
Rural	0				
Community Infrastructure					
Essential Infrastructure					
Major Roads	8	Ascot Vale Road; Buckley Street; Epsom Road; Hoffmans Road; Maribyrnong Road; Mt Alexander Road; Orford Street; and Scotia Street			
Bus Routes	4	404, 465, 475 & 903			
Sewerage Facilities	2	Emergency Relief Points			
Tourism / Recreation					
Sports Facilities	1	Essendon Rowing Club			
Recreation Facilities	3	Aberfeldie Park; Clarinda Park; and Walter Street Reserve			
Government Boundaries					
Local Gov’t Areas	1	Moonee Valley	CMA	1	Port Phillip & Westernport
Adjacent LGAs	0		CFA District	0	
SES Resp’ Boundary	1	Essendon	FRV District	1	Western

Table C4.1 – Consequence Summary of 1% AEP flood along Maribyrnong River’s stormwater drains in the City of Moonee Valley

Gauges and Warnings

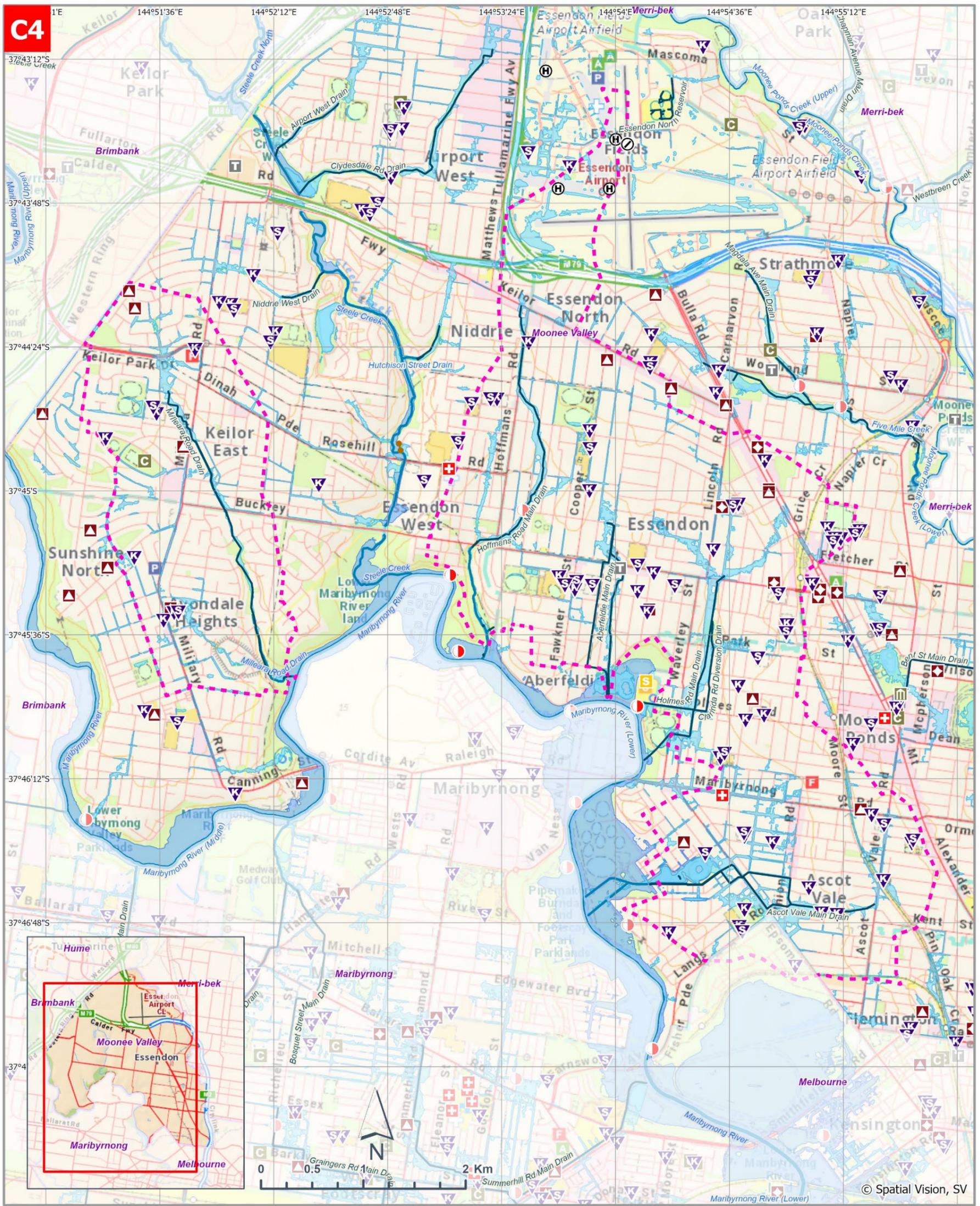
Whilst there are hydrographic/telemetry stations (river gauges) within the greater Moonee Valley municipality, there are no gauges on Hoffmans Road, Aberfeldie, Ascot Vale or Holmes Road Main Drains, or on the Milleara Road Drain. Because of this, Melbourne Water does not provide any flood warning service at this point, due to the generally short warning times available.

Gauge	Station No.	Location	Stream Level & Flow Gauge	Rain Gauge	Melway Reference
Maribyrnong River at Maribyrnong	230106A	South bank of the River on Chifley Drive west of Plantation Street	✓	✓	28 B7
Essendon Airport AWS	86038	Essendon Airport at Perimeter Rd, Essendon Fields		✓	16 E8

Table C4.2 – Gauges around Avondale Heights, Essendon West, Aberfeldie, Moonee Ponds & Ascot Vale

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 around Maribyrnong River's stormwater drains in the City of Moonee Valley



Maribyrnong River flood modelling completed by Jacobs, September 2023. Local Drainage flood modelling completed by Engeny, January 2020. Map produced by VICSES: 8/09/2023 9:42 AM

<p>CITY OF MOONEE VALLEY 1% AEP (100yr ARI) Flooding C4. Areas of flood risk along the Maribyrnong River's Tributaries</p>	<ul style="list-style-type: none"> Waterbody 1% AEP Flash Flood Extent 1% AEP Riverine Flood Extent Waterway Melbourne Water Stormwater Main Ambulance Stations Bicycle / Walking Trail Police Stations VICSES Units 	<ul style="list-style-type: none"> Education Centre Child Care Centre Fire Station Community Venue Aged Care Facility Municipal Office Municipal Depot Caravan Park Hospitals 	<ul style="list-style-type: none"> Helipad Place Of Worship Telephone Exchange Stream Level & Rain Gauge Stream Level Gauge Rain Gauge Moonee Valley Boundary for this Appendix Moonee Valley Mask 	<p>LAND USE</p> <ul style="list-style-type: none"> Residential Commercial and Business Industrial Public Parks / Cemeteries / Recreation Utilities and Local Government Facilities Education 	<p>SES VICTORIA State Government</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.</p>
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Figure C4 – Areas of flash flood risk around Aberfeldie, Ascot Vale, Essendon, Essendon West, Niddrie and Moonee Ponds by flash flooding in the City of Moonee Valley

Properties at Flood Risk

Properties listed in the table below are at risk from flash flooding along Maribyrnong River's stormwater drains. As more intelligence becomes available, this list may change. This table has been populated based on modelling work as part of the Steele Creek (Engeny, January 2020) and the lower Maribyrnong (Engeny, January 2020) flood mapping and risk assessment programs. Note that any multi-lot properties situated above ground floor likely impacted by isolation only with flooding on ground floor impacting access to common areas and/or carpark and storage facilities. Information on above ground-floor properties is not available in this list.

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

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)					
Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	21 Antares Court	Aberfeldie	Aberfeldie M.D.	Flash
	✓	23 Antares Court	Aberfeldie	Aberfeldie M.D.	Flash
	✓	25 Antares Court	Aberfeldie	Aberfeldie M.D.	Flash
	✓	27 Antares Court	Aberfeldie	Aberfeldie M.D.	Flash
	✓	3 Bellarine Avenue	Keilor East	Milleara Road Drain	Flash
	✓	10 Bellarine Avenue	Keilor East	Milleara Road Drain	Flash
	✓	12 Bellarine Avenue	Keilor East	Milleara Road Drain	Flash
	✓	34A Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	35 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	49A Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	1/53 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	2/53 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	55 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	57 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	59 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	61 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	63 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	65 Bradshaw Street	Essendon	Hoffmans Road M.D.	Flash
	✓	8 Brentwood Drive	Avondale Heights	Local Drainage	Flash
	✓	11 Brentwood Drive	Avondale Heights	Local Drainage	Flash
	✓	13 Brentwood Drive	Avondale Heights	Local Drainage	Flash
	✓	193 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	194 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	196 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	101/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	102/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	103/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	104/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	105/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	106/201 Buckley Street	Essendon	Holmes Rd M.D.	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	204 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	206 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	208 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	210 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	212-216 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	218 Buckley Street	Essendon	Holmes Rd M.D.	Flash
✓	✓	1/222 Buckley Street	Essendon	Holmes Rd M.D.	Flash
✓	✓	2/222 Buckley Street	Essendon	Holmes Rd M.D.	Flash
	✓	2/390 Buckley Street	Essendon West	Hoffmans Road M.D.	Flash
✓	✓	396 Buckley Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	522 Buckley Street	Keilor East	Milleara Road Drain	Flash
	✓	524 Buckley Street	Keilor East	Milleara Road Drain	Flash
	✓	5 Burns Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	6 Burns Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	1 Carey Court	Keilor East	Milleara Road Drain	Flash
	✓	3 Carey Court	Keilor East	Milleara Road Drain	Flash
	✓	6/2 Clarinda Road	Essendon	Holmes Rd M.D.	Flash
	✓	62 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	64 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	66 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	68 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	70 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
✓	✓	72 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	74 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	76 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	1/78 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2/78 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	80 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	82 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	84 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	86C Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	86A Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	86B Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	88 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	90 Clarinda Road	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2 Crown Street	Flemington	Local Drainage	Flash
	✓	4A Crown Street	Flemington	Local Drainage	Flash
	✓	4 Crown Street	Flemington	Local Drainage	Flash
	✓	6 Crown Street	Flemington	Local Drainage	Flash
	✓	8 Crown Street	Flemington	Local Drainage	Flash
	✓	17 Crown Street	Flemington	Local Drainage	Flash
	✓	3 Daisy Street	Essendon	Holmes Rd M.D.	Flash
	✓	5 Daisy Street	Essendon	Holmes Rd M.D.	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	10 Daisy Street	Essendon	Holmes Rd M.D.	Flash
	✓	12 Daisy Street	Essendon	Holmes Rd M.D.	Flash
	✓	5 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	7 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	9 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	11 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	16 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	18 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
✓	✓	20 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	22 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	24 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	28 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	2/30 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	86A Deakin Street	Essendon	Hoffmans Road M.D.	Flash
✓	✓	88 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
✓	✓	90 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	99 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	101 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	105 Deakin Street	Essendon	Hoffmans Road M.D.	Flash
	✓	61 Derby Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	66 Derby Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	68 Derby Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2 Derry Street	Aberfeldie	Aberfeldie M.D.	Flash
	✓	13 Derry Street	Aberfeldie	Aberfeldie M.D.	Flash
	✓	3/11 Elder Parade	Essendon	Holmes Rd M.D.	Flash
	✓	4/11 Elder Parade	Essendon	Holmes Rd M.D.	Flash
	✓	16 Emerald Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	112 Epsom Road	Ascot Vale	Ascot Vale M.D.	Flash
	✓	114 Epsom Road	Ascot Vale	Ascot Vale M.D.	Flash
	✓	116 Epsom Road	Ascot Vale	Ascot Vale M.D.	Flash
	✓	122 Epsom Road	Ascot Vale	Ascot Vale M.D.	Flash
	✓	124 Epsom Road	Ascot Vale	Ascot Vale M.D.	Flash
	✓	3 Forrester Street	Essendon	Holmes Rd M.D.	Flash
	✓	5 Forrester Street	Essendon	Holmes Rd M.D.	Flash
	✓	7 Forrester Street	Essendon	Holmes Rd M.D.	Flash
	✓	36 Forrester Street	Essendon	Aberfeldie M.D.	Flash
✓	✓	76 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	1/78 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	2/78 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	3/78 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	4/78 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	79 Forrester Street	Essendon	Hoffmans Road M.D.	Flash
	✓	10 Hampton Road	Essendon West	Hoffmans Road M.D.	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	1/1 Hoffmans Road	Essendon West	Hoffmans Road M.D.	Flash
	✓	2/1 Hoffmans Road	Essendon West	Hoffmans Road M.D.	Flash
	✓	2 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
	✓	4 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
	✓	6 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
	✓	8 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
✓	✓	1/116 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
✓	✓	2/116 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
	✓	118 Hoffmans Road	Essendon	Hoffmans Road M.D.	Flash
	✓	28 Huntly Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	30 Huntly Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
✓	✓	4 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
	✓	5 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
	✓	6 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
	✓	7 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
	✓	9 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
	✓	11 Jeffrey Street	Keilor East	Milleara Road Drain	Flash
✓	✓	2 Lauricella Avenue	Keilor East	Milleara Road Drain	Flash
	✓	4 Lauricella Avenue	Keilor East	Milleara Road Drain	Flash
	✓	2 Levien Street	Essendon	Holmes Rd M.D.	Flash
	✓	4 Levien Street	Essendon	Holmes Rd M.D.	Flash
	✓	6 Levien Street	Essendon	Holmes Rd M.D.	Flash
	✓	8 Levien Street	Essendon	Holmes Rd M.D.	Flash
	✓	10 Levien Street	Essendon	Holmes Rd M.D.	Flash
	✓	1/2 Lincoln Road	Essendon	Holmes Rd M.D.	Flash
	✓	24 Mary Street	Essendon	Hoffmans Road M.D.	Flash
✓	✓	26 Mary Street	Essendon	Hoffmans Road M.D.	Flash
	✓	28 Mary Street	Essendon	Hoffmans Road M.D.	Flash
	✓	41 Mary Street	Essendon	Hoffmans Road M.D.	Flash
	✓	43 Mary Street	Essendon	Hoffmans Road M.D.	Flash
	✓	11 Mcphail Street	Essendon	Holmes Rd M.D.	Flash
	✓	13 Mcphail Street	Essendon	Holmes Rd M.D.	Flash
	✓	14 Mcphail Street	Essendon	Holmes Rd M.D.	Flash
	✓	15 Mcphail Street	Essendon	Holmes Rd M.D.	Flash
✓	✓	16 Mcphail Street	Essendon	Holmes Rd M.D.	Flash
	✓	3/19 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	4/19 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	25 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	27 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	29 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	31 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	33 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	40 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	42 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	44 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	46 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	48 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	50 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	52 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	54 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	56 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	62 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	88B Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	90 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	92 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	93 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	93A Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	94 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	95 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	96 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	97A Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	97 Ogilvie Street	Essendon	Hoffmans Road M.D.	Flash
	✓	36 Orford Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	38 Orford Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	1/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	3/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	4/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	5/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	6/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	7/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	8/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	9/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	10/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	11/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	12/133 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	135 Park Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	13 Regent Street	Keilor East	Milleara Road Drain	Flash
	✓	15 Regent Street	Keilor East	Milleara Road Drain	Flash
	✓	18 Regent Street	Keilor East	Milleara Road Drain	Flash
	✓	20 Regent Street	Keilor East	Milleara Road Drain	Flash
	✓	11 Rhonda Street	Avondale Heights	Local Drainage	Flash
	✓	13 Rhonda Street	Avondale Heights	Local Drainage	Flash
	✓	34 Roberts Street	Essendon	Aberfeldie M.D.	Flash
	✓	39A Roberts Street	Keilor East	Milleara Road Drain	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	39 Roberts Street	Keilor East	Milleara Road Drain	Flash
	✓	46 Roberts Street	Keilor East	Milleara Road Drain	Flash
	✓	1/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	2/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	3/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	4/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	5/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	6/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	7/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	8/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	9/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	10/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	11/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	12/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	13/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	14/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	15/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	16/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	17/1-11 Ruby Street	Essendon West	Hoffmans Road M.D.	Flash
	✓	37 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	39 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	41 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	43 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	45 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	47 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	49A Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	49B Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	54 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	56 Scotia Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	13 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	15 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	17 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	19 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	21 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	23 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	25 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	27 Scott Street	Essendon	Holmes Rd M.D.	Flash
	✓	69 Scott Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	71 Scott Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	73 Scott Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	75 Scott Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	81 Scott Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	79 South Street	Ascot Vale	Local Drainage	Flash

Properties at risk from Flooding along Maribyrnong River's stormwater drains (over 30cm depth in yard at primary building footprint)

Residential		Commercial	Industrial	Rural	Public Use
Street No. at Risk in AEP Event		Address	Suburb	Along Melbourne Water Watercourse	Flood Risk Type
10% AEP	1% AEP				
	✓	81 South Street	Ascot Vale	Local Drainage	Flash
	✓	83 South Street	Ascot Vale	Local Drainage	Flash
	✓	107 Spencer Street	Essendon	Hoffmans Road M.D.	Flash
	✓	109 Spencer Street	Essendon	Hoffmans Road M.D.	Flash
	✓	162A Spencer Street	Essendon	Hoffmans Road M.D.	Flash
✓	✓	164 Spencer Street	Essendon	Hoffmans Road M.D.	Flash
	✓	166 Spencer Street	Essendon	Hoffmans Road M.D.	Flash
	✓	29 Sterling Drive	Keilor East	Milleara Road Drain	Flash
	✓	36 Sterling Drive	Keilor East	Milleara Road Drain	Flash
	✓	36A Sterling Drive	Keilor East	Milleara Road Drain	Flash
	✓	1 Tamar Street	Aberfeldie	Aberfeldie M.D.	Flash
	✓	162 Templewood Crescent	Avondale Heights	Local Drainage	Flash
	✓	2B Thomson Street	Essendon	Holmes Rd M.D.	Flash
	✓	2A Thomson Street	Essendon	Holmes Rd M.D.	Flash
	✓	11 Violet Street	Essendon	Holmes Rd M.D.	Flash
	✓	15 Violet Street	Essendon	Holmes Rd M.D.	Flash
	✓	17 Violet Street	Essendon	Holmes Rd M.D.	Flash
	✓	103 Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	105B Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	105A Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
✓	✓	107 Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
✓	✓	107A Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	109 Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	109A Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	111 Walter Street	Ascot Vale	Ascot Vale M.D.	Flash
	✓	4 Washington Street	Essendon	Holmes Rd M.D.	Flash
	✓	6A Washington Street	Essendon	Holmes Rd M.D.	Flash
	✓	1/137 Waverley Street	Moonee Ponds	Holmes Rd M.D.	Flash
	✓	2/137 Waverley Street	Moonee Ponds	Holmes Rd M.D.	Flash
Totals					
17	274				

Table C4.3 – Properties at risk of flooding along Maribyrnong River's stormwater drains in the City of Moonee Valley

Isolation

No major isolation risks exist for areas around Avondale Heights, Aberfeldie, Ascot Vale, Essendon, Essendon West, Niddrie and Moonee Ponds during a 1% AEP (100yr ARI) event. Some localised short-duration isolation may occur due to flash flooding.

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 Moonee Valley is available via the website at: https://www.ptv.vic.gov.au/assets/PTV-default-site/more/maps/Local-area-maps/Metropolitan/35_Moonee-Valley_LAM_July-2020.pdf

Apart from the roads outlined below, all other essential infrastructure and services areas around Aberfeldie, Ascot Vale, Essendon, Essendon West, Niddrie and Moonee Ponds are expected to remain predominantly dry during an intense rainfall event.

Road Closures

The following roads are subject to closure during flooding around Aberfeldie, Ascot Vale, Essendon, Essendon West, Niddrie and Moonee Ponds. Check the VicRoads website for more details: <http://alerts.vicroads.vic.gov.au/>

Department of Transport and Planning (DTP) (VicRoads) Roads likely flooded in a 1% AEP (100yr ARI) event
• Ascot Vale Road, Ascot Vale between Wingate Avenue and the Railway underpass
• Buckley Street, Essendon east of Lincoln Road
• Epsom Road, Ascot Vale between Munro Street and Langs Road
• Hoffmans Road, Essendon at Muriel Street
• Maribyrnong Road, Ascot Vale at Epsom Road
• Mt Alexander Road, Essendon at railway underpass
• Orford Street, Moonee Ponds at Maribyrnong Park
• Scotia Street, Moonee Ponds at Burns Street

Table C4.4 – DTP Possible Road Closures during a flooding event

Moonee Valley City Council Roads likely flooded in a 1% AEP (100yr ARI) event			
ASCOTT VALE	AVONDALE HEIGHTS		
• Charles Street	• Carlo Drive	• Forrester Street	• Jeffrey Street
• Doncaster Street	• Cortina Place	• Levien Street	• Regent Street
• Ferguson Street	• North Road	• Mary Street	• Roberts Street
• Munro Street	• Riviera Road	• Scott Street	• Sterling Drive
• Railway Place East	• South Terrace	FLEMINGTON	MOONEE PONDS
• Stanford Street	• St Raphael Street	• Crown Street	• Argyle Street
• Vasey Street	• Templewood Crescent	KEILOR EAST	• Derby Street
• Walter Street	ESSENDON	• Bellarine Avenue	• Holmes Road
• Wingate Avenue	• Hedderwick Street	• Darling Close	• Park Street
		• Fawkner Crescent	

Table C4.5 – Moonee Valley City Council Possible flooded roads due to flash flooding over 30cm depth

Flood Mitigation

No formal Retarding Basins, Pumping Stations or Levees exist around Maribyrnong River's stormwater drains in the City of Maribyrnong.

Sewerage Infrastructure

Sewerage Infrastructure of note during a severe flood event located around the lower reaches of Maribyrnong River’s tributaries are contained within the following table.

Sewer Emergency Relief Points

There are Sewer Emergency Relief Points along the Hoffmans Road and Holmes Road Main Drains that may affect the lower part of these drains and the Maribyrnong River. Contact the Melbourne Water 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
Hoffmans Road Main Drain	-	City West Water	Forrester Street, Essendon	28 B3
Holmes Road Main Drain	-	Melbourne Water & City West Water	The Boulevard, Moonee Ponds at Holmes Road	28 D7

Table C4.6 – Sewer Emergency Relief Points along Maribyrnong River’s stormwater tributaries in the City of Moonee Valley

Control, Command 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 SEMP. During significant events, VICSES will conduct incident management using multi-agency resources.

Flood Impacts and Operational Considerations (Intelligence Cards)

The table on the following pages provides a breakdown of the possible consequences of flooding along the Milleara Road, Hoffmans Road, Aberfeldie, Holmes Road & Ascot Vale Main Drains at various rain intensities and totals around Avondale Heights, Essendon West, Aberfeldie, Moonee Ponds & Ascot Vale. 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 Stormwater Tributaries

FLOOD INTELLIGENCE CARD – MARIBYRNONG RIVER STORMWATER TRIBUTARIES (UNGAUGED)

Version 4 – March 2022



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:	Maribyrnong River at Maribyrnong
LOCATION:	South bank of the River on Chifley Drive west of Plantation Street
RECENT RAINFALL:	https://www.melbournewater.com.au/water-data-and-education/rainfall-and-river-levels#/reader/230106A

MELWAY REF:	28 B7
GAUGE NUMBER	230106A
GAUGE TYPE	Stream Level, Flow & Rain

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
14mm in 10 mins; 22mm in 30 mins; 28mm in 1 hour; 35mm in 2 hours; 40mm in 3 hours; or 50mm in 6 hours Note: rainfall depths are a very rough method of estimating flood events and have been used due to the ungauged nature of the catchment. This should be used as a guide only.	10% AEP (10-year ARI)	Properties at Flood Risk (over 30cm depth in yard at the primary building on property) 17 Properties in Total Ascot Vale M.D. <ul style="list-style-type: none"> 107 & 107A Walter Street, Ascot Vale Hoffmans Road M.D. <ul style="list-style-type: none"> 396 Buckley Street, Essendon West 20, 88 & 90 Deakin Street, Essendon 76 Forrester Street, Essendon 1/116 & 2/116 Hoffmans Road, Essendon 26 Mary Street, Essendon 164 Spencer Street, Essendon Holmes Rd M.D. <ul style="list-style-type: none"> 1/222 & 2/222 Buckley Street, Essendon 72 Clarinda Road, Moonee Ponds 16 Mcphail Street, Essendon Milleara Road Drain <ul style="list-style-type: none"> 4 Jeffrey Street, Keilor East 2 Lauricella Avenue, Keilor East Community Infrastructure Likely Flooded <ul style="list-style-type: none"> Aberfeldie Main Drain <ul style="list-style-type: none"> Aberfeldie Park, The Boulevard, Aberfeldie Ascot Vale Main Drain, Ascot Vale 	VICSES to respond on a request by request basis. MVCC EHOs to have awareness of Sewer Emergency Relief Structures within floodwaters Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> Walter Street Reserve, Ascot Vale <p>Water Over Road (over 30cm depth) Roads in Red are DTP Roads</p> <p>Ascot Vale Main Drain</p> <ul style="list-style-type: none"> Epsom Road, Ascot Vale at Geddes Street Ferguson Street, Ascot Vale Walter Street, Ascot Vale <p>Clarinda Rd Diversion Drain</p> <ul style="list-style-type: none"> Scotia Street, Moonee Ponds at Burns Street <p>Hoffmans Rd Main Drain</p> <ul style="list-style-type: none"> Hoffmans Road, Essendon at Muriel Street <p>Holmes Rd Main Drain</p> <ul style="list-style-type: none"> Buckley Street, Essendon east of Lincoln Road <p>Local Drainage</p> <ul style="list-style-type: none"> Crown Street, Flemington Mt Alexander Road, Essendon at railway underpass <p>Milleara Road Drain</p> <ul style="list-style-type: none"> Bellarine Avenue, Keilor East Carlo Drive, Avondale Heights Cortina Place, Avondale Heights Jeffrey Street, Keilor East Riviera Road, Avondale Heights 	
<p>23mm in 10 mins; 38mm in 30 mins; 48mm in 1 hour; 60mm in 2 hours; 69mm in 3 hours; or 87mm 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 30cm depth in yard at the primary building on property)</p> <p>274 Properties in Total</p> <p>Aberfeldie M.D.</p> <ul style="list-style-type: none"> 21, 23, 25 & 27 Antares Court, Aberfeldie 2 & 13 Derry Street, Aberfeldie 36 Forrester Street, Essendon 34 Roberts Street, Essendon 1 Tamar Street, Aberfeldie 112, 114, 116, 122 & 124 Epsom Road, Ascot Vale 103, 105B, 105A, 107, 107A, 109, 109A & 111 Walter Street, Ascot Vale <p>Hoffmans Road M.D.</p> <ul style="list-style-type: none"> 34A, 35, 49A, 1/53, 2/53, 55, 57, 59, 61, 63 & 65 Bradshaw Street, Essendon 2/390 & 396 Buckley Street, Essendon West 5, 7, 9, 11, 16, 18, 20, 22, 24, 28, 2/30, 86A, 88, 90, 99, 101 & 105 Deakin Street, Essendon 16 Emerald Street, Essendon West 76, 1/78, 2/78, 3/78, 4/78 & 79 Forrester Street, Essendon 10 Hampton Road, Essendon West 1/1, 2/1, 2, 4, 6, 8, 1/116, 2/116 & 118 Hoffmans Road, Essendon West 24, 26, 28, 41 & 43 Mary Street, Essendon 	<p>VICSES will provide warnings using EM-COP to Moonee Valley Council and appropriate agencies where possible and as required based on the predictions provided by BoM regarding flood levels and the risk of Flash Flooding. The VICSES Central Duty Officer in conjunction with the Regional Agency Commander will maintain operational awareness and form an appropriate response arrangement to suit the level of incident</p>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> • 3/19, 4/19, 25, 27, 29, 31, 33, 40, 42, 44, 46, 48, 50, 52, 54, 56, 62, 88B, 90, 92, 93, 93A, 94, 95, 96, 97 & 97A Ogilvie Street, Essendon • Units 1-17/1-11 Ruby Street, Essendon West • 107, 109, 162A, 164 & 166 Spencer Street, Essendon Holmes Rd M.D. • 193, 194, 196, Units101-106/201, 204, 206, 208, 210, 212-216, 218, 1/222 & 2/222 Buckley Street, Essendon • 5 & 6 Burns Street, Moonee Ponds • 6/2, 62, 64, 66, 68, 70, 72, 74, 76, 1/78, 2/78, 80, 82, 84, 86A, 86B, 86C, 88 & 90 Clarinda Road, Essendon • 3, 5, 10 & 12 Daisy Street, Essendon • 61, 66 & 68 Derby Street, Moonee Ponds • 3/11 & 4/11 Elder Parade, Essendon • 3, 5 & 7 Forrester Street, Essendon • 28 & 30 Huntly Street, Moonee Ponds • 2, 4, 6, 8 & 10 Levien Street, Essendon • 1/2 Lincoln Road, Essendon • 11, 13, 14, 15 & 16 Mcphail Street, Essendon • 36 & 38 Orford Street, Moonee Ponds • Units 1-12/133 & 135 Park Street, Moonee Ponds • 37, 39, 41, 43, 45, 47, 49A, 49B, 54 & 56 Scotia Street, Moonee Ponds • 13, 15, 17, 19, 21, 23, 25, 27, 69, 71, 73, 75 & 81 Scott Street, Essendon • 2B & 2A Thomson Street, Essendon • 11, 15 & 17 Violet Street, Essendon • 4 & 6A Washington Street, Essendon • 1/137 & 2/137 Waverley Street, Moonee Ponds • Local Drainage • 8, 11 & 13 Brentwood Drive, Avondale Heights • 2, 4A, 4, 6, 8 & 17 Crown Street, Flemington • 11 & 13 Rhonda Street, Avondale Heights • 79, 81 & 83 South Street, Ascot Vale • 162 Templewood Crescent, Avondale Heights Milleara Road Drain • 3, 10 & 12 Bellarine Avenue, Keilor East • 522 & 524 Buckley Street, Keilor East • 1 & 3 Carey Court, Keilor East • 2, 4, 5, 6, 7, 9 & 11 Jeffrey Street, Keilor East • 2 & 4 Lauricella Avenue, Keilor East • 13, 15, 18 & 20 Regent Street, Keilor East • 39A, 39 & 46 Roberts Street, Keilor East • 29, 36 & 36A Sterling Drive, Keilor East Community Infrastructure Likely Flooded 	<p>MVCC EHOs to have awareness of Sewer Emergency Relief Structures within floodwaters</p> <p>VICSES to respond on a request-by-request basis.</p> <p>Council and DTP (as appropriate) to provide road closure signage under predetermined arrangements</p> <p>Station platforms still available via roadside platforms.</p> <p>PTV to erect signage and notify passengers of access impediment. Passengers may be encouraged to use alternate forms of transport (tram/ bus)</p>

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<p>Aberfeldie Main Drain</p> <ul style="list-style-type: none"> Aberfeldie Park, The Boulevard, Aberfeldie <p>Ascot Vale Main Drain, Ascot Vale</p> <ul style="list-style-type: none"> Walter Street Reserve, Ascot Vale <p>Holmes Road M.D.</p> <ul style="list-style-type: none"> Clarinda Park, Essendon <p>Tourism / Recreation Likely Impacted</p> <p>Holmes Road Drain, Essendon & Moonee Ponds</p> <ul style="list-style-type: none"> Essendon Rowing Club, The Boulevard, Moonee Ponds <p>Water Over Road (over 30cm depth) Roads in Red are DTP Roads</p> <p>Ascot Vale Main Drain</p> <ul style="list-style-type: none"> Ascot Vale Road, Ascot Vale between Wingate Avenue and the Railway underpass Charles Street, Ascot Vale Doncaster Street, Ascot Vale Epsom Road, Ascot Vale between Munro Street and Langs Road Ferguson Street, Ascot Vale Munro Street, Ascot Vale Stanford Street, Ascot Vale Vasey Street, Ascot Vale Walter Street, Ascot Vale Wingate Avenue, Ascot Vale <p>Aberfeldie Main Drain</p> <ul style="list-style-type: none"> Hedderwick Street, Essendon <p>Clarinda Rd Diversion Drain</p> <ul style="list-style-type: none"> Argyle Street, Moonee Ponds Orford Street, Moonee Ponds at Maribyrnong Park Scotia Street, Moonee Ponds at Burns Street <p>Hoffmans Rd Main Drain</p> <ul style="list-style-type: none"> Forrester Street, Essendon Hoffmans Road, Essendon at Muriel Street <p>Mary Street, Essendon</p> <p>Holmes Rd Main Drain</p> <ul style="list-style-type: none"> Buckley Street, Essendon east of Lincoln Road Levien Street, Essendon Scott Street, Essendon Derby Street, Moonee Ponds Holmes Road, Moonee Ponds Park Street, Moonee Ponds <p>Local Drainage</p> <ul style="list-style-type: none"> Railway Place East, Ascot Vale Maribyrnong Road, Ascot Vale at Epsom Road 	

Design Rainfall Depths (mm) – Indication of Possible Flooding	Annual Exceedance Probability (% AEP)	Consequence / Impact	Operational Considerations
		<ul style="list-style-type: none"> • Mt Alexander Road, Essendon at railway underpass • North Road, Avondale Heights • South Terrace, Avondale Heights • St Raphael Street, Avondale Heights • Templewood Crescent, Avondale Heights • Crown Street, Flemington • Darling Close, Keilor East Milleara Rd Drain • Carlo Drive, Avondale Heights • Cortina Place, Avondale Heights • Riviera Road, Avondale Heights • Bellarine Avenue, Keilor East • Fawkner Crescent, Keilor East • Jeffrey Street, Keilor East • Regent Street, Keilor East • Roberts Street, Keilor East • Sterling Drive, Keilor East 	

Table C4.7 – Breakdown of possible consequences at various rainfall intensities around Avondale Heights, Essendon West, Aberfeldie, Moonee Ponds and Ascot Vale 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 Health Emergency Sub Plan (HESP) 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 MERC, MEMO, DFFH, Health Commander and other key agencies and expert advice (CMA's and Flood Intelligence specialists).

Triggers for evacuation, e.g. specific flood heights are predicted or are likely to occur will be considered when planning evacuation.

No triggers for evacuation within the City of Moonee Valley have been defined.

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, DFFH and other key agencies and expert advice (CMA's and Flood Intelligence specialists).

Phase 3 – Withdrawal

Withdrawal will be controlled by VicPol. VICSES may provide advice regarding the 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/ DoT 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 – requests from the MERC to the MERO for assistance will be responded to dependant on resources available.

Landing zones for aircraft will be determined by the following:

- The IC will determine the requirements for airborne resources.
- The State Aircraft Desk will deploy and coordinate air resources.
- The pilot in command will determine the safest location to land.

Vulnerable People in Emergencies

Vulnerable people living in the community will be identified through funded agencies, community service 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 (VPR). 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 Moonee Valley Council's MRM.

There are no predetermined evacuation routes identified within Moonee Valley. These will be identified determined on location and nature of the event.

Landing zones for helicopters are located at:

Essendon Airport

Sports fields may be used dependant on condition

Special needs groups are identified in Council's 'residents at risk' register. This can be done through community network organisations. Further information on Council's 'residents at risk' register can be obtained from MEMP via the MERO.

Phase 4 – Shelter

Relief Centres and/or assembly areas which cater for people's basic needs may be established to meet the immediate needs of people affected by storms/flooding. Relief Centres will be determined dependant on the location and size of the event. Relief Centres and/or assembly areas that may be used are noted in the MEMP and Recovery Plan.

VicPol in consultation with VICSES will liaise with Local Government and DFFH (where regional coordination is required) via the RCC to plan for the opening and operation of relief centres. This can best be achieved through the IEMT.

Animal Shelter

The need for animal shelter compounds will be determined dependant on the location and size of the event. The MEMP and recovery plan provides details for animal shelter arrangements, with agreements existing between MVCC and Lort Smith Animal Hospital.

Caravans

There are no caravan parks in the City of Moonee Valley.

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 evacuate include:

- Current flood or storm 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

Disruption to Services

Disruption to a range of services can occur in the event of a flood. This may include road closures affecting school bus routes, water treatment plant affecting potable water supplies etc.

Service	Impact	Trigger Point for Action	Strategy / Temporary Measures

Table D.1 – Disruption to Services within the City of Moonee Valley

Essential Infrastructure and Property Protection

Essential Community Infrastructure and properties (e.g. residences, businesses, roads, power supply) that require protection are:

Facility	Impact	Trigger Point for action	Strategy/Temporary Measures
Community Centres	Disruption of emergency activities	When predicted water levels are likely to inundate buildings	Removal of equipment to higher ground, sandbagging to prevent water inundation
MVCC Depot	Disruption of emergency activities	When predicted water levels are likely to inundate buildings and prevent access	Removal of equipment to higher ground, sandbagging to prevent water inundation. Alternate access to depot from rear.

Table D.2 – Essential Infrastructure requiring protection from flooding within the City of Moonee Valley

The City of Moonee Valley with the assistance of VICSES may establish a sandbag collection point or points; this will be determined by the location and the requirements of the flood event. For small scale events, sandbags can be purchased by the public from most hardware and garden suppliers.

Rescue

The City of Moonee Valley will assist VICSES with rescue operations where possible, refer to Section 3.10 for further information.

Requests for Moonee Valley Council resources to support rescue activities should be forwarded to the MEOC, or EMLO if an ICC has been established.

Boats may be available through VICSES RDO/ ICC and VicPol resources requested via RERC.

No High risk areas/communities (i.e. low-lying islands where rescues might be required have been identified, other than the occurrence of flash flooding over roadways

APPENDIX E – STORM AND FLOOD WARNING SYSTEMS

Storm and Flood Warning

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

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 issue 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

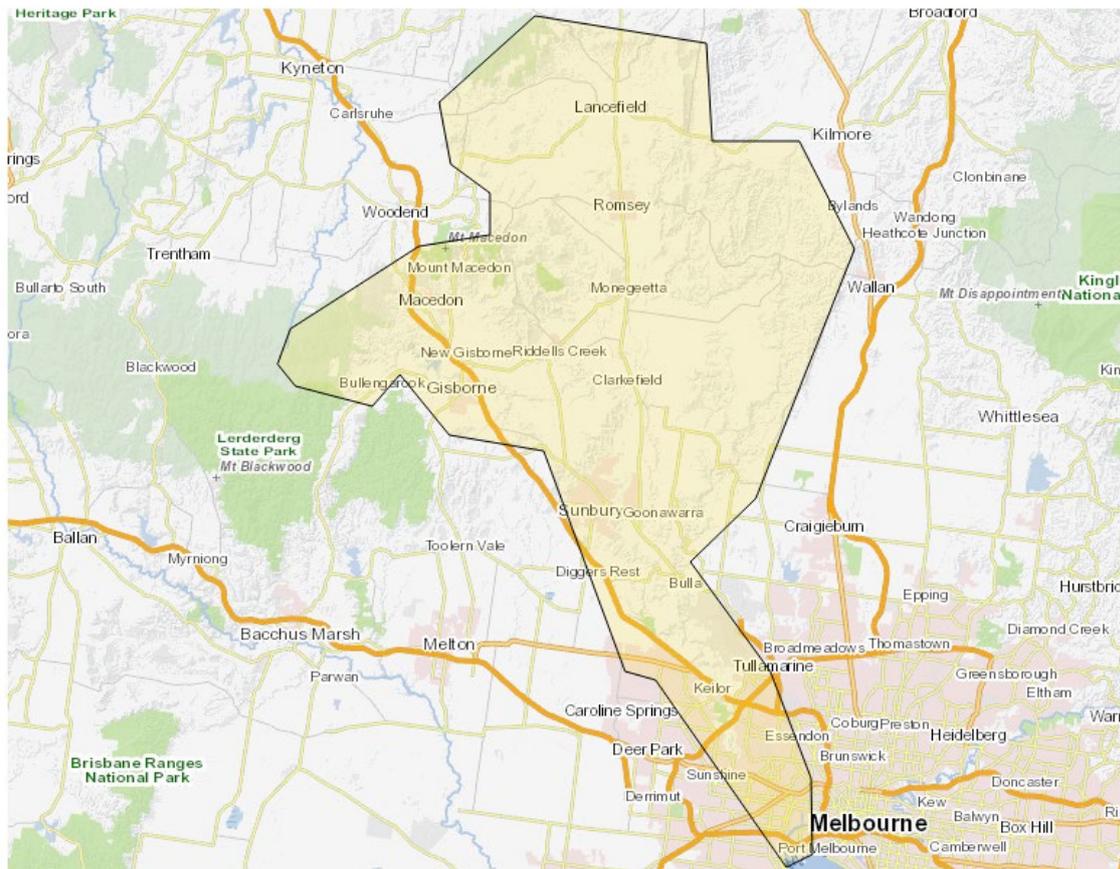
There are no local flood warning systems in place.

BOM Flood Warning Example

 **ADVICE - FLOOD**

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

Map



Message

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

- The Maribymong 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 Maribymong 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 Maribymong 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 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
- Maribymong River at Keilor North: 3.58 metres, rising
- Maribymong River at Keilor: 1.84 metres, rising
- Maribymong River at Maribymong: 0.04 metres, rising

Stay informed - monitor your local conditions and remain alert.

What you should do:

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

Impacts in your area:

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

This message was issued by State Emergency Service.

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

Flood information:

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

APPENDIX F – MAPS AND SCHEMATICS

Overview

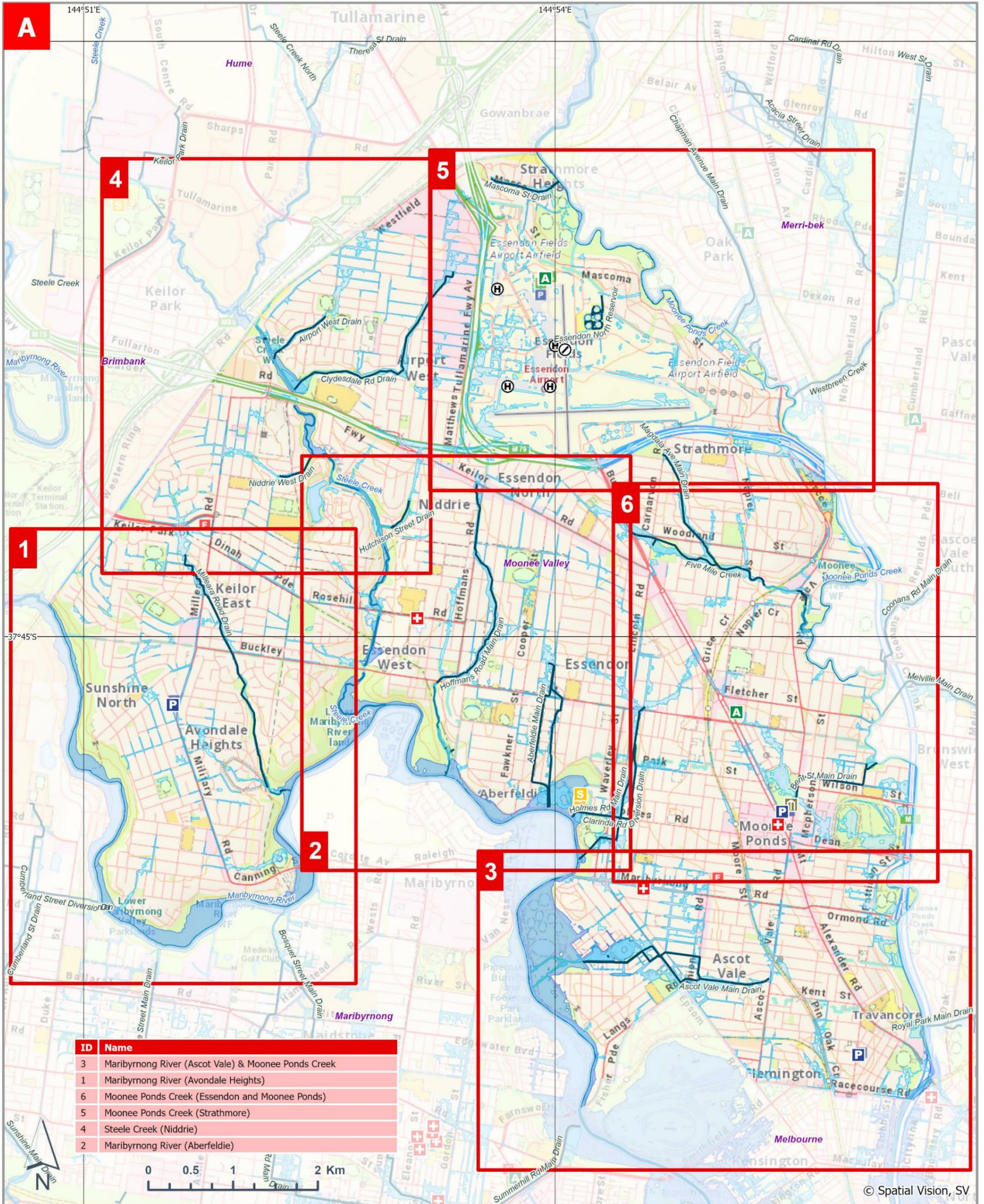
Maps considered useful to flood response are included in this Appendix. They include:

- A map outlining a series of flooding maps within the City of Moonee Valley.
- A map showing the Municipal boundary together with the open waterways and underground stormwater drainage pipe network within the City of Moonee Valley and the 1% AEP (100-year ARI) flood extents (sourced from Melbourne Water GIS).
- A set of 7 maps showing flooding hot spots within the City of Moonee Valley 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 and 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 VICSES units and local government, and provide a reference link to the corresponding MSFEP.
 - Details within these Catchment Schematics reflect those contained within either other sections of this MSFEP, or refer to other plans. These details have been filtered to contain only key facts. For more information on a gauge, drainage system or town consult the corresponding MSFEP.

Note that:

- Maps showing the Special Building Overlay and Land Subject to Inundation Overlay are included in the Moonee Valley 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 Transport and Planning's mapshare website: <https://mapshare.vic.gov.au/vicplan/>
- Maps showing floodways are shown at DEECA's mapshare website: <https://mapshare.vic.gov.au/mapsharevic/>

City of Moonee Valley Municipal Maps (sourced Melbourne Water GIS)



Map produced by VICSES September 2023.

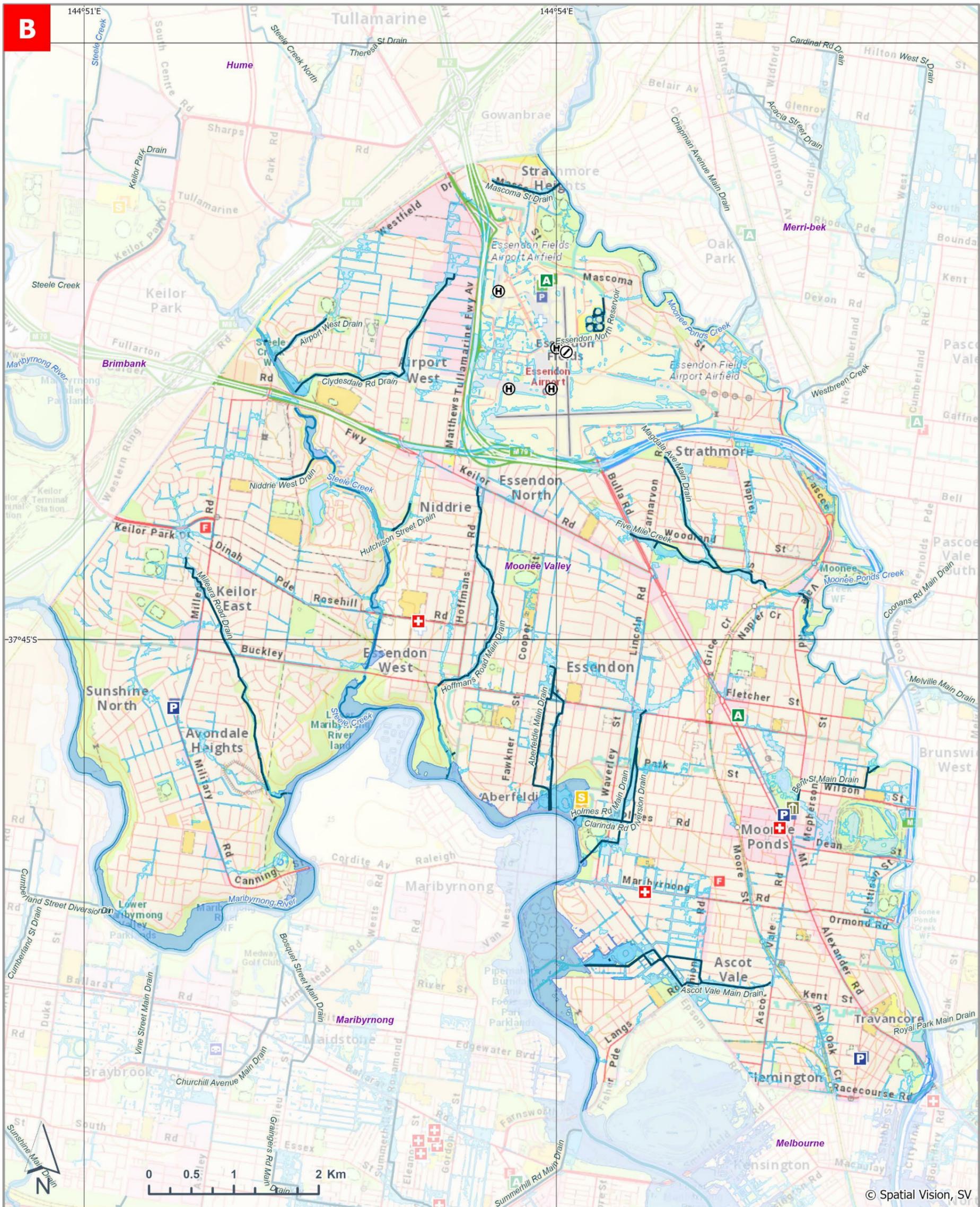
	Waterbody		Ambulance Stations		Flood Map Borders
	1% AEP Riverine Flood Extent		Municipal Office		
	1% AEP Flash Flood Extent		Municipal Depot		
	Waterway		Stream Level & Rain Gauge		
	Melbourne Water Stormwater Drain		Stream Level Gauge		
	Hospitals		Rain Gauge		
	Police Stations		Airfield		
	Fire Station		Helipad		
	VICSES Units		City of Moonee Valley		

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

CITY OF MOONEE VALLEY
1% AEP (100yr ARI) Flooding
A. Municipal Flood Index Map (1% AEP (100yr ARI) Extent)



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Map produced by VICSES September 2023.

CITY OF MOONEE VALLEY
 1% AEP (100yr ARI) Flooding
B. Municipal Flood Map
 (1% AEP (100yr ARI) Extent)

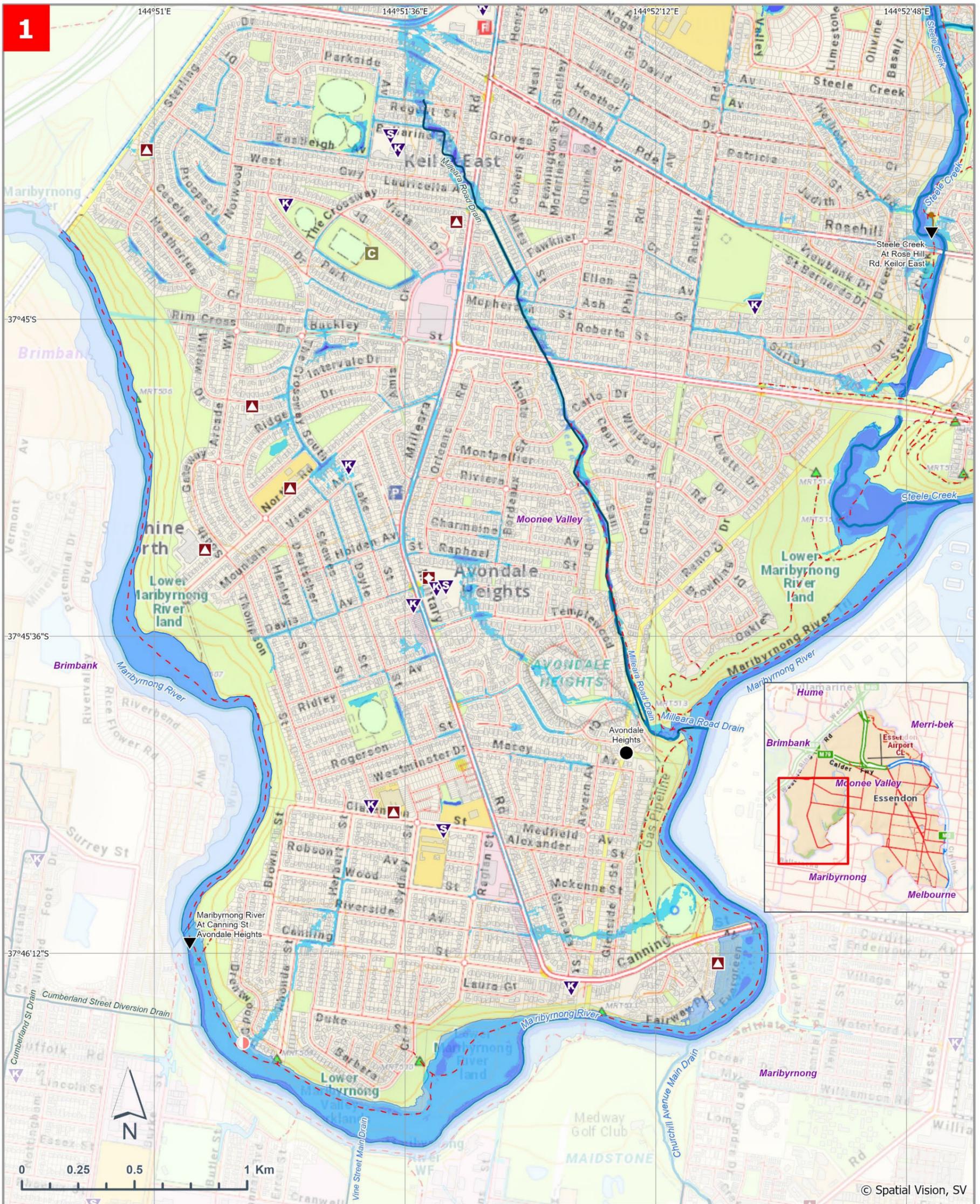
- | | | | |
|--|----------------------------------|--|---------------------------|
| | Waterbody | | Ambulance Stations |
| | 1% AEP Riverine Flood Extent | | Municipal Office |
| | 1% AEP Flash Flood Extent | | Municipal Depot |
| | Waterway | | Stream Level & Rain Gauge |
| | Melbourne Water Stormwater Drain | | Stream Level Gauge |
| | Hospitals | | Rain Gauge |
| | Police Stations | | Airfield |
| | Fire Station | | Heliport |
| | VICSES Units | | City of Moonee Valley |

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



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Flood Extent Maps (sourced Melbourne Water GIS)



Maribyrnong River flood modelling completed by Jacobs, September 2023. Local Drainage flood modelling completed by Engeny, January 2020. Map produced by VICSES: 21/11/2023 7:02 PM

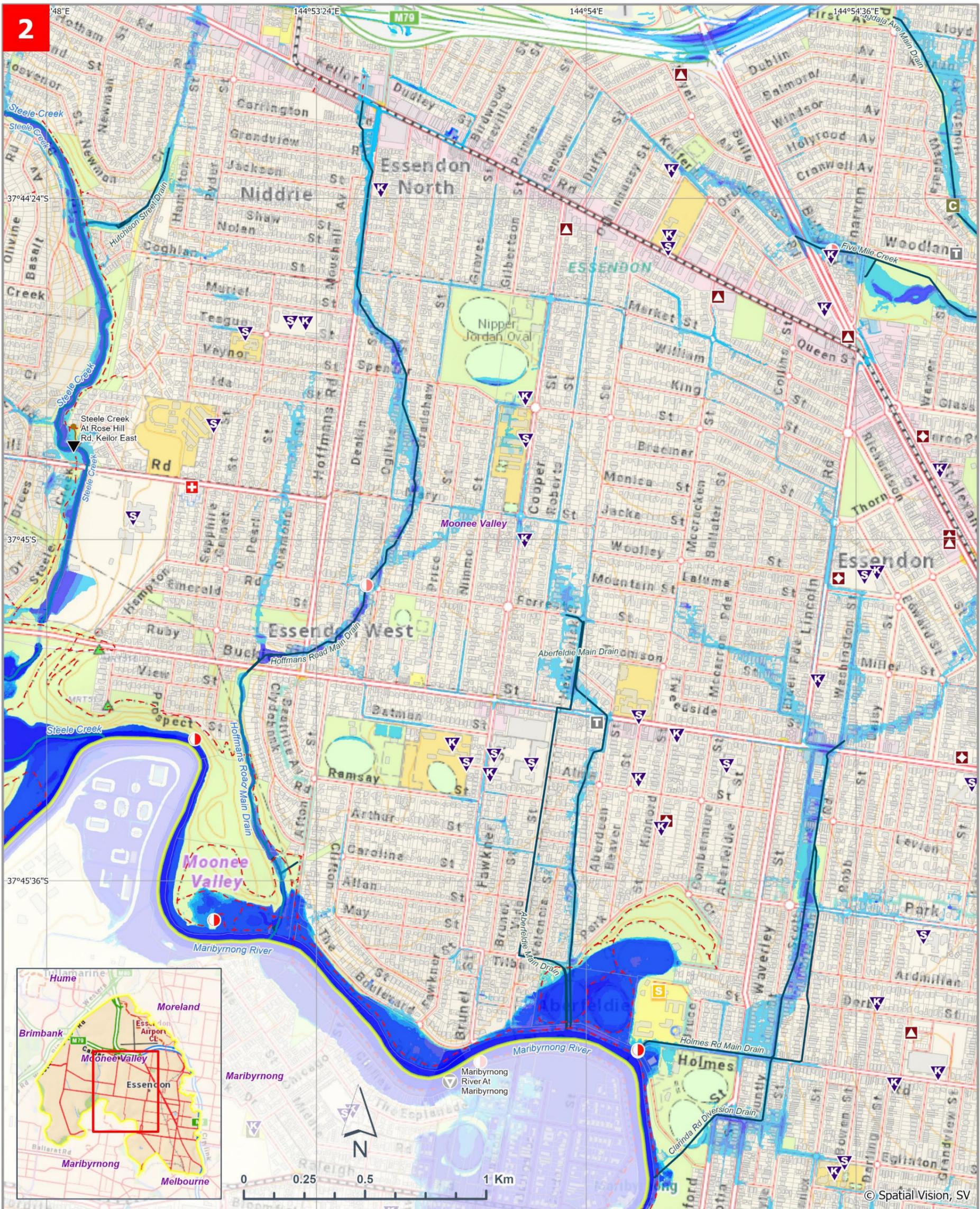
CITY OF MOONEE VALLEY
1% AEP (100yr ARI) Flooding
1. Maribyrnong River (Avondale Heights)

Building	Education Centre	Gauges
Property	Child Care Centre	Rain
Waterbody	Fire Station	Stream Level & Rain
1% AEP Riverine Flood Extent	Community Venue	Stream Level
Waterway	Aged Care Facility	1% AEP Flash Flood Depth
Melbourne Water Stormwater Main	Sewer Emergency Relief Point	Up to 30cm
Bicycle / Walking Trail	Place Of Worship	Between 30cm and 60cm
Police Stations		Greater than 60cm

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



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Maribyrnong River flood modelling completed by Jacobs, September 2023. Local Drainage flood modelling completed by Engeny, January 2020. Map produced by VICSES: 6/09/2023 2:40 PM

CITY OF MOONEE VALLEY
 1% AEP (100yr ARI) Flooding
2. Maribyrnong River (Aberfeldie)

- Building
- Property
- Waterbody
- 1% AEP Flood Depth
- Up to 30cm
- Between 30cm and 60cm
- Greater than 60cm
- Waterway
- Melbourne Water Stormwater Main
- Bicycle / Walking Trail
- Levee
- Police Stations
- VICSES Units
- Education Centre
- Child Care Centre
- Community Venue
- Aged Care Facility
- Hospitals
- Sewer Emergency Relief Point
- Place Of Worship
- Gauges
- Rain
- Stream Level & Rain
- Stream Level

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



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Maribyrnong River flood modelling completed by Jacobs, September 2023. Moonee Ponds Creek flood modelling completed by Engeny, January 2020. Map produced by VICSES 6/09/2023 3:31 PM

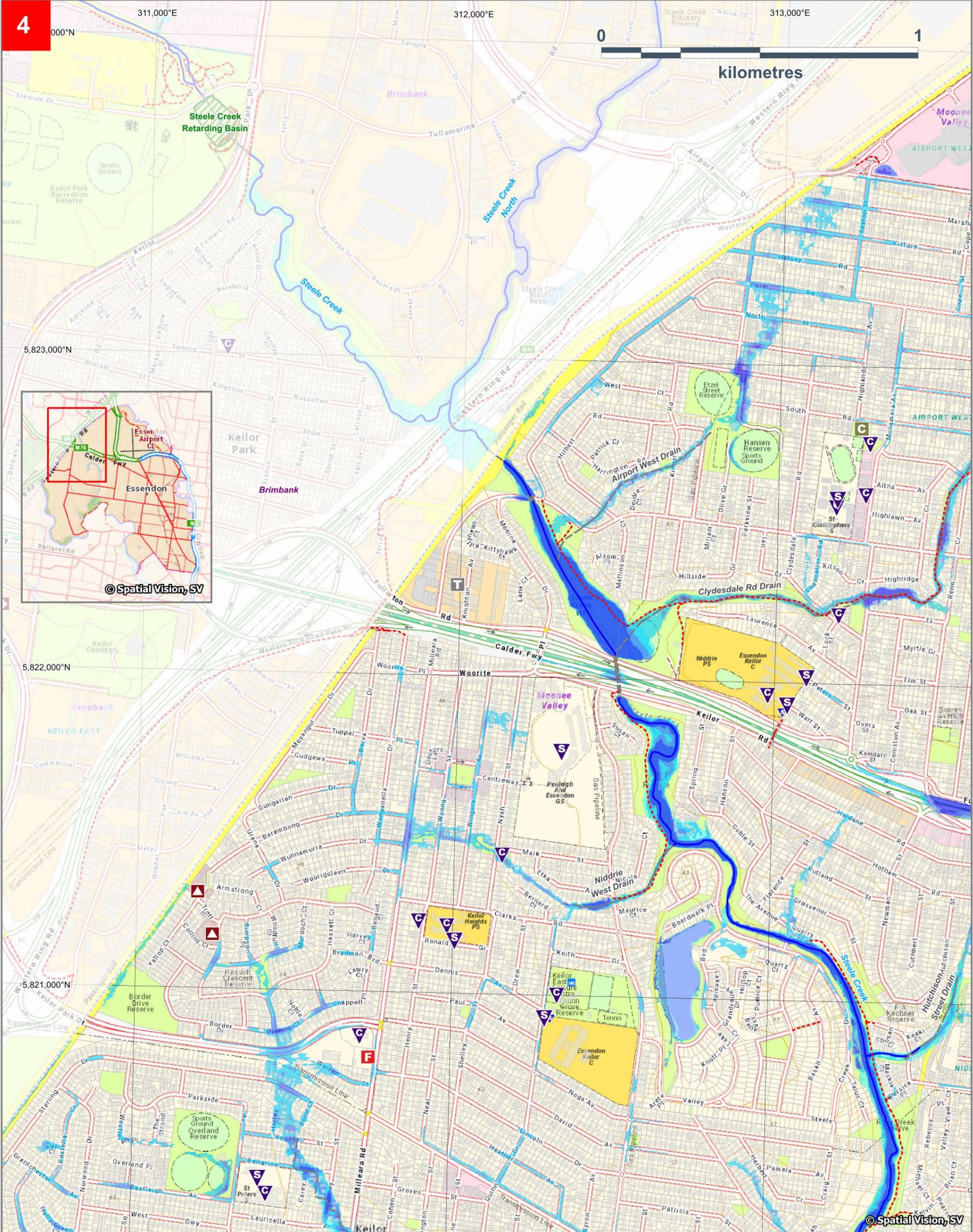
CITY OF MOONEE VALLEY
 1% AEP (100yr ARI) Flooding
3. Maribyrnong River (Ascot Vale) & Moonee Ponds Creek (Travancore)

- | | | | |
|-----------------------|----------------------------------|--------------------|---------------------------|
| Building | Melbourne Water Levee | Aged Care Facility | Place Of Worship |
| Property | Melbourne Water Stormwater Drain | Child Care Centre | Stream Level & Rain Gauge |
| Waterbody | Waterway | Community Venue | Stream Level Gauge |
| 1% Flood Depth | Bicycle / Walking Trail | Education Centre | Rain Gauge |
| Up to 30cm | | Fire Station | |
| Between 30cm and 60cm | | Hospitals | |
| Greater than 60cm | | Police Stations | |

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

SES Melbourne Water

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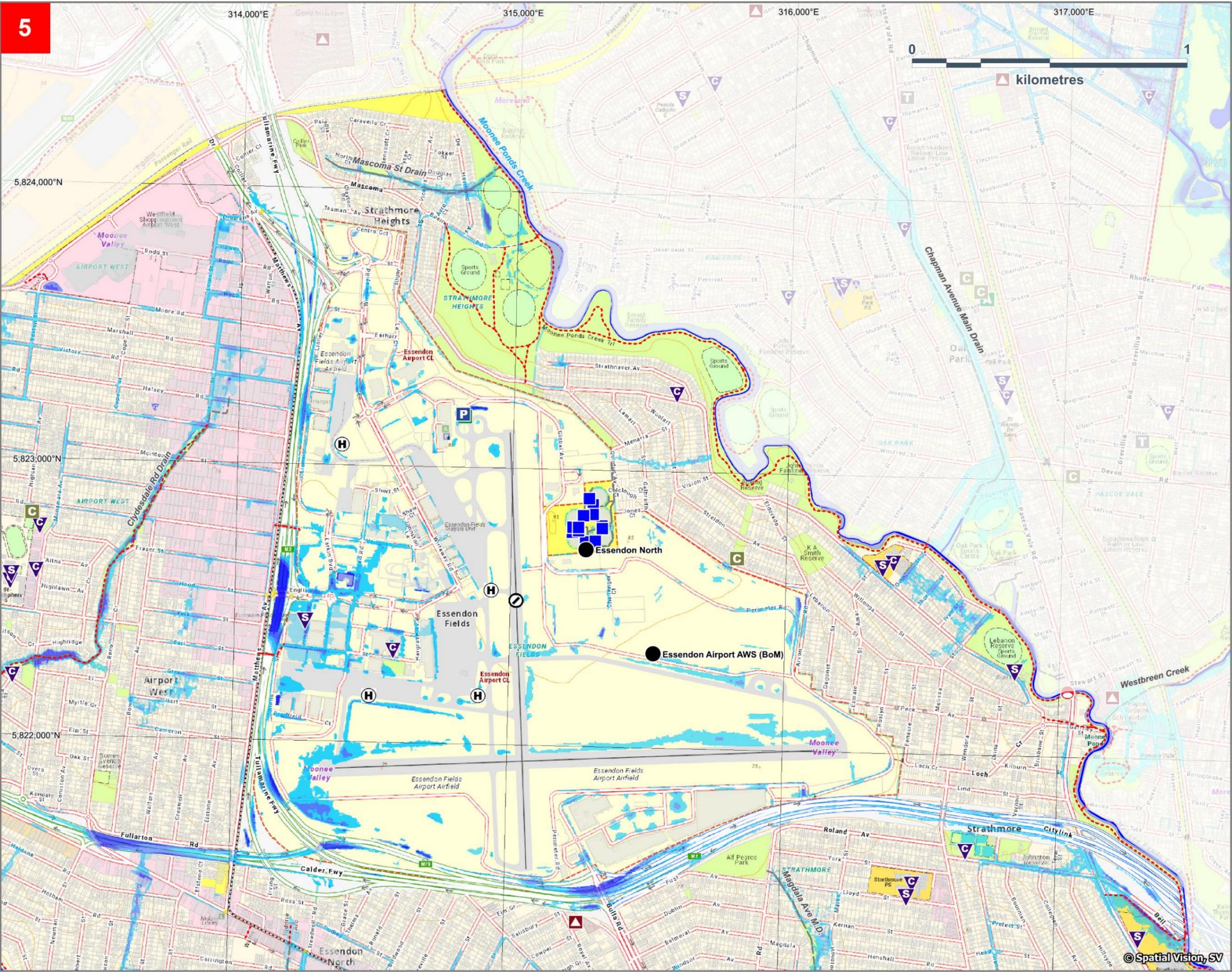


Steele Creek flood modelling completed by Engeny, January 2020. Map produced by VICSES February 2022.

CITY OF MOONEE VALLEY
 1% AEP (100yr ARI) Flooding
4. Steele Creek (Niddrie)

- | | | | |
|---|----------------------------------|---------------------------|---|
| Building | Waterway | Community Centre | LAND USE |
| Waterbody | Melbourne Water Stormwater Drain | Telephone Exchange | |
| 1% AEP Flood Extent (Depth Unavailable) | Bicycle / Walking Trail | School / College | Residential |
| 1% AEP Flash Flood Extent (Depth Unavailable) | Melbourne Water Retarding Basin | Child Care / Kindergarten | Commercial and Business |
| 1% AEP Flood Depth | Embankment | Aged Care Facility | Industrial |
| Greater than 60cm | Aged Care / Retirement Village | Fire Station | Public Parks / Cemeteries / Recreation |
| Between 30cm and 60cm | State Emergency Service | | Utilities and Local Government Facilities |
| Between 5cm and 30cm | | | Education |
| Aged Care / Retirement Village | | | |

Melbourne Water
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Building

Waterbody

1% AEP Flood Depth

- Greater than 60cm
- Between 30cm and 60cm
- Between 5cm and 30cm
- 1% AEP Riverine Flood Extent (Depth Unavailable)
- 1% AEP Flash Flood Extent (Depth Unavailable)

Bicycle / Walking Trail

Melbourne Water Stormwater Drain

Waterway

- Child Care / Kindergarten
- Education Facility
- Community Centre
- Aged Care / Retirement Village
- Ambulance Station
- Telephone Exchange
- Retail Water Storage
- Sewer Emergency Relief Point
- Airport / Airfield
- Helipad
- Rain Gauge

LAND USE

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



CITY OF MOONEE VALLEY

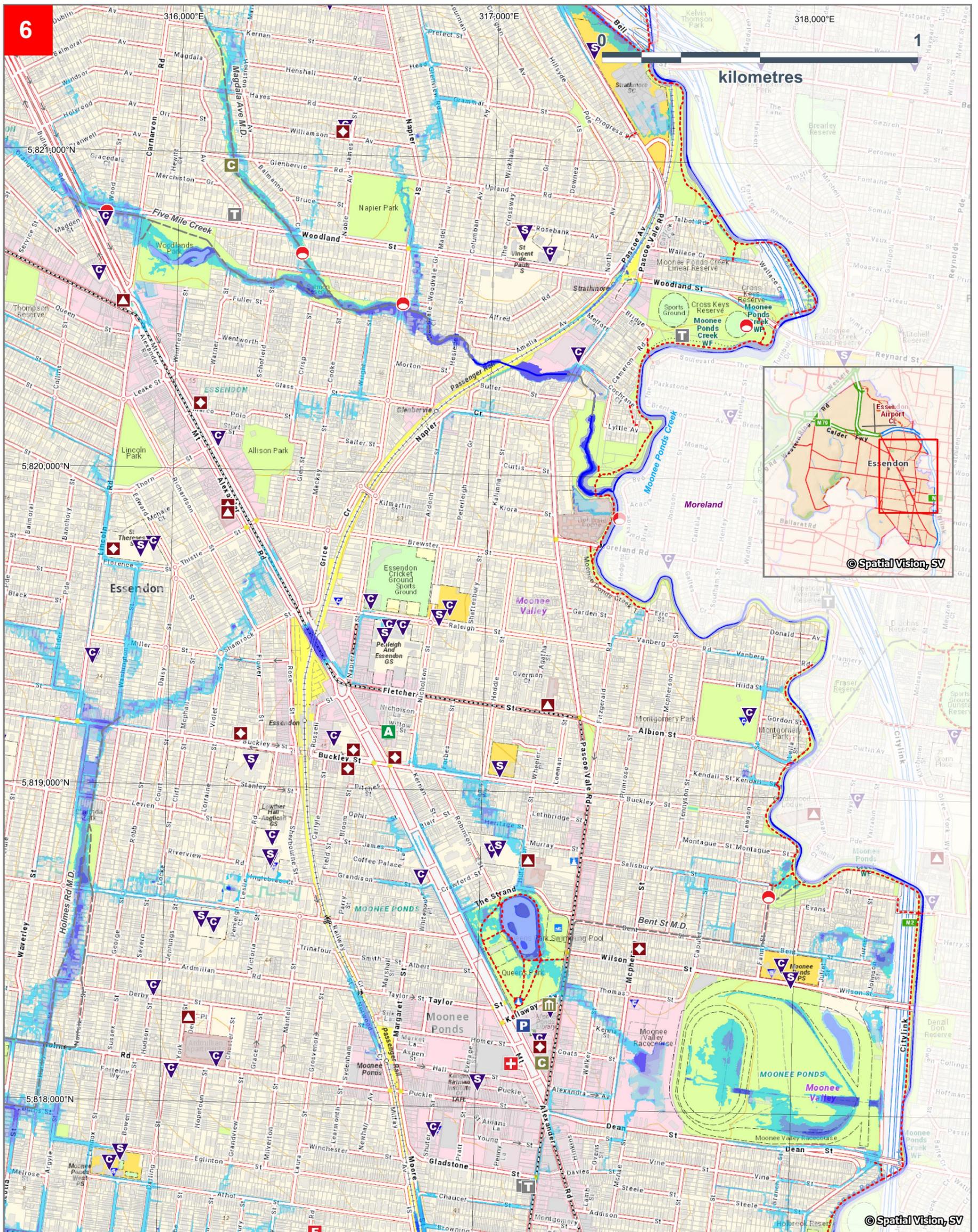
1% AEP (100yr ARI) Flooding

5. Moonee Ponds Creek (Strathmore)

SES VICTORIA Melbourne Water

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Flood modelling completed by Engeny, January 2020. Map Produced by VICSES March 2022.



Flood modelling completed by Engeny, January 2020. Map produced by VICSES February 2022.

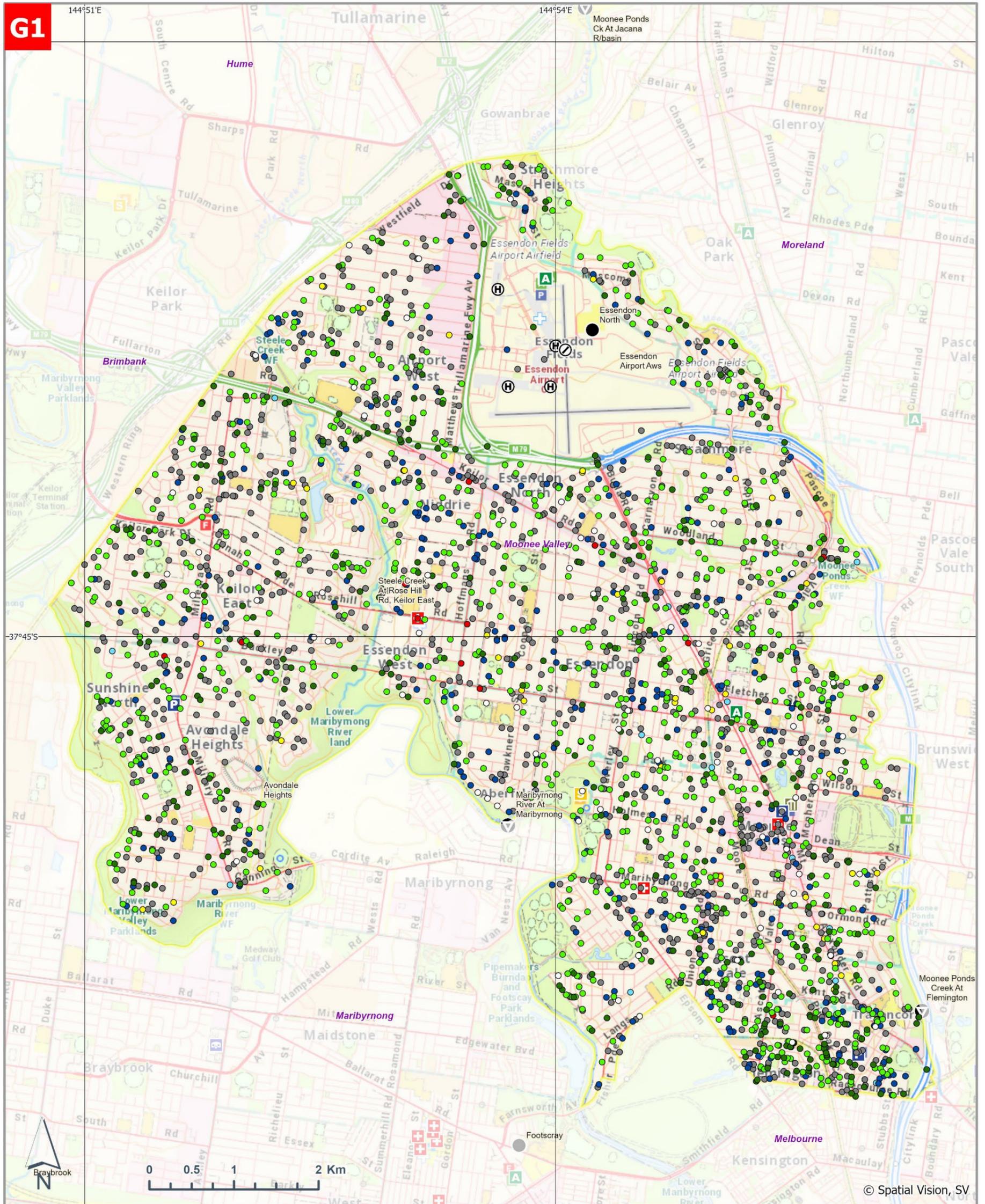
CITY OF MOONEE VALLEY
 1% AEP (100yr ARI) Flooding
6. Moonee Ponds Creek (Essendon & Moonee Ponds)

- | | | |
|---|----------------------------------|---------------------------|
| Building | Waterway | Community Centre |
| Waterbody | Melbourne Water Stormwater Drain | Telephone Exchange |
| 1% AEP Flood Extent (Depth Unavailable) | Bicycle / Walking Trail | School / College |
| 1% AEP Flood Depth | Ambulance | Child Care / Kindergarten |
| Greater than 60cm | Police Station | Municipal Offices |
| Between 30cm and 60cm | Aged Care Facility | Place Of Worship |
| Between 5cm and 30cm | Fire Station | |
| Aged Care / Retirement Village | Sewer Emergency Relief Point | |

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

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Severe Weather Request for Assistance Maps



Map produced by VICSES September 2023.

CITY OF MOONEE VALLEY

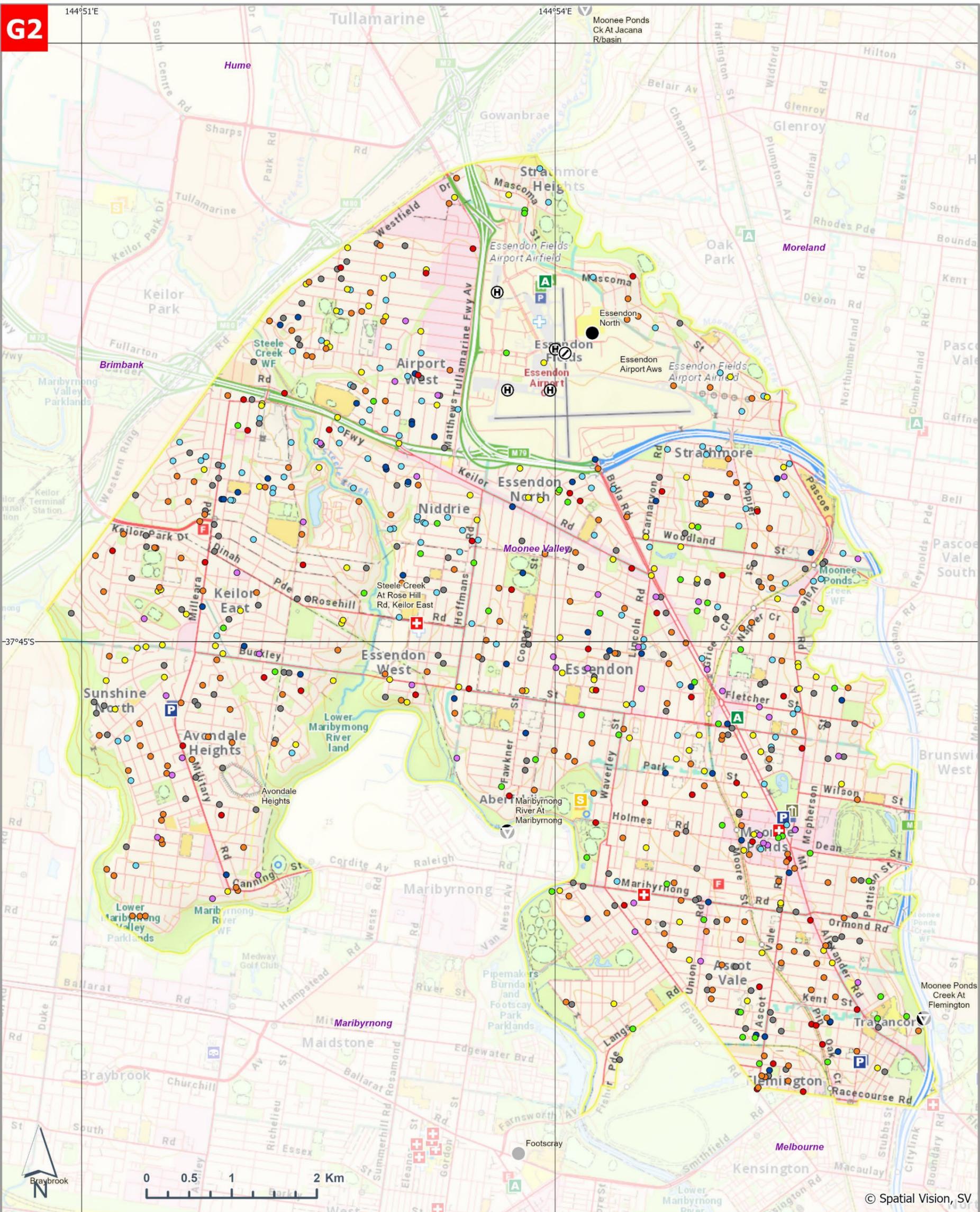
G1. VICSES Severe Weather Requests for Assistance (RFA) Storm or Flood by Job Type (July 2010 to June 2023)

- | | |
|--------------------|-------------------------------|
| Hospitals | Assist Other Agency |
| Police Stations | Building Damage |
| Fire Station | Flooding |
| VICSES Units | Loose Debris / Object / Fence |
| Ambulance Stations | Rescue |
| Municipal Office | Tree Down |
| Municipal Depot | Tree Down Traffic Hazard |
| Airfield | Other |
| Heliport | |

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



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Map produced by VICSES September 2023.

CITY OF MOONEE VALLEY
G2. VICSES Severe Weather Requests for Assistance (RFA) Storm or Flood by Event (July 2010 to June 2023)

- | | | |
|--|--------------------|---|
| | Hospitals | VICSES Severe Weather RFAs (Storm or Flood)
(By Event where > 40 Requests Received) |
| | Police Stations | |
| | Fire Station | |
| | VICSES Units | |
| | Ambulance Stations | |
| | Municipal Office | |
| | Municipal Depot | |
| | Airfield | |
| | Helipad | |

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



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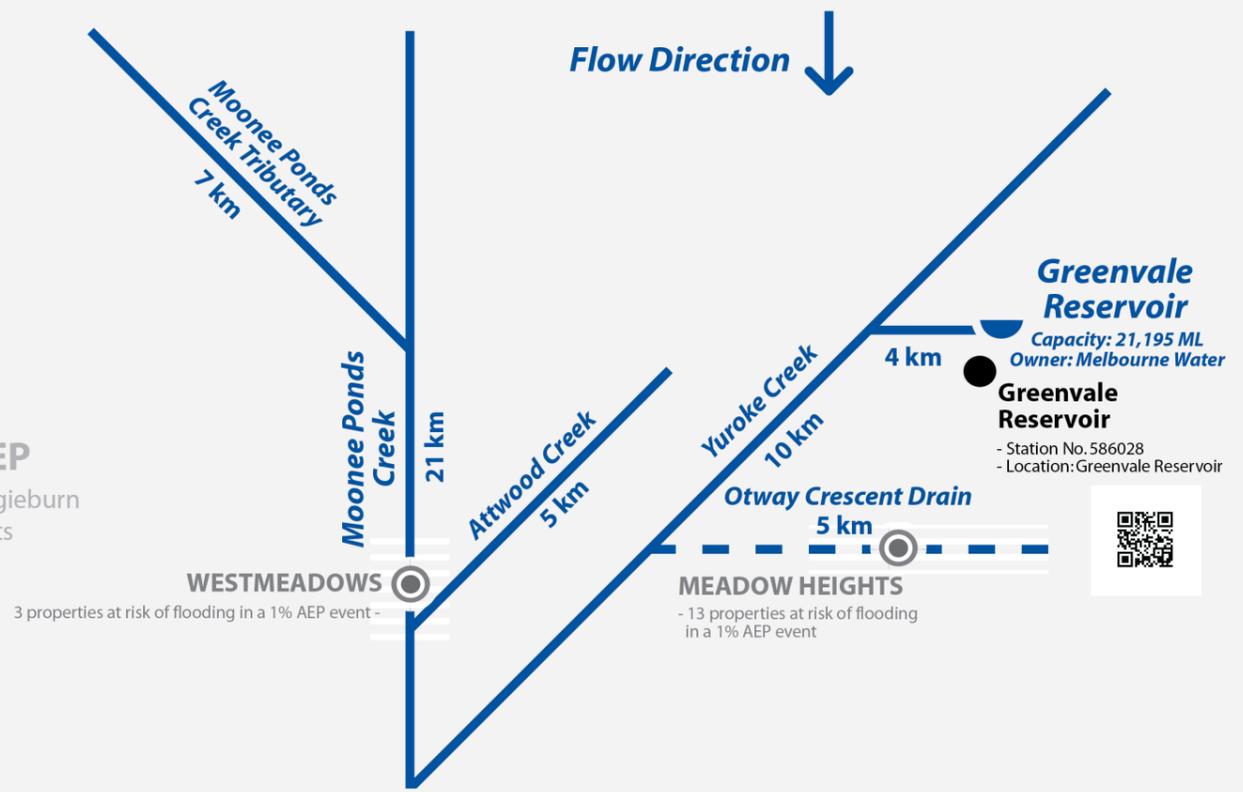
Moonee Ponds Creek Catchment Schematic

Version 5 - February 2021

LEGEND

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

Schematic Not To Scale



HUME MSFEP
Broadmeadows, Craigieburn & Sunbury Units

Jacana Retarding Basin

Moonee Ponds Creek at Jacana Retarding Basin

- Station No. 229665A
- Location: Jacana Retarding Basin, Glenroy
- Historical Flood Level: 12.57m (3rd February 2005)
- Spillway Level (Glory Hole): 12.0m
- Spillway Level (Secondary): 13.5m
- Embankment Level (Crest): 15.04m
- 1% AEP Flood Level: 15.09m

Essendon North

- Station No. 586182
- Location: Essendon Reservoir, Essendon Airport

OAK PARK
- 7 properties at risk of flooding in a 1% AEP event

GLENROY
- 97 properties at risk of flooding over-floor in a 1% AEP event
- 49 properties at risk of flooding over-floor in a 5% AEP event
- 24 properties at risk of flooding over-floor in a 20% AEP event

MORELAND MSFEP
Broadmeadows Unit

MOONEE VALLEY MSFEP
Essendon Unit

COBURG
- 94 properties at risk of flooding over-floor in a 1% AEP event
- 10 properties at risk of flooding over-floor in a 5% AEP event
- 2 properties at risk of flooding over-floor in a 20% AEP event

BRUNSWICK WEST
- 140 properties at risk of flooding over-floor in a 1% AEP event
- 32 properties at risk of flooding over-floor in a 5% AEP event
- 1 property at risk of flooding over-floor in a 20% AEP event



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Moonee Ponds Creek at Flemington

- Station No. 229643A
- Location: Delhi Court, Travancore
- Historical Flood Level: 2.61m (3rd February 2005)
- Historical Flood Level: 3.13m (1st June 2013)
- 1% AEP Flood Level: 3.20m

NORTH MELBOURNE
Langford Street, Gracie Street and surrounding streets at risk of flooding

KENSINGTON
Stubbs Street, Bent Street and surrounding streets at risk of flooding - A number of council operated drainage pumping stations located either side of creek to help with drainage

North Wharf

- Station No. 586182
- Location: North Wharf, Docklands

MELBOURNE MSFEP
Footscray & Port Phillip Units

← **Yarra River**
See Yarra River (Lower) Catchment Schematic

Yarra River at Southbank

- Station No. 229663A
- Location: Spencer Street, Southbank
- Historical Flood Level: 1.36m (3rd February 2005)
- 1% AEP Flood Level: 2.1m

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



Maribyrnong River Catchment Schematic

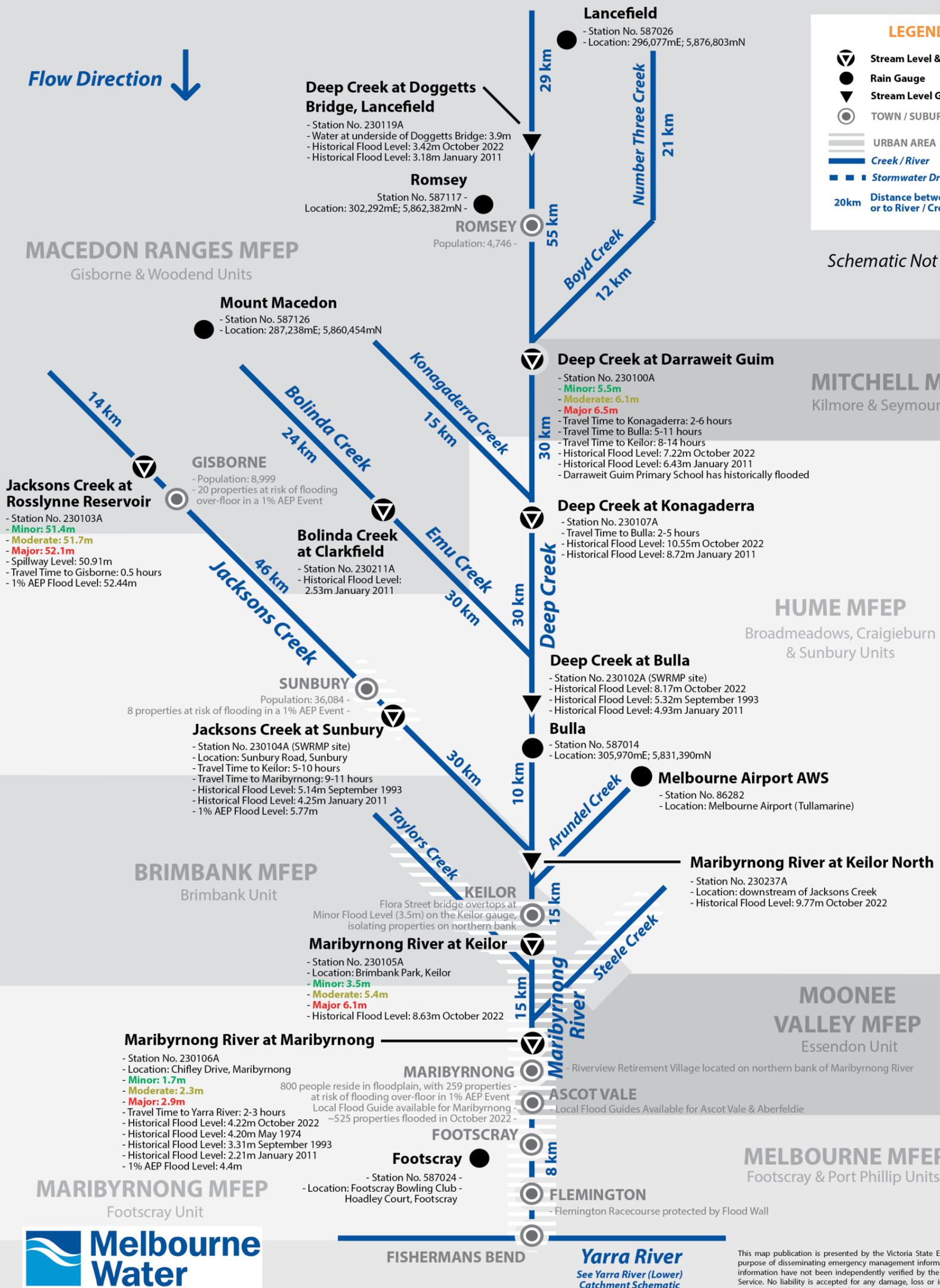
Version 5 - June 2023

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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APPENDIX G – SEVERE WEATHER (STORM) EVENTS

Overview

Moonee Valley municipality is susceptible to severe weather events because of a combination of its undulating terrain, mature trees and wind exposed properties. Storm events the City of Moonee Valley may be subject to include wind storms, dust storms, hailstorms, heavy rain leading to flash flooding and thunderstorms (including lightning activity). There have also been isolated occurrences of atmospheric downbursts/microburst in adjacent municipalities.

Severe storm activity could result in injuries and increase in road accidents. Damaging wind events will tend to lead to trees down, with damage to the built and natural environment. Obstructions across roads could disrupt services, affect community functioning and have great potential for road traffic delays. Infrastructure near waterways such as pedestrian bridges may become damaged either directly, or from debris that has been washed into the current.

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

Large Storm Events

Typically, VICSES Essendon Unit would expect to be impacted by a large storm event on average once a year (more than 40 RFAs per event) for incidents within the City of Moonee Valley, with a number of months resulting in 100+ RFAs.

Since 2009, the following larger storm events have occurred in the City of Moonee Valley:

- March 2010 – Hailstorm and flash flooding event that caused significant damage in a path from Keilor East to Flemington.
- December 2011 – The result of an intense storm with large hail on Christmas Day that moved across the north-west metropolitan suburbs causing significant building damage and some flooding issues.
- October 2013 – Windstorm event that saw **178** requests received for trees down and building damage.
- October 2016 – Severe weather event with fierce winds led to many RFAs for building damage and tree down related issues, which led to secondary traffic issues and road closures as a result of trees across roads.
- December 2017 - Heavy rain led to building damage and issues with flooding of properties and roads.
- October / November 2021 – Severe Storm resulting in 280 RFAs for building damage and trees down as well as disruption to power and other services.

VICSES Requests for Assistance

VICSES records requests for assistance made by the public during severe weather events. Additional calls may have been made directly to Council during these events. **Table G1** below is a breakdown of requests by suburb and damage type during the period July 2009 to December 2021 in relation to

severe weather and storm events.

VICSES Request for Assistance (July 2009 – July 2023)					
Suburb	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other *
Aberfeldie	35	18	27	6	21
Airport West	108	35	56	33	15
Ascot Vale	156	70	145	49	22
Avondale Heights	147	26	90	47	10
Essendon	200	72	192	53	35
Essendon Fields	4	1	1	1	1
Essendon North	31	10	18	8	4
Essendon West	14	3	13	8	4
Flemington	80	52	83	48	13
Keilor East	179	32	103	53	16
Moonee Ponds	181	43	105	43	27
Niddrie	57	30	46	21	7
Strathmore	86	23	82	31	6
Strathmore Heights	7	6	17	6	1
Travancore	9	5	14	3	2

Table G1 – Breakdown of severe weather RFAs received by VICSES Essendon Unit by suburb in City of Moonee Valley

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

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

VICSES Request for Assistance (July 2009 – July 2023)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
July 2009	2	0	3	1	0
August 2009	23	0	18	6	0
September 2009	7	0	8	2	0
October 2009	1	0	0	0	0
November 2009	20	0	12	8	0
December 2009	6	1	3	2	0
January 2010	4	0	5	1	0
February 2010	27	8	2	4	0
March 2010	134	27	40	9	0
April 2010	2	0	2	0	0
May 2010	2	0	0	0	0
June 2010	12	0	15	2	0
July 2010	3	1	7	6	0
August 2010	11	0	7	3	0
September 2010	6	0	5	3	0
October 2010	13	9	0	0	0
November 2010	14	6	4	1	0
December 2010	5	4	6	2	1
January 2011	12	3	5	1	0
February 2011	10	15	11	2	0
March 2011	0	0	0	1	0
April 2011	8	0	1	2	0
May 2011	3	0	1	0	0
June 2011	0	1	7	0	0
July 2011	0	0	3	2	0

VICSES Request for Assistance (July 2009 – July 2023)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
August 2011	1	0	4	0	0
September 2011	6	3	8	3	0
October 2011	2	0	1	2	0
November 2011	9	3	5	2	0
December 2011	86	24	4	3	0
January 2012	15	1	6	4	0
February 2012	14	1	14	8	0
March 2012	3	1	9	2	0
April 2012	10	0	4	2	0
May 2012	6	6	1	0	0
June 2012	2	1	2	3	0
July 2012	0	1	1	0	0
August 2012	4	0	6	1	0
September 2012	14	0	8	3	0
October 2012	0	0	0	1	0
November 2012	5	0	2	3	0
December 2012	8	0	8	2	0
January 2013	2	0	6	2	0
February 2013	2	1	4	2	0
March 2013	16	0	18	8	0
April 2013	0	0	1	0	0
May 2013	1	2	3	0	0
June 2013	8	3	1	0	0
July 2013	9	1	2	3	0
August 2013	17	2	31	8	0
September 2013	19	0	19	3	0
October 2013	72	0	86	29	0
November 2013	3	0	2	2	0
December 2013	6	0	4	3	0
January 2014	3	2	7	6	0
February 2014	4	0	5	0	0
March 2014	4	0	0	0	0
April 2014	2	0	1	1	0
May 2014	1	0	1	1	0
June 2014	50	0	19	5	0
July 2014	7	0	2	0	0
August 2014	1	0	0	0	0
September 2014	12	4	3	1	0
October 2014	5	0	2	0	0
November 2014	3	0	1	0	0
December 2014	11	0	18	4	0
January 2015	9	1	6	3	0
February 2015	4	0	1	4	0
March 2015	3	0	7	1	0
April 2015	2	0	0	1	0
May 2015	2	0	3	0	0
June 2015	1	0	1	0	0
July 2015	8	3	1	1	0
August 2015	2	0	1	0	0
September 2015	3	0	0	1	0
October 2015	2	1	2	4	0
November 2015	20	3	9	4	0
December 2015	9	0	3	2	0
January 2016	18	10	5	2	1
February 2016	2	1	2	2	0
March 2016	1	1	3	3	0
April 2016	2	0	0	2	0

VICSES Request for Assistance (July 2009 – July 2023)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
May 2016	10	0	3	3	0
June 2016	2	1	0	0	0
July 2016	7	0	5	4	0
August 2016	1	0	0	4	0
September 2016	2	1	0	0	0
October 2016	66	0	52	22	0
November 2016	8	0	3	1	0
December 2016	7	1	3	2	0
January 2017	1	0	1	5	0
February 2017	6	2	3	5	0
March 2017	2	0	1	2	0
April 2017	15	2	7	1	0
May 2017	1	0	0	2	0
June 2017	2	0	0	0	0
July 2017	33	0	15	10	0
August 2017	5	0	2	2	0
September 2017	1	1	1	2	0
October 2017	4	0	1	2	0
November 2017	2	1	2	1	0
December 2017	54	35	3	2	3
January 2018	6	2	7	7	0
February 2018	11	0	10	6	0
March 2018	4	0	8	3	0
April 2018	9	2	1	0	0
May 2018	10	1	1	4	0
June 2018	7	6	0	0	0
July 2018	3	0	2	0	0
August 2018	3	0	4	1	0
September 2018	4	0	3	0	0
October 2018	1	1	1	1	0
November 2018	15	18	3	2	3
December 2018	5	0	4	1	2
January 2019	1	2	7	5	0
February 2019	3	1	1	4	0
March 2019	0	0	2	2	0
April 2019	1	1	0	2	0
May 2019	3	2	1	2	0
June 2019	3	1	0	2	0
July 2019	1	2	4	1	1
August 2019	2	0	0	0	0
September 2019	3	2	2	1	1
October 2019	1	3	6	2	0
November 2019	15	2	27	5	6
December 2019	7	0	6	2	2
January 2020	15	9	13	10	8
February 2020	6	1	6	2	3
March 2020	4	4	4	2	0
April 2020	9	4	13	3	3
May 2020	3	2	0	1	0
June 2020	1	2	0	2	0
July 2020	3	2	2	1	2
August 2020	8	2	21	4	0
September 2020	3	5	12	2	0
October 2020	3	2	5	4	0
November 2020	4	2	18	6	1
December 2020	6	1	16	7	7
January 2021	12	2	8	0	3

VICSES Request for Assistance (July 2009 – July 2023)					
Date	Building Damage	Flooding	Tree Down	Tree Down Traffic Hazard	Other*
February 2021	1	3	1	0	0
March 2021	2	2	2	1	0
April 2021	1	0	4	1	1
May 2021	5	3	2	1	0
June 2021	4	1	11	1	7
July 2021	5	1	2	1	1
August 2021	4	1	4	0	0
September 2021	9	2	1	1	2
October 2021	42	2	81	26	14
November 2021	43	5	55	9	3
December 2021	33	15	19	8	4
January 2022	11	4	2	3	0
February 2022	1	4	4	3	0
March 2022	9	3	2	0	0
April 2022	8	1	4	2	2
May 2022	1	0	1	2	0
June 2022	2	1	1	2	0
July 2022	1	1	1	1	0
August 2022	4	2	6	3	2
September 2022	4	1	0	0	0
October 2022	20	32	4	1	13
November 2022	3	12	18	3	2
December 2022	3	2	6	3	2
January 2023	5	3	6	2	0
February 2023	4	0	2	0	0
March 2023	4	1	2	1	1
April 2023	4	0	0	1	0
May 2023	3	0	3	1	3
June 2023	3	0	0	1	1
July 2023	1	0	1	0	0

Table G2 – Breakdown of severe weather RFAs received by VICSES Essendon Unit in the City of Moonee Valley by month

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

Activation Triggers

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

VICSES Flood Readiness and Activation Trigger Considerations - V4.0 - August 2019

CD/19/34926

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
Activation Considerations	Minor		Moderate		Moderate to Major (high end event)	
Flood Prediction	Flood watch issued and/or minor flood warning issued.	Minor flood warning issued.	Low to mid range moderate flood warning issued. 0-1 other rivers in minor flood. Low consequences for built environment based on risk.	Mid to high range moderate flood warning issued. 2+ other rivers in minor flood. Moderate consequences for built environment based on risk.	Major flood warning issued. 2+ other rivers in moderate flood. Moderate risks and consequences for built environment, and economic impacts.	2+ major flood warnings issued. 2+ other rivers in moderate flood. Significant risks and consequences to built environment, and economic impacts. Forecast to exceed 1 in 100 year riverine event. 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 is 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 heavy 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 floor level. Properties and towns are likely to be isolated. Major rail and traffic routes closed. Evacuation of flood affected areas likely. Utility services likely to be impacted. Impact assessment required.	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. Major rail and traffic routes closed. Evacuation of flood affected areas likely. Utility services will be impacted. Impact assessment required.
Readiness and Activation	VICSES - Business As Usual - Operations			Multi Agency Operations under JSOP 2.03		
State	SCC Monitoring (white) SDO monitoring SAC aware	SCC Monitoring (white) SDO monitoring SAC aware	SCC Monitoring (white) / Tier 1 (blue) SDO and SAC - 60 minute recall or in place.	SCC Tier 1 (blue) Where 1 level 2 ICC is activated. SDO and SAC - in place. SOCC - 60 minute recall or in place.	SCC Tier 2 (orange) Where 2+ Level 2 ICCs, or 1 Level 3 ICC is activated. SDO and SAC - in place. SOCC - in place. Night shift on standby, or remote SDO, SAC and SOCC to be rostered.	SCC Tier 3 (red) Where 3+ Level 2 ICCs, or 2+ Level 3 ICC is activated. SDO and SAC - in place for day and night shifts. SOCC - in place for day and night shifts at multiple ESTA locations.
Region	RDO monitoring RAC aware	RDO actively monitoring RAC monitoring	Regional Command - 60 minute recall or in place RAC and RDO - 60 minute recall or in place	Rural - Regional Command in place at RCC or Regional Office, RC notified. Metro - RCC open with base RCT in place. Rural - RDO and RAC in place at RCC or Regional Office. Metro - RC, RAC and RDO in place at RCC.	RCC open - RCT in place, other relevant agencies available on immediate recall. RC, RAC and RDO in place at RCC. Night shift on standby, or remote RDO and RAC to be rostered.	RCC open - Full RCT in place. RC, RAC and RDO in place at RCC for day and night shifts.
Incident			Base IMT on 60 minute recall.	Base IMT in place	Rural - Base IMT in place, with Core IMT on 60 minute recall. Metro - Core IMT in place.	Rural - Core IMT in place, with Full IMT on 60 minute recall. Metro - Full IMT in place.
Effect	Potential Consequences					
People	Some minor inconvenience around local roads.		Increased number of roads being impacted. Traffic management plan should be considered.		Significant number of roads impacted. Traffic management plan is required. Some major roads closed with isolation or evacuation possible.	
Remote Communities	Inconvenience only.		Some minor isolation and loss of utilities of individual properties or remote communities is likely.		Community isolation likely with resupply requirements as well as evacuation considerations needed.	
Health	Little impact expected. Some local issues might be encountered, but managed locally within own facility plans.		Consideration for review and familiarisation with facility plans. VICPOL and DHHS to review Vulnerable persons list.		Highly likely some hospitals and vulnerable people will become isolated and require evacuation.	
Critical Infrastructure	Nil impact.		May require some preparatory work and discussion with owner of infrastructure.		Significant work likely to be required to protect critical infrastructure. Contingency plans put in place if loss of the infrastructure occurs.	
Public Infrastructure Essential Community Infrastructure	Limited impact.		Some disruption to access to parks and low lying community areas and infrastructure. Some minor damage to community infrastructure built on floodplains.		Significant damage to road infrastructure and community facilities. Long term closure of key community facilities likely.	
Power	Possible power disruptions.		Likely short term power disruptions.		Power disruptions likely, with some substations impacted and potential long term outages.	
Water Utilities	Little impact expected some local issues might be encountered but managed locally.		Increased potential but still managed locally. May be minor sewerage overflow issues in isolated areas.		Highly likely that some infrastructure will be impacted. Water authorities should develop or initiate their plans to address issues. Significant potential for pollutants including sewerage in water.	
Telecommunications	Nil impact.		Minimal impact to individual premises only.		Significant impact with loss of landlines and mobile powers which will affect people's capacity to receive warnings and information.	
Gas	Little impact expected Some local issues might be encountered but managed locally.		Increased potential for infrastructure damage and disruption but still managed locally.		Likely that some infrastructure will be impacted, supply authorities should develop or initiate their plans to address issues.	
Road Network	Unlikely to impact.		Some minor roads may be impacted with possible disruption to critical needs supplies such as milk.		Highly likely for roads to be cut and egress and access impacted. Major roads potentially cut in some locations, traffic diversions in place. Potential rescue of trapped persons in vehicles. Expected impact on rail routes. Economic impact likely with loss of commercial transport routes.	
Public Transport	Limited impact on public transport routes.		Impact to public transport routes may occur but likely to be minimal with diversions possible.		Public transport impacts will occur with roads and rail lines cut and no alternative route available. Significant disruption to people movement likely. Some school and preschools may be inundated. School bus routes closures.	
Education	Unlikely impact.		Some impact expected. Traffic management plan for school buses should be considered.		Likely cancellation of major events due to risk, and potential flooding impact on venue or ability to attend or leave event.	
Public Events	Maybe cancelled due to weather conditions only.		Some public events may need to be cancelled or rescheduled due to safety of patrons either whilst at event or travelling to/from the event.		Likely cancellation of major events due to risk, and potential flooding impact on venue or ability to attend or leave event.	
Tourism	Unlikely that event(s) will be impacted but consideration must be given to any event occurring to ensure it is safe to continue.		Potential impact on tourist locations if area not safe to visit or isolated due to road closures.		May impact on high value tourist locations and facilities with long term impacts in the social and economic environment of communities.	
Agriculture Animal welfare	No impact likely with landowners managing any localised issues.		Potential impact with losses to live stock, fencing and crops including high intensive farming of produce and tree farms.		Substantial impact to live stock, fencing (widespread), farm machinery and crops. Short and long term impacts to high intensive produce farming due to loss of soil and erosion. Highly likely need for stock movement support and fodder resupply for isolated stock.	
Environmental	Minimal impact, some minor watercourse erosion.		Stream erosion and loss of vegetation around watercourses.		Significant disturbance to soil and vegetation.	
Cultural Heritage	Minimal impact likely.		Some disturbance along watercourses may occur but likely to be minimal.		Potential for significant disturbance especially of flood of significance in area and flood of record height.	
Relief and Recovery	Relief and recovery activity unlikely, may be some local issues.		Increased potential for relief and recovery activity but likely to be managed locally by LGA with support of DHHS.		Formal arrangements put in place for relief and recovery activity. Regional Recovery Commander appointed. Health Commander in place. Demands on relief and recovery to be substantial and potentially long term.	

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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
Activation Considerations	Thunderstorm Forecast Chart (TFC), issued daily			Severe Weather Intelligence Briefing (SWIB), issued Tuesday & Friday		
Storm Prediction or Warning	SWIB - no colour. No thunderstorms. No severe weather.	SWIB - no colour. TFC shows thunderstorms possible. No severe weather warning (SWW). No severe thunderstorm warning (STW).	SWIB - no colour. TFC - severe thunderstorms possible. SWW - issued for winds and/or possible heavy rainfall. STW - issued for wind and/or heavy rainfall and/or hail. Storm surge - forecast with minimal impacts.	SWIB - coloured yellow. TFC - shows severe thunderstorms likely. SWW - issued for wind* and/or heavy rainfall. STW - issued for wind* and/or heavy rainfall and/or hail. Storm surge - forecast with greater impacts.	SWIB - coloured orange for winds* and/or rainfall. TFC - shows severe thunderstorms likely; including potential for large hail, damaging winds*, and 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. Storm tide (normal tide) - forecast.	SWIB - coloured red for damaging to destructive winds* and/or very heavy rainfall. TFC - shows severe thunderstorms likely including potential for giant hail, damaging/destructive winds, heavy rainfall leading to flash flooding. SWW - issued for damaging or destructive winds* or heavy rainfall. STW - issued for super cells possible, heavy rain and/or very dangerous thunderstorm warning issued. Storm tide (high tide) - forecast.
Storm Behaviour	No thunderstorms. No severe weather.	Wind - gusts < 90km/h Rain - rates not conducive to flash flooding. Hail - small (<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 / 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* >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) gusts* for 3 or more hour period certain. TFC - severe thunderstorms 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 tornado likely.
<i>*Consideration: Add 10km/hr to average winds and/or gusts when considering Alpine district predictions and/or warnings based on time of day, time of year, altitude, and area of prediction.</i>						
Storm Activity	Local level Unit response Active RFAs per Unit: Rural 1 - 20 Urban/Metro 1 - 60	Local level Unit response Active RFAs per Unit: Rural 20 - 30 Urban/Metro 60 - 75	Local level Unit response with additional local agency support Active RFAs per Unit: Rural 20 - 30 Urban/Metro 60 - 75 Active RFAs per Region: Rural 60 - 100 Urban/Metro 200 - 250	Multi-unit response with increasing multi-agency response. Active RFAs per Region: Rural 100 - 250 Urban/Metro 250 - 400 ESTA - Critical Incident Response Plan (CIRP) Level 1 activated.	Multi-unit response with multi-agency support and high level of multi-agency response activity (e.g. fire alarms). Active RFAs per Region: Rural 250 - 500 Urban/Metro 400 - 1,000 ESTA - Critical Incident Response Plan (CIRP) Level 2 activated. Event creation has increased to 2-4 per minute. <15 calls waiting.	Multi-unit response and high level of multi-agency response activity with significant impacts across municipalities. Active RFAs per Region: Rural 500+ Urban/Metro 1,000+ ESTA - Critical Incident Response Plan (CIRP) Level 3 activated. Event creation has increased to 4+ per minute. 15+ calls waiting.
Readiness and Activation	VICSES - Business As Usual - Operations			Multi Agency Operations under JSOP 2.03		
State	SCC Monitoring (white) SDO monitoring SAC aware	SCC Monitoring (white) SDO monitoring SAC aware	SCC Monitoring (white) / Tier 1 (blue) SDO and SAC - 60 minute recall or in place. SOCC - 60 minute recall or in place.	SCC Tier 1 (blue) Where 1 level 2 ICC is activated. SDO and SAC - in place. SOCC - in place.	SCC Tier 2 (orange) Where 2+ Level 2 ICCs, or 1 Level 3 ICC is activated. SDO and SAC - in place. SOCC - in place. Night shift on standby, or remote SDO, SAC and SOCC to be rostered.	SCC Tier 3 (red) Where 3+ Level 2 ICCs, or 2+ Level 3 ICC is activated. SDO and SAC - in place for day and night shifts. SOCC - in place for day and night shifts at multiple ESTA locations.
Region	RDO monitoring RAC aware	RDO actively monitoring RAC monitoring	Regional Command - 60 minute recall or in place RAC and RDO - 60 minute recall or in place	Rural - Regional Command in place at RCC or Regional Office, RC notified. Metro - RCC open with base RCT in place. Rural - RDO and RAC in place at RCC or Regional Office. Metro - RC, RAC and RDO in place at RCC.	RCC open - RCT in place, other relevant agencies available on immediate recall. RC, RAC and RDO in place at RCC. Night shift on standby, or remote RDO and RAC to be rostered.	RCC open - Full RCT in place. RC, RAC and RDO in place at RCC for day and night shifts.
Incident			RAC and RDO - 60 minute recall or in place at RCC or Regional Office. Optional support form: Resource Officer Management Support Officer Warnings & Advice Officer Intelligence Officer	Rural - Base IMT on 60 minute recall. Metro - Base IMT in place	Rural - Base IMT in place, with Core IMT on 60 minute recall. Metro - Core IMT in place.	Rural - Core IMT in place, with Full IMT on 60 minute recall. Metro - Full IMT in place.
Effect	Potential Consequences					
People	Some minor inconvenience around local roads.		Increased number of roads being impacted. Traffic management plan should be considered.		Significant number of roads impacted. Traffic management plan is required. Some major roads closed with tree blockages or flash flooding impacts.	
Remote Communities	Inconvenience only.		Some minor isolation and loss of utilities of individual properties or remote communities is likely.		Community isolation and loss of food/supplies potential with resupply requirements dependant on time of power or access outages.	
Health	Little impact expected. Some local issues might be encountered, but managed locally within own facility plans.		Consideration for review and familiarisation with facility plans. VICPOL and DHHS to review Vulnerable persons list.		Highly likely vulnerable people impacted by power outage will require relocation. Communities without power for days needing support.	
Critical Infrastructure	Nil impact.		May require some preparatory work and discussion with owner of infrastructure.		Significant work likely to be required to protect critical infrastructure. Contingency plans put in place if lose of the infrastructure occurs.	
Public Infrastructure Essential Community Infrastructure	Limited impact.		Some disruption to access to parks and vegetated community areas and infrastructure. Some minor damage to community infrastructure.		Significant damage to community infrastructure and community facilities. Long term closure of key community facilities likely.	
Power	Possible power disruptions.		Likely short term power disruptions.		Power disruptions almost guaranteed, with potential long term outages.	
Water Utilities	Little impact expected some local issues might be encountered but managed locally.		Increased potential but still managed locally. May be minor sewerage overflow issues in isolated areas.		Highly likely that some infrastructure will be impacted, water authorities should develop or initiate their plans to address issues. Significant potential for pollutants including sewerage in water and loss of power will exasperate the impacts.	
Telecommunications	Unlikely impacts.		Minimal impact to individual premises only.		Significant impact with loss of landlines and mobile powers which will affect peoples capacity to receive warnings and information. Commercial Business impacts with loss of phone services.	
Gas	Little impact expected Some local issues might be encountered but managed locally.		Increased potential for infrastructure damage and disruption but still managed locally.		Likely that some infrastructure will be impacted, supply authorities should develop or initiate their plans to address issues.	
Road Network	Unlikely impacts.		Some minor roads may be impacted with possible disruption to critical needs supplies such as milk.		Highly likely for roads to be cut and egress and access impacted. Major roads potentially cut in some locations traffic diversions in place. Potential rescue of trapped persons in vehicles highly likely. Expected impact on rail routes. Economic impact likely with loss of power and utilities supply for lengthy period.	
Public Transport	Limited impact on public transport routes.		Impact to public transport routes may occur but likely to be minimal with diversions possible		Public transport impacts will occur with roads and rail lines cut and no alternative route available Significant disruption to people movement likely.	
Education	Unlikely impacts.		Some impact expected. Traffic management plan for school buses should be considered.		Some school and preschools may be impacted by utilities loss and damage to infrastructure. School bus routes closed for period of time.	
Public Events	May be cancelled due to weather conditions only.		Some public events may need to be cancelled or rescheduled due to safety of patrons either whilst at event or travelling to/from the event.		Public events impacted likely cancellation of major events due to wind impacts and risk, and potential flooding impact on venue or ability to attend or leave event.	
Tourism	Unlikely that event(s) will be impacted but consideration must be given to any event occurring to ensure it is safe to continue.		Potential impact on tourist locations if area not safe to visit or isolated due to road closures.		May impact on high value tourist locations and facilities with long term impacts in the social and economic environment of communities.	
Agriculture Animal welfare	No impact likely with landowners managing any localised issues.		Potential impact with losses to live stock, fencing and crops including high intensive farming of produce and tree farms.		Substantial impact to crops, including high intensive produce farming (vegetables and fruit) and tree farms with short and long term impacts due to loss of crops. Economic impact to area.	
Environmental	Minimal impact.		Potential for stream erosion and loss of vegetation around watercourses. Minor tree damage.		Significant disturbance to vegetation with some areas heavily impacted.	
Cultural Heritage	Minimal impact likely.		Some disturbance along watercourses may occur, but likely to be minimal.		Potential for impact on historical structures and features.	
Relief and Recovery	Relief and recovery activity unlikely may be some local issues.		Increased potential for relief and recovery activity, but likely to be managed locally by LGA with support of DHHS.		Formal arrangements put in place for relief and recovery activity. Regional Recovery Commander appointed. Health Commander in place Demands on relief and recovery to be substantial and potentially long term.	

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